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West Bengal

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Correspondence
Dr Saumendra Nath Bandyopadhyay
Editor
Bengal Journal of Otolaryngology and Head Neck Surgery
C/O The Association of Otolaryngologists of India, West Bengal
CMC House, 91B Chittaranjan Avenue, Kolkata - 700073
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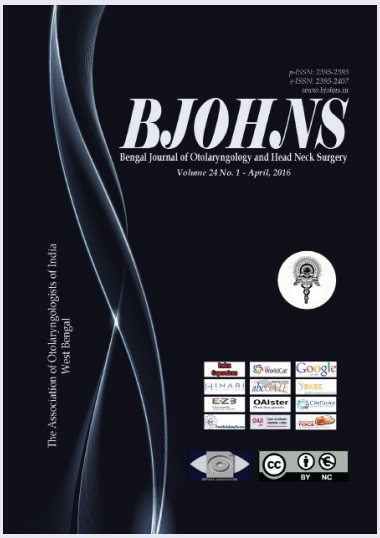

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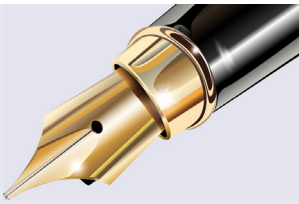
From the Desk of the Editor



Medical professionals are passing through troubled times all over the world. Bureaucratic tyranny, lost autonomy, opprobrious attitude of the hospital administration and sagging morale of the health workforce have become serious concerns for the health professionals.

Another medical malady is engulfing us – slowly but surely. Dr Herbert L Fred had drawn our attention to the deficiency of clinical skills amongst doctors long back in 2005, which he termed as HYPOSKILLIA [Fred HL. Hyposkillia – Deficiency of clinical skills. Texas Heart Institute Journal 2005; 32(3):255-7].

Overdependence on investigations and technology often leads doctors to discount a significantly vast information that can be gathered from critical assessment of detailed medical history and pertinent physical examination.

High-tech medicine essentially bypasses the medical history and physical examination and, primarily on the basis of the patient's chief complaints, jumps directly to a slew of sophisticated and expensive investigationsbased on which the management plans are formulated. Ward rounds are replaced by chart rounds. The budding doctors gradually (but inevitably) develop a laboratory-oriented rather than a patient-oriented mindset. Increasing number of litigations contributed to the phenomenal rise in the quantity of investigative data per patient. But the ultimate fall-out is that, by curtailing history taking and physical examination or reducing interaction with the patient, the patient-doctor bondis effectively weakened,orrather,prevented from formingin the first place. Doctors start treating a number or some other test parameter rather than caring for the patient to whom the numbers belong. People start relying on the high-tech gadgets more thantheir doctor.

Our medical colleges must ensure that their students develop good communication skills, appreciate the importance of adequate medical history, can perform reliable physical examination and can critically assess the information they gather, develop reasoning skills to decide which tests, if any, are indicated and formulate appropriate management plan suitable for their patients.

The medical teachers must take the call to stem the 'habitual reliance on sophisticated medical gadgetry for diagnosis' and promotethe use of 'the brain- the most sophisticated, intricate machine, we will ever – and always have'.

Dr Saumendra Nath Bandyopadhyay
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Bengal Journal of Otolaryngology and Head Neck Surgery

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A Study on Traumatic Faciomaxillary Fractures Encountered at a Tertiary Care Centre of North-Eastern India

Smrity Rupa Borah Dutta,[1] Sweta Soni,[1] Rudra Prakash[1]

ABSTRACT

Introduction

Faciomaxillary fractures can present either as an isolated injury or as a part of polytrauma. The incidence of faciomaxillary injuries is on the incline with changing lifestyles in developing countries like India; thus posing as a major health burden. We conducted this study to aid in defining strategies to prevent and tackle the same.

Materials and Methods

A prospective observational study was conducted on all the patients admitted for traumatic faciomaxillary fractures in the Department of ENT for a period of three years. Aim of the study was to study the incidence, demography, pattern, management and postoperative complications in traumatic faciomaxillary fractures.

Result

Out of 499 cases who comprised our study group, the most common fracture encountered was of nasal bone(26.25%) with male predominance (86.37%), mostly scattered in the age group of 18-40 yrs (67.13%). RTA was found to be the most common cause (52.1%). Fractures of lateral third of face and mandible almost always needed an open reduction.

Discussion

The age and gender distribution pattern as well as the cause of faciomaxillary fractures and complications have been compared with the published reports. The central third of the facial skeleton has been found to be affected most in traumatic fractures, whereas some other studies found fracture of the mandible to be the most common. Open reduction was needed in 44.9% of patients.

Conclusion

With increasing incidence of RTAs, there is a need to understand the pattern, review our management techniques and hence be able to provide appropriate and individualized management to those in need of it.

Keywords

Nasal Bone; Maxilla; Mandibular Fractures; Accidents, Traffic; India, North East

Faciomaxillary fractures constitute a significant disease burden to the current society. They are clinically as well as aesthetically important owing to their close vicinity to vital structures and structures of cosmetic value respectively. The changing socio-economic status of our country and the increasing number of faciomaxillary fractures attending our emergency service prompted us to conduct a study in this domain.

Fractures involving the facial skeleton may be isolated or complex. Isolated fractures involve a single anatomical structure and are usually a result of a low energy blow while complex fractures involve injury to multiple bones resulting from high velocity trauma. High velocity trauma is usually seen in urban and semi-urban areas while low velocity trauma is the common setting in rural areas. The pattern of faciomaxillary fractures vary with geographical area, socioeconomic condition, enforcements of law and order of a country.

Trauma to the faciomaxillary region mandates special attention as important sensory systems are contained within the face (e.g. vision, auditory, somatic sensation, gustatory, olfaction and vestibular), also, vital structures in the head and neck region are intimately associated (airway, blood vessels, nerves and gastrointestinal tracts).

1 - Department of ENT, Silchar Medical College and Hospital, Silchar, Assam.

Corresponding author:

Dr Sweta Soni

email: swetapmch@gmail.com

Lastly, the psychological impact of disfigurement can be devastating.

Of the published data, road traffic accidents are the main cause of faciomaxillary fractures in developing nations followed by interpersonal conflicts, assaults, and sports injuries in developed nations.[1,2,3] In rural areas, occupational hazards such as tree fellings are also found to be one of the main contributing etiologies associated to facial trauma.

The maxillofacial injuries represent 7.4–8.7% of the hospital emergencies.[4,5] These injuries are often associated with severe morbidity due to their close, proximity to vital organs such as brain and cervical vertebrae causing loss of function and death. Literature search reveals that 16,000 people die each day due to trauma in the world.[6]

Since the face is the most exposed and unprotected part of the skeleton, particular interest to addresses faciomaxillary fractures is deemed necessary and important to rehabilitate the patient. In our study, we have attempted to review our cases; to study the incidence, demography, pattern of traumatic faciomaxillary fractures and to review the management options at a tertiary care hospital in North Eastern India.

Materials and Methods

A prospective observational study of the patients admitted in department of ENT with maxillofacial fractures was done during a three-year period from August 2014 to July 2017. Patients with radiologically confirmed faciomaxillary fractures were included in this study.

Data regarding patient's age, gender, alcohol consumption, pattern and anatomical location of faciomaxillary injury were included. Etiology of these fractures was classified as road traffic accident, domestic fall, physical assault, workplace injury and sports injury.

Age groups were divided into childhood (2–10 years), adolescence (11–17 years), young adults (18–40 years), adult (41–65 years) and elderly (>65 years). Anatomical distribution of the faciomaxillary fractures was classified as mandibular and midface fractures (central thirds and lateral thirds). Mandibular fractures included symphysis, parasymphysis, body, angle, ramus and condyle. In midface fractures, the central thirds included fractures of nasal bones, and maxillary palate fractures. The lateral third fractures were zygomatic complex fractures. Multiple site fractures were evaluated separately.

Table I: Age distribution (N = 499)

CATEGORY	AGE RANGE	MALE	FEMALE	TOTAL
Children	0-10	17	7	24 (4.8%)
Adolescence	11-17	29	8	37 (7.4%)
Young adults	18 - 40	300	35	335 (67.13%)
Adults	41 - 65	73	14	87 (17.4%)
Elderly	>65	12	4	16 (3.2%)
Total	NA	431	68	499 (100%)

Table II: Distribution of patients according to the etiology (N=499)

ETIOLOGY	MALE	FEMALE	TOTAL
RTA	235	25	260 (52.1%)
Physical assault	86	20	106 (21.2%)
Accidental fall	64	21	85 (17.03%)
Workplace injury	24	2	26 (5.21%)
Sports injury	22	0	22 (4.4%)
Total	431	68	499 (100%)

Treatment modalities included closed and open reduction, intermaxillary fixation, maxillary mandibular fixation and conservative measures. This was planned based on the pattern, displacement of fracture segments and occlusion of teeth. Open reduction and internal fixation of mandible and zygoma fractures were done under general anesthesia with titanium miniplates and screws.

Closed reduction of dento-alveolar fractures was done using arch bars and intermaxillary fixation with elastic/stainless steel wires under local anesthesia. Nasal bone fractures were reduced using Asch and Walsham forceps and splinting done. Closed reduction of zygoma fractures was done by Gille's technique. All these data were collected, compiled and analysed statistically.

Result

Out of 499 patients with fractures involving faciomaxillary skeleton, 431 (86.4%) were males and 68 (13.6%) were females; M:F = 6.3:1. The age of the patients ranged from 4 to 80 years. (Table I)

Road Traffic Accident (RTA) was the most common cause of Faciomaxillary Fractures (52.1%), followed by Physical Assault (21.24%) and Accidental fall (17.03%). (Table II)

Alcohol smell was noticeably present among male patients (16.03%) only with road traffic accidents. (Table III) This relationship was found to be statistically significant ($p<0.05$).

Most of the Faciomaxillary fractures were distributed in the central one-third of facial skeleton (47.3%), followed by mandible (20.2%), multiple sites' fracture (18.4%) and lateral third of facial skeleton (14.02%). Of the fractures in the central third region, nasal bone fractures topped the list (26.2%). (Table IV)

Note: Total number can be more than sample size as multiple modalities were employed to deal with different fractures in patients with multiple sites fracture.

409 patients (81.96%) had undergone surgical intervention and 90(18.04%) were managed conservatively. Of the patients who had undergone surgical treatment, Open Reduction and Internal Fixation (ORIF) was the most commonly done procedure (44.9%), followed by Closed Reduction (36.5%), Intermaxillary or maxillomandibular fixation (10.8%). (Table V)

Postoperative complications were seen in only 44 patients (10.8%). Of these, infection was the most

Table III:Relationship of alcohol intake with RTA among male patients (N=431)

MODE OF INJURY	ALCOHOL SMELL PRESENT	ALCOHOL SMELL ABSENT
RTA	80(16.03%)	155 (31.06%)
Others	28(5.61%)	168 (33.67%)
p- value (chi square test)<0.00001(Significant)		

Table IV: Distribution of patients according to the site of fracture

SITE OF FRACTURE	NUMBER OF PATIENTS	PERCENTAGE
A. Central third of facial skeleton	236	47.3
i. Nasal bones	131	26.2
ii. Medial wall of orbit	31	6.2
iii. Maxilla	53	10.6
iv. Dento-alveolar	21	4.2
B. Lateral third of facial skeleton	70	14.02
i. Zygomatic arch	15	3
ii. Zygomatic body	55	11.02
C. Mandible	101	20.2
i. Condyles	42	8.4
ii. Body	22	4.4
iii. Ramus	3	0.6
iv. Angle	2	0.4
v. Coronoid	6	1.2
vi. Symphysis	3	0.6
vii. Parasymphysis	8	1.6
viii. Dentoalveolar	15	3
D. Multiple sites involved	92	18.4
i. Zygoma +maxilla	20	4
ii. Mandible+zygoma+maxilla	5	1

Table IV (contd.) : Distribution of patients according to the site of fracture

SITE OF FRACTURE	NUMBER OF PATIENTS	PERCENTAGE
iii. Mandible+maxilla	1	0.2
iv. Mandible+maxilla+nasal bone	2	0.4
v. Maxilla+nasal bone	27	5.4
vi. Nasal bone+ethmoid+orbit	35	7.01
vii. Zygoma+nasal bone	1	0.2
viii. Zygoma+ maxilla+orbit+ sphenoid+ frontal bone	1	0.2

common (5.9%), followed by exposure of plate (1.9%), malocclusion (1.5%) and nerve injury (1.5%). (Table VI)

Discussion

We studied a total of 499 patients with faciomaxillary fractures, with 86.4% being males and 13.6% females (M:F = 6.3:1). This correlated with earlier studies done by Gali et.al,[7] where there was a male predisposition(79.4%) and that by Garkoti et al,[8] where they found male incidence to be 80.77% and females, 19.23%.

The age group most commonly affected was that of 18-40 years (67.1%). In the study by Sawhney and Ahuja,[9] 77% patients were in the age group of 16-45 years. Garkoti et.al[8] also got similar clustering of cases in the 20-30 age group.

Most common mode of injury was found to be road traffic accidents (52.1%) which correlated with studies done by Sawhney et.al[9] (50%) and Gali R et.al[7] (73.6%). Physical assaults were the next most common cause (21.2%).

In our study, where most common site of faciomaxillary fracture was in the central third (47.3%), nasal bones were the most common subcategory

Table V: Distribution of patients according to the mode of treatment (N=499)

MODE OF TREATMENT	NUMBER	PERCENTAGE
Closed reduction	182	36.50%
Intermaxillary/ Maxillomandibular fixation	54	10.80%
Open reduction	52	10.40%
ORIF	224	44.90%
Conservative	90	18.04%

Table VI: Postoperative complications after surgery

POSTOPERATIVE COMPLICATIONS	NO. OF PATIENTS	PERCENTAGE
Infection	24	5.9
Malocclusion	6	1.5
Plate exposure	8	1.9
Nerve injury	6	1.5
Total	44	10.8

(26.3%). However, Gali et.al[7] found fracture mandible to be the most common site (41.4%), which was also supported by studies done by Sawhney et.al.[9] In our study the increased proportion of fracture nasal bones can be explained due to the fragile nature of the nasal skeleton and the fact that it being the projected part of face bears the blow of injury first.

It may also be attributed to the cheaper cost of radiological investigation i.e. X-rays which are frequently advised considering the financial constraints to undergo a CT scan resulting in a preferential diagnosis of fracture nasal bone only.

A fairly good number (18.04%) of patients were managed conservatively and 44.9% needed an open reduction and internal fixation of the fracture fragments. The choice to operate and the type of surgery was guided by the type of fracture that is displaced or undisplaced, disability or deformity caused by it e.g. restricted mouth opening, blocked airway, crooked nose etc., age of the patient i.e. children being offered more of closed reduction, interdental wiring as and when possible and consent given by the patient. This agrees with studies done by Gali et.al[7] who report 58.6% patients needing ORIF and Miijiti et.al[10] (62.4%).

Complications following surgical management of fractures were seen in very few cases (10.8%).Studies by Kamath et al.[11] found complications in 25.26% patients and Gali et.al[7] in 6.4%.

Conclusion

Maxillofacial fractures are attributable for a significant proportion of patients attending casualty and warrant immediate attention and emergency care. RTA was found to be the most common cause, with young adult male predisposition. Alcohol intake is significantly associated and strict traffic rules and awareness is needed to minimize risks. Timely and correct intervention can help restore cosmesis and function.

Nasal bone fractures were found to be most common and should be kept in mind while evaluating polytrauma patients. Fixation with titanium miniplates in displaced and/or comminuted mandible or zygoma fractures have shown good results and should be the management of choice. Keeping in view the minimal complication rates, active surgical management options must be offered to those in need.

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Effect of Topical Nasal Decongestants on Nasal Peak Flow Rates in Adults Suffering from Acute Sinusitis

Santhosh Kumar Rajamani[1]

ABSTRACT

Introduction:

In this research we studied the effect of topical nasal decongestant (Xylometazoline 0.1% solution) on serial measurements of nasal peak flow rates in a cohort of patients who were suffering from acute sinusitis.

Materials and Methods:

A population of 90 patients were chosen from our regular out-patient clinics who were suffering from acute sinusitis based on a clinical diagnostic criterion. A baseline Nasal Peak Flowmetry was done. This was followed by a common decongestant (Xylometazoline 0.1% solution) spray application. Subsequently Nasal Peak Flowmetry was done after 10, 25, 60, 120, 240 and 360 minutes and the readings were plotted and analysed.

Result:

From the AUC Curves it can be inferred that maximum decongestant action of Xylometazoline 0.1% solution is seen 1 hour after application and the rise in decongestion reaches a plateau by 2 hours. Readings almost return to baseline a good 6 hours post decongestion.

Conclusion:

Patients who are prescribed Xylometazoline 0.1% solution are advised that maximum relief from congestion would be obtained around 1 to 2 hours after application. In addition, Surgeons who use Xylometazoline 0.1% solution for nasal packing must proceed with the surgery within 1 hour of application of the pack to obtain maximum haemostatic and decongestant benefit of this drug.

Keywords:

Sinusitis; Nasal Obstruction; Nasal Decongestants; Xylometazoline

Nasal disease is a significant contributor to the suffering of millions daily. Significant nasal obstruction due to deviated nasal septum contributes to an entire gamut of nasal diseases like sinusitis.[1]

Expiratory Peak Flowmetry is a widely used test for quantification of airway obstruction in Asthma. Nasal Peak Flowmetry is a rapid test in diagnosis of functional impairment of nose in various disease conditions. This test has been applied in diagnosis and follow-up of Allergic Rhinitis.[1] In this original research we used this novel investigative tool for diagnosis as Nasal Peak Flowmetry is a non-invasive, inexpensive, rapid and accurate test in diagnosis of nasal obstruction and impaired air-flow in the nose. NPF is a simple tool for objective assessment of Nasal patency.[2] Maximum air flow is measured while blowing out of the nose or Expiration called as Nasal Peak Expiratory Flow (NPEF) and while deep breathing air into the nose or Inspiration called as Nasal Peak Inspiratory Flow (NPIF). Nasal Peak Inspiratory Flow (NPIF)is more accurate than Nasal Peak Expiratory Flow (NPEF)[2]. NPIF is more rapidly done, has a better validation and higher quantification.[3]

The disadvantages of this investigation are: (a) the presence of secretions and mucus can obstruct and reduce the peak air flow, (b) the test is less sensitive than Rhinomanometry or Acoustic rhinometry[2] and (c) the mask has to be sterilized after each use.[3]

1 - Department of ENT, BLK Walawalkar Rural Medical college, Maharashtra.

Corresponding author:

Dr Santhosh Kumar Rajamani

email: minerva.santh@gmail.com

Materials and Methods

This was a cross-sectional descriptive epidemiological type of study. Research was done in a hospital Otorhinolaryngology clinic, and cases were analysed from cohort of patients presenting to the author with a variety of nasal complaints.

A population of 90 patients were chosen from our regular out-patient Otorhinolaryngology clinics who were suffering from acute sinusitis. 120 age matched healthy adult volunteers were also chosen as controls. Children below the age of 14 years and elderly above 70 years of age were excluded from the study. Patients who were toxic and sick were excluded. Verbal and written consent was obtained before and after measuring Nasal Peak flow rates. Nasal Peak Inspiratory Flow Rate was measured before and after packing/ spraying nose with Decongestant.[4]

Diagnostic Inclusion Criteria for Sinusitis:[5]

- Duration of complaints less than 4 weeks
- Fever, cough, fatigue, reduced sense of smell, purulent nasal discharge
- Maxillary dental pain, Ear fullness/pressure
- History of upper respiratory tract infection (common cold) in the preceding10 days
- Diagnostic nasal endoscopy shows purulence in the nasal cavity or posterior pharynx
- Computed tomography (CT) - Sinus mucosal thickening more than 5 mm, Obstruction of osteo-meatal complex (OMC)

Nasal Peak Flowmetry was done using Mini-Wright Peak Nasal Flowmeter device and patients were asked to put maximum effort inspiration and expiration.[5]

Patients were excluded from the study if they had a history of asthma or cardiac arrhythmias, or if they were taking any medications that could interfere with the PNF readings. I also excluded patients more than 70 years or below14 years.

Xylometazoline acts on alpha-adrenergic receptors in the nasal mucosa and nasal vasculature to produce vasoconstriction, resulting in reduced blood flow and reduced nasal congestion, thus producing relief from nasal obstruction in sinusitis.[7] In addition, it reduces the mucosal congestion of sinuses helping in drainage of the sinus.[8] All beneficial effects are limited by "tachyphylaxis" (Tachyphylaxis refers to the phenomenon of rebound congestion with swelling of nasal mucosa due to rapid desensitization of receptors), hence use must be limited to less than 5 days.[8]

Procedure for the Peak Nasal Flow readings

Written and verbal consent was obtained prior to the study. Patients were explained that PNF measures how fast a person can breathe through his nose, and this will give information regarding how much of the nose is choked up. Three readings were taken and highest of the three was taken as the data for study.

Mouth piece was cleaned with disinfectant solution (Savlon) and indicator reset to zero.

Patients were asked to breath out of the nose (Peak Nasal Expiratory Flow) or breath in (Peak Nasal Inspiratory Flow) with mouth closed as deep as they could. If they coughed or sneezed during the process, they needed to redo the test.

Statistical analysis

Student's two-sample "t" test was used to compare mean PNIF/ PNEF before and after decongestant use in same patient. The tests comprised the comparisons of the ratio of mean regression and mean residual sums of squares to an F distribution with appropriate degrees of freedom. We used a cut-off of 5 % level as the critical level (meaning 95% confidence in analysis) of significance in our bio-statistical tests. Maximum value or C_{max} and Area under curve were determined for analysis. This was followed by Kaplan-Meier analysis using Bio-statistical graphing software PAST and log-rank test and Cox proportion hazard test and p values were calculated.

Result

A total of 90 patients met the clinical profile of acute sinusitis and were administered the Peak flowmetry test before and after application of Xylometazoline Nasal spray. (Table I)

A baseline Nasal peak Flowmetry was done and this was followed by nasal decongestant (Xylometazoline 0.1% solution) spray application, followed by serial

Table I: Clinical characteristics of acute sinusitis patients included in this study. (N = 90)

SL. NO	CLINICAL VARIABLE	DATA
1.	Mean age (range)	27.8 (15-69)
2.	Sex	Males 48.9% and females 51.1%
3.	Height of patient (centimetres)	160.12 (centimetres)
4.	Smokers	15.56%
5.	Cough	62.22%
6.	Facial pain	44.44%
7.	History of Upper Respiratory tract infection (Common cold) previously within 10 days	73.33%
8.	Diagnostic endoscopy confirmed	100%

readings of Nasal peak Flowmetry done after 10, 25, 60, 120, 240 and 360 minutes. Serial time-bound measurement of increase in Nasal peak Flowmetry (mean values) values was done before and after nasal (decongestion) treatment with topical Xylometazoline 0.1% solution.[10]

It can be inferred from the PNIF/PNEF data that nasal airway increases with time after decongestant application. This is bio-statistically described as classical "Peaked-In" behaviour of a time dependent variable. In our study the flow rates start from a baseline within 10 minutes from application, rise to a peak by an hour, plateau by 2 hours and then slowly return to baseline by 6 hours. (Fig. 1) Maximum value or C_{max} of Peak Nasal Inspiratory Flow rate obtained at 1 hour is 170.4 L/min in males and 157.8 L/min in females. Area under the curve (AUC) is calculated asunder, using the standard mathematical formula (Trapezium area formula).[11] (Table II)

Kaplan-Meier Bio-statistical Analysis was done in order to establish and authenticate the time based criteria that are set out by this research. Peak nasal decongestion was taken as survival or 1 for event meaning maximum decongestion achieved 0 for failure or censored. The time for the event was taken on x-axis and probability on y-axis. Plots of Kaplan-Meier curve were generated using PAST (Paleontological statistics software package for education and data analysis).[9] This was followed by log-rank test and Cox proportion hazard test and p values were calculated from the table data. (Fig. 2)

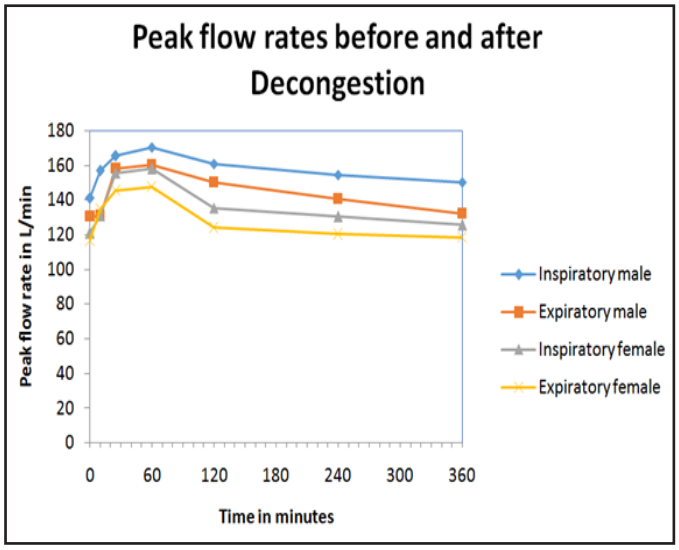

Fig. 1. Plot of Various Mean Peak Flowmetry readings in Acute Sinusitis patients

Table II: AUC Values for various Curves plotted for Inspiration/ Expiration in male and female

VARIABLE	INSPIRATORY MALE	EXPIRATORY MALE	INSPIRATORY FEMALE	EXPIRATORY FEMALE
Area Under Curve (AUC) Unequal Time Interval study	56889.43	52162.8	48968.2	45560.33

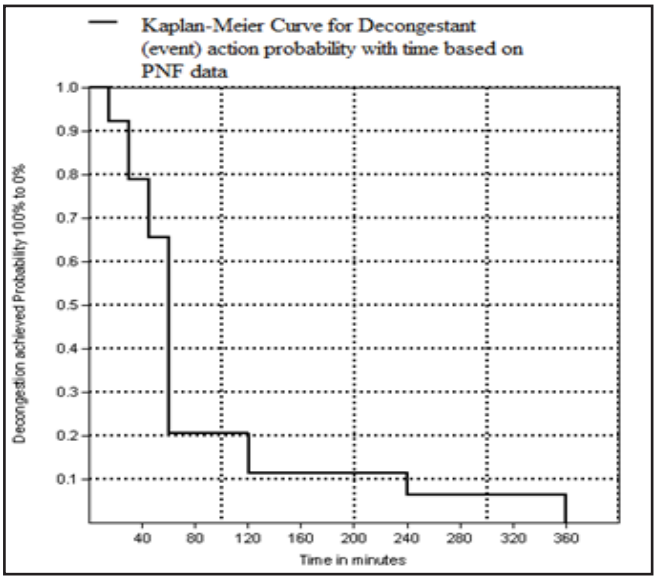

Fig. 2. Kaplan-Meier curve for maximum decongestant action of Xylometazoline 0.1% solution spray application (event) plotted against time based on Peak nasal flow rate data

Average time to decongest the mucosa was found to be 74.5 minutes (1 hour 24 minutes). The log-rank test for the data in our research was P = 0.0080; thus the two curves are statistically significantly different. Cox proportion hazard test,[11] which gives a relative event rate in the groups showed that, Sex and Peak nasal flow rates are strongly correlated except in PEFR of female where their Female sex has not made any statistical difference. (Table III)

Discussion

Xylometazoline is the work-horse decongestant of Rhinology practice. It is extensively used in management of sinusitis and in peri-operative period by most surgeons. Many prefer to use Xylometazoline with Lignocaine to pack nasal cavity before undertaking nasal surgery. Some advocate its use, up to 5 days before and even after Nasal procedures. Duration of action of nasal decongestant is traditionally thought to be up to 10 hours.[3]

This is the first study in an attempt to quantify the decongestant action of Xylometazoline by using Peak Nasal flow-rate as a tool to measure Nasal airway. This study is rather an objective one with patient providing PNF data without subjective relief being measured.

From the AUC curves it can be inferred that maximum decongestant action of Xylometazoline 0.1% solution is seen 1 hour after application with a mean time to achieve maximum decongestion being 74.5 minutes (1 hour 24 minutes) and the rise in decongestion reaches a plateau by 2 hours. Readings almost return to the baseline at around 6 hours post decongestion.

This fact is clinically reported by patients who frequently claim relief from nasal congestion immediately following use of the spray after which the effect seems to reduce in few hours. Though 8 to 10 hours is mentioned in literature[3] as average duration of action of Xylometazoline 0.1% solution, practically the effect does not seem to last more than a couple of hours which can be attested by this research.

Conclusion

Decongestant action of Xylometazoline 0.1% solution as quantified by Nasal peak Flowmetry begins within 10 minutes of application and the maximum rise of curve is seen 1 hour (Mean time of 1 hour 24 minutes) after application. Most patients also report relief around 1 to 2 hours after use of the spray.

After 1 hour the effect tapers off to a plateau by 2 hours and 6 hours post application the Nasal peak flow rates almost reach the baseline values.

Table III: Cox proportion hazard test for Inspiration/ Expiration in male and female

TEST STATISTIC	INSPIRATORY MALE	EXPIRATORY MALE	INSPIRATORY FEMALE	EXPIRATORY FEMALE
Cox proportion hazard test	Hazard ratio	Hazard ratio	Hazard ratio	Hazard ratio
	0.58	0.61	1.44	1.71
	p-value	p-value	p-value	p-value
	0.0067	0.004	0.0032	0.321
	significant	significant	significant	Not significant

Clinical Application

Patients who are prescribed Xylometazoline 0.1% solution are advised that maximum relief would be obtained around 1 to 2 hours after application and thereafter the effect would decrease.

Surgeons who use Xylometazoline 0.1% solution for nasal packing must proceed with the surgery within 1 hour of application of the pack to obtain maximum haemostatic and decongestant benefit of this drug. Reasonable expected duration of maximum benefit of decongestion from Xylometazoline 0.1% solution is around an hour to two hours.

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Oral Submucous Fibrosis - Correlation between Clinical Findings and Histopathological Grading

K. Prabhu,[1] Hitendra Prakash Singh,[1] Sunil Kumar,[2] Malti Kumari Maurya,[2] Veerendra Verma,[2] Anupam Mishra,[2] Satya Prakash Agarwal[2]

ABSTRACT

Introduction

Oral Submucous fibrosis (OSMF) occurs in young adults, who are in the habit of chewing tobacco mixed with areca nut and its various commercially available preparations. The disease results in progressive inability to open the mouth due to the submucosal fibrosis initiated by chronic inflammation affecting mainly oral mucosa. Authors undertook the present study to correlate the clinical features of OSMF to histopathological features and to find out aetiopathological factors of this condition.

Materials and Methods

A total of 123 clinically diagnosed OSMF patients, in the age range of 17 to 70 years were studied. Mouth opening was measured using a scale and was recorded in millimeters. Incisional biopsy was taken from the representative areas in the oral cavity. The patients were graded clinically and histopathologically and results were analyzed and discussed.

Result

Most of the patients were in the age group of 20-30 years (37.4%) with male predominance. The duration of either tobacco or areca nut chewing ranged from 1 to 35 yrs. Most patients had these habits for 6-19 yrs. Majority (55.3% & 54.5%) of the patients belonged to grade-2 (clinical grading) and intermediate grade (HPE grading) respectively. The HPE grading showed significant and direct association with duration of ill habits. The HPE grading showed significant and direct association with clinical grading ($\chi 2=204.08$, $p<0.001$).

Discussion

The HPE grading showed significant and direct association with duration of ill habits and also with clinical findings of restriction of mouth opening and inter incisal distance. The HPE findings showed significant and direct association with clinical grading i.e. when the clinical grading increases, the histopathological grading also increases.

Conclusion

OSMF is a disease with a high incidence. It also carries a significant risk of transformation to oral cancer. As no effective medical and surgical treatment is available for this condition; it is desirable to diagnose OSMF at early stages.

Keywords

Oral Submucous fibrosis

Oral submucous fibrosis (OSMF) is a chronic debilitating disease, which is characterized by mucosal rigidity of varying intensity due to fibroblastic changes of the juxta-epithelial layer, resulting in a progressive inability to open the mouth. It predominantly occurs in Indians and South East Asians. It mainly affects oral cavity and sometimes the pharynx and oesophagus.

The World Health Organization (WHO) defines precancerous oral lesion as "A generalized pathological state of the oral mucosa associated with a significantly increased risk of cancer." The characteristics of OSMF comply well with the above definition.[1]

Over the past several years, many researchers studied different aspects of OSMF and gave their results to enrich the medical literature regarding the aetiopathogenesis and

1 - Department of ENT, Head Neck & Skull Base Surgery, MIOT Hospital Private Limited, Chennai, Tamilnadu.
2 - Department of ENT, King George's Medical University: Lucknow, Uttar Pradesh
Corresponding author:
Dr Hitendra Prakash Singh
email: drhpsingh77@gmail.com

natural history of the disease. The evidence can be found in the form of simple case reports, population-based studies or hospital-based case control studies. With the advent of better diagnostic facilities, histopathological studies and scanning electron microscopy were also done by different authors.[2] Along with this animal experiments, in vitro human fibroblast culture studies and many Randomised Controlled Trials were carried out to analyze the effectivity of various management options available for OSMF.[3] However, there is a paucity of studies which correlate the clinical features to the various histopathological changes of OSMF. The present study was undertaken to correlate the clinical features of OSMF to histopathological features and to find answers to the questions of aetiopathogenesis of oral sub mucous fibrosis.

Materials and Methods

The study was conducted from September 2014 to August 2015 at a tertiary care center in northern India. The study population consisted of clinically diagnosed OSMF patients attending the Outpatient department of Department of ENT & Head-Neck Surgery, who gave consent for biopsy. Individuals having habit of chewing commercially available areca nut and tobacco preparations (Gutkha) and using tobacco alone and having clinically confirmed oral submucous fibrosis were included in the study. Individuals not fit for biopsy or not giving informed consent and patients with associated illness (hypertension, myocardial infarction, renal, hepatic, pancreatic and pulmonary diseases) were excluded from the study.

A total of 123 clinically diagnosed OSMF patients who came for management of symptomatic OSMF were studied. Their ages ranged from 17 to 70 years, including both males and females. History of habits, including duration of use in months, duration of symptoms, oral mucosal sites of involvement, maximal mouth opening, tongue protrusion were recorded in a structured proforma designed for the study. Mouth opening was measured as the inter-incisal distance from the mesioincisal edge of the upper left central incisor tooth to the mesioincisal edge of the lower left central incisor tooth. Measurements were made using a scale and recorded in millimeters.

The patients were graded clinically according to the following grading which was devised by Ranganathan K et al.[4]

Group I: Only symptoms, with no demonstrable restriction of mouth opening

Group II: Limited mouth opening 20 mm and above.

Group III: Mouth opening less than 20 mm.

Group IV: OSMF advanced with limited mouth opening. Precancerous or cancerous changes seen throughout the mucosa.

Incisional biopsy was taken from the representative areas in the oral cavity i.e. the fauces or retromolar trigone area under local anaesthesia; the areas where changes of OSMF occur early and prominently. Biopsy is taken deep enough to include the underlying changes of surface lesion. The biopsy tissue was processed and stained using H&E stains. The sections were studied under a binocular light microscope. The histopathological grading was done according to following classification given by Utsunomiya, Tilakaratne et al.[5]

Early stage: Large number of lymphocytes in sub-epithelial zone and connective tissue, along with myxedematous changes.

Intermediate stage: Granulation changes close to the muscle layer and hyalinization appears in sub-epithelial zone, where blood vessels are compressed by fibrous bundles. Reduced inflammatory cells in sub-epithelial layer.

Advanced stage: Inflammatory cell infiltrate hardly seen. Number of blood vessels dramatically low in subepithelial zone. Marked fibrous areas with hyaline changes extending from sub-epithelial to superficial muscle layers. Atrophic, degenerative changes start in muscle fibres.

Statistical analysis: Continuous data were summarized as Mean ± SD (standard deviation) while discrete (categorical) in number and percentage. The categorical groups were compared by chi-square ($\chi 2$) test. Pearson correlation analysis was used to assess association between the variables. A two-tailed ($\alpha=2$) p value less than 0.05 ($p<0.05$) was considered statistically significant. All analyses were performed on SPSS

software (Windows version 17.0).

Result

I. Demographic characteristics:

The frequency distribution of demographic characteristics (age, sex and location) of OSMF patients was studied. The age of patients ranged from 17 to 70 yrs with mean (± SD) 33.91 ± 11.21 yrs and median 30 yrs. Most of the patients were in the age group of 20-30 yrs (37.4%) followed by 30-40 yrs (30.9%), 40-50 yrs (16.3%), ≥50 yrs (11.4%) and 10-20 yrs (4.1%). Among them, 79.7% were males and 20.3% were females. Further, 66.7% patients belong to rural background and 33.3% from urban background.

II. Ill habits:

It is clear that most of the patients are in habit of chewing commercially prepared areca nut preparation commonly known as pan masala or Gutkha (Table I).

Table I: Frequency distribution of ill habits of OSF patients (n = 123)

ILL HABITS	NO. OF PATIENTS WITHOUT HABIT (IN %)	NO. OF PATIENTS WITH HABIT (IN %)
Pan masala	**30 (24.4)**	**93 (75.6)**
Gutkha	**34 (27.6)**	**89 (72.4)**
Tobacco	**35 (28.5)**	**88 (71.5)**
Alcohol	**93 (75.6)**	**30 (24.4)**

III. Duration of ill habits:

The duration of either ill habit ranged from 1 to 35 yrs. Most patients had these ill habits for 6-19 years. (Fig. 1)

IV. Clinical Findings:

The frequency distribution of Clinical findings (restriction of mouth opening and inter incisal distance) of OSMF patients are summarized in Table II. It can be observed that most patients had 2 finger opening only. Similarly, the inter incisal distance of patients ranged from 5 to 48 mm of which most number of patients i.e. 40 (32.5%) were found having had 20-30 mm of inter incisal distance.

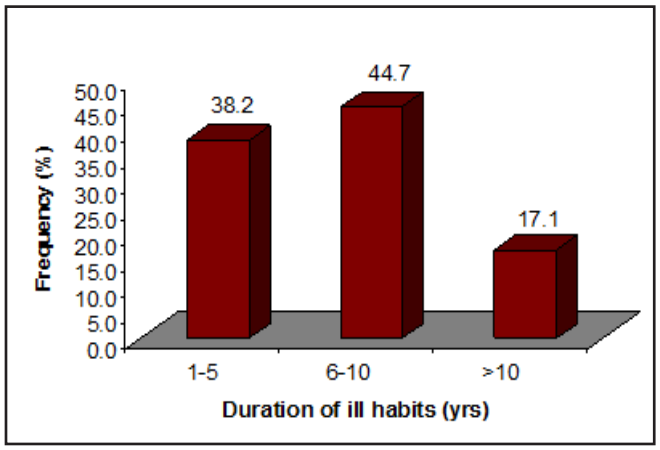

Fig. 1. Distribution of duration of ill habit of OSMF patients.

V. Clinico-pathological findings:

The frequency distribution of clinical and HPE grading of OSMF patients are summarized in Table III. Majority (55.3% & 54.5%) of the patients belonged to clinical grade-2 and intermediate HPE grade respectively. 23 patients (18.7%) had clinical grade 1, 68 (55.3%) had clinical grade 2, 25 (20.3%) had clinical grade 3 and 7 patients (5.7%) had clinical grade 4. Similarly, 26 (21.1%) patients had early HPE grade, 67 (54.5%) had intermediate HPE grade and 30 (24.4%) had advanced HPE grade.

VI. Association of HPE with ill habits of OSMF patients:

The association of HPE findings (grading) with ill habits of OSMF patients is summarized in Table IV. The HPE grading showed significant and direct association with duration of ill habits ($\chi 2=11.88$, $p=0.018$).

VII. Association of HPE with clinical findings of OSMF patients:

The association of HPE findings (grading) with Clinical

Table II: Frequency distribution of clinical findings of study group

CLINICAL FINDINGS	NO. OF PATIENTS (N = 123) (%)
Restriction of mouth opening (no of fingers)	
1	24 (19.6)
2	61 (49.6)
3	38 (30.9)
Inter incisal distance (mm)	
<10	5 (4.1)
10-20	22 (17.9)
20-30	40 (32.5)
30-40	26 (21.1)
≥ 40	30 (24.4)

Table III: Frequency distribution of clinico-pathological grading among OSMF patients

CLINICO-PATHOLOGICAL GRADING	NO. OF PATIENTS (N=123) (%)
Clinical grading:	
Grade 1	23 (18.7)
Grade 2	68 (55.3)
Grade 3	25 (20.3)
Grade 4	7 (5.7)
HPE grading:	
Early	26 (21.1)
Intermediate	67 (54.5)
Advanced	30 (24.4)
≥ 40	30 (24.4)

Findings (restriction of mouth opening and inter incisal distance) of OSMF patients was seen (Table V) and they were found significantly associated to both restriction of mouth opening (χ^2=181.66, p<0.001) and inter incisal distance (χ^2=206.76, p<0.001).

VIII. Association of HPE with clinical grading of OSMF patients:

The association between HPE grading and clinical grading of OSMF patients is summarized in Table VI. The HPE grading showed significant and direct association with clinical grading (χ2=204.08, p<0.001).

Discussion

OSMF, a crippling disease of the oral mucosa, evokes the interest of medical professionals in different parts of the world. The peculiarity of the disease is that it is confined to a particular geographic region. The present study is undertaken to correlate the chewing habits, its duration and the ability to open one's mouth to various histopathological changes of OSMF. A total of 123 symptomatic patients of either sex were recruited and evaluated.

The primary objective of the study was to correlate histo-pathological findings (grading) with demographic criteria (age, sex and location), ill habits (pan masala, gutkha, tobacco, alcohol and duration), clinical findings (restriction of mouth opening and inter incisal distance) and clinical grading.

Of the 123 cases of OSMF studied, 79.7% were males and 20.3% were females. Some of the epidemiological surveys in India have shown a female predominance in the occurrence of this entity. A male predominance in OSMF cases was shown by others.[6] We also observed a male predominance with male to female ratio of 4:1.

Table IV: Association of HPE with ill habits of OSMF patients

ILL HABITS	N	HPE GRADING			X^2 VALUE	P VALUE
		EARLY (N=26) (%)	INTERMEDIATE (N=67) (%)	ADVANCED (N=30) (%)		
Pan masala:						
No	**30**	**6 (20.0)**	**19 (63.3)**	**5 (16.7)**	**1.57**	**0.457**
Yes	**93**	**20 (21.5)**	**48 (51.6)**	**25 (26.9)**		
Gutkha:						
No	**34**	**10 (29.4)**	**16 (47.1)**	**8 (23.5)**	**2.01**	**0.366**
Yes	**89**	**16 (18.0)**	**51 (57.3)**	**22 (24.7)**		
Tobacco:						
No	**88**	**18 (20.5)**	**49 (55.7)**	**21 (23.9)**	**0.19**	**0.911**
Yes	**35**	**8 (22.9)**	**18 (51.4)**	**9 (25.7)**		
Alcohol:						
No	**93**	**20 (21.5)**	**52 (55.9)**	**21 (22.6)**	**0.68**	**0.711**
Yes	**30**	**6 (20.0)**	**15 (50.0)**	**9 (30.0)**		
Duration (yrs):						
1-5	**47**	**14 (29.8)**	**29 (61.7)**	**4 (8.5)**	**11.88**	**0.018**
6-10	**55**	**8 (14.5)**	**29 (52.7)**	**18 (32.7)**		
>10	**21**	**4 (19.0)**	**9 (42.9)**	**8 (38.1)**		

The age of patients ranges from 17 to 70 yrs. This observation is different from another study which reported most common age group to be 40 to 49 years in their study.[7] Increase in the chewing habit of the areca nut without any tobacco and the use of various commercial products containing areca nut may explain the decrease in the age of OSMF cases due to various chewing habits.

Correlating the HPE grading with demographic characteristics, χ^2 test revealed insignificant ($p>0.05$) association between demographic characteristics and HPE finding except sex. In females, the frequency (%) of intermediate and advanced HPE finding were significantly higher (21.5%) as compared to males. This is due to the fact that females are associated with nutritional deficiencies which are responsible for their intermediate and advanced stages.

More (66.7%) patients belong to rural background than urban background (33.3%). This is mostly due to the illiteracy among rural people and due to lack of health education and awareness of the ill-effects of the chewing habits. People in the urban background indulge in those habits due to peer pressure, misguiding by the social media. In recent years, commercial preparations like pan masala have become available in India and abroad. The main ingredient of these products is areca nut along with lime and catechu with or without tobacco. Many patients with OSMF give a history of chewing

Table V: Association of HPE with clinical findings of OSMF patients

CLINICAL FINDINGS	N	HPE GRADING			X^2 VALUE	P VALUE
		EARLY (N=26) (%)	INTERMEDIATE (N=67) (%)	ADVANCED (N=30) (%)		
Restriction of mouth opening (no of fingers):						
1	12	0 (0.0)	1 (8.3)	11 (91.7)	181.66	<0.001
1.5	12	0 (0.0)	1 (8.3)	11 (91.7)		
2	61	0 (0.0)	53 (86.9)	8 (13.1)		
2.5	10	0 (0.0)	10(100.0)	0 (0.0)		
3	28	26 (92.9)	2 (7.1)	0 (0.0)		
Interincisal distance (mm):						
<10	5	0 (0.0)	0 (0.0)	5 (100.0)	206.76	<0.001
10 - 20	22	0 (0.0)	0 (0.0)	22 (100.0)		
20 - 30	40	0 (0.0)	37 (92.5)	3 (7.5)		
30 - 40	26	0 (0.0)	26 (100.0)	0 (0.0)		
≥ 40	30	26 (86.7)	4 (13.3)	0 (0.0)		

Table VI: Association of HPE with clinical grading of OSMF patients

CLINICAL FINDINGS	N	HPE GRADING			X^2 VALUE	P VALUE
		EARLY (N=26) (%)	INTERMEDIATE (N=67) (%)	ADVANCED (N=30) (%)		
Grade 1	23	22 (95.7)	1 (4.3)	0 (0.0)	204.08	<0.001
Grade 2	68	4 (5.9)	64 (94.1)	0 (0.0)		
Grade 3	25	0 (0.0)	2 (8.0)	23 (92.0)		
Grade 4	7	0 (0.0)	0 (0.0)	7 (100.0)		

pan masala, gutkha, tobacco.

In our study group, the patients mostly had the habit of chewing commercial areca nut products (Pan masala and Gutkha). The duration of either ill habit ranged from 1 to 35 yrs. On correlating, the HPE findings were not found to be associated ($p>0.05$) with types of ill habits, however HPE grading showed significant and direct association with duration of ill habits ($\chi^2= 11.88$, $p = 0.018$).

In our study, it was observed that as the duration of the chewing habits increases, the histopathological grading also increases. Another study noted opposing

observation, stating that the total duration of the chewing habit was not significantly correlated to OSMF.[8] A similar observation was also reported in another study that the daily consumption rate appears to be much more significant with respect to risk than the lifelong duration of the habit.[9]

It is well-documented that in OSMF, there is a progressive inability to open the mouth and tongue movement gets restricted to varying degrees depending on the severity of the disease process. In a study of 800 normal patients in South India, it is reported that the average size of the mouth opening was 47.5 mm and 44.6 mm in males and females respectively.[4]

Based on inter-incisal distance, we grouped our OSMF patients into four clinical grades. Most of the patients had inter-incisal distance of 20-30 mm followed by 40 mm. This is due to the fact that the majority of patients usually report late for treatment as the symptoms in earlier stage of disease are very subtle. So most of the patients are in clinical grade 2 (68) followed by grade-3 (25), grade-1 (23) and grade-4.

It can be seen from above findings that 37.4% of the total study population was in the age group of 20-30 years and 55% of the patients are in Grade II who had a habit of chewing commercially available areca nut products (Pan masala and Gutkha). These findings are of great concern because younger individuals are at greater risk and it has been well established that OSMF is a premalignant and crippling condition of the oral mucosa.[7]

In our study, 26 (21.1%) patients had early HPE grade, 67 (54.5%) had intermediate HPE grade and 30 (24.4%) had advanced HPE grade. The HPE finding showed significant and direct association with clinical grading ($\chi^2 = 204.08$, $p = 0.001$). Similar findings were shown in another study which concluded that the bands formed initially in the fauces, followed by the buccal and labial areas.[10] Another study did not find any association between clinical staging and histopathological grading.[11]

This is accompanied by an increase in the severity of the disease as measured by restriction in the ability to open the mouth. It has been postulated that areca nut products exacerbate the submucosal fibrosis initiated by chronic inflammation. The inflammatory cells seen predominantly were lymphocytes and plasma cells. The presence of a large number of lymphocytes and the production of cytokines play significant roles in the tissue reaction in OSMF.[12] In our study, all three histological grades had diffuse chronic inflammation as a common feature, it shows a reduced presence in advanced stage as a result of the stabilization of the lesion and reduction in levels of pro-inflammatory mediators.

Conclusion

In our study, the occurrence of OSMF was higher in the younger age group of 20-30 years. The prevalence of OSMF was more in males than in females with a ratio of 4:1 hence showing a significant association of HPE grading with sex. In females, the occurrence of intermediate and advanced HPE findings were significantly higher (21.5%) as compared to males. In our study, most patients were found to be having clinical grade 2 followed by grade 3, grade 1 and grade 4. The commonest histo-pathological grade was intermediate followed by advanced and early grade. The HPE grading showed significant and direct association with the duration of ill habits of chewing pan masala and Gutkha.

The HPE findings were also found significantly associated to both severity of restriction of mouth opening and inter incisal distance. The HPE findings showed significant and direct association with Clinical grading i.e. when the Clinical grading increases, the Histopathological grading also increases. The findings of this study will help to enable clinicians, involved in the management of OSMF patients, to formulate better treatment for their patients. As higher clinical grade is found to be associated with advanced histopathological grade, patients of that group may be advised strict follow up and treatment, so that these patient can be saved from advancing to malignancy.

OSMF is a disease with a high incidence which also carries the risk of significant morbidity from oral cancer. As no effective medical and surgical treatment is available for this condition it is desirable to diagnose and provide the management of OSMF at early stages. Patient should be advised about cessation of the areca nut and Gutkha chewing and other factors should

be advised. Intervention studies and public health awareness program linked with OSMF may prove the best way to control disease process at the community level.

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Evaluating Success of Surgery in Mucosal and Squamosal Chronic Otitis Media: A Retrospective Study

Nilank Saroha,[1] Nitin Tomar[1]

ABSTRACT

Introduction

This study attempted to document success of surgery postoperatively, be it type I tympanoplasty or type III tympanoplasty with or without modified radical mastoidectomy.

Materials and Methods

This retrospective study involved 90 patients of Chronic Otitis Media who underwent surgery in the Department of Otorhinolaryngology in a tertiary care centre in the state of Uttar Pradesh.

Results

At 3 week postoperatively, 83 patients (92.22%) had successful uptake of graft. Overall successful graft uptake was reduced to 87.78% (79 patients) after 3 months. Postoperatively, after 3 months, 90% of the patients (n=81) reported improvement in hearing. Preoperatively, 89.71 % patients of mucosal disease and 63.64% of squamosal disease had 21-40 dB hearing loss. Postoperatively, 88.24% patients with mucosal disease and 63.64% of squamosal disease had no conductive hearing loss. There was statistically significant gain in air conduction postoperatively. Average improvement in AB gap was also notably significant postoperatively in both subgroups.

Conclusion

Both type I and type III tympanoplasty give excellent response in term of graft uptake and postoperative hearing.

Abbreviations: COM-Chronic Otitis Media, AC-Air Conduction, AB-Air Bone, TP-Tympanoplasty, MRM-Modified Radical Mastoidectomy

Keywords

Tympanoplasty, Mastoidectomy, Hearing; Retrospective Studies

Chronic otitis media (COM) is one of the most common ear diseases in the developing countries. In India incidence of COM ranges up to 30%, with a prevalence rate of 16/1000 population in urban and 46/1000 in rural areas.[1,2] It can cause conductive hearing loss up to 60 db, which may pose to be a serious disability.[3] It may be further classified as mucosal (tubotympanic) and squamosal (atticoantral) disease.

Tympanoplasty is defined as a procedure to eradicate disease in the middle ear and to reconstruct hearing mechanism with or without tympanic membrane grafting. The most common technique of grafting is underlay (medial). Temporalis fascia and tragal perichondrium are the most popular materials as a graft.[4] As far as active squamosal disease is concerned, primary aim of surgery is eradication of cholesteatoma.

Biocompatible materials are being used for restoration of hearing but have limited success.[5] Furthermore, in developing countries using biocompatible materials for ossiculoplasty is financially not attractive.

This study was undertaken to study the clinical profile of COM patients being admitted in ENT IPD for surgery. An attempt was made to document success of surgery postoperatively, be it type I tympanoplasty or type III tympanoplasty with or without MRM.

1 - Department of ENT & HNS, Muzaffarnagar Medical College.

Corresponding author:

Dr. Nitin Tomar

email: ntrims07@gmail.com

Materials and Methods

This was a retrospective study involving patients who underwent tympanoplasty with or without mastoidectomy by the authors in the Department of Otorhinolaryngology in a tertiary care centre in the state of Uttar Pradesh. The period of study was from September 2014 to August 2017. A total of 90 patients whose complete records and proper post operative follow up were available, were included in this study.

Patients aged more than 08 years, diagnosed with COM (mucosal or squamosal) and posted for middle ear surgery were included. Patients who had malignancy of middle ear, otitis externa or previous history of ear surgery were excluded.

A proforma was designed to collect the following data from case sheet records: bio-data, symptom history, examination findings, pre-operative and post-operative audiograms and details of their surgical procedure. Patients were followed at regular intervals i.e. at 3 weeks, 6 weeks and 3 months post-operatively. Status of the graft, along with any evidence of complications was noted. Hearing assessment was made with tuning forks and confirmed with pure tone audiometry and compared with the pre-operative state at 3 months.

The postoperative success in terms of graft uptake and hearing gain was compared statistically in mucosal and squamosal disease. Chi square test was used to evaluate the level of significance and the P value <0.05 was considered as significant.

Results

Of all patients, 68 had mucosal disease (64 - inactive mucosal and 4 - active mucosal) and 22 patients were of squamosal variety (5 - inactive disease and 17-active disease). The male : female ratio was 1:1.14.

About 38.89 % patients had bilateral disease accounting for the largest group, followed by left ear involvement (33.33%); only right ear was diseased in least number of patients. In atticoantral or active squamosal variety, maximum number of patients had their left ear diseased (47.06%).

Most of the patients of mucosal disease (95.58%), and all of active mucosal disease had undergone type I tympanoplasty. Three of five patients of inactive squamosal disease had type I TP, rest two had type III TP. Amongst active squamosal disease, only one patient had type I TP. Total 19 patients (21.11%) had undergone type III TP as the operative procedure.

Total 19 patients had undergone type III TP, out of which graft enforced with cartilage was kept over stapes footplate in 7 patients. Sculptured malleus was used in 2 patients (1- inactive mucosal disease, 1- active squamosal disease). Sculptured incus was used in 1 patient with active squamosal disease, in remaining 9 patients umbrella cartilage graft was used (2 - inactive mucosal disease, 2 - inactive squamosal disease, 5 - active squamosal disease).

At 3 week postoperatively, 83 patients (92.22%) had successful uptake of graft. Partial failure that is residual perforation was seen in 5 patients (3 - inactive mucosal and 2 - active mucosal disease). Complete rejection of graft was present in 2 patients, both with inactive mucosal disease (Table I).

On 3rd month follow-up, 2 more patients with inactive mucosal disease and 1 with active squamosal disease revealed residual perforation; accounting for total 8 patients with partial failure. Total number of patients with complete failure also increased by one (Table II). Thus, overall successful graft uptake was reduced to 87.78% (79 patients) after 3 months. Postoperatively, after 3 months, 90% of the patients (n=81) reported improvement in hearing.

Most of the patients with mucosal disease had 21 to 40 dB hearing loss (89.71%). Postoperatively, majority (88.24%) fell in 0 to 20 dB AB gap. Patients with squamosal disease mostly had moderate hearing loss (63.64%), followed by severe loss in 36.36%. Postoperatively, the majority (63.64%) was shifted in 0 to 20 dB AB gap (Table III).

Postoperatively, 50 % of mucosal disease patients gained 11 to 20 dB, followed by about 31% with 21-30 dB gain. About 41 % of squamosal disease patients received hearing gain of 11-20 dB postoperatively. A good no. of patients (n=27) gained upto 30 dB (Table IV).

On applying chi square test on mean preoperative

Table I: Post-operative graft uptake at 3 weeks

	SUCCESSFUL	%	PARTIAL FAILURE	%	COMPLETE FAILURE	%
Inactive mucosal	59	92.19	3	4.69	2	3.13
Active mucosal	2	50	2	50	0	0
Inactive squamosal	5	100	0	0	0	0
Active squamosal	17	100	0	0	0	0
Total	83	92.22	5	5.56	2	2.22

Table II: Post-operative graft uptake at 3 months

	SUCCESSFUL	%	PARTIAL FAILURE	%	COMPLETE FAILURE	%
Inactive mucosal	56	87.5	5	7.81	3	4.69
Active mucosal	2	50	2	50	0	0
Inactive squamosal	5	100	0	0	0	0
Active squamosal	16	94.12	1	5.88	0	0
Total	79	87.78	8	8.89	3	3.33

Table III: Comparison of preoperative and post-op AB gap

AB GAP (DB)	MUCOSAL DISEASE		SQUAMOSAL DISEASE	
	PRE OP	POST OP	PRE OP	POST OP
0-20	04 (5.88%)	60 (88.24%)	0	14 (63.64%)
21-40	61 (89.71%)	08 (11.76%)	14 (63.64%)	07 (31.82%)
41-60	03 (4.41%)	0	08 (36.36%)	01 (4.54%)

TableIV: Hearing gain in post-op patients

SL. NO.	HEARING GAIN (DB)	MUCOSAL DISEASE	SQUAMOSAL DISEASE
1	<10	12 (17.65%)	5 (22.73%)
2	11-20	34 (50%)	9 (40.91%)
3	21-30	21 (30.88%)	6 (27.27%)
4	>30	01 (1.47%)	2 (9.09%)
Total		68	22

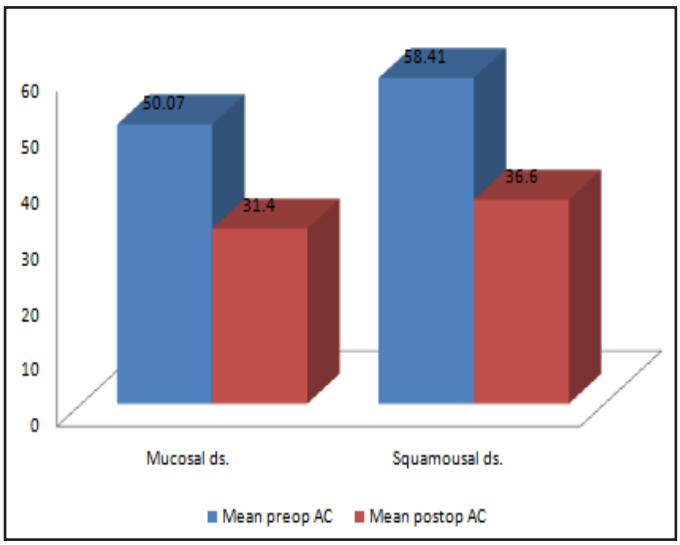

Fig.1. Comparison of mean preoperative and postoperative AC

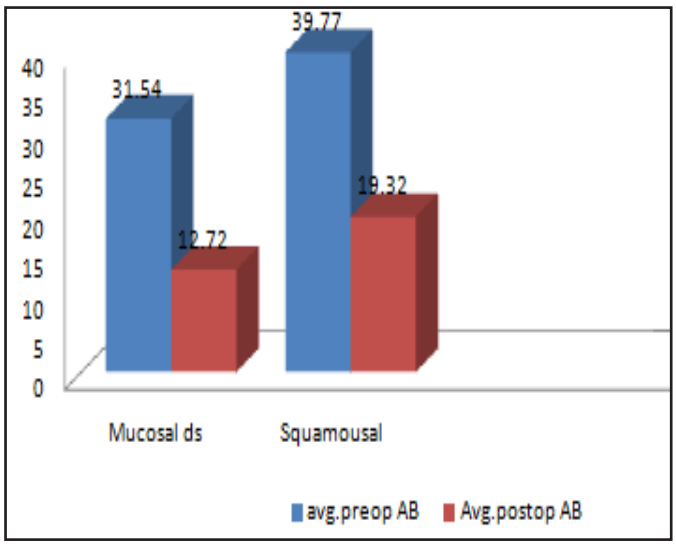

Fig.2. Comparison of average preoperative and postoperative AB gap

and postoperaive AC in patient with mucosal disease, p=0.038; which is significant. The difference between preop and postop AC in squamosal disease subgroup was statistically significant (p=0.025). (Fig.1)

Average improvement in AB gap in mucosal disease patients postoperatively was 18.82 dB, which was highly significant (p=0.005).

Notably significant improvement i.e; 20.45 dB was seen in average AB gap in patients with squamosal disease postoperatively (p=0.008). (Fig. 2)

Discussion

This study included patients of COM, who were admitted and operated under the authors. Their case sheet records were retrieved and required details noted. Later they were followed postoperatively and their graft uptake, cavity healing and hearing were accessed on OPD visits at 3 weeks and 3 months.

The study comprised of total 90 patients, of whom 68 had mucosal disease (64 - inactive mucosal and 4 active mucosal) and 22 belonged to squamosal category (5 - inactive and 17 - active squamosal). The

male:female ratio was 1.00:1.14. Similar findings have been reported by several other authors where females have outnumbered males.[6-9]

Most of the patients had bilateral disease (38.89%), followed by left ear as the only diseased ear. Bilateral affection may be due to the fact that the etiology or risk factors of COM are likely to affect both ears.

Postoperative assessment at 3 weeks revealed overall successful uptake of graft in 92.22% (n=83), partial failure in 5 patients (3-inactive mucosal and 2 active mucosal). Complete failure was seen in 2 patients, both of inactive mucosal disease. After 3 months, total 87.78% (n=79) were documented with successful graft. Partial rejection of graft is seen in 8 patients (5-inactive mucosal, 2-active mucosal and 1-active squamosal). Complete rejection of graft was evident in total 3 patients, all of inactive mucosal disease. Batni et al documented 88% success rate of type I tympanoplasty, Bhatia et al claimed it to be 82%, for Onal et al it was 71%.[8,10,11] Callioglu et al reported 89.5% successful graft uptake in their study.[12] The rate of surgical success- integration of the graft - was 93.3% as stated by Naderpour et al.[6] Kamath et al documented successful uptake of graft post type I tympanoplasty to be 80%.[13] Similarly, some researchers have reported success rates in excess of 80 to 90%.[14]

Subjective improvement in hearing was documented by 90% patients at 3 month follow up. Preoperatively, 89.71% patients of mucosal disease and 63.64% of squamosal disease had 21 to 40 dB hearing loss. Postoperatively, 88.24% patients with mucosal disease and 63.64% of squamosal disease had no conductive hearing loss. Thus, after surgery 74 patients (82.22%) had AB gap less than 20 dB as opposed to only 4.44% with normal hearing preoperatively. Shrestha et al noted closure of AB gap post type I tympanoplasty in 84%.[15] Majority of patients had AB gap improvement of 20 dB (26 patients) followed by 25 dB (17 patients) and 15 dB gain (17 patients). Malhotra reported hearing improvement in 77.3 % post umbrella graft tympanoplasty.[16] Asma et al reported post canal wall down mastoidectomy improvement in AB gap in 25% patients.[17]

About 55.56% patients achieved air conduction gain of 20 to 30 dB postoperatively. Half of mucosal disease patients gained 11 to 20 dB, followed by about 31% with 21 to 30 dB gain. About 41 % of squamosal disease patients received hearing gain of 11 to 20 dB postoperatively. 6 patients had a hearing gain up to 30dB.

Mean AC gain in mucosal disease patients was 18.67 dB. Ramalingam et al reported post type I tympanoplasty mean average gain of 12.19 dB.[18] In a study by Dawood et al, it was 22.37 dB.[19] In squamosal group, mean AC gain was 21.81 dB. Mourya et al also documented AC gain post MRM with type III tympanoplasty quite close to ours, i:e; 21.24 dB.[20] According to Shetty et al there was a gain of 18.8 dB in type 1, 26.46 dB in type II and 20.27 dB gain type III tympanoplasty, which is in accordance with our study.[7]

Kabdwal et al reported average gain of 7.8 dB post type I TP and 6.61 dB gain post canal wall down mastoidestomy with tympanoplasty.[20]] Jalisatgi et al documented gain of 10.47 dB in patients with type III TP with CWD mastoidectomy with intact stapes and 12.19 dB for those with use of long collumella.[21] On applying chi square test on mean preop and postop AC in patient with mucosal disease, p=0.038; which is significant. The difference between preoperative and postop erative AC in squamosal disease subgroup was also statistically significant (p=0.025).

Average improvement in AB gap in mucosal disease patients postoperatively was 18.82 dB, which was highly significant (p=0.005). According to Sangavi et al, average AB improvement was 23.12dB.[22] Dawood et al reported mean AB gap reduction to be 20.73 dB after myringoplasty.[19] Our results were better than Goyal et al and Ramalingam et al (11.94 dB and 12.92 dB respectively) but less than Dawood et al and Sangavi et al.[8,18,19,22] Notably significant improvement, i.e; 20.45 db, was seen in average AB gap in patients with squamosal disease postoperatively (p=0.008). This improvement was again superior to several studies.[20,23]

Conclusion

In this study we found that the overall successful graft uptake was 87.78% (79 patients) after 3 months.

Postoperatively, 88.24% patients with mucosal disease and 63.64% with squamosal disease had no conductive hearing loss (AB gap closure to within 20 dB).

Average improvement in AB gap in mucosal disease patients postoperatively was 18.82 dB, which was highly significant (p=0.005).Similarly, quite significant improvement i.e; 20.45 db was seen in average AB gap in patients with squamosal disease postoperatively (p=0.008).

The use of autologous cartilage in ossiculoplasty does not add to the cost of surgery. It can be harvested easily while performing meatoplasty and the hearing gain achieved is excellent.

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Correlation of Clinical and Endoscopic Evaluation with PET-CT in Detecting Recurrence of Head and Neck Squamous Cell Carcinoma

Rambabu Mappuri,[1] Ramakrishnan Narayanaswamy[1]

ABSTRACT

Introduction

The current study reports the correlation of clinical and endoscopic evaluation with 18F-Fluorine Fluorodeoxyglucose Positron emission tomography/Computed tomography (18F-FDG PET/CT) findings in detecting the residual/recurrence tumor after definitive treatment in the follow up cases of squamous cell carcinoma head and neck.

Materials and Methods

A prospective comparative study carried out on 30 follow-up cancer patients after definitive primary treatment. All patients were evaluated by clinical examination, endoscopy and 18F-FDG PET/CT and these results correlated to detect residual/ recurrence. Suspicious lesion at primary site suggesting residual/recurrence was confirmed by gold standard investigation, histopathological examination (HPE).

Result

The age group mostly involved is 40-70 with male predominance. Predominant sites were oral cavity and larynx. 20 patients showed recurrence on clinical and endoscopic evaluation with 03 false positive results, 10 patients showed no recurrence with 01 false negative result. On PET/CT, 19 patients were showed recurrence with 01 false positive result, 11 patients showed no recurrence. PET/CT showed high sensitivity, specificity, with high NPV in detecting the recurrence of disease in the follow up period. Clinical and endoscopic evaluation also has high sensitivity, PPV and NPV.

Conclusion

It is recommended that 18F-FDG PET/CT scan should be done in every case after primary treatment in addition to complete clinical and endoscopic evaluation and during follow-up period for early detection and management of residual/ recurrence.

Keywords

Positron Emission Tomography Computed Tomography; Fluorodeoxyglucose F18; Carcinoma, Squamous Cell; Neck; Head

Head and Neck Squamous Cell Carcinoma (HNSCC) is a broad term that encompasses a heterogeneous group of malignancies originating from the nasal cavity, paranasal sinuses, oral cavity, pharynx and larynx. Head and Neck Squamous Cell Carcinoma (HNSCC) is the sixth most common type of cancer representing about 6% of all cancers and estimated 650,000 new cases and 350,000 cancer deaths worldwide every year.

Primary causes of HNSCC are tobacco and alcohol consumption and Human Papilloma virus (HPV) infection. HNSCC often spread to the lymph nodes in the neck, and this is often the first sign of the disease at the time of diagnosis. About two-third of the patients of HNSCC present with advanced stage disease. An approach focusing on combining history, physical examination, endoscopy and tissue sampling is the mainstay for diagnosis and staging of HNSCC. Clinical guidelines for HNSCC recommend different imaging approaches for each phase of disease. Imaging is now

1 - Department of ENT, Command Hospital(EC), Alipore Road, Kolkata

Corresponding author:
Dr Ramakrishnan Narayanaswamy
email: drnramak5632@gmail.com

an integral part of the work up; most common known modalities in clinical use are CT and MRI imaging. The role of 18F-FDG PET/CT has been evaluated in the initial staging as well as post treatment re-staging and monitoring response to definitive therapy of head and neck carcinomas.[1,2] FDG PET/CT is extremely useful in the situations where anatomic imaging is equivocal and the disease cannot be assessed by direct visualization and detection of cervical lymph node metastases.

Over the last few years, lots of studies have been conducted evaluating the role of PET/CT in initial staging as well as follow up of locally advanced head and neck cancers. Most of the studies have shown a definitive value of PET/CT in detecting the residual or recurrence of tumor. However, very few studies published the importance of clinical and endoscopic evaluation along with PET/CT to improve the accuracy in diagnosing the residual/recurrence of HNSCC. There is paucity of data from developing countries including India where HNSCC is one of the commonest malignancies seen. Hence, there was envisaged to carry out one such study in government tertiary care set up of India.

This study was undertaken to determine the clinical impact of FDG PET/CT and clinical and endoscopic evaluation in early diagnosis of residual/recurrence in post treatment patients of HNSCC.

Materials and Methods

This is a prospective comparative study conducted at ENT Dept of a tertiary care centre in Eastern India between January 2016 to June 2017. Written and informed consent was taken from each patient undergoing the study. The study was carried out after the hospital ethical committee approved the study, since it involved taking biopsies in all cases, whether they had suspicion of recurrence or not.

For every patient included in the study, depending upon the primary site of malignancy, clinical examination, diagnostic nasal endoscopy, video laryngoscopy/fiberoptic laryngoscopy, panendoscopy, 18F-FDG PET/CT and biopsy from primary site were taken under appropriate anesthesia. False Positive and False negative rates of both clinical and endoscopic evaluation as well as that after PET-CT were assessed after histopathological examinations.

Inclusion criteria: Patients willing to be included in the study. All cases of squamous cell carcinoma of head and neck, biopsy proven HNSCC any-stage (according to American Joint Committee on Cancer staging) after primary treatment originating in the lip, oral cavity, oropharynx, nasopharynx, paranasal sinuses, hypopharynx, glottis, larynx, or supra-glottic region.

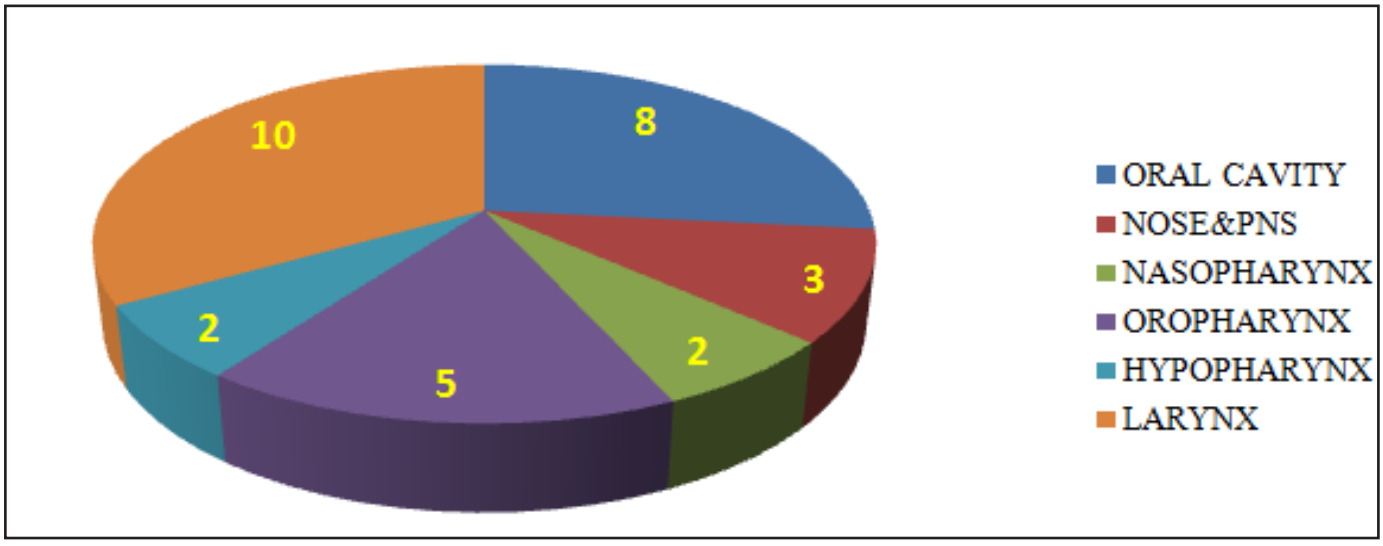

Fig.1. Anatomical site distribution

Exclusion criteria: Primary cases before definitive treatment, carcinoma of unknown primary site, all non-squamous cell carcinomas of head and neck, patients with metastatic disease, history of prior or concurrent second malignancy and follow up of missed cases were excluded from the study.

Categorical variables were expressed as number of patients and percentage of patients and compared across the groups using Pearson's Chi Square test for Independence of Attributes/ Fisher's Exact Test, as appropriate. Association of outcome of PET CT and Clinical Examination with HPE is captured using Sensitivity, Specificity, PPV, NPV and Diagnostic accuracy. The statistical software SPSS version 20 has been used for the analysis. An alpha level of 5% has been taken, i.e. if any p value is less than 0.05 it has been considered as significant. If the calculated p-value is below the threshold chosen for statistical significance (usually the 0.10, the 0.05 or 0.01 level), then the null hypothesis rejected in favour of alternative hypothesis.

Result

Total 30 patients were followed-up, 23 patients were male and 07 patients were female. Age distribution of all patients were between 26 years to 82 years. Maximum number of cases was in the age group of 51 to 60 years. Main bulk of cases was above 50 years. of age. Anatomical site distribution of lesions (Fig.1) shows that out of 30 cases, 08 cases were carcinoma oral cavity (26.67%), 03 cases were carcinoma Nose and PNS (10%), 02 cases of Nasopharyngeal carcinoma (6.67%), 05 cases were carcinoma Oropharynx (16.67%), 02 cases were carcinoma hypopharynx (6.67%) and 10 cases were carcinoma larynx (33.33%).

Distribution of recurrence based on evaluation: In 20 cases, clinical and endoscopic recurrence was found in only in 18 cases only, which was proven histopathologically. No evidence of recurrence was found in 10 cases. PET/CT showed recurrence in 19 cases, no recurrence in 11 cases. The accuracy of PET/CT is 94.73%, clinical and endoscopic evaluation is 90% (Table I).

Diagnostic accuracy of PET/CT: The diagnostic accuracy of PET/CT is 96.67 with sensitivity,

Table I: Distribution of recurrence based on evaluation

MODE OF EVALUATION	RECURRENCE PRESENT	NO RECURRENCE	RECURRENCE CONFIRMED BY HPE	ACCURACY
Clinical and Endoscopic	20	10	18	90%
PET/CT	19	11	18	94.73%

Table II: Diagnostic accuracy of PET/CT

SCORING SYSTEM	TP	TN	FP	FN	SENSITIVITY	SPECIFICITY	PPV	NPV	ACCURACY
PET CT	18	11	1	0	100	91.67	94.74	100	96.67
Clinical and Endoscopic	17	9	3	1	94.44	75	85	90	86.67

Fig. 2a. Tongue - no tumor seen but cervical lymph node was palpable

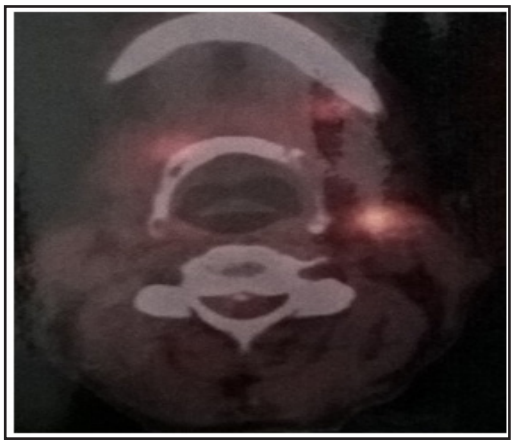

Fig. 2b. PET/CT- FDG avid uptake in level II cervical lymph node

specificity; PPV and NPV were 100, 91.67, 94.74 and 100 respectively. There was 01 false positive case and no false negative cases (Table II). The diagnostic accuracy of clinical and endoscopic evaluation is 86.67 with sensitivity, specificity; PPV and NPV of 94.44, 75, 85 and 90. False positive cases were 03 and false negative cases 01 (Table II).

Significance of clinical and endoscopic examination and PET/CT: Clinical and endoscopic evaluation showed recurrence in 20 cases with no recurrence in 10 cases. After comparing the clinical findings with PET/CT findings we found in 03 cases clinical findings were different with PET/CT.

Case 01- Case of carcinoma base of tongue, clinically no recurrence seen at primary site (Fig. 2a) but left level II lymph node palpable, 18F-FDG PET/CT showed FDG avid uptake (Fig. 2b), biopsy of that node showed inflammatory changes, so recurrence was ruled-out.

Case 02- Case of Nasopharyngeal carcinoma, on nasal endoscopy bulging seen on nasopharyngeal wall, PET/CT showed no FDG uptake.

Case 03- Case of carcinoma oral cavity (right lower alveolus, post-surgery + CCRT) clinically operated area showed only edema, no tumor growth seen. PET/CT showed FDG avid uptake at same area and HPE reported as squamous cell carcinoma. The diagnostic value of clinical and endoscopic evaluation is significant with p-value of <0.001 (Table III).

PET/CT showed recurrence in 19 cases, no recurrence in 11 cases, only in 18 cases recurrence was proven histopathologically. Due to inflammation PET/CT showed FDG avid uptake in left level II lymph node in a case of carcinoma base of tongue. Diagnostic value of PET/CT is significant with p-value of <0.001 (Table IV).

Table III: Significance of clinical examination

		PET CT		TOTAL	P VALUE	SIGNIFICANCE
		NEGATIVE	POSITIVE			
Clinical and Endoscopic examination	No Recurrence	9(81.82)	1(5.26)	10(33.33)	<0.001	Significant
	Recurrence present	3(18.18)	17(94.74)	20(66.67)		
Total		12(100)	18(100)	30(100)		

Table IV: Significance of PET/CT

		PET CT		TOTAL	P VALUE	SIGNIFICANCE
		NEGATIVE	POSITIVE			
CONFIRMATORY HPE	Negative	11(100)	1(5.26)	12(40)	<0.001	Significant
	Positive	0(0)	18(94.74)	18(60)		
Total		11(100)	19(100)	30(100)		

If patient shows recurrence both clinically and in PET/CT carries high diagnostic value than either modality alone. Figs. 3a, 3b, 3c shows a case of Carcinoma Maxilla (left) operated with tumor recurrence seen clinically at flap site and in neck nodes and FDG avid uptake seen in both areas, which was confirmed by HPE.

Discussion

18F-FDG PET/CT has been used to detect recurrent disease in the head and neck cancer patients. It has also shown good accuracy in diagnosing asymptomatic and subclinical recurrences at the site of the treated primary disease, disease in reconstructed flaps and nodal recurrence post radiation. Recurrence in PET/CT is visualised as enhancing lesion with intense FDG avidity. Risk of developing HNSCC also increases with age and the majority of HNSCCs occur in patients aged 50 years or over. The average age for smoking related HNSCC diagnosis is 60 years (median age: 63 years) whereas the average age for smokeless tobacco related HNSCC is 78 years. HNSCC is more common in men than in women and the ratios of Oral and Oropharyngeal SCC by gender are currently about 1.5:1 and 2.8:1, respectively.[3,4]

In this study, total 30 patients were followed up after primary treatment with male predominance. The proportion between male and female were 3.28:1. Major bulk of cases was above 50 years of age. The trends of age and sex of the patients were in close relation to other studies. Common modality of treatment in advanced cases of oropharynx, hypopharynx was CCRT and in T1 lesions of larynx definitive RT was used as primary treatment. The ideal time to perform PET/CT in the follow up period should be 12 weeks of completion of CCRT to reduce false positive results.

Ryan et al. conducted a study to determine the diagnostic accuracy and the ideal timing of FDG PET in the post treatment surveillance of head and neck mucosal squamous cell carcinoma (HNSCC) on 118 post treatment PET scans at 12 weeks, who had undergone treatment for HNSCC and concluded that PET is effective in detecting distant metastases in the post treatment surveillance for HNSCC patients.[5] A negative PET is highly reliable for all sites. However, a positive PET-CT in the head and neck region is unreliable because of a high false-positivity rate. PET-CT of the head and neck region has a statistically significant risk of a false-positive reading, when performed within 01 month of radiotherapy.[5] Nelissen et al. showed that PET/CT carried out before 3 months had higher false negative results and higher false-positive rates.[6] In our study, we conducted PET/CT after 12 weeks of primary treatment to reduce the false positive results. If patient shows recurrence both clinically and in PET/CT, it carries high diagnostic value than either modality alone.

Figs. 3a, 3b, 3c shows a operated case of Carcinoma Maxilla (left) with clinically tumor recurrence seen at flap site and neck nodes with FDG avid uptake seen in both areas, which was confirmed by HPE. Bundhit et al. reported sensitivity, specificity, PPV and NPV of PET/CT for detection of residual primary tumor of 94%, 82%, 75% and 95% respectively.[7] Abgral et al. in a series of 91 patients with HNSCC who have finished their initial

Fig. 3a. Flap involved by tumor in a case of Carcinoma Maxilla operated

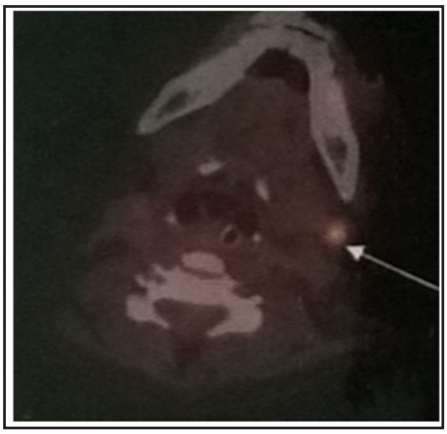

Fig. 3b. Cervical Level II lumph node showing FDG avid uptake

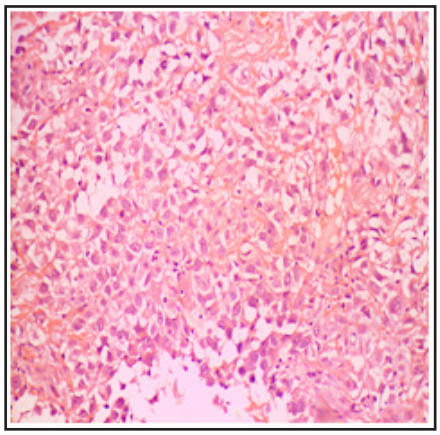

Fig. 3c. HPE confirms recurrence (SCC) (H and E, 200X)

therapy reported sensitivity, specificity, PPV and NPV were 100%, 85%, 77% and 100%.[8] Two recent studies also showed increased accuracy with delayed PET/CT performed approximately 4 months after treatment with NPVs reaching 100%.[9,10] It is noted 18F-FDG PET/CT has high NPV, therefore negative results suggest absence of viable residual disease.[7-10] In our study sensitivity, specificity, NPV and PPV of PET/CT was 100%, 91.67%, 94.74% and 100%. False positive results were mainly due to inflammatory changes and edema after radiotherapy.

Inflammatory changes in tissue may pick up FDG and showed as false positive results. The sensitivity and NPV of clinical and endoscopic evaluation were also high but not more than PET/CT. False positive results mainly due to distorted anatomy, inflammatory changes and edema after primary treatment. These results were in close relation to other studies results. Wang[11] et al prospectively evaluated 44 restaging PET/CT between 12 and 17 weeks after radiotherapy completion, in the follow-up of 44 patients. Imaging data were compared with clinico-pathological outcomes, sensitivity, specificity, PPV and NPV was 100%, 98%,92% and 100%. In pooled analysis of over 2300 patients Gupta et al. reported a weighted mean (95% CI) NPV of a single post-treatment PET/CT for the primary site at 95.1% (93.5-96.5%).[12] Clinical and endoscopic evaluation along with PET/CT carries more diagnostic accuracy than either modality alone in reducing the false positive cases.

Conclusion

This study was carried out with the objective of correlation of clinical and endoscopic evaluation with 18F-FDG PET-CT findings in detecting the recurrence or residual tumor after definitive treatment (chemotherapy or surgery or surgery and CCRT or CCRT) in the follow-up cases of squamous cell carcinoma head and neck. In the present study, all the cases were followed up after definitive primary treatment and underwent complete clinical and endoscopic evaluation and 18F-FDG PET/CT. PET/CT showed high sensitivity, specificity, with high NPV in detecting the recurrence of disease in the follow up period. Clinical and endoscopic evaluation also has high sensitivity and NPV.

However, in detecting the recurrence- clinical and endoscopic evaluation along with PET/CT showed more accuracy than either modality alone in the follow up cases of HNSCC. In view of nearly 100% NPV of FDG PET-CT, it is recommended that every case after primary treatment should undergo complete clinical and endoscopic evaluation and 18F-FDG PET/CT scan during follow-up period for early detection of residual/recurrent disease.

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Novel Therapy for Pseudocyst of Pinna – An Institutional Study

Debdulal Chakraborty,[1] Chiranjib Das,[1]

ABSTRACT

Introduction:

Pseudocyst of pinna is a cystic swelling with collection of serous fluid between the auricular cartilage and perichondrium. Successful treatment of pseudocyst of pinna is challenging because of its high propensity for recurrence and cosmetic deformity. None of the treatment modalities described in literature gives fully satisfactory result. So a novel treatment modality is required which gives good cosmetic outcome with zero recurrence.

Materials and Methods

A prospective study was done in the Department of ENT and Head and Neck Surgery of a Government Medical College, West Bengal from April 2014 to March 2017. The effusion was aspirated aseptically with sterilized 10 ml syringe with 18G IV needle. An equal amount of Inj. Dexamethasone and Inj. Gentamicin 80 mg in 1:1 ratio mixed in a new 10 ml syringe was injected into the swelling through the same prick point.

Result

Most of the patients in this study were males between 31-40 years of age and labourer by profession. Maximum number of patients had swelling involving concha. Only one case of one month old infant had bilateral involvement. All patients were cured without any recurrence or disfigurement.

Conclusion

The results of present study points to the fact that aspiration and instillation of equal amount of Inj. Dexamethasone and Inj. Gentamicin works very good in treatment of pseudocyst of pinna. This therapy is minimally invasive, less painful, cost-effective and less cumbersome for the surgeon. It gives faster recovery, good cosmetic outcome and recurrence is prevented.

Keywords:

Pseudocyst; Pinna

Facial aesthetic is the composite result of normal individual facial structures, the pinna being one of them. Lesions affecting the pinna can lead to overt disfigurement and change the entire appeal of the face. Pseudocyst of pinna is a cystic swelling with collection of serous fluid between the auricular cartilage and perichondrium.[1] Successful treatment of pseudocyst of pinna is challenging because of its high propensity for recurrence. Moreover, many a times the pinna becomes deformed permanently. Various treatments are described in the literature. However, none of them gives fully satisfactory result.[2] So a novel treatment modality is required which maintains the shape of pinna as well as has zero recurrence.

1 - Department of ENT, BSMCH, Bankura

Corresponding author:
Dr Chiranjib Das
email: chirubata.das.87@gmail.com

Materials and Methods

A prospective study was done in the Department of ENT and Head and Neck Surgery of a Government Medical College, West Bengal. Forty two patients with pseudocysts of the pinna were enrolled in the study for a period of 3 years from April 2013 to March 2017 after they understood and accepted the procedure. The study was approved by the Institutional Ethical Committee. Pseudocysts of pinna were diagnosed on the basis of clinical presentation and characteristics of the aspirated fluid. Those patients who came very late with perichondrial abscess were excluded from the study. Thereafter the effusion was aspirated aseptically with sterilized 10 ml syringe with 18G IV needle. Then the amount of fluid aspirated was noted and sent to

Fig. 1. Aspiration and injection in pseudocyst of concha

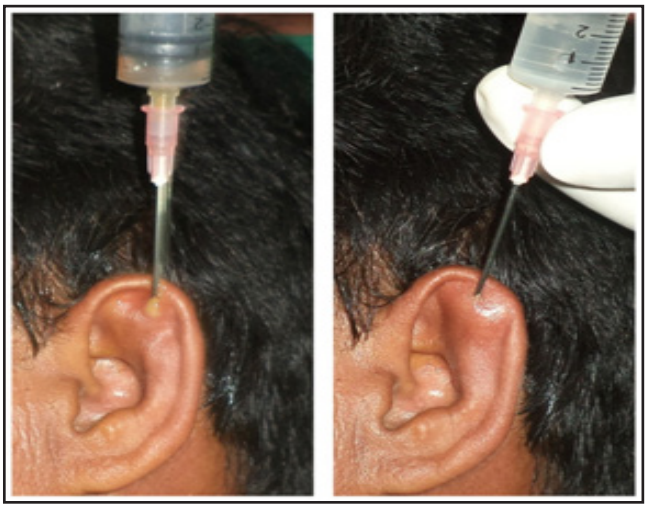

Fig. 2. Aspiration and injection in pseudocyst of scaphoid fossa

Department of Microbiology for culture and sensitivity test. An equal amount of Inj. Dexamethasone and Inj. Gentamicin 80 mg in 1:1 ratio mixed in a new 10 ml syringe was injected into the swelling through the same prick point (Figs. 1 and 2). Then light dressing was done with sterile gauze piece and adhesive tape. All these procedures were done in the OPD. The procedure was repeated every week (maximum 3 such) until there is remission of signs and symptoms pseudocyst and complete recovery to normal healthy pinna. Adjunctive to this oral fluroquinolone antibiotic, Ciprofloxacin was given in adults and Azithromycin was chosen for children below 18 years of age. They were followed up every week up to 4 weeks, then at 2 months, 6 months and 1 year.

Table I: Age and sex distribution of patients

AGE GROUP IN YEARS	MALE	FEMALE	TOTAL
<10	1	1	2
11-20	1	1	2
21-30	6	1	7
31-40	16	1	17
41-50	10	0	10
51-60	3	0	3
>60	1	0	1

Result

Total number of patients enrolled in the study was forty two. Among them only four were females. Maximum numbers of patients (17) were in the age group of 31-40 years comprising about 40.48% of study population (Table I). Most of them (28) were labourer by profession (Table II). Maximum numbers of patients (21) had swelling involving concha followed by concha and antihelix while minimum numbers of patients (3) had involvement of scaphoid and triangular fossa (Table III). Involvement of both right and left ears was seen, but left ear was involved more than right with 34 and 7 cases, respectively. Only one case of one month old infant had bilateral pseudocyst of pinna (Table IV).

The fluid aspirated was straw serum coloured in majority of patients (29) while few of them had serosanguinous fluid or blood mixed fluid (Table IV). Culture of the aspirated fluid from pseudocyst was sterile in maximum cases (28). Staphylococcus aureus was found in 10 patients and Pseudomonous aeruginosa was found in 4 patients (Table IV). The

Table II: Distribution of patients according to profession

PROFESSION	NUMBER OF PATIENTS
Labourer	28
Businessmen	7
Servicemen	3
Student	2
None	2

Table III: Distribution of patients according to site of involvement

SITE	NUMBER PATIENTS
Concha	21
Concha + Antihelix	11
Scaphoid fossa	7
Triangular fossa + Scaphoid fossa	3

size of the swelling varied from 1 to 3 cm in largest diameter. The volume of the fluid varied from 0.5 to 4 ml. All patients tolerated the procedure well. 32 patients were completely cured with single procedure. Twelve patients needed two procedures and five patients needed three procedures. None of the patients had experienced any pain, fever, or oedema. The seroma disappeared without disfigurement. Further follow up showed no recurrences. We found that they were satisfied with the treatment since there were no heavy pressure dressings and was cosmetically acceptable.

Discussion

The first report of pseudocyst of pinna was by Hartmann in 1846.[3] Males are commonly affected and the mean age of presentation is 35-40 years.[4] We found pseudocysts predominately in males and only four cases were seen in females. Young children are rarely affected as seen in our study and in other studies.[5] Majority of the pseudocysts in the present study were involving concha. Supiyaphun and Decha[5] also noted concha as the most common site of predilection while Engel[1] and Cohen and Grossman[6] in contrast cited the scaphoid fossa and triangular fossa of the antihelix as the main sites of predilection. The aetiology of this condition is unknown but at the same time many investigators believe that repeated minor injuries are responsible for the formation of pseudocysts, particularly in patients with pre-existing congenital intra-cartilaginous defects associated with lymphatic and vascular channels while some believe that the cause is cartilaginous degeneration caused by the release of chondrocyte lysosomal enzymes.[5]

Pseudocysts usually present unilaterally, but there are reports of bilateral presentation.[6] Bilateral lesions are found in only 13% of the patients and are mainly reported in the paediatric age group.[5] We found one case of one month infant suffering from chondromalacia with bilateral involvement. Pseudocysts occur more commonly on the right side as reported by many authors but we found them more on the left side. Similar to our study, one study noted pseudocyst to occur more commonly on the left side.[6] Usually these cysts are asymptomatic but occasionally, minor discomfort and mild inflammatory signs may be present.[4] The differential diagnosis of this condition includes cellulitis, relapsing polychondritis, chondrodermatitis helicis, and subperichondrial hematoma secondary to trauma.[4]

Typically straw coloured serous fluid similar to olive oil is seen in the pseudocysts; however, serosanguineous fluid may sometimes be observed.[4] The volume of the aspirates was reported to varies from 0.5 to 10 ml[4] and we found it between 0.5 and 4 ml. The size ranged from 1 to 5 cm in diameter[4] and in our series, the size

Table IV: Distribution of patients according to characteristics of pseudocyst pinna

CHARACTERISTICS		NUMBER OF PATIENTS
Laterality	Bilateral	1
	Right	7
	Left	34
Colour of fluid	Straw serum	29
	Serosanguinous	8
	Blood mixed	5
Culture report	Sterile	28
	Staphylococcus aureus	10
	Pseudomonous aeruginosa	4

ranged from 1 cm to 3 cm. Various treatments are described in the literature such as needle aspiration,[4] incision and drainage with subsequent contour pressure dressing,[7] de-roofing procedure,[8] insertion of a small drainage tube into the pseudocyst.[9] Applying uniform positive pressure conforming to the contour of the pinna remains a challenge as does the maintenance of the pressure. Positive pressure application was tried in many ways, like, plaster of paris cast application, clipping, buttoning, and fashioned stainless steel wire.[10] The application of positive pressure has its demerits ranging from patient noncompliance, discomfort, pain, and rarely ischemic necrosis of the skin.[11] Patients tend to remove or manipulate the dressing to avoid social embarrassment. Eventually most of them would return with a recollection of seroma, leading to de-roofing operation as a second line of treatment. Ghanem et al have studied cases of recurrent pseudocyst of pinna after aspiration and pressure bandage and have stressed the need for an aggressive treatment.[12] O'Donnell and Eliezri have also suggested that incision and drainage and removing a piece of cartilage with perichondrium would cure the condition rather simply aspirating the seroma.[13] Many patients were reluctant for the de-roofing operation at the first instance as it had to be carried out in the operation theatre. Most of them used to prefer for aspiration drainage only to return with a recollection.

It is not such that a cavity with collection should always be drained openly, for example, in breast abscesses, aspiration of the abscess is the initial treatment of choice recommended now.[14] If a patient comes with cystic swelling of the pinna because of collection of hemorrhagic fluid and the aspiration shows no frank pus, no evidence of distraction of the cartilage, instead of incision and drainage a conservative approach can taken by simply aspirating the fluid inside and instilling equal amount of a mixture of Inj. Dexamethsone and Inj. Gentamicin. This local application of steroids reduces increased capillary permeability, cellular infiltration, and later responses like capillary proliferation, collagen deposition, fibrinolytic activity and ultimately scar formation. The cardinal signs of inflammation - redness, heat, swelling, and pain are also suppressed.[15]

Gentamicin takes care of the infection due to recurrent trivial trauma sustained by the pinna. Pattanaik also reported same approach in cases of perichondritis and pinna haematoma with an excellent result.[16] Patigaroo et al used the commonly used technique of simple aspiration followed by intralesional steroid injection followed by pressure dressing.[17] In our study no pressure dressings were applied and no complications have been noticed. This method is a minimally invasive, simple and effective.

Conclusion

Successful treatment of pseudocyst of pinna is a challenge because of its high propensity for recurrence. All treatment modalities, described in literature have their own demerits. The results of present study points to the fact that aspiration and instillation of equal amount of Inj. Dexamethasone and Inj. Gentamicin works very good in treatment of pseudocyst of pinna. This therapy is minimally invasive, less painful, cost-effective and less cumbersome for the surgeon. It gives faster recovery, good cosmetic outcome and recurrence is prevented.

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Facial Plexiform Neurofibromatosis Type I

Bapan Devnath,[1] Debraj Dey,[2] Avinava Ghosh,[3]

ABSTRACT

Introduction

Plexiform neurofibroma is a benign tumor of peripheral nerves arising from a proliferation of all neural elements. Clinically, it presents as a subcutaneous mass which feels like a "bag of worms".

Case Report

A 23-years-old male with a swelling over left side of the face large enough to involve whole one side of the face. There was tenderness and the swelling had a very peculiar consistency, soft in most of the areas with few firm nodular areas.

Operative procedure: surgery was done in two stages. Initially subtotal excision was done and 3 months later re-explored to excise the recurrent disease. Complete excision was not possible.

Discussion

Plexiform neurofibroma (PNF) occurs due to overgrowth of neural tissue in the subcutaneous region. Surgical management remains the mainstay of treatment but functional disturbances are almost inevitable while resecting tumors involving the head and neck region. Resection and de bulking of invasive PNF is however associated with a high rate of recurrence. One of the limiting factors is vascularity of these lesions and their abnormal propensity to bleed.

Conclusion

Although benign, plexiform neurofibromas can cause pain, disfigurement and functional changes and more importantly, may turn malignant. Surgery should be attempted considering psychological benefits.

Keywords

Neurofibroma, Plexiform; Facial Asymmetry; Male

Neurofibromatosis (NF) type 1 (von Recklinghausen NF) is a genetic disorder that occurs in 1 of 4000 births. It is inherited in an autosomal dominant pattern with variable penetrance; however, as many as 50% of cases may result from spontaneous mutation. The disease results from a defect in a tumor suppressor gene on chromosome 17, which leaves affected individuals at risk for developing a variety of benign and malignant tumors.[1] Plexiform neurofibroma is a benign tumor of peripheral nerves (WHO grade I) arising from a proliferation of all neural elements, pathognomonic of NF1. It involves single or multiple nerve fascicles that arises from major nerve branches.

These are among the most common and debilitating types of neurofibromatosis type 1 (NF1). Clinically, it presents as a subcutaneous mass which feels like a "bag of worms".[2] Most of the time, it is a superficial cutaneous and subcutaneous lesion, but it can occur almost anywhere in the body. It is found in approximately 30% of patients with neurofibromatosis type 1 and the massive form results in functional disability and disfigurement. Such tumors are generally present at birth, and often progress slowly during early childhood. There is a risk of malignant transformation into a malignant peripheral nerve sheath tumor (MPNST) in 5-10% of cases.[3,4]

There is no established means of medical treatment, but research into the molecular pathogenesis of NF1, as well as advances in tumor therapy in general, are opening the way towards clinical trials for plexiform neurofibroma.[5] Most cases require repeat surgery as

1 - Department of ENT, Silchar Medical College, Assam
2 - Department of ENT, Tezpur Medical College & Hospital, Assam
3 - Department of ENT, Jain ENT Hospital, Jaipur, Rajasthan

Corresponding author:
Dr Bapan Devnath
email: devnathbapan@gmail.com

Fig.1. Pre-op clinical photograph of facial plexiform NF

Fig. 2. Post-op photograph after 3 months with recurrence

complete excision is generally not possible due to the infiltrating nature of these tumors. Such neurofibromas infiltrate multiple tissue planes and are thus much more difficult or impossible to resect completely.[6]

Case Report

A 23-year-old male presented with a chief complaint of a swelling on the left side of the face since five years. After an asymptomatic period of 4 years the patient had started to experience mild, intermittent dull aching pain in the swelling for one year. There was no history of any regression in size of swelling or any discharge or trauma in the left side.

The patient had never noticed similar swellings elsewhere in the body. The past medical, surgical, and dental histories were unremarkable. Family history did not reveal any similar complaint in immediate or distant relatives. General physical examination showed a moderately built and well nourished 23-year-old male with steady gait, and satisfactory vital signs. There was no palpable lymph node in the neck or any site of the body.

There were no sign of icterus, clubbing or anemia. On local examination a diffuse swelling on the left side of the face extending up to the lateral wall of the left nostril up to root of the nose above and upper lip below. (Fig. 1) Laterally it extended up to 2cm medial to the pre-auricular region and lateral border of mandible, it also involved the left lower eye lid but vision on that side was normal. The swelling measured approx 10x10 cm in size and had indistinct borders. He had few small (around 5-8mm) neurofibromatous lesions over other side of the face and forehead. No other lesions were seen in any other site of the body.

On palpation, there was mild tenderness and the swelling had a very peculiar consistency, soft in most of the areas with few firm nodular areas, similar to that described in literature as a 'bag of worms'. No pitting was noticed. On auscultation no bruit could be detected. Intra-oral examination showed no focus of pathology, and the swelling had not extended intra orally.

Based on the history and clinical presentation, a working diagnosis of Facial Neurofibroma with neurofibromatosis type I (plexiform neurofibroma) was given. For the facial swelling however, the differential diagnosis included hemangioma, lymphangioma and arterio-venous malformation.

The patient was subjected to radiographic investigations. The panoramic and postero-anterior skull views did not reveal any evidence of pathology. Computed tomography showed an irregular hypodense enhancing soft tissue mass lesion confined to the subcutaneous tissue of the left cheek. No bony involvement was evident. Complete hemogram showed values that were within the normal range.

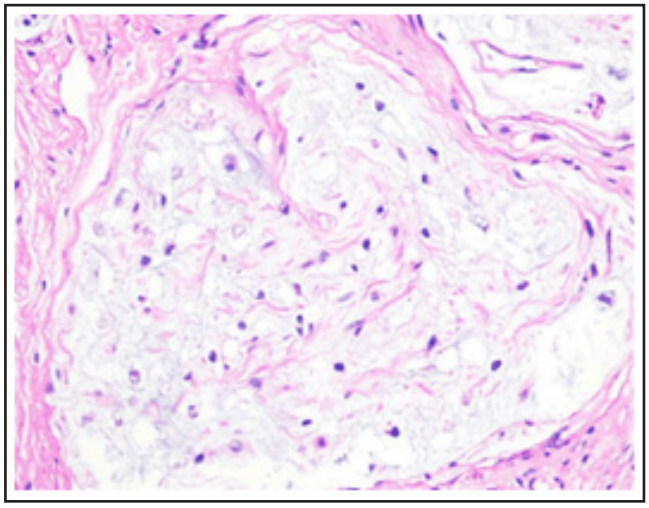

Fig. 3. Histopathological section of Plexiform neurofibroma; showing neural elements and fibroblasts

Fig. 4. Post-op. photograph 7 days after final operation

Lateral rhinotomy incision was given and facial skin flap was raised under general anesthesia. Operative findings revealed grossly thickened subcutaneous nerves and neo-vessels in the tumor mass, which was infiltrating deeply, and no clear tissue planes were identifiable. The neo-vessels were very friable and bled profusely during dissection. Complete excision was not possible; hence, subtotal excision and re-draping of skin flap was carried out.

The post-operative period was uneventful. However, on review after 3 months, there was partial re-growth of the swelling. (Fig. 2) The histopathological sections showed a lesion composed of bundles of nerve fibers arranged in a concentric manner with areas of myxoid changes. Schwann cells and fibroblasts were also seen. A histopathological diagnosis of Plexiform Neurofibroma was established. (Fig. 3)

In the second setting a curvilinear incision was given around 1.5cm below the left lower eye lid, then the skin flap was raised and the remaining resectable tumor mass were resected. Closure of operative wound done in layers. This whole procedure was done in local anesthesia under sedation. Few days in the immediate post operative period he had lower lid edema which got subsided completely after a week. (Fig. 4)

The case was then submitted to a physician and to rule out other features of neurofibromatosis-I and also to rule out the possibility of any systemic involvement.

Discussion

Characteristics of NF1 is occurrence of peripheral nerve sheath tumors, Neurofibromas which are most common cause of disfigurement in NF1.The term plexiform NF used to describe a network like growth of tumor involving multiple fascicles of nerve leading to diffuse mass of thickened nerve fibers surrounded by proteinaceous matrix.[7] PNF is a rare type of generalized NF, which occurs due to overgrowth of neural tissue in the subcutaneous tissue. The diffuse and soft nature of PNF is often compared with “a bag of worms.”

Localized NF1 usually present along a peripheral nerve and increases at late childhood and early adolescence, with a well defined margin mostly over skin also in stomach, kidney, bowels, bladder.[8]

The lesions can occur anywhere along a nerve, and may appear on the face, orbit and globe and frequently involve the cranial and upper cervical nerves. The condition can be quite disfiguring, as observed in the cases being presented, and hemifacial hypertrophy can occur. Complications include bleeding from trauma, neurological deficits and psychological disturbance because of abnormal anatomy.[9]

Histologically, these are peripheral nerve sheath

tumors containing all elements of the peripheral nerve, and are characterized by an increase in endoneural matrix with separation of nerve fascicles and proliferation of Schwann cells. PNF can turn malignant in 4-5% of cases.[10]

Resection and debulking of invasive PNF is however associated with a high rate of recurrence. In one pediatric series, complete resections developed recurrence in 20% and incomplete resections had a recurrence in up to 45% of the cases. One of the limiting factors is vascularity of these lesions and their abnormal propensity to bleed. These tumors bleed profusely during surgery because of the friable nature of the neo-vessels. Adequate blood should be arranged before taking up these cases for resection.[7]

Needle et al. analyzed the largest series of surgically managed PNFs and demonstrated that 54% recurred within a 10-year period, with the greatest risk of recurrence found in lesions involving the head and neck region. We encountered recurrence in both the cases being presented here.[6]

Wise et al. treated 39 patients of PNF with surgeries, they found 100% recurrence rate in massive PNFs and 25% recurrence in small tumors.[11]

Waggnor et al. in their retrospective study of 69 patients of PNFs, 44% were detected by age 5 and 2 of them found to be MPNS tumors and there were no specific clinical features in NF1 patients.[12]

Surgical management remains the mainstay of treatment for these tumors, but functional disturbances are almost inevitable while resecting tumors involving the head and neck region. No chemotherapeutic agent has yet been identified that reduces the size of these tumors.

Conclusion

Although characteristically benign, plexiform neurofibromas can cause pain, disfigurement and functional changes and more importantly, may turn malignant. The one salient feature found in all cases of NF-I is its progressive nature. Thus the general trend in each case is towards a worsening of the disease.

Extensive surgical resections in the head and neck region are risky due to the infiltrating nature of these tumors, which can lead to functional disability and a high rate of re growth. Hence, surgery should be undertaken only after giving due consideration to the possible psychological benefits by making these patients socially more acceptable in the society. Periodic clinical examination and MRI evaluation are required for about 2 years for timely detection and repeat surgery to achieve further correction. The role of a cognizant clinician lies in early diagnosis of the condition and alerting the patient about its future complications.

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Primary Thyroid Lymphoma

Manish Gupta,[1] Ginni Datta,[1] Naiya Rao,[1] Eshita Dadwal[1]

ABSTRACT

Introduction:

Lymphoma primarily arising from thyroid gland is very rare. Most patients give a history of previous Hashimoto's thyroiditis and hypothyroidism.

Case Report

We hereby report one such rare case, who presented with neck swelling and hoarseness. The fine needle aspiration cytology being inconclusive, the patient was taken up for near total thyroidectomy. The histopathology revealed it to be lymphoma, which was further confirmed on immunohistochemistry. The further whole body checkup showed it to be Stage IIE tumor. The patient received chemotherapy for residual mass in neck and is under follow-up for last one year with no recurrence.

Discussion

The case is being presented here due to its rarity, diagnostic dilemma and to discuss the management protocol for same.

Keywords:

Thyroid Neoplasms; Lymphoma; Autoimmune Diseases; Hashimoto Disease; Lymphoma, B-Cell

Primary thyroid lymphoma is a rare tumor, accounting for 0.5% to 5% of all thyroid malignancies and 2.5% to 7% of all extranodal lymphomas in most series.[1,2]

Typically, it occurs in middle-aged to elderly women with a background of Hashimoto's thyroiditis.[3] The relative risk of developing thyroid lymphoma in patients with Hashimoto's thyroiditis has been reported to be 40 to 80 times greater than in general populations[4] and it takes 20 to 30 years to develop thyroid lymphoma after the onset of Hashimoto's thyroiditis.[5]

Almost all cases of thyroid lymphoma are non-Hodgkins lymphoma (NHL) with B cell origin, but few thyroid T cell lymphomas have been described as anecdotal cases.[6]

Diffuse large B cell lymphoma (DLBCL), accounting for >50% of cases and extranodal marginal zone B cell lymphoma of mucosa-associated lymphoid tissue (MALT) lymphoma (10-23% cases) are its common subtypes.[3,7]

1 - Department of ENT, Maharishi Markandeshwar Institute of Medical Science and Research, MMU, Ambala, Haryana

Corresponding author:
Dr Manish Gupta
email: manishgupta1217@gmail.com

Case Report

A 45 year female presented to our out-patient department with complaint of progressive neck swelling for 10 years. There were complaints of difficulty in swallowing for 6 months, difficulty in breathing on lying down for 1 month and hoarseness for 10 days.

On examination the painless swelling was in lower anterior neck midline, 12cm X 7cm, moving on swallowing, firm to hard at places, involving both thyroid lobes and isthmus, with overlying skin normal. The indirect laryngoscopy revealed left true vocal cord palsy.

The thyroid function test suggested Hypothyroidism (Raised TSH and low T3, T4) while other routine blood investigations were within normal limits. There was high level of serum antithyroid microsomal antibodies. Fine needle aspiration cytology (FNAC) suggested thyroiditis. Patient was started on Thyroxine 50 microgram daily before breakfast. The chest x-ray PA view showed tracheal deviation to right. The contrast enhanced computed tomogram (Fig. 1) was done, which showed a large 10cm X 5.6cm heterogeneously enhancing ill-defined lobulated, solid lesion in left lobe, isthmus, with mild extension into right lobe of thyroid and retrosternal extension, till the origin of major vessels. There was

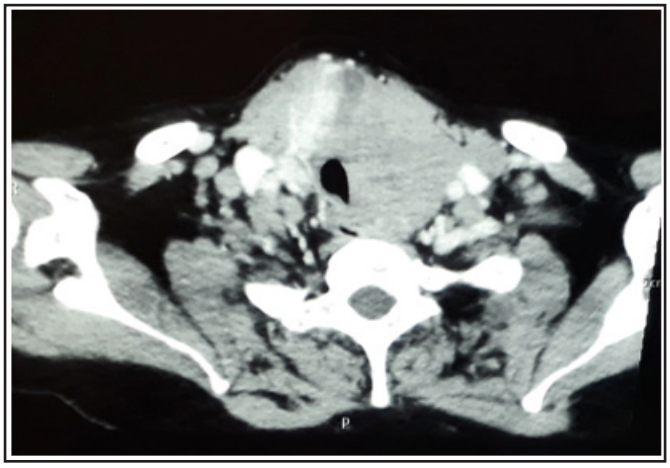

Fig. 1. The axial section, contrast enhanced computed tomogram of neck showing a large 10cm X 5.6cm heterogeneously enhancing, solid lesion in left lobe, isthmus, with mild extension into right lobe of thyroid.

Fig. 2. The excised Near-total Thyroidectomy specimen showing, 10cm X 6cm lobulated mass.

no evidence of calcification or hemorrhage within the mass. Posteriorly, it was extenting till the prevertebral region and anterolaterally it reached up to subcutaneous tissue with involvement of the strap muscles bilaterally. Medially it involved left paraglottic space and laterally engulfing internal jugular vein and common carotid artery.

With high suspicion of malignancy but not proven by FNAC, the patient was taken up for near total thyroidectomy (Fig. 2) under general anesthesia. The firm to hard thyroid mass was seen adherent to strap muscles, engulfing left internal jugular vein and common carotid artery. The mass was separated from major vessels with use of blunt and sharp dissection, while strap muscles were sacrificed. Small uninvolved thyroid tissue along with right parathyroids were dissected away from the excised mass and preserved, over inferior thyroid pedicle. The left recurrent laryngeal nerve was also engulfed and could not be saved.

Histopathological evaluation showed, lymphocytic infiltration with destruction of thyroid follicles suggesting the diagnosis of lymphoma (Fig. 3). The large lymphoid cells possessed round, vesicular nuclei, distinct nucleoli and moderate amount of amphophilic cytoplasm (Fig. 4). The tumor cells infiltrated the thyroid follicles replacing the follicular epithelium. Focal areas of preserved thyroid tissue with features of lymphocytic thyroiditis were seen. Immunohistochemistry showed tumor cells to be positive for CD20 (Fig. 5) and negative for CD3. Thus the diagnosis of diffuse large B-cell lymphoma in a background of Hashimoto's thyroiditis was made.

Post-operatively, the patient was worked up to rule out other organ involvement on both sides of diaphragm. All other investigations like chest X-ray PA view and abdomen ultrasound were within normal limits. Thus, it was staged IIE according to Ann Arbor staging system. The patient was started on chemotherapy (CHOP regime) with following drugs Vincristine, Adriamycin, Cyclophosphamide and Prednisolone, which the patient completed and has no residual or recurrence at primary site.

There is complete remission of disease with no evidence of any relapse or appearance of new lesion in one year follow-up.

Discussion

The thyroid lymphomas were classified as primary or secondary based on their clinical and pathologic features. Primary lymphomas of the thyroid were defined as the lymphomas with solely thyroid involvement or with the major tumor bulk in the thyroid at initial examination and others considered secondary.

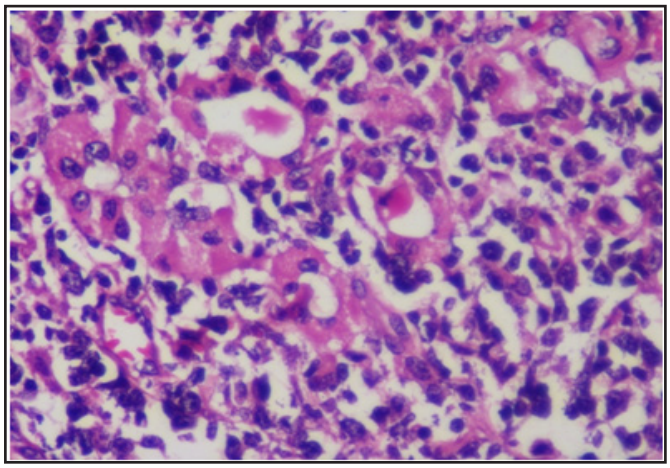

Fig. 3. Diffuse atypical lymphoid infiltrate arising in a background of Hashimoto's thyroiditis. Entrapped follicles show Hürthle cell change (H & E, x400).

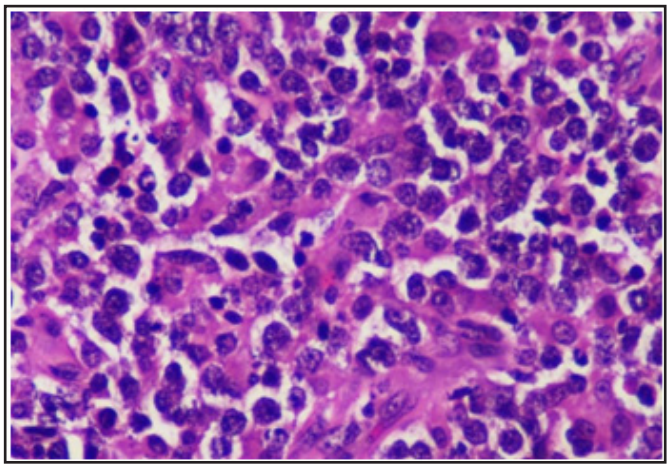

Fig. 4. Monomorphic population of medium to large sized atypical lymphoid cells with high N:C ratio and scant cytoplasm infiltrating and replacing the thyroid parenchyma (H&E, x400).

Primary thyroid lymphoma (PTL) typically develops in patients with a background of Hashimoto's thyroiditis. Because the normal thyroid gland has no native lymphoid tissue, thyroid lymphoma is thought to develop from lymphocytic tissue acquired during the course of chronic inflammation or an autoimmune process such as Hashimoto's thyroiditis and the prolonged presence of the stimuli leads to malignant transformation of the cells.1 The most prevalent form of PTL is diffuse large B-cell lymphoma, which is more invading than mucosa-associated lymphoid tissue lymphoma.[7] Rarer subtypes of PTL include follicular, small lymphocytic, Hodgkin's lymphoma, T-cell, mantle cell and lymphoblastic lymphoma.[7]

One study, discussed the role of Ebstein-Barr virus (EBV) and found it to be causative in very small portion of thyroid lymphomas (4% to 9% of cases).[8]

The PTL mostly present as a swiftly growing thyroid mass. Typically, this mass has grown rapidly over 1 to 3 months, and may cause locally obstructive and infiltrative symptoms, such as dysphagia, dyspnea and hoarseness.[9] Antibodies to one or more thyroid antigens like thyroperoxidase, thyroglobulin and TSH receptor are usually present with hypothyroidism.

Fine needle aspiration cytology (FNAC) is the initial procedure used for evaluation of a thyroid mass. However, the results of FNAC for the diagnosis of thyroid lymphoma are inconsistent, and its diagnostic accuracy varies widely.[10] Because, primary thyroid lymphoma develops in thyroid glands with pre-existing Hashimoto's thyroiditis, cytologic results of FNAC frequently reveal lymphocytes that are often erroneously diagnosed as the thyroiditis. Therefore, confirmatory procedures such as tissue biopsy or surgery are strongly recommended when primary thyroid lymphoma is suspected using FNAC. However, with recent advances in immunophenotypic analysis, the accuracy of FNAC has improved. This development in diagnosis of PTL is similar as for systemic lymphomas and has a reported definitiveness of 80-100% on FNAC.[11]

Ultrasonography is useful diagnostic modality for thyroid mass lesions. Although, nonspecific, but enhanced posterior echoes in lymphomas may help distinguish from other lesions and well defined borders separate lymphomatous from nonlymphomatous tissues.[12] The positive predictive value of ultrasound was higher for the nodular type at 64.9% and the mixed type at 63.2% than for the diffuse type at 33.7%, likely due to the latter's close resemblance to thyroiditis.[12]

To explain the prognosis and monitor for response of treatment, the clinical staging with the Ann Arbor staging system is used.[13] Staging work-up included history taking and physical examination, laboratory evaluation, chest radiography, bone marrow aspiration

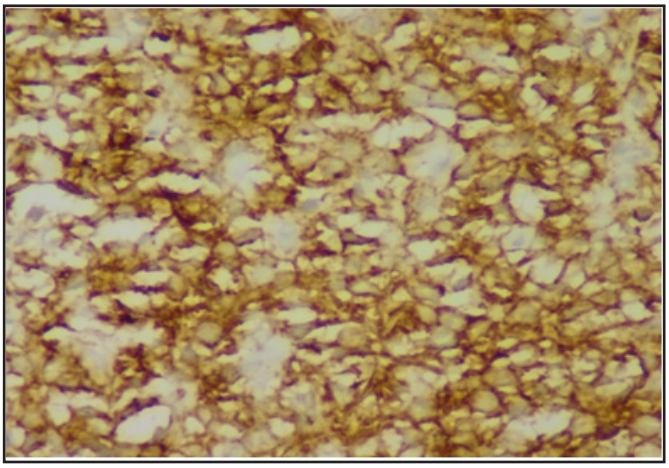

Fig. 5. Tumor cells show diffuse membranous positivity with CD20 (DAB, x400).

and biopsy, computed tomography of abdomen, pelvis, neck and chest. Stage IE - disease confined to the thyroid, Stage IIE - disease confined to the thyroid gland and the regional lymph nodes on the same side of the diaphragm, Stage IIIE - disease confined to the thyroid and lymph nodes on both sides of the diaphragm and/or spleen, Stage IV - Disseminated nodal and/or additional extranodal involvement.

Recently there has been interest in the utility of fluorodeoxyglucose (FDG) positron emission tomography (PET) scanning at initial diagnosis and in monitoring therapeutic response. Both the response to treatment and disease recurrence after treatment are detected earlier by FDG-PET compared to computed tomography.[14] But its low diagnostic specificity, as FDG accumulation is seen in thyroid adenomas and carcinomas and relatively higher cost limits its use.

In one study, they found that 68% of patients with thyroid lymphoma had high titers of antithyroid (antithyroglobulin and antithyroperoxidase/ antimicrosomal) antibodies, and all patients showed histological evidence of Hashimoto's thyroiditis.[9]

The clinical prognostic factors in thyroid lymphoma are tumor size (greater than 10cm), advanced stage (greater than stage IE), presence of local obstructive symptoms, rapid tumor growth and mediastinal involvement.[3]

The treatment of patients with thyroid lymphoma is controversial.[15] It has been suggested that combined external radiation and adjuvant chemotherapy alone may achieve long term survival for patients with thyroid lymphoma.[9] In another series, most of the cases had undergone surgery and received radiotherapy.[8] They argued, that primary thyroid lymphomas arise in the setting of autoimmune thyroiditis, so surgical removal of gland would remove antigenic material prompting the lymphoid proliferation. A retrospective study on 26 patients with primary thyroid lymphoma proposed total thyroidectomy for localized MALT lymphomas and total thyroidectomy with single agent chemotherapy (Chlorambucil) for disseminated MALT lymphoma.[16] For aggressive diffuse large B cell lymphoma, they recommended multidrug regimen chemotherapy and combination of chemotherapy plus radiotherapy for localized aggressive lymphoma.[16]

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Frontoethmoid Mucocele causing Unilateral Proptosis

Netra Aniruddha Pathak,[1] Chetana Shivdas Naik,[1] Vidya Vasant Rokade,[1] Kiran Jayawant Shinde,[1]

ABSTRACT

Introduction

Mucoceles occur most frequently in the frontal and ethmoidal sinuses, without gender prevalence. Presenting symptoms can include facial pain, headache, nasal obstruction, diplopia, decreased visual acuity, orbital globe displacement, facial swelling and meningitis, depending on the anatomic area involved. The gold standard in terms of diagnostic precision is computed tomography scan.

Case Report

The present study describes case of frontoethmoidal mucocele with orbital involvement that was treated by transnasal endoscopic approach obtaining good outcomes, demonstrating safety and efficacy of this surgical approach.

Conclusion

Transnasal endoscopic management of mucoceles is preferred due to minimal trauma and less morbidity.

Keywords

Mucocele; Paranasal Sinus Diseases; Exophthalmos; Endoscopy

Frontal mucoceles are collections of inspissated mucus that occur when there is obstruction to the outflow of the frontal sinuses. The obstruction may be due to congenital anomalies, infection, trauma, allergy, neoplasms or surgical procedures in the nose.[1] With continued secretion and accumulation of mucus, the increasing pressure causes atrophy or erosion of the bone of the sinus, allowing the mucocele to expand in the path of least resistance. This may be into the orbit, adjacent sinuses and nasal cavity or through the skin. The mass may remain a simple mucocele containing mucus, or it may become secondarily infected, forming a pyocele.

Frontal mucoceles may present with ophthalmic disturbances. They can encroach on the orbit with ocular displacement and proptosis. They are a common cause of long-standing unilateral proptosis. Computerised tomographic scan (CT) has proven to be an excellent diagnostic tool and is essential in surgical planning.[2] Magnetic resonance imaging (MRI) may provide additional information in the examination of the orbit and may be preferred imaging technique if other soft tissue tumours causing proptosis cannot be excluded. Differential diagnosis includes paranasal sinus carcinoma, Aspergillus infection, chronic infection or inverting papilloma. Endoscopic marsupialization of frontal sinus mucoceles was reported for the first time by Kennedy et al. in 1989. The most common treatment modality is extirpation of the mucocele, cranialization or exclusion of sinus and nasofrontal duct obliteration.[3]

Currently, this surgical approach is considered the first choice of treatment because it is less invasive and has less morbidity compared to conventional techniques, such as external frontoethmoidectomy and osteoplastic flaps with or without obliteration of frontal sinus.[1,4-7]

The purpose of the present study was to report a case of frontoethmoidal mucocele with orbital extension, treated with endonasal endoscopic surgery and to review the literature.

1 - Department of ENT, Smt Kashibai Navale Medical College, Narhe, Pune

Corresponding author:
Dr Netra Aniruddha Pathak
email: netra.pathak@gmail.com

Fig. 1. Patient with proptosis of his right eye and displacement of the globe inferiorly

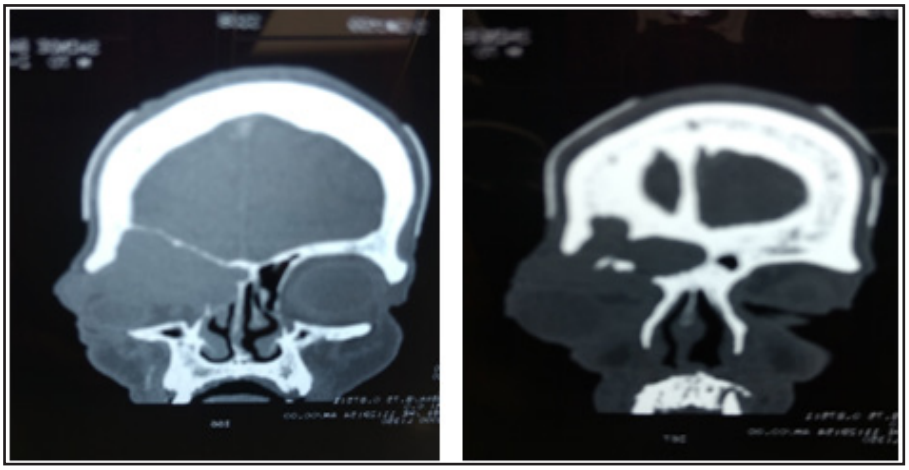

Fig. 2. CT shows non-enhancing soft tissue density lesion involving right frontal and ethmoid sinuses

Case Report

A 70 years old male patient presented to our OPD with complaints of redness of right eye, watering and pain in right eye since 7 to 8 months Also there was proptosis and no vision at all since 3 months. Patient was non-diabetic and non-hypertensive. There was no history of previous nasal surgery or head trauma. Bilateral cataract surgeries were done 15 years back. Examination of ear, nose and throat revealed no abnormality. Ophthalmic examination showed bullous keratopathy in the right eye with severe axial proptosis with no perception of light. Conjunctiva was congested and cornea was hazy. Eye movements were restricted in all directions. (Fig.1) CT orbit and PNS was done. It showed an ill defined non-enhancing soft tissue density lesion measuring 4.6x3.7x2.7 cm (APxTRxCC) involving right frontal and ethmoid sinuses. (Fig.2)

MRI revealed fairly large abnormal signal intensity lesion involving right frontal and anterior ethmoid sinuses indenting over right eye globe from posterosuperior and medial aspect displacing it downwards and laterally with resultant non-axial proptosis with no post contrast enhancement and no intracranial extension suggestive of frontoethmoid mucocele.

Patient was posted for endoscopic sinus surgery. We performed anterior ethmoidectomy and endonasal frontal sinusotomy on the right side via endoscopic approach, with drainage and marsupialization of the mucoceles. (Fig.3) Eye ball came to normal position immediately on table only. (Fig.4) Postoperative endoscopic exam (2 months) showed epithelialization of ethmoidal cavity, nasofrontal recess and frontal sinus and eyeball in normal position. (Fig.5)

Discussion

Mucoceles are mucous-secreting expansive pseudocystic formations, and capable of expansion by virtue of a dynamic process of bone resorption and new bone formation.[5] They result from obstruction of a sinus ostium and frequen¬tly are related to a previous condition as chronic sinusitis, trauma, surgery or expansible lesion. With continued secre¬tion and accumulation mucus, the increasing pressure causes atrophy or erosion of the bone of the sinus, allowing the mucocele to expand in the path of less resistance. Mucoceles are most commonly found in the frontal and ethmoidal sinuses, are infrequent in the sphenoid sinus and occur rarely in the maxillary sinuses.[6]

Proptosis is the most common presenting sign of a frontal mucocele, as in our case. Other clinical features include a mass in the upper medial quadrant of the orbit, pain, ver¬tical diplopia, limited upward gaze, bifrontal headache and increasing tearing.[7] Included in the differential diagnoses are dysthyroid eye disease,

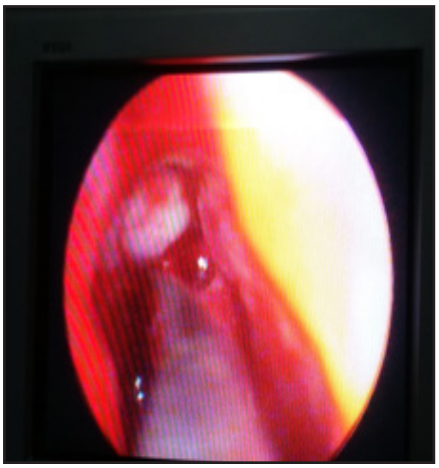

Fig. 3. Intraoperative image in normal position immediately

Fig. 4: Eyeball after drainage of mucocele

Fig. 5. Patient shows complete resolution of proptosis after surgical treatment.

retrobulbar orbital tumor, inflammatory pseudo tumor, sinus tumor, metastatic lesion and mucoceles of paranasal sinuses. Progressive unilateral painless proptosis of gradual onset should make one suspicious of a mucocele involving the paranasal sinuses, the frontal and ethmoid sinuses being the two most common locations. This is especially so, if there is accompanying diplopia, orbital or forehead pain and epiphora, which are frequently the presenting symptoms of mucoceles.

The symptoms are produced by pressure against the globe and mechanical interference with its motility. The proptosis is usually non-axial with the globe being displaced away from the site of the mucocele. There may be an associated history of sinus or nasal pathology or injury. The patient may occasionally complain of blurred vision and image distortion. Visual loss, field changes and optic atrophy are late manifestations which occur when the proptosis becomes marked. The cause of visual loss is varied. It may be due to direct compression of the optic nerve in the orbit, a vascular or inflammatory process involving the optic nerve refractive errors induced by the indentation on the globe, exposure keratopathy or secondary glaucoma.

The ophthalmic manifestations of patient is described are not uncommon presentations of frontal mucoceles. Other known complications of frontal mucoceles include erosion of the anterior wall, resulting in a tender fluctuant mass beneath the periosteum of the frontal bone. Erosion of the posterior wall may produce complications such as epidural abscess, meningitis, subdural empyema and brain abscess.

The classic radiographic appearance of a mucocele is generalised thinning and expansion of the sinus walls and there may also be evidence of sinus disease as well as bony erosions. The mucocele usually appears homogenous and airless. CT scan is much better in delineating the extent of the lesion and its relations to other surrounding structures.[8]

Contrast-enhanced MR imaging is useful in differentiating mucoceles from sinonasal tumours. Treatment of mucoceles is surgical and the access routes may be either external or endonasal.[6,9,10] External approach is made through frontoethmoidectomy (Lynch's procedure) or by osteoplastic flaps with or without frontal sinus obliteration and total excision of mucosa. For many years, these techniques were the only surgical alternative to treat frontoethmoidal mucoceles. They are aggressive procedures with high morbidity and currently they are reserved for extreme cases with significant intracranial or orbital extension.

The current tendency is to conduct functional, little invasive and low morbidity procedure with sinonasal endoscopic surgery, with marsupialization and abundant drainage of the lesion, preserving the epithelium.[11-14] The prognosis for frontal sinus mucoceles is good with likelihood of cure, and a low incidence of recurrence. Although, for control of recurrences, long-term followup is recommended.

Conclusion

Mucoceles are benign lesions of expansive characteristic that may cause severe complications at orbital and intracranial levels. Frontal mucoceles may occasionally present with ophthalmic manifestations such as proptosis. Being benign and curable, early recognition and management of mucoceles is of paramount importance. A high index of suspicion and appropriate radiological studies are necessary for the diagnosis of mucocele. Marsupialization with transnasal endoscopic evacuation proved to be a safe and efficient procedure in therapeutic approaches of frontoethmoidal mucoceles.

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Primary Laryngeal Aspergillosis in an Immunocompetent Host

Kaustuv Das Biswas,[1] Ankit Choudhary,[1] Swapan Kumar Ghosh,[1] Subhradev Biswas[1]

ABSTRACT

Introduction

Aspergillosis of Larynx is very rare and may present with symptoms suspicious of malignancy. Prevention of dissemination warrants early diagnosis. It is found mainly in Immunocompromised patients and is usually necrotizing, invasive with disseminated systemic infection, associated with poor prognosis. In Immunocompetent patients it is extremely rare and may present as colonization associated with excellent prognosis.

Case Report

A 43 year old male patient presented with hoarseness of voice for about 3 months with whitish irregular lesion that involved the anterior 1/3 of both the vocal cords. A cheesy material was found covering indurated lesion of both the vocal cords, intraoperatively. Stripping of mucosa over vocal cords was done and cheesy material collected and sent for HPE which revealed Aspergillus hyphae overlying Mild dysplastic changes. Following diagnosis the patient was followed up with oral dosages of Itraconazole.

Discussion

The primary Aspergillosis of larynx is extremely rare. Involvement is always secondary to immunocompromised states like AIDS, malignancy, Diabetes, etc. This was a rare case in Immunocompetent patient.

Management constitute removal of the vocal cord lesions during biopsy. Amphotericin B is first-line agent for this infection, however aerosolised and liposomal amphotericin B offer effective dosing with less toxicity. Newer antifungal Itraconazole may produce more reliable results.

Keywords

Larynx; Aspergillosis; Itraconazole

Aspergillosis of larynx is extremely rare and is almost always secondary to advanced stage of broncho-pulmonary aspergillosis. The diagnosis of aspergillus is important as it mimics the symptoms suspicious of malignancy;[1] but if the diagnosis is delayed or neglected, the aspergillosis may promulgate extensively leading to necrotising, invasive and severe systemic symptoms with poor prognosis. Even in patients with compromised immunity, opportunistic Aspergillus infection primarily affecting Larynx is remarkably low. The cause of suppression for immunity could be many fold like in the case of AIDS, malignancy, diabetes mellitus, drug induced (steroids, chemotherapeutic agents or antibiotics) or secondary to radiotherapy.[2] In patients with competent or normal immunity the laryngeal aspergillosis is eminently low and may presents as local colonization initially rather being invasive in nature. Novelty lies in considering the diagnosis of primary disease even in immunocompetent host and treating it aggressively to prevent debilitating complications.

Laryngeal aspergillosis mainly affects vocal cords and is primarily presented with hoarseness of voice and rarely with respiratory obstruction or stridor.[3] This report primarily presents the clinical manifestations, diagnosis and management for an immunocompetent patient presenting with Aspergillus fumigatus infection of the vocal cords.

Amphotericin B was earlier considered as the drug of choice for management of Laryngeal Aspergillosis but have severe systemic side effects. In our case oral Itraconzole was tried successfully which is relatively

1 - Department of ENT, SSKM hospital and IPGMER, Kolkata.

Corresponding author:
Dr Ankit Choudhary
email: dr.ankitchoudhary@gmail.com

less toxic but equally effective in treating Laryngeal Aspergillosis, thus shifting the whole paradigm of management to a safer alternative.

Case Report

A 43 year old male, shopkeeper by occupation presented with complaints of hoarseness of voice for 3 month. There was no associated history of fever, cough, pain or respiratory distress. Indirect Laryngoscopy revealed whitish irregular lesion involving the anterior 1/3 of both vocal cords which were mobile. Other systemic and ENT examination were all within normal limits. Chest X-Ray and blood parameters were all within normal limits. Serology (Hepatitis B,C and HIV) was negative. It was provisionally diagnosed as a case of keratosis of the larynx and the patient underwent Microlaryngeal surgery under general anaesthesia. Intraoperative evaluation revealed indurated lesion over the medial margin and upper surface of anterior one third of both the vocal cords and the anterior commisure. False Cord and Subglottis was free of any lesion. Cheesy material was found to cover the indurated lesion. (Fig.1) Cheesy material was collected and stripping of mucosa was done in affected part and sent for histopathological examination.

Pathology revealed fungal hyphae morphologically resembling aspergillus overlying mild to moderate dysplastic changes (Fig. 2). Blood evaluation including total WBC count, differential count, blood sugar, serology, CD count was all within normal limits. Thorough evaluation of chest also revealed no abnormality. The case was thus diagnosed as a case of Primary aspergillosis of larynx in an immunocompetent host. Patient was then followed up on antifungal (Itraconazole 100mg BD for 2 months). Follow up fibreoptic laryngoscopy (FOL) at 2 month, 6 month (Fig. 3) and 1 year revealed no obvious abnormality.

Discussion

Actinomycosis, Blastomycosis, Histoplasmosis, Candidiasis, Leptospirosis and Rhinosporidiosis are the common primary fungal infestation of Larynx.[4] Aspergillosis is caused by the ubiquitous fungi of family Aspergillus (Species A. fumigatus, A. niger, A. flavus). Aspergillosis can broadly be subdivided onto two categories viz. Superficial and Deep. Superficial category involves the mucosal lining where as Deep category involves the deeper tissues and may disseminate by blood to affect the lungs, liver, heart, brain, kidneys, spleen, gastro-intestinal tract and lymph nodes.

As per histopathology, Aspergillosis can be primarily categorized as necrotizing, suppurative and granulomatous or pseudo-membranous varieties. Aspergillus fumigatus and niger are the two most

Fig. 1. Pre-operative FOL showing whitish irregular lesion involving the anterior 1/3 of both vocal cords

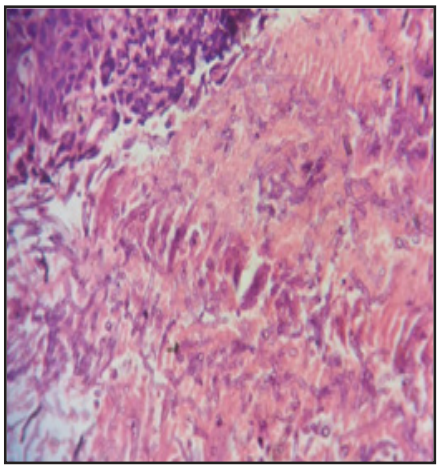

Fig. 2: HPE slide revealing fungal hyphae overlying mild to moderate dysplastic change (H&E, 10X)

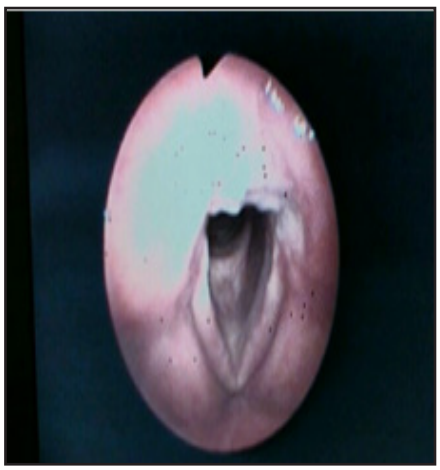

Fig. 3. Post operative FOL showing complete resolution of the lesion

common pathogenic organism in Human. It is seen more commonly in tropical region. Primary infestation of larynx by Aspergillus is uncommon. Aspergillus Infestation of Larynx is almost always secondary to chronic debilitating diseases like diabetes, malignancy and other immunological diseases. It is often seen in patients receiving long standing immunosuppressive treatment, cytotoxic drugs (cancer chemotherapy) and radiotherapy. However, in this patient, none of the above-mentioned factors was present.

The localized infection of Aspergillus in larynx is extremely rare and is almost always secondary to Aspergillosis of tracheobronchial tree (Commonly Allergic Bronchopulmonary Aspergillosis and Invasive Pulmonary Aspergillosis). Notably, it was observed that none of the 98 patients affected by systemic aspergillosis in study by Young et al[5] had laryngeal involvement. The hyphae of Aspergillus stains basophilic with hematoxylin and eosin stain. Gomori Methenamine Silver stain, Reticular silver impregnation method, PAS and Hematoxylin stain, give a better morphological appearance of the hyphae. It is identified by its peculiar circular mycelium with septate hyphae, occasional folds and dichotomous branching.[6]

Early diagnosis of aspergillosis infection is facilitated by the symptoms which mimics that of vocal cord carcinoma (hoarseness of voice). For the patient early relief of symptoms might be facilitated by the removal of vocal cord lesions during the biopsy. It is very important to diagnose the infection in early stage to adequately manage and prevent further dissemination of the disease. Management of Aspergillosis in patients with normal immune system is generally by antifungal agents. However, the effect of antifungal agents in treatment of immuno-compromised patients is not very clear. Amphotericin B is considered as the primary and first-line agent for treating this infection in immunocompromised patients.[7] Since it is associated with high incidence of toxicity and side effects, Aerosolized and liposomal amphotericin B offer hope of higher and more effective dosing with less toxicity. Newer antifungal agents like Itraconazole are also showing promising results as per recent studies.[8] The liquid formulation of Itraconazole may produce more reliable and constant circulatory levels but interaction with Rifampicin, Phenytoin, Cyclosporine and other drugs may be a problem.

Primary aspergillosis of Larynx should be considered as a differential diagnosis in patients presenting with hoarseness even in immunocompetent host and should be treated aggressively to prevent any dissemination. Itraconazole was found to be effective antifungal agent with encouraging results in our case.

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Case Report

Autopolypectomy of a Vocal Cord Polyp

Saud Ahmed,[1] Altaf Hussain,[1] Basharat Nadeem,[1] Faroq Ali[1]

ABSTRACT

Introduction:

Vocal cord polyps commonly occur in those with a history of vocal abuse. Patients with large lesions generally undergo microlaryngeal surgery under general anaesthesia. This unique case report highlights a strange scenario where the patient coughed out a fleshy mass during his morning walk and which was later confirmed as a vocal cord polyp.

Case Report

A 62 year old male with a history of hoarseness of voice for 3 months presented to the ENT OPD holding a chunk of tissue which was apparently coughed out by him during his morning walk. After the incident, his symptoms had immediately improved. A videolaryngoscopy showed a congested spot on the right vocal cord being the probable site of origin of the lesion. On Histopathological examination, the tissue was reported as a vocal cord polyp. The patient was managed conservatively but the lesion recurred at the same site after a month for which a microlaryngeal excision was performed.

Discussion

Vocal cord polyps are fairly common in ENT practice and usually present to the clinic with hoarseness of voice. Polyps that are small are usually managed conservatively by voice therapy alone whereas large polyps require surgical excision. This unique case report highlights a strange clinical scenario where the patient coughed out a large vocal cord polyp (Auto-polypectomy) during a bout of acute cough. This event saved him a surgery at the first instance, but eventually had a recurrence and had to undergo an excision under GA.

Keywords:

Polyps; Vocal Cords

Vocal fold polyps are characterized by benign soft tissue swelling on medial side of vocal folds and commonly present with hoarseness of voice. They commonly arise at the junction of anterior and middle 1/3rd of the vocal fold and are commonly found in middle aged females and also seen in children due to excessive screaming or shouting.[1] The most common cause is attributed to mucosal injury arising as a result of phonotrauma involving either of mucosal surfaces. These lesions inhibit the vibratory mucosal waves travelling on the vocal fold and hence patients usually present with change in the quality of voice. Depending on the size, patients can also have noisy breathing and intermittent pain. On histopathological examination, a combination of signs of recent bleeding and depositions of fibrin and iron pigment in macrophages is seen almost exclusively in polyps when compared with other benign lesions.[2]

1 - Department of ENT, Primecare Hospital, Bangalore

Corresponding author:
Dr Saud Ahmed
email: saud.ahmed@primecare.in

Case Report

We report a case of a 62 year old adult male who presented with a chunk of tissue which was apparently coughed out by him during his morning walk and following which the hoarseness immediately improved. He gave a 3 month history of hoarseness of voice for which no prior medical advice was sought. Apart from being a hypertensive on regular medication there was no other significant medical history neither he had history of substance abuse. A Videolaryngoscopy showed a congested spot (raw mucosal area) with no active bleed on the superior surface of anterior 1/3rd of the right vocal cord, being the probable site of the coughed out lesion. (Fig. 1) Both the vocal cords were mobile. General physical examination along with basic laboratory investigations were within normal limits.

The coughed out tissue was sent for histopathological examination. It showed features of hyalinization, fibrinous deposits and congested vessels in the stroma

of the lesion surrounded with multilayered squamous epithelium and the diagnosis was consistent with vocal cord polyp. (Fig. 2)

As the patient had a raw mucosal surface on the vocal cord with no active bleed, he was managed conservatively with antibiotics, antireflux medications, steam inhalation and voice rest. However, he came back after a month with hoarseness of voice. Videolaryngoscopy was repeated and showed a polypoidal and highly congested lesion on the superior aspect of the right vocal cord (anterior 1/3rd). The lesion was crossing the midline and occupying the anterior commissure. (Fig. 3) Both vocal cords were mobile. Under antibiotic cover, he was posted for microlaryngeal surgical excision (cold steel) under general anaesthesia. The excised lesion was reported as Lobular capillary hemangioma. (Fig. 4) Postoperatively, he was advised antireflux medication, steam inhalation and absolute voice rest for 6 weeks. On follow up after 3 months he is found to be asymptomatic with no recurrence of the lesion.

Discussion

Vocal cord polyps are fairly common in ENT practice and usually present in individuals with abusive voice behaviors like excessive talking, habitual throat clearing, prolonged and excessive loudness, use of inappropriate pitch and chronic cough. Polyps start after a bout of voice trauma and present to the clinic with hoarseness of voice.[3] Polyps develop at the site of maximum muscular and aerodynamic forces exerted during phonation and are considered a sequelae of phonotrauma.[4] At microscopic level, there is a tear in the lamina propria and epithelium caused by shearing forces during exertion leading to capillary rupture with focal hematoma followed by inflammatory cell infiltration and new matrix formation. Polyp is formed when remodeling in these tissues happen during healing phase. They obstruct flow of mucosal waves causing hoarseness of voice.[5]

Polyps can present unilaterally or bilaterally and can be broad-based or pedunculated. The colour of the lesions vary and can be red, white or translucent. They can also be categorized as hemorrhagic and non-hemorrhagic types. Hemorrhagic are usually found in patient who are on anticoagulant therapy. Non-hemorrhagic polyps are found after voice abuse.[6]

Few investigators have hypothesized hard glottal attacks (HGA) on surfaces of vocal cords to be associated with benign lesions of vocal cords like vocal cord polyps in professional speakers, singers, and nonprofessional speakers.[7]

Fig. 1. Showing area of congestion in anterior 1/3rd of right vocal cord marked in oval (probable site of lesion)

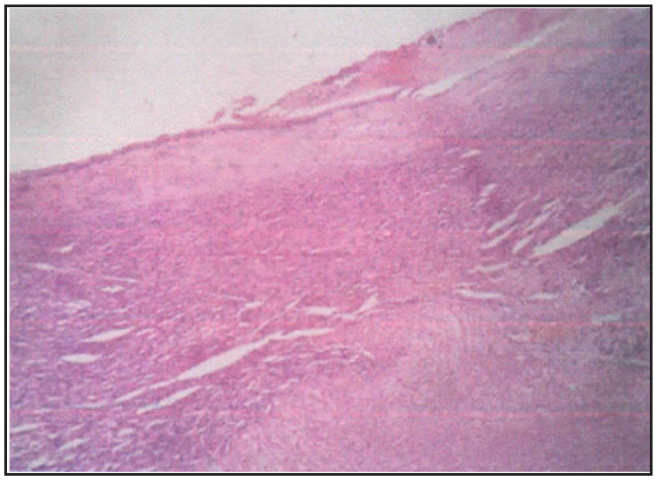

Fig. 2. HPE showing features of hyalinization, fibrinous deposits and congested vessels in the stroma of the lesion surrounded with multilayered squamous epithelium, consistent with vocal cord polyp. (H&E, 40X)

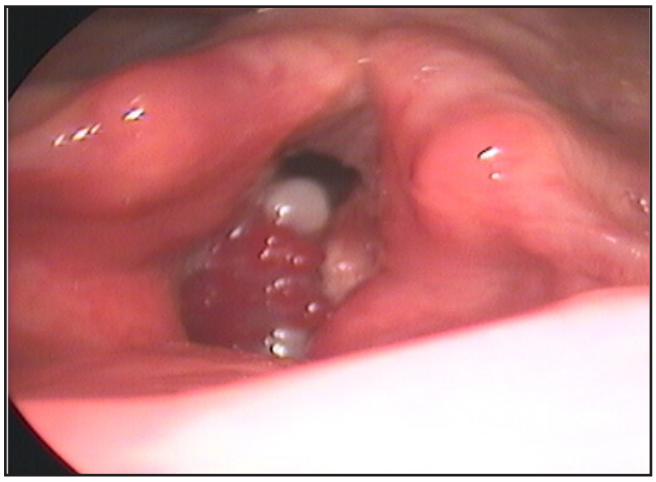

Fig. 3. Polypoidal, congested mass in anterior 1/3d of vocal cord covering anterior commissure and crossing midline. Vocal cord movements were normal.

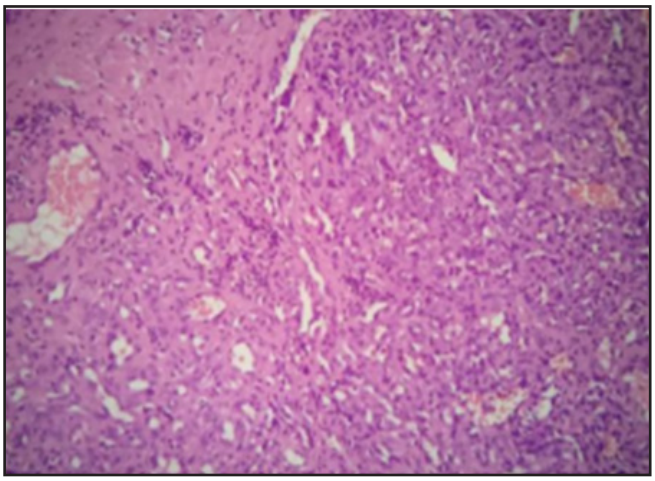

Fig. 4. HPE showing surface ulceration with fibrinous clots, proliferating capillaries and infiltrating cells suggestive of Lobular Capillary Hemangioma. Negative for malignancy. (H&E, 100X)

Rarely, patients with large polyps present with inspiratory stridor and dyspnea.

Polyps that are small are usually managed conservatively by voice therapy alone.[8] Large polyps require surgical intervention.[9] Voice rest, management of acid reflux and if possible, to discontinue anticoagulant for hemorrhagic polyps are usually necessary. Pulse diode laser is used to coagulate small hemorrhagic polyps.[10]

Our patient miraculously had an auto-polypectomy during a bout of acute cough. This was confirmed on videolaryngoscopy findings and HPE report of the coughed out lesion. However, the lesion recurred after a month for which he had to undergo a microlaryngeal excision under GA.

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Late Oesteoradionecrosis of Mandible Five Years after Radiotherapy for Carcinoma Base of Tongue

Somesh Mozumder,[1] Shirish Dubey,[1] Aniruddha Dam,[1] Anup Kumar Bhowmick[1]

ABSTRACT

Introduction

Osteoradionecrosis (ORN) is a process where irradiated bone undergoes necrosis and becomes exposed through soft-tissue. It is a late effect of radiotherapy. Early presentation within 2 years, is thought to be related to high dose of radiation therapy, whereas late presentation is usually secondary to trauma and delayed wound healing with in compromised tissue.

We present a case of late presentation where there was no history of trauma to the associated region; therefore making the case unique.

Case report

50 years old male patient from rural Bengal presented with history of invasive squamous cell carcinoma (SCC) of right base tongue with bilateral cervical nodal metastasis treated with external beam radiotherapy of 70 Gy in 35 fractions in 2009. In April 2014 he developed pain in the right side of lower jaw with foul breath and progressive difficulty and pain while opening mouth. Biopsy established the diagnosis of oesteoradionecrosis.

Discussion

ORN can be spontaneous, but most commonly results from tissue injury. The absence of reserve reparative capacity is a result of the prior radiation injury. The irradiated mandible, periosteum, and overlying soft tissue undergo hyperemia, inflammation, and endarteritis.

Conclusion

During follow up any lesion suspicious of recurrence or second malignancy with clinical features of pain, swelling, trismus, halitosis, mucosal ulceration, bare bone etc a differential diagnosis of oesteoradionecrosis should be kept in mind, even long time after radiotherapy & absence of trauma.

Keywords

Mandible; Osteoradionecrosis; Radiation Injuries

Osteoradionecrosis (ORN) is a process where irradiated bone undergoes necrosis and becomes exposed through soft-tissue. The first report of ORN of the jaws after radiation therapy (RT) was published in 1992 by Regaurd.[1] Ewing in 1926 first recognized and reported the bone changes associated with RT and described this disease state as radiation osteitis.

ORN is a late effect of radiotherapy.[2] Early presentation within 2 years, is thought to be related to high dose of Radiation therapy (>60 gray), whereas late presentation is usually secondary to trauma and delayed wound healing with in compromised tissue.[3]

We present a case of late presentation where there was no history of trauma to the associated region.

Case report

A 50 years old male patient from rural Bengal presented with history of invasive squamous cell carcinoma (SCC) of right side of base of tongue with bilateral cervical nodal metastasis, for which he received external beam radiotherapy (EBRT) of 70 Gy in 35 fractions with Cobalt 60 machine in 2009, including oropharynx and both side of neck. No chemotherapy was added to the radiation.

1 - Department of ENT, Chittaranjan National Cancer Institute, Kolkata

Corresponding author:
Dr Somesh Mozumder
email: drsomeshmozumder@gmail.com

Fig.1. Mucosal oedema and ulceration with visualisation of bare bone.

The retromolar region of mandible was included in the radiation field.

No Chemotherapy was administered either before or after RT.

Since then the patient was under close follow up as per follow up schedule for head-neck cancers.

In April 2014 he developed pain in the right side of lower jaw with foul breath and progressive difficulty and pain while opening mouth.

On examination the soft tissue and skin over the right side of body of mandible near attachment of masseter muscle was found to be thickened and tender. Trismus and halitosis were noted. Oral cavity examination revealed mucosal oedema and ulceration with visualisation of bare bone through it covered by slough, (but no frank growth) over the outer part of right side of body of mandible at gingivo-buccal sulcus near lower right 2nd and 3rd molar teeth.

There was no loco-regional lesion clinically suspicious of malignancy seen in oral cavity, oropharynx and larynx; no neck node was also palpable.

Punch biopsy was taken from the said ulceration but came inconclusive.

C.T scan and Orthopantomogram of oral cavity was taken and they both showed radiolucent area of bone loss around the said region but absence of any adjacent soft tissue mass lesion that has caused mandibular bone destruction or cortical expansion.

Re-biopsy was taken from the ulcerated area, this time with piece of exposed bone in the specimen. It showed presence of necrotic bone along with presence of inflammatory cells and granulation tissue in adjacent soft tissue.

Clinical, radiological and histological picture established the diagnosis of late oesteoradionecrosis.

Scope of using hyperbaric oxygen was not available in the institute therefore sequestrectomy was done and the patient was subjected to antibiotics, zolindronate

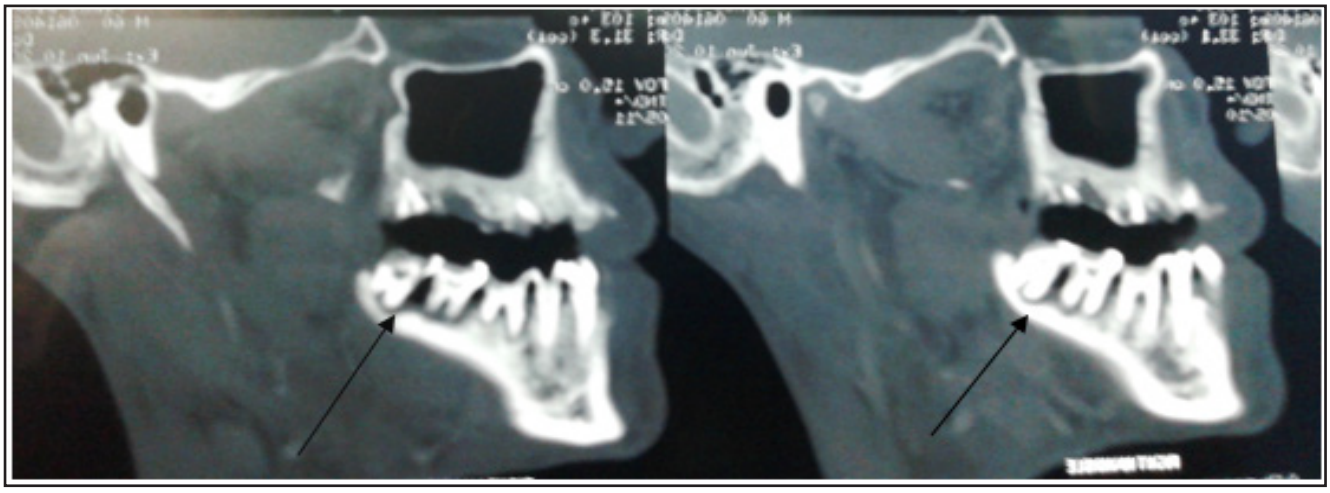

Fig.2. C.T scan of oral cavity showed radiolucent area of bone loss around lower right 2nd and 3rd molar teeth but absence of any adjacent soft tissue mass lesion that has caused mandibular bone destruction or cortical expansion.

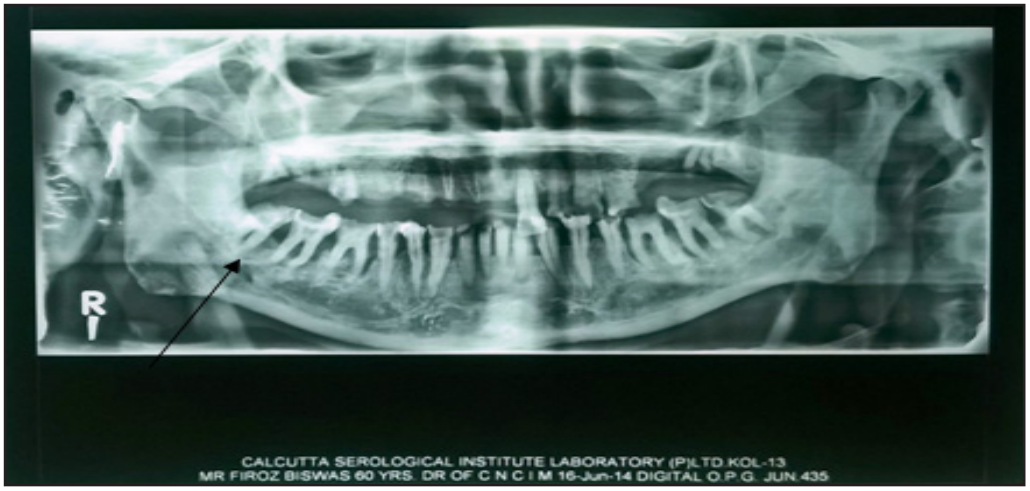

Fig.3. Orthopantomogram showing radiolucent area of bone loss around lower right 2nd and 3rd molar teeth but absence of any adjacent soft tissue mass lesion that has caused mandibular bone destruction or cortical expansion.

and pentoxifyline and kept under close follow up.

Discussion

Osteoradionecrosis (ORN) is a condition of dead bone in a site of radiation injury. ORN can be spontaneous, but most commonly results from tissue injury. The absence of reserve reparative capacity is a result of the prior radiation injury. Even apparently trivial trauma such as denture-related injury, ulcers, or tooth extraction can overwhelm the reparative capacity of the radiation-injured bone.

Traditionally, 3 grades of disease (I, II, III) are recognized. Grade I ORN is the most common presentation. Exposed alveolar bone is observed. Grade II is that does not respond to hyperbaric oxygen (HBO) therapy and requires sequestrectomy/saucerization. Grade III is demonstrated by full-thickness involvement and/or pathologic fracture.[1]

The mandible is affected more often than the maxilla or any other bones of head and neck region. The incidence of ORN in the mandible is reported to be between 2% and 22% and most often affects the body of the mandible.[1] The irradiated mandible, periosteum, and overlying soft tissue undergo hyperemia, inflammation, and endarteritis.[4] These conditions ultimately lead to thrombosis, cellular death, progressive hypovascularity, and fibrosis. The radiated bed is hypocellular and devoid of fibroblasts, osteoblasts, and undifferentiated osteocompetent cells.

Mandibular ORN develops most commonly after local trauma, such as dental extractions, biopsies, related cancer surgery, and periodontal procedures, but it may also occur spontaneously.

Clinical symptoms include the following: pain, swelling, trismus, exposed bone, pathologic fracture, malocclusion, oral cutaneous fistula formation.

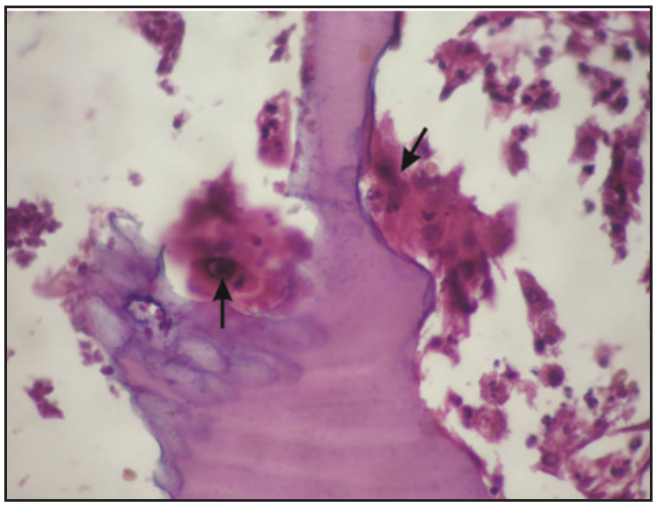

Fig.4: Histopathology showed presence of necrotic bone along with presence of inflammatory cells and granulation tissue in adjacent soft tissue.

On physical examination, missing hair follicles, surface texture changes, and colour changes are common findings that assist clinicians in assessment of the area of radiation injury.

Treatment conventionally consists of various conservative measures, including use of long-term antibiotics, zolindronate, pentoxyfiline, local wound irrigation, debridement, sequestrectomy and hyperbaric oxygen therapy.[2,5]

3D conformational radiation therapy and intensity modulated radio therapy can maximize delivery to the affected area and minimize dose to the surrounding normal tissue. All patients should undergo prophylactic oral care prior to, during and completion of RT. During early post-treatment period, patient should visit the dentist every 4 months.[3,5]

Conclusion

At the end we want to conclude that in post RT case of CA oral cavity, during long term follow up even after five years or more any lesion suspicious of recurrence or 2nd malignancy with clinical features of pain, swelling, trismus, halitosis, mucosal ulceration, bare bone etc but with a biopsy inconclusieve of malignancy ; even in absence of trauma a differential diagnosis of oesteoradionecrosis should be kept in mind &should be investigated accordingly.

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Cosmetic Disfigurement due to Home Remedy in Melanocytic Nevi

Riya Kaur Kalra,[1] Phulwinder Singh[2]

ABSTRACT

Introduction

Melanocytic nevi of the head and neck region are common among all ages with no predilection for males or females. These moles can appear as small, dark brown spots on the skin anywhere on the face including the eyelids, which may not be cosmetically acceptable.

Case Report

Here we report a case where a toilet cleaner (tezaab) was used to remove the facial mole leading to scar formation, which otherwise could have been removed with various latest modalities with no residual scar.

Discussion

Melanocytic nevi can be removed safely by the latest modalities available by the trained professionals but at times people try home remedies or take internet suggestions before consulting a doctor which can lead to ugly scars.

Keywords

Nevus; Pigmented; Moles; Cicatrix

Nevi or moles are benign tumors composed of nevus cells that are derived from melanocytes. Moles are so common that they appear virtually on every person. They are present in 1% of newborns and increase in incidence throughout infancy and childhood.[1] On the basis of size, they are categorized as small (diameter <1.5 cm), medium (1.5 to 19.9 cm) and large (>20 cm).[2]

Melanocytic nevi of the head and neck region are common among all ages with no predilection for males or females. These moles can be anywhere on the face including the eyelids. Main reason for removal is suspected melanoma; other reasons for removal are cosmetic, or because a raised mole interferes with daily life (e.g. shaving).[3]

Moles can be removed in the office under local anesthesia by different methods (chosen depending on the size of the lesion) like punch biopsy, shave excision, radiosurgery.[4]

Here we report a case where a toilet cleaner (tezaab) was used to remove the facial mole leading to scar formation, which otherwise could have been removed with various latest modalities with no residual scar.

Case Report

A 12-year old female patient presented in the outpatient department for the mutilated lesion over her forehead. (Fig. 1) Her attendant gave the history of the presence of a mole over the forehead in-between the eyebrows since birth which increased to present size in the past few months.

There was history of application of Tezaab (acid used to clean rust from tools and toilets), as told by the attendant, by her paternal grandmother three days back which was followed one day later by purulent discharge from the lesion. The child was lucky enough to avoid any injury to the eye as the procedure was done by the untrained person. After examination in the chamber she was managed with topical, oral antibiotics and anti-inflammatory medicines and the lesion healed with scar

1 - Department of ENT, Government Medical College, Amritsar, Punjab
2 - Department of ENT, Mrs. Khusbir Kalra Memorial Hospital, Amritsar, Punjab

Corresponding author:
Dr Riya Kaur Kalra
email: kalra5815@gmail.com

Fig. 1. The clinical photograph on presentation

Fig. 2. The scar after healing

formation. (Fig. 2)

Discussion

Melanocytic nevi are common lesions in patients with light or fair skin with genetic basis. Exact etiology behind the development of melanocytic nevi is complex and multifactorial. At times they are stimulated by exposure to sunlight or hormone changes. Patients should be educated regarding self-examination of nevi, in which the patient assesses the asymmetry, border irregularity, color, diameter (size), and evolution of any given lesion (ABCDE approach). Nevi can change in diameter, outline, color and they can acquire an itch or begin to bleed. These changes require evaluation by a trained observer to determine the malignant potential of the lesion.[5]

To determine the prognosis and treatment modalities, it is essential to know whether the nevus is congenital or acquired.[6] Congenital melanocytic nevus differs from acquired by its presence at birth with the tendency for larger size and greater malignant potential.[7]

Congenital nevi are found in about 1% of the newborn infants. They are usually solitary and their growth is very rapid and disproportionate to the growth of the particular body area in the first six months of life thereafter it remains static unless there is infection, trauma or development of malignancy.[8]

There are many home remedies from our grandmother's book or internet which people try before consulting a doctor. These are simple kitchen ingredient like baking soda, juice of garlic, onion, sour apple, pineapple, lemon, potato, tomatoes. Flaxseed and linseed oil, root of dandelion herb is rubbed over mole.[9, 10]

Homeopathy treatments are also available such as Pulsatilla, Aceticum acidum, Floricum acidum, Phosphorus, Thuja occidentalis, Calcareacarbonica, Sulphur, Carbo vegetabilis, Graphites, Lycopodium, Petroleum, Sepia, Radium bromatum, Carcinosin, Medorrhinum, Cundurago, Platina.[11]

Medical treatment is typically ineffective and inappropriate for the management of a benign neoplasm such as a melanocytic nevus. Melanocytic nevi can be surgically removed for cosmetic considerations or because of concern regarding the biological potential of a lesion. Hence these cases should be referred to the concerned physician for the appropriate management.[12]

Conclusion

In 21st century there is a variety of choice of treatment modalities for the removal of nevi and with proper selection of the procedure, good cosmetic results can be achieved. Although cases of melanocytic nevi are very common, yet they are less reported in the reputed journals. Hence, considering the above case it's the duty of the medical fraternity to create awareness for not using home remedies which can lead to scars that are traumatic for both body and mind.

We report this case firstly to illustrate the ignorance of people regarding the consequences of their actions and secondly there is no mention of such a case in the literature to the best of our knowledge.

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Reconstruction of Head and Neck Defects with Lower Trapezius Myocutaneus Flap

Somesh Mozumder,[1] Shirish Dubey,[1] Kinshuk Chatterjee,[1] Priyadarshan Kumar,[1] Ankit Khandelwal,[1] Aniruddha Dam,[1] Anup Kumar Bhowmick[1]

ABSTRACT

Introduction:

High lateral and posteriorly based defects are challenging to reconstruct as mobilization of conventional pedicled flaps is difficult. This study was done to evaluate the usefulness of lower trapezius myocutaneous flap (LTMC) in selected cases as a reconstructive alternative to other pedicled flaps which have positional and technical disadvantages and/or in cases where free flap is not possible.

Materials and Methods

Ten cases of locally advanced (T3 and T4) high and laterally placed head and neck carcinoma (8 cases of SCC involving posterior scalp, ear lobule, skin anterior to tragus and 2 cases of locally advanced salivary gland malignancies involving parotid glands) irrespective of sex had been selected. Due to non-availability of plastic surgeon in the institute none of the patient could be subjected to free flap reconstruction. All the patients received post operative adjuvant radiotherapy and were followed up on a monthly basis for six months at least.

Results

Out of total 10 cases 5 underwent wound infection and dehiscence at recipient site. In 3 cases there were donor site seroma. In 2 cases healing was uneventful. However in all cases the flap was healthy and flap survival was 100%. There was no flap contracture in long term follow up.

Conclusion

The LTMC flap is ideal for mentioned defects because of its anatomical location, abundant blood flow, minor donor-site morbidity, and long pedicle. The LTMC flap, though less commonly used, is a precious option in situations where free flaps and other pedicled flaps are not feasible.

Keywords:

Trapezius; Myocutaneus Flap

High lateral and posteriorly based head and neck defects are challenging to reconstruct as conventional pedicled flaps i.e. Deltopectoral fasciocutaneous flap or Pectoralis Major myocutaneus flaps are very difficult to mobilise to these locations. In these scenarios free flaps are currently considered the preferred choice for reconstruction. However, medical co-morbidities, unavailability of plastic surgeons sometimes, treatment with prior chemoradiotherapy, (often associated with a poor general and local condition that may impair the healing process and reduce tolerance of surgical stress) and failure of previously done free flap (i.e. anterolateral thigh flap etc) make many head and neck cancer patients ineligible for free flap reconstruction.

Pedicled flap surgery should be considered in this context. An ideal flap would meet the following requirements: one-step resection and reconstruction, ease and feasibility of use, short surgical duration, low complication rate, and satisfactory functional results. The authors recommend performing reconstruction using lower trapezius musculocutaneous (LTMC) in such situations. The LTMC flap enables successful

1 - Department of ENT, Chittaranjan National Cancer Institute, Kolkata

Corresponding author:
Dr Somesh Mozumder
email: drsomeshmozumder@gmail.com

reconstruction without severe complications, demonstrating the advantages and usefulness of such surgery.[1-3]

Materials and Methods

The study was conducted from December 2015 to November 2016 to evaluate the usefulness of lower trapezius myocutaneous flap in selected cases of high and laterally placed head and neck defects as a reconstructive alternative to other pedicled flaps which have positional and technical disadvantages and/or in cases where free flap is not possible.

10 cases of locally advanced (T3 and T4) high and laterally placed head and neck carcinoma (8 cases of SCC involving posterior scalp, ear lobule, skin anterior to tragus and 2 cases of locally advanced salivary gland malignancies involving parotid glands) irrespective of sex had been selected. (Fig.1)

Patients below 18 years and above 70 years were excluded from study as extremes of age are not very good candidates for prolonged and extensive resections and reconstructions. Due to non-availability of plastic surgeon in the institute none of the patient could be subjected to free flap reconstruction. All patients were otherwise physically fit (E-Cog: 0 or 1), devoid of any medical co morbidities and were fit for general anaesthesia. Proper staging and resectabilty of each case was assessed radiologically (with contrast enhanced CT Scan or MRI) before operation.

All patients underwent a single stage reconstruction in same sitting, using lower trapezius myocutaneous flap after primary resection and neck dissection. Average time for resection and reconstruction was 6 hrs out of which around 2 hours were taken for flap harvesting and reconstruction.

Harmonic scalpel was used for flap harvesting which significantly reduced time and minimised blood loss.

All the patients received post operative adjuvant radiotherapy and were followed up on a monthly basis for 6 months at least.

Surgical anatomy and gross steps of reconstruction using lower trapezius myocutaneous flap:

After primary resection and neck dissection (Fig. 2), patient is put to prone position with arm adducted and palm looking anteriorly to make scapular medial border

Fig.1. A case of Squamous cell ca involving right ear lobule with extension to pre-aural region and adjacent parotid gland

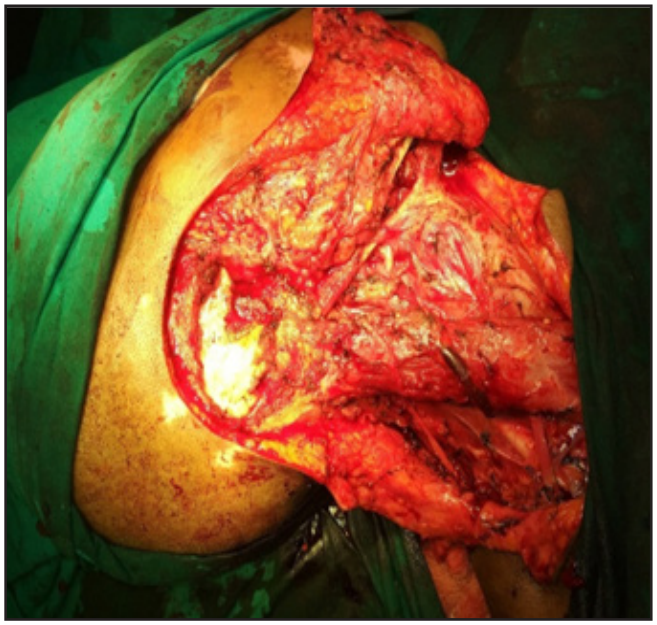

Fig. 2. After wide local excision of mass with mastoidectomy

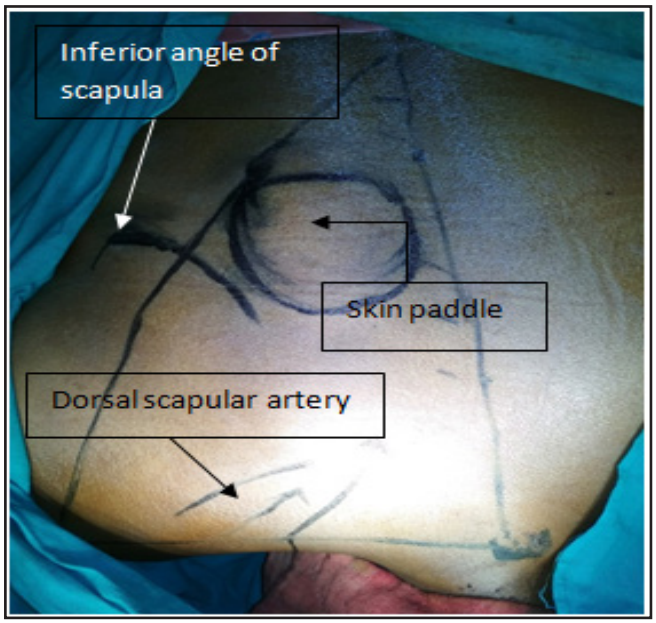

Fig. 3. Marking the LTMC flap

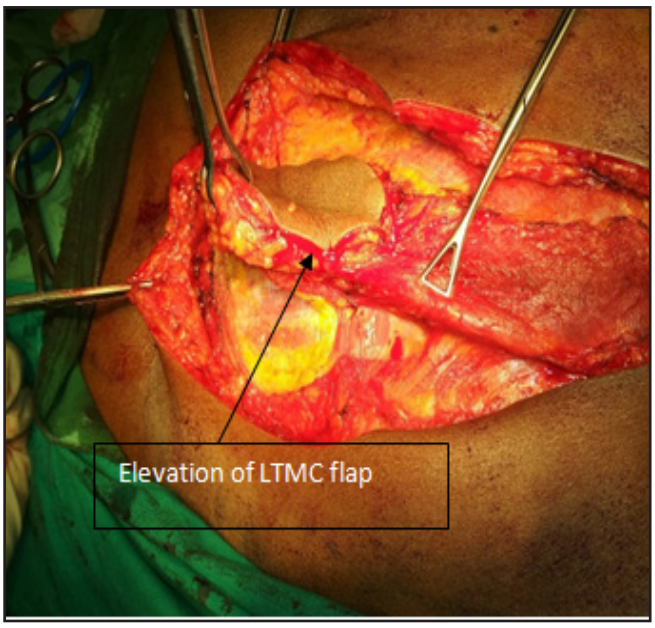

Fig. 4. Elevation of LTMC flap

prominent. The fan shaped trapezius flap is outlined by drawing a triangle comprised of a horizontal line drawn from acromion process of scapula to T1 vertebral spine superiorly; another line drawn from acromion process passing inferomedially, medial to inferior angle of scapula up to spine of T12 vertebral and medial boundary by a line passing along the spine which is intersected by the above two.

The skin paddle is marked according to the size of defect (not less than 4 finger breadth, to avoid vascular

Fig. 5. Delivery of flap to recipient area

Fig. 6. After final reconstruction

Fig. 7. 10 days after operation

compromise of skin paddle, which is supplied by perforators through muscle) and is drawn between spine and medial border of scapula and can be extended up to 5 cm below inferior angle of scapula.

The blood supply of the trapezius muscle is one of the most confusing of any of the regional flaps. The main blood supply is classically supposed to be via the transverse cervical artery (TCA) and vein. TCA after origin from the thyrocervical trunk divides into a superficial branch and a deep branch. The superficial branch with its divisions together with the occipital artery supplies the superior portions of the muscle.

The deep branch in most cases has an independent origin and is known as dorsal scapular artery (DSA). DSA may originate from TCA or thyrocervical trunk or the first or second part of the subclavian. Thus TCA and DSA both supply the muscle and in lower part either may be used as the pedicle. This pedicle enters the under surface of the muscle approximately at mid-point of upper horizontal arm of triangle medial to scapula is also marked. (Fig.3)

Vertical incisions above and below skin paddle is given. Skin, subcutaneous tissue is cut exposing the muscle. Skin flaps are raised on either side, exposing spine medially and medial border of scapula laterally to identify the extent of muscle before elevation. The lower trapezius myo-cutaneus flap is elevated in superior direction carefully and gently keeping an eye to the under surface to avoid pedicle injury. A small twig arising from dorsal scapular artery and going deep between Rhomboideus Major and Minor is ligated and cut to facilitate further elevation of flap superiorly and above spine of scapula. (Fig.4) The flap is passed into neck underneath the skin. (Fig.5)

Primary closer of donor site defect is done after achieving hemostasis and putting suction drain. Patient is again put to supine position. Operative site defect is closed by the flap. Neck is closed after achieving hemostasis and putting suction drain. (Figs.6 & 7)

Results

Out of 10 cases there was no incidence of total flap failure; though in 5 cases (50%) wound infection and partial dehiscence at recipient site was noted which was controlled by judicious use of antibiotics, regular sterile dressing and secondary suturing after controlling local infection.[4]

Donor site seroma occurred in another 3 cases (40%) which was controlled conservatively using compressing bandage and suction drain.[4]

For two flaps the entire course of healing during post operative period was uneventful and uncomplicated.

After adjuvant radiotherapy, during the course of long term follow up (for at least 6 months), flaps remained healthy with no contracture, and acceptable colour and texture.

Discussion

The trapezius muscle is superficial, flat, triangular, and large in size; it covers the posterior cervical and interscapular thoracic areas. Along with the pectoralis and rotator cuff muscles, the trapezius suspends the pectoral girdle from its muscular origin located along the external occipital protuberance, the medial third of the superior nuchal line, the ligament nuchae, and the spinous processes of the seventh cervical and twelfth thoracic vertebrae.[5] According to the classification of Mathes and Nahai,[6] the trapezius muscle has a type II

vascular pattern with dominant and additional minor vascular pedicles. The transverse cervical artery with its branches is the major feeding artery. The additional minor vascular pedicles are the occipital artery and posterior intercostal artery.

Functionally and aesthetically, the muscle may be considered to have an upper and a lower portion. The upper portion of the muscle inserts along the lateral third of the clavicle. It receives the majority of its blood supply from the transverse cervical artery. It also contains the spinal accessory nerve, which courses along its deep surface and provides motor innervations to the entire muscle. The lower portion of the muscle inserts along the lateral spine of the scapula; it is a dispensable subunit. The superficial and deep branches of the transverse cervical artery supply blood to this portion of the muscle.[7-12] The distinction between the upper and lower parts of the trapezius allows the lower portion of the muscle to be used for wound coverage while preserving normal shoulder function.[13]

The authors used a LTMC flap with the dorsal scapular artery and the deep branch of the transverse cervical artery, as a pedicle for reconstruction. This flap can be elongated up to 5 cm (measured from the tip of the scapula) with minimal damage to the nerve and with preservation of the muscle fibers from the proximal trapezius muscle. Moreover, if the pedicle is damaged during surgery, it can be replaced with the superficial cervical artery.[14,15] The LTMC flap is thin and pliable, and also has a very long constant pedicle and minor donor-site morbidity.

Reconstruction of a head and neck defect with a local flap in combination with planned radiation therapy may delay wound healing, and a free flap might cause severe morbidity in patients with a poor general condition or those with a tumor with a poor prognosis.[1,16] Thus, if a one-step reconstruction is planned for such patients, regional flap surgery is preferable. Other regional flaps include the pectoralis major musculocutaneous flap and the supraclavicular artery island flap, deltopectoral fasciocutaneous flap. The pectoralis major musculocutaneous flap provides thick muscle volume so it can protect the important neck organs, but it also creates an abnormal bulge at the root of the neck that causes neck stiffness.[2,17] The supraclavicular artery island flap is near the recipient site; thus, flap color and texture are very similar to that of the recipient site. However, because it has a short pedicle, it can cover only the lower border of the face and neck.[3,18] Deltopectoral fasciocutaneous flap and pectoralis major musculocutaneous flaps are very difficult to move to high lateral and posteriorly placed head and neck defects.

Conclusion

LTMC flap has a wide arc of rotation because of long constant pedicle, low donor-site morbidity, richly vascularized, and ensure serviceable skin coverage of areas as far cephalic as the vertex of the skull without evidence of tension or traction. Our technique clearly show that this less commonly used flap is particularly useful in patients with high lateral and/or posteriorly placed defects for whom neither free flap surgery is possible because of co-morbidities, unavailability of technical expertise, and previous radiation injury and previous free flap failure etc. nor deltopectoral fasciocutaneous flap, pectoralis major musculocutaneous flap or supraclavicular artery island flaps can be done because of their unfavorable anatomical location to move to high lateral and posteriorly placed head and neck defects.

This is a hardy and reliable flap in our experience, with minimum early postoperative complications and excellent long term outcome which is quite acceptable when compared to the same of other flaps. More over in comparison to free flaps like anterolateral thigh flap; it has less chances of post operative flap failure as the vascular pedicle remains attached to donor site where as in free flaps the supplying vessels are cut and re-ligated with new vessels near recipient area, thus bearing the risk of thrombosis and bleeding from anastomosis site. Post operative care and management is relatively easier than free flaps. Operative time is also much less than free flaps there by chances of complications like deep vein thrombosis(DVT) or pulmonary thromboembolisation(PTE) is also minimum.

The only disadvantage is that the patient's position has to be changed twice during the operation for flap harvesting and patient has to bear another suction drain at his/her back for a few days which is pretty

uncomfortable.

Therefore to conclude with; though less commonly used, lower trapezius musculocutaneous (LTMC) can be a precious option in the arsenal of head and neck reconstruction in difficult situations.

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Rare Cases in ENT

Kalyan Pal,[1] Dipanjan Chakraborty,[1] Sohag Kundu,[1] Subrata Mukhopadhyay[1]

ABSTRACT

In our day to day ENT practice we commonly come across diseases involving the larynx, the oral cavity and the paranasal sinuses. These range from inflammatory disorders to benign and malignant neoplasms. Carcinomas involving the head and neck region are most commonly squamous cell carcinoma. However, a small proportion of cases present with other variants of carcinoma or infective pathology uncommon for the site. In this study we present three rare cases encountered in the out-patient department, namely, Primary Malignant Melanoma of the larynx, Neuroendocrine Tumor of the nose and paranasal sinuses and Rhinosporidiosis of cheek.

Keywords:
Melanoma; Carcinoma, Neuroendocrine; Rhinosporidiosis

Primary mucosal melanomas arise from melanocytes located in mucous membranes lining respiratory, gastrointestinal and urogenital tracts. Malignant melanoma of the larynx is a rare cancer that can appear as a primary tumor or as a metastasis from a cutaneous head and neck primary lesion.[1] Melanocytes have phagocytic and possibly antigen-presenting function, and also produce various cytokines.[2,3] Majority of laryngeal melanomas involve the supraglottic larynx. Less common sites include the glottis. The least common site is the subglottis. In this article, we report a rare case of primary malignant melanoma of the supraglottic larynx.

Small cell neuroendocrine carcinoma of nose and paranasal sinuses have been reported in literature, with a male female ratio of 1.6:1 and mean age of 51 years. Authors rely on the Kadish staging system of nasal cavity and paranasal sinus tumors (Kadish A: limited to nasal cavity, Kadish B: limited to nasal cavity and paranasal sinuses, Kadish C: tumour extending beyond the nasal cavity and paranasal sinuses).[4,5] Tumours present with a variety of different histological patterns, including cords, sheets, ribbons, pseudoglands and rosette formations. The degree of cellular pleomorphism, mitotic activity, and necrosis increases as the tumor becomes more poorly differentiated (small cell carcinoma). In this report we present a 45 year old female presenting with a sinonasal mass diagnosed as neuroendocrine carcinoma.

Rhinosporidiosis is a benign chronic granulomatous disease caused by Rhinosporidium seeberi. The most common site of infection in human is the nose,[6] cheek being a rare site. Rhinosporidiosis in the parotid duct has also been reported.[7] The most common mode of spread to host is transepithelial infection or autoinoculation. Individuals probably acquire the disease from water contaminated by diseased cattle. In this paper we present one such case presenting with a right sided cheek swelling diagnosed with rhinosporidiosis.

Case 1: Primary Malignant Melanoma of the larynx

A 45 year old male presented with history of foreign body sensation in the throat and difficulty in deglutition for 1 month. There was no history of hoarseness, dysphagia, odynophagia or otalgia. He presented to the emergency with stridor. Indirect Laryngoscopic examination revealed a smooth blackish mass arising from the laryngeal surface of epiglottis and left aryepiglottic fold, occluding the whole of the laryngeal inlet. (Fig. 1) No other endolaryngeal structures were visible. No neck nodes were palpable. An emergency tracheostomy was performed under local anaesthesia to relieve respiratory distress.

Assessment by Fibreoptic Laryngoscopy showed the mass to be arising from the laryngeal surface of epiglottis

1 - Department of ENT, Medical College, Kolkata

Corresponding author:
Dr Kalyan Pal
email: kalyan.pal71@gmail.com

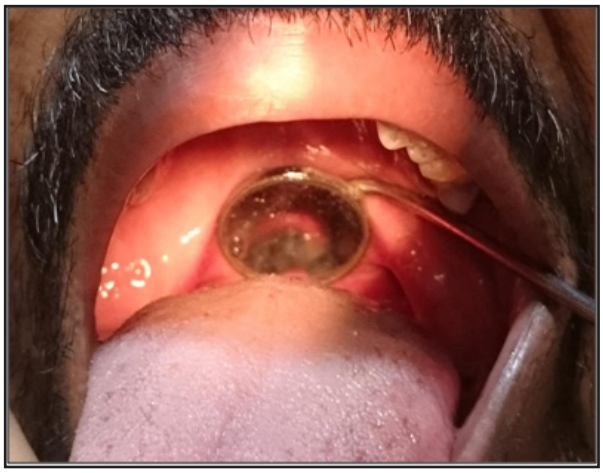

Fig.1. Blackish mass involving laryngeal surface of epiglottis on indirect laryngoscopy

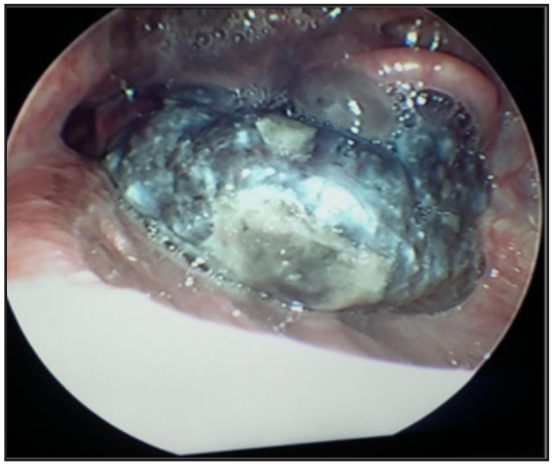

Fig.2. FOL showing the mass arising from laryngeal surface of epiglottis and Left A-E fold

and left aryepiglottic fold, occluding the whole of the laryngeal inlet and obscuring view of endolaryngeal structures. (Fig. 2) CT scan was done to assess extent of the lesion. (Fig. 3) Retrograde endoscopy through the tracheostoma showed no involvement of glottis, subglottis. The trachea was free upto the level of carina. The patient subsequently underwent Direct Laryngoscopy under general anaesthesia. The findings of Direct Laryngoscopy were corroborative with those of Fibreoptic Larynygoscopy. Biopsy was taken from the mass and sent for HPE. A paraffin section stained with hematoxylin and eosin (H&E) showed tumour cells with clear nuclei exhibiting pleomorphism and melanin pigmentation in the cytoplasm. These cells had hyperchromatic nuclei, and they invaded both the mucosa and submucosa. Immunohistochemistry was positive for S-100, HMB-45 and Melan-A proteins. The tumour cells demonstrated a strong positive staining in both the nuclei and cytoplasm.(Fig. 4) The lesion was diagnosed as a primary malignant melanoma.

Case 2: Neuroendocrine tumor presenting as a sinonasal mass

A 45 year old female presented with bleeding from left nose and mild swelling of left naso-maxillary region for two months duration. On examination, she had deviated nasal septum to the right with pinkish mass in left nasal

Fig. 3. Coronal CT with contrast showing extent of the mass

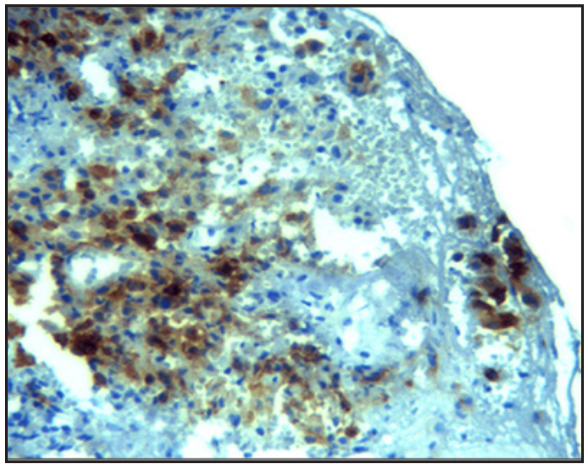

Fig. 4. Malignant melanocytes in the epithelium (Melan-A, 100×)

Fig. 5. A fleshy mass coming out of the left nostril

cavity protruding from the left nostril. (Fig. 5) Vision was normal. CT scan of nose and PNS revealed soft tissue mass occupying the entire left maxillary sinus and left ethmoids extending into and occupying the whole of the left nasal cavity. (Fig. 6) Our case falls into Kadish B stage. Biopsy from the nasal mass was reported as poorly differentiated neuroendocrine carcinoma.

As the biopsy report was neuroendocrine carcinoma surgical treatment in the form left sided total maxillectomy followed by endoscopic clearance of left ethmoid was done and specimen sent for HPE. The histopathological report, was poorly differentiated small cell neuroendocrine carcinoma. Rosettes and necrosis were present along with brisk mitotic activity. (Fig. 7) Immunohistochemistry was positive for CK, synaptophysin and chromogranin. Radiotherapy and chemotherapy were administered to the patient. On follow-up patient is well with no recurrence even after eight months.

Immunohistochemistry always confirms the diagnosis of rare sinonasal malignancies. In the present case, synaptophysin and chromogranin were positive while S-100 was negative which favoured the diagonisis of neuroendocrine carcinoma over olfactory neuroblastoma.

Case 3: Rhinosporidiosis presenting as a cheek swelling

A fifty-year-old male reported with complaints of swelling on the right side of cheek for three months, with a history of recent increase in its size. There was no history of trauma in the recent past and patient had no complaint of pain. On examination the nose, nasopharynx, oropharynx and eyes appeared normal. On local examination there was a single, soft to firm, discrete

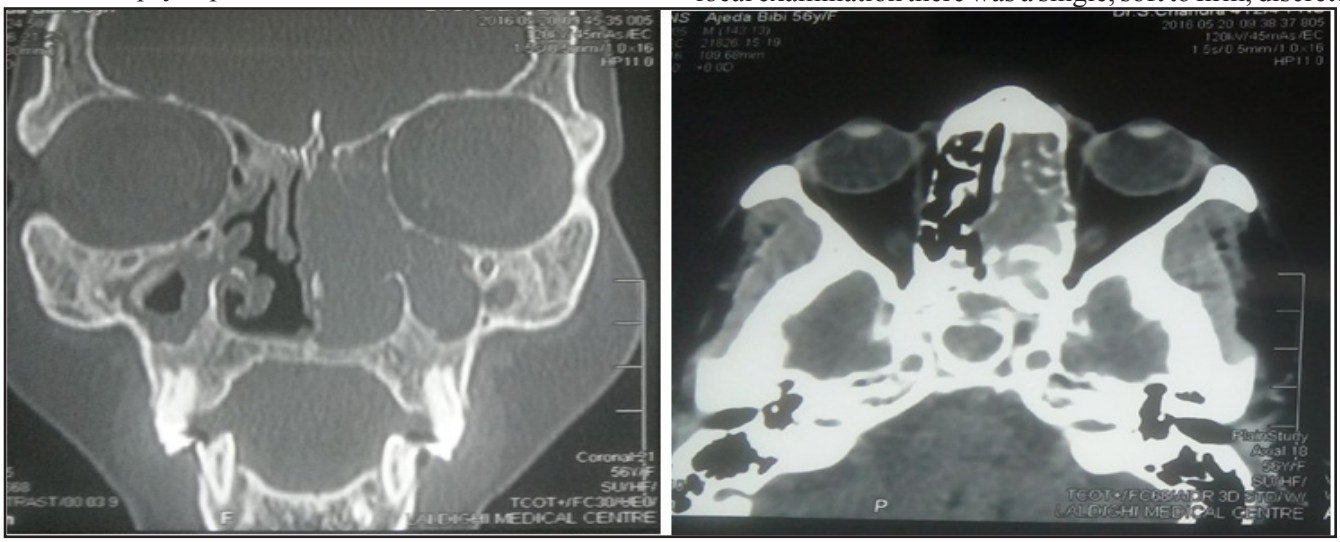

Fig. 6. CECT scan of nose and PNS showing the sinonasal mass

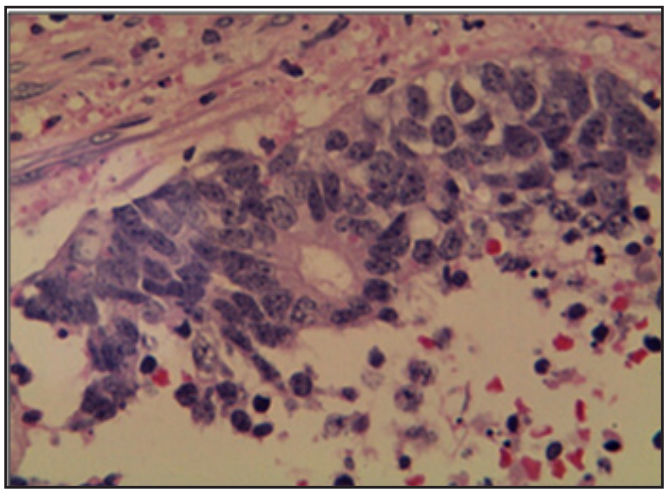

Fig. 7. Rosettes in NEC (H&E 40 ×)

swelling on the right side of the cheek measuring about 5cm x 4cm. Overlying skin was normal in color and texture with no local rise of temperature. There was no tenderness felt on palpation with no fixity to overlying skin or underlying structure. On intraoral examination, it was seen that there was serous secretion coming from the inflamed opening of Stensen's duct and there was a fistulous opening in the right buccal mucosa. There was no cervical lymphadenopathy. USG showed a solid-cystic lesion in the subcutaneous plane of size 3cm x 1.5cm, with echogenic debris and internal septations. Surgical excision of the lesion was done under general anesthesia by intraoral route which included the distal margin of parotid duct and the fistula of the right buccal mucosa.

The excised specimen was submitted for histopathological examination. The Hematoxylin-Eosin stained section showed thin fibrocollagenous cystic wall lined by columnar to cubodial cells. Parts of the specimen showed the presence of numerous sporangia of R. seeberi. The diagnosis of rhinosporidiosis was primarily made by observing the distinctive morphologic features of R. seeberi in affected tissue.

Discussion

Malignant melanomas are malignant tumors of neural crest origin, arising from the melanocytes. Although most of them have cutaneous origin, a small number of melanomas occasionally arise from non-cutaneous tissue that contains melanocytes, such as leptomeninges, uvea and mucous membrane. Mucosal melanoma of the larynx is an extremely rare tumor with about 60 cases reported in the medical literature. . Mucosal melanomas although rare, are known to behave more aggressively and have less favourable prognosis compared to other melanoma subtypes. Most of mucosal melanomas occur in occult sites, which together with the lack of early and specific signs contribute to late diagnosis, and poor prognosis.

Neuroendocrine neoplasms are defined as epithelial neoplasms with predominant neuroendocrine differentiation. They can arise in almost every organ of the body although they are most commonly found in the gastrointestinal tract and respiratory system. In the nasal and paranasal sinus regions, squamous cell carcinoma is the most common tumor. Primary sinonasal neuroendocrine carcinomas are rare and represent a histological spectrum of differentiation. In contrast to other regions, neuroendocrine tumors of the sinuses have been reported to be recurrent and locally destructive. During the past 45 years, only 80 cases of small cell neuroendocrine carcinoma of nose and paranasal sinuses have been reported in literature.

Rhinosporidiosis is a benign chronic granulomatous disease most commonly affecting the nose, being quite rare in the cheek or the parotid duct. In our case patient had history of consumption of unprocessed well water. Surgical treatment of Rhinosporidiosis is excision of mass followed by cauterization of the base. . The life cycle of R. seeberi begins in the tissue as a spore, and it passes through several stages of development from trophocyte to juvenile sporangium to mature forms with changes in thickness and lamination of walls. The sporangia and sporangiospores of the organism can be seen with typical fungal stains such as Gomori Methenamine Silver (GMS), Periodic Acid-Schiff (PAS), and mucicarmine as well as with standard haematoxylin and eosin stain.

Treatment with the drug Dapsone appears to be promising which appears to arrest the maturation of the sporangia and to promote fibrosis in the stroma, when used as an adjunct to surgery. Recurrences are known to occur due to spillage of endospores on the adjacent

tissue or incomplete excision.

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