

The Association of Otolaryngologists of India
West Bengal

p-ISSN: 2395-2393

e-ISSN: 2395-2407

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BJOHNS

Bengal Journal of Otolaryngology and Head Neck Surgery

Volume 23 No. 3 - December, 2015



Bengal Journal of Otolaryngology and Head Neck Surgery

Official Publication of The Association of Otolaryngologists of India, West Bengal

Volume 23 No. 3 - December, 2015

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e-ISSN: 2395-2407

RNI No.: 62551/95

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Bengal Journal of Otolaryngology and Head Neck Surgery

(Incorporating and directly descended from State Journal of Otolaryngology and Otolaryngology, Calcutta)

Published by

The Association of Otolaryngologists of India, West Bengal
CMC House, 91B Chittaranjan Avenue,
Kolkata - 700073,
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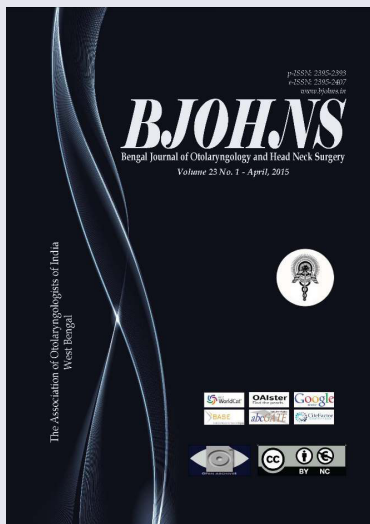
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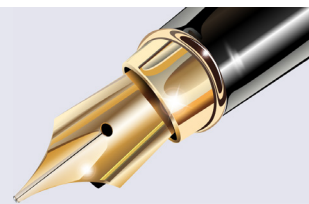
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From the Desk of the Editor



Dear Members,

I am happy to present the third issue of the BJOHNS in the year 2015. I am grateful to all the members of the Association of Otolaryngologists of India, West Bengal for appreciating the new-look BJOHNS.

The Editorial Board and the Executive Committee of AOI, West Bengal, humbly acknowledge the quality of articles submitted by the contributors for publication in our journal. It is heartening to see the increasing number of authors, choosing BJOHNS for publication of their research work. Our learned reviewers have dedicated their precious time to ensure the quality of publications appearing in BJOHNS.

We are committed to maintain the quality of our publications which conforms to the standards of PubMed. BJOHNS is now indexed with numerous prestigious international databases, which are accessed by universities and libraries across the world. But we have consciously avoided approaching the paid indexing services for our journal.

It is very difficult for the ethical scholarly journals like BJOHNS to survive in the milieu of commercial publishing activities, which seek to use scientific data for profit. The lifeline for academic journals can be provided by the recognition of their contribution to further scientific knowledge by the apex authorities. The Medical Council of India, on their part, should encourage publication of quality medical journals under the aegis of professional bodies, which would promote free dissemination of knowledge. All of us should urge the Medical Council of India to come out with detailed guidelines to ensure quality of medical publications in India. The MCI must do something more than just endorsing certain indexing agencies as custodians of quality of Indian Medical publications.

I would request you to contribute regularly to our journal to enrich our bouquet of publications for the medical fraternity.

With best wishes,

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

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Hyperbaric Oxygen Therapy in the treatment of Idiopathic Sudden Sensorineural Hearing Loss

Debasish Guha,¹ Shaoni Sanyal,² Chayan Bhattacharyya,³ Abhijit Santra,⁴ Swagatam Banerjee²

ABSTRACT

Backgrounds and objectives

Idiopathic sudden sensorineural hearing loss (ISSNHL) is an entity whose diagnosis and treatment remain controversial to date. Various modalities of treatment have been tried with varying degrees of success. Hyperbaric oxygen therapy (HBOT) is a recent modality of treatment for this condition which acts by improving cochlear microcirculation. The objective of this study was to evaluate the effect of HBOT in improving hearing loss and secondary symptoms patients with ISSNHL.

Methods

This prospective study was undertaken over a 6 month period from the Department of Otorhinolaryngology in a tertiary referral hospital in eastern India. 48 consecutive newly diagnosed ISSNHL patients were included in this study. The patients were subjected to HBOT at 2 A.T.A (Atmosphere Absolute) for an hour over 45 days. Hearing status and secondary symptoms as assessed by clinical tests, pure tone audiogram were analysed before and after HBOT.

Results

Males comprised 62.5% (30/48) of our study population, mean age of the population was 49.3 ± 13.4 years. 45/48 patients (93.7%) had unilateral ISSNHL, while 3 (6.3%) had bilateral ISSNHL. Average hearing loss in the affected ear before and after treatment was 79.96dBHL and 62.27dBHL respectively. The most common secondary clinical feature was tinnitus (27/48, 56.3%), followed by vertigo (24/48, 50%), aural fullness (15/48, 31.25%) and nystagmus (5/48, 10.41%). After treatment tinnitus and vertigo were showed marked improvement; (22/27, 81.48%) and (18/24, 75%). 5 out of 15 (33.34%) patients showed reduced aural fullness. There was no improvement in patients suffering from nystagmus.

Keywords

Hearing loss, Sensorineural; Hyperbaric oxygenation; Audiometry, Pure-Tone

Idiopathic sudden sensorineural hearing loss (ISSNHL) was defined by Hughes (1996) as hearing loss of 30dB HL in 3 or more contiguous frequencies in 72 hours or less.¹ Incidence of ISSNHL has been reported to be about 8 per 100,000 person per year in a Taiwanese study.² The hearing loss may occur in an ear which previously had normal hearing or in an ear with a pre-existing hearing loss.

Probable causes of sudden sensorineural hearing loss are autoimmune diseases like Cogan's syndrome, Behcet's disease, SLE; bacterial, viral and fungal infections; metabolic conditions such as diabetes mellitus and hypothyroidism; ototoxic drugs; trauma; neoplasms like vestibular schwannoma or cerebellopontine angle tumors and vascular causes which include cerebrovascular stroke, sickle cell disease, etc.

Hyperbaric oxygen therapy (HBOT) aims to address vascular insufficiency and improve the hearing loss in ISSNHL by improving cochlear microcirculation. The use of hyperbaric therapy dates back nearly 350 years. The first hyperbaric chamber was created in 1662 by Henshaw. The early chambers used compressed air instead of Oxygen. In 1917, two German inventors Bernhard and Heinrich Dräger applied pressurised

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oxygen successfully in treating decompression illness from diving accidents. During the 1960s, studies began on a wide variety of indications for HBOT.

In a hyperbaric oxygen therapy chamber, the air pressure is increased to 2-3 times higher than normal air pressure. Under these conditions, more oxygen dissolves in the plasma. Oxygen dissolved in plasma has better bioavailability for the tissues because the increased concentration of oxygen proportionally increases the partial pressure of oxygen in arterial blood, and more oxygen can be delivered deeper into the tissue.³ The increased partial pressure of oxygen dissolved in the plasma compensates for hypoxia due to vascular insufficiency. HBOT also impacts the immune system. Oxygen has an antimicrobial effect, especially in anaerobic infections. HBOT has been shown to have beneficial effects on fibroblast activity and angiogenesis; to enhance the efficacy of leukocytes; to suppresses bacteria; to increase the efficacy of antibiotics; and to stimulate granulocytes' production of endogenous antimicrobial agents.

The aim of this study was to evaluate the effect of HBOT in improving hearing loss and secondary symptoms patients with ISSNHL.

Materials and Methods

The study was conducted between November, 2014 to April, 2015 in a tertiary care hospital in Eastern India, after obtaining clearance from the institutional Ethical Committee. All cases of sudden hearing loss underwent pure tone audiometry to ascertain the type of hearing loss. 124 cases were diagnosed to have sensorineural hearing loss (SNHL). Etiology of SNHL was determined by screening investigations which included complete haemogram, ESR, electrolyte profile, thyroid profile, lipid profile, fasting blood sugar, post prandial blood sugar, urea, creatinine, autoantibodies and MRI.

Out of 124 cases, 48 were included in the study as they met the following criteria of ISSNHL:

1. The hearing loss was sudden in onset (occurring within 72 hours) and sensorineural in nature as ascertained by Pure Tone Audiometry and
2. Hearing loss of 30dB HL in ≥ 3 contiguous

frequencies and

3. No etiology could be determined even after screening investigations were carried out.

76 cases were excluded from the study because of one or more of the following reasons:

1. Poorly controlled blood sugar
2. Poorly controlled blood pressure
3. Seizures
4. Claustrophobia
5. Patients with pacemaker/ Arrhythmias
6. Patients on chemotherapy with doxorubicin / bleomycin / cisplatin
7. COPD

All patients were explained the details of the procedure and gave informed consent to undergo the procedure. The 48 patients that were included in the study were subjected to HBOT at 2 A.T.A for 1 hour in a monoplace chamber at another tertiary care centre (Fig. 1). The patient lay supine in the chamber and the chamber was then pressurised with 100% oxygen. Pure tone audiometry was conducted at 15 days' intervals. The patients received HBOT for a duration of 45 days.

Assessment of hearing loss was recorded by pure tone audiometry. Pure tone average was taken at 500Hz, 1000Hz, 2000Hz and 4000Hz. Alteration of secondary symptoms was also recorded. The data was analysed to see if there was any significant improvement in hearing after 45 days of receiving HBOT.

Results

48 patients presented with sudden sensorineural hearing loss in whom no particular etiology could be determined and these patients were included in the study. Males comprised 62.5% (30/48) of our study population, mean age of the population was (49.3 \pm 13.38). 45/48 patients (93.7%) had unilateral ISSNHL, while 3 (6.3%) had bilateral ISSNHL. Average hearing loss in the affected ear before and after treatment was 79.96dB HL and 62.27dB HL respectively. The cases of bilateral hearing loss were treated as individual cases, thus the number of ears affected with hearing loss was taken to be 51. The



Fig. 1 Patient undergoing HBOT in monochamber

most common secondary clinical feature was tinnitus (27/48, 56.3%), followed by vertigo (24/48, 50%), aural fullness (15/48, 31.25%) and nystagmus (5/48, 10.41%).

“Recovery” was defined as improvement of hearing loss $\geq 50\%$ of pre-therapy hearing loss levels and resolution of secondary symptoms. (28/51, 54.90%) cases with hearing loss showed recovery after HBOT.

“No recovery” was defined as improvement of hearing loss $\leq 50\%$ of pre-therapy hearing loss levels and/or presence of secondary symptoms. (12/51, 23.52%) cases with hearing loss showed no recovery.

11 cases (21.57%) showed a deterioration in hearing as compared to pre-procedural level of hearing loss. (Fig. 2)

Average hearing loss in the affected ear before treatment was 79.96dB HL and average hearing loss post treatment was 62.27dB HL. Pure tone average in the non-affected ear before treatment was 26.75dB HL and pure tone average post treatment in the non-affected ear was 25.67dB HL. Students paired t-test (two tail) with unequal variance was performed on this data and it was seen that the difference in pure tone average before and after treatment hearing loss was significant ($p= 0.0008$). However, difference in pure tone average before and after treatment in the non-affected ear was not significant ($p=0.62$). (Fig. 3)

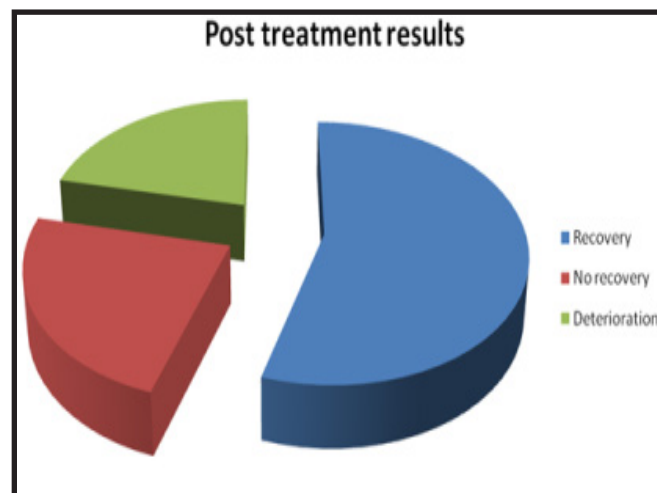


Fig. 2 Hearing Status after HBOT

Discussion

ISSNHL is a diagnosis of exclusion and due to a myriad of pathophysiological factors acting in this condition, different modalities of therapy have been advocated; yet there is no clear consensus regarding treatment protocol for ISSNHL. Systemic steroids, intratympanic steroids,⁴ antiviral medications⁵ and more recently HBOT^{6,7,8,9,10,11} have been tried with varying degrees of success.

Many studies have tried to evaluate the effect of combining these therapies,^{9,10,11,12,13} and compared HBOT to the other forms of therapy. In these studies, there is significant improvement in hearing loss when HBOT is combined with the other conventional therapies.

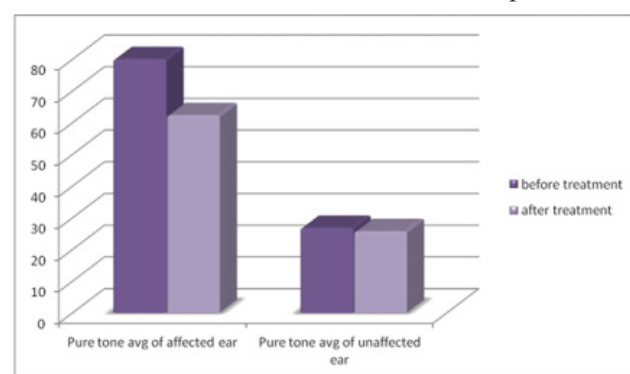


Fig. 3 Comparison of pre and post treatment pure tone averages in the affected and unaffected ears

In a randomized control trial by Filipino R et al. comparing relative efficacy of HBOT vs Intratympanic steroid; 48 patients were studied, age varied from 37.6-54.5 years, and 56.25% were males.¹¹ This is also in concordance with another retrospective study by Capuano et al. with 300 patients, age ranging from 52.24-54.05 years and 56% were males.⁶ Our study is a prospective analytical study with 48 patients. The mean age of presentation in our study was 49.3 years and males comprised 62.5% of our patients.

In the study conducted by Capuano et al. 76/300 (25.34%) had profound hearing loss; in the study designed by Filipino R et al., 25/48 (52.08%) patients presented with severe hearing loss and 23/48 (47.91%) had profound hearing loss.^{6,11} In our study, the average hearing loss was 79.96 dB HL.

Capuano et al.⁶ divided 300 patients into 3 groups each with 100 patients - Group A (Intravenous steroid(IVS)), Group B (HBOT), and Group C (IVS + HBOT). Intravenous steroid (methylprednisolone) was given in decreasing doses of 40 mg for 7 days, and then 20 mg for 3 days. 16 HBOT sessions were given at 2.5 A.T.A for 90 minutes.

Results were classified as follows:

- Good recovery- hearing within 15 dB of unaffected ear
- Fair recovery- Hearing improvement >10dB but not within 15dB of unaffected ear.
- Poor recovery- hearing level with no change, or improvement < 10 dB, or deterioration

Good recovery was seen in 84% in Group C (IVS + HBOT), 70% in Group B (HBOT) and 68% in Group A (IVS).⁶

In the study conducted by Filipino R et al.,¹¹ patients were divided into 2 groups. 25 patients were in the group with severe hearing loss (70-90dB) and the rest were in the group with profound hearing loss (>90dB). Patients in each group were randomised into two streams - those that received Intratympanic steroids (ITS) + HBOT and those that received Intravenous steroids (IVS) and HBOT. HBOT was given for ten sessions at 2.4 A.T.A

for 75 minutes. Complete recovery was defined as PTA \leq 25 dB HL or identical to contralateral non-affected ear or PTA improvement > 30dB. (Table I)

Table I: Complete recovery in study by Filipino R et al.¹¹

COMPLETE RECOVERY	SEVERE ISSNHL	PROFOUND ISSNHL
ITS +HBOT	83.3%	60%
IVS+HBOT	53.8%	53.8%

In our study, HBOT was given at 2 A.T.A for 60 minutes for 45 days. Recovery was defined as improvement of hearing loss \geq 50% of pre-therapy hearing loss levels and resolution of secondary clinical features. 28/51 (54.90%) cases with hearing loss showed recovery.

No Recovery was defined as improvement of hearing loss \leq 50% of pre-therapy hearing loss levels and/or presence of secondary clinical features. 12/51 (23.52%) cases with hearing loss showed no recovery.

11 cases (21.57%) showed a deterioration in hearing as compared to pre-procedural level of hearing loss.

Our study also evaluated the effect of HBOT on secondary clinical features. After treatment, patients with tinnitus and vertigo showed marked improvement - 22/27 (81.48%) and 18/24 (75%) respectively. 5/15 (33.34%) of patients showed reduced aural fullness. There was no improvement in patients suffering from nystagmus. (Fig.4)

To the best of our knowledge there has been no study in which the effect of HBOT alone has been studied. In our study, we have seen a significant improvement in hearing with HBOT alone.

Conclusion

HBOT is a safe and emerging therapy in treating ISSNHL. Till date it has been used as an adjunct to other therapeutic modalities but shows promise to be efficacious independently. However, larger trials are required before HBOT can be incorporated into routine clinical practice.

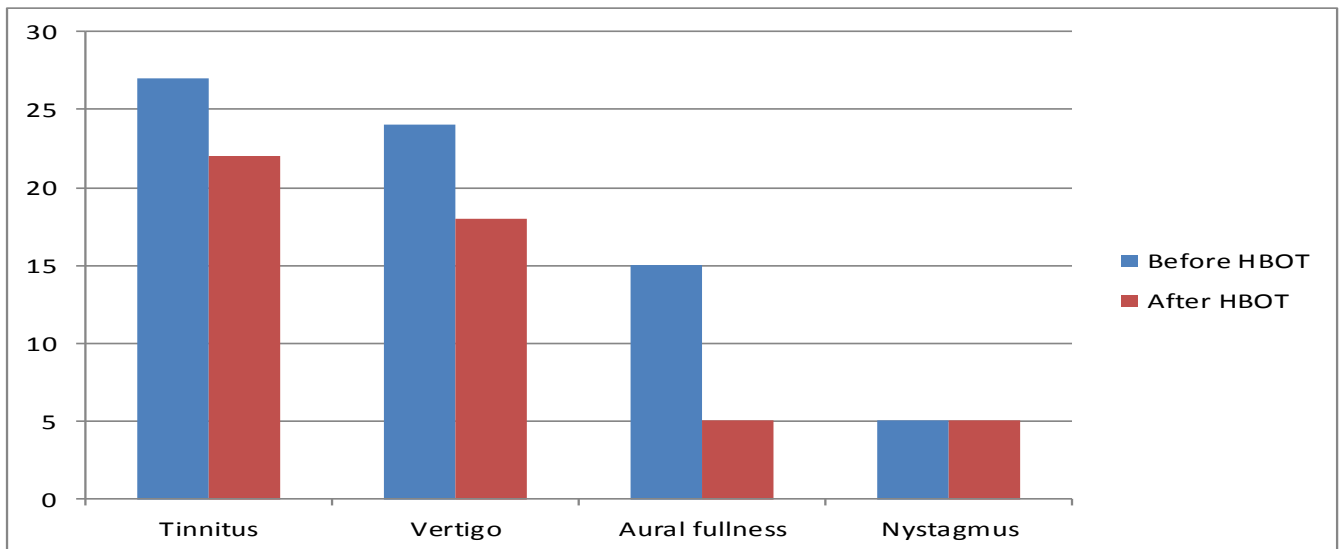


Fig. 4 Effect of HBOT on secondary clinical features

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Three Years' Experience of Management of Different Types of Rhinosporidiosis in Rural Part of Western West Bengal

Debdulal Chakraborty,¹ Chiranjib Das,¹ Rajesh Hansda¹

ABSTRACT

Introduction

The incidence of different types of rhinosporidiosis is very high in the rural western part of West Bengal. The treatment of choice is surgical excision and cauterization of the base. The recurrence rate is very high.

Aims and objectives

The objectives of this study were to assess the distribution of rhinosporidiosis according to age, sex, presenting features, site of origin, recurrence rate and compare them with literature; and describe the surgical technique to reduce recurrence of the disease.

Materials and methods

This prospective case study was done in the department of Otorhinolaryngology in a tertiary care hospital in the western part of West Bengal from April 2012 to March 2015. Wide local excision of rhinosporidiosis along with electrocautery of the base was done. We took the help of endoscope and microscope whenever needed. Regular follow up with endoscope was done in postoperative period.

Results

Out of total 112 patients 62 were male and 50 were female. Commonest age group affected was 2nd decade. There was no recurrence in patients undergoing operation for the first time. Recurrence was noted in nasopharynx of 3 patients undergoing revision surgery.

Conclusion

Complete removal of rhinosporidiosis from the base is the basic criterion to reduce recurrence. It is possible by using meticulous technique along with the guidance of endoscope or microscope whenever needed. Regular postoperative follow up with endoscope is must to detect and treat early recurrence.

Keywords

Rhinosporidiosis; Otolaryngology; Endoscopy; Epinephrine; Lidocaine; Electrocoagulation

Rhinosporidiosis is a chronic granulomatous disease caused by *Rhinosporidium seeberi*.¹ It was first described by Guillermo Seeber in 1900.² It commonly affects nose and nasopharynx. Occasionally conjunctiva, lacrimal sac, maxillary antrum, palate, larynx, trachea, bronchi, urethra and skin are affected.³ Disseminated form involves deep viscera and is known as malignant rhinosporidiosis.⁴ It presents as highly

vascular sessile or pedunculated mass.⁵ Most successful treatment is surgical excision and cauterization of the base.⁶ Recurrence is the rule rather than exception.⁷ Dapsone is used by some in recurrent cases.⁸ Though sporadic cases are reported from all over the world, more than 90% cases are reported from India, Sri Lanka and Pakistan. In India the disease is endemic in coastal parts.⁹ We found a very high incidence of different types of rhinosporidiosis in the western part of West Bengal, which encouraged us to undertake this study.

Aims and objectives

- To study distribution of rhinosporidiosis according to age, sex, presenting features and compare them

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with previous reports.

- To study distribution of rhinosporidiosis according to site of origin in ear, nose and throat.
- To describe a novel surgical technique to reduce recurrence of the disease.
- To study the recurrence rate and compare it with literature.

Materials and methods

A prospective case study conducted in the department of Otorhinolaryngology in a tertiary care hospital in the western part of West Bengal from April 2012 to March 2015. A total of 112 cases were studied. A detailed history including age, sex, area of residence, chief complaints and personal habits were recorded. Clinical examination (Fig. 1) and diagnostic nasal endoscopy were done to localize the site of origin and extent of lesion. Recurrent cases and where whole extent of the mass was not visible clinically underwent CT scan of nose and paranasal sinuses to know the exact extent of the mass (Fig. 2). CT scan of neck was done in rhinosporidiosis of oropharynx, laryngopharynx and larynx (Fig. 3). Routine blood investigations such as haemoglobin, total and differential leukocyte count, platelet count, ESR, bleeding time, clotting time, chest X-ray, ECG were done before surgery.

All patients were treated with wide local excision of rhinosporidiosis and electrocautery of the base.

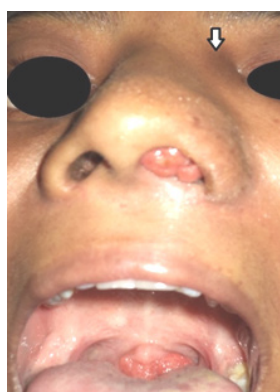


Fig. 1 Rhinosporidiosis seen in left nostril, hanging in oropharynx and swelling of left medial canthal region (white arrow) due to lesion in lacrimal sac

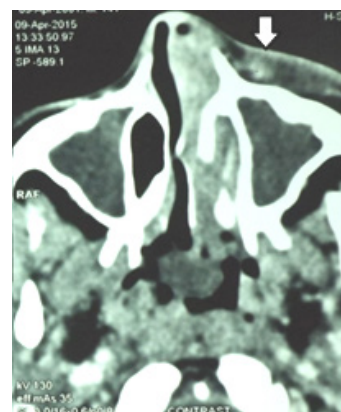


Fig. 2 CECT of nose and PNS axial section showing rhinosporidiosis in left nasal cavity extending to nasopharynx and also to left cheek (white arrow)

Rhinosporidiosis limited to nose was operated under local anaesthesia, except in children. Rhinosporidiosis of nasopharynx, oropharynx and larynx were operated under general anaesthesia. Multiple sites were involved in recurrent cases, which were treated step by step in same sitting.

Nose was prepared with cottonoids soaked with 4% lidocaine hydrochloride with epinephrine in a ratio of 4:1, 15 minutes prior to surgery. Endoscopic guidance was used where the mass was seen to arise from inferior or middle meatus, posterior part of nasal cavity not visible by headlight and in recurrent cases. About 2 ml of 2% lidocaine hydrochloride with 1:100000 epinephrine was injected into base of the lesion. The mass was excised

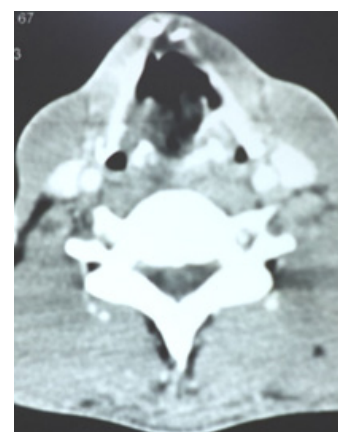


Fig. 3 CECT of neck axial section showing rhinosporidiosis in larynx

completely from the base. The attachment site and the surrounding mucosa were electrocoagulated taking care not to damage the surrounding structures.

Rhinosporidiosis of nasopharynx and oropharynx were removed transorally. With the patient in supine position, neck extended and head flexed, mouth was opened with Boyle-Davis mouth gag with tongue blade (Fig. 4). Four handed technique was used for removal of rhinosporidiosis from nasopharynx. Rubber catheter was introduced through nostril to retract soft palate and uvula. With the help of 70° endoscope the base of the mass in nasopharynx was visualised. The base was cauterized with a curved bipolar diathermy forceps and the mass was removed per-orally.

Patients with rhinosporidiosis in larynx presented with stridor. Emergency tracheostomy was done. Thereafter with proper investigations, they were put for microlaryngeal surgery. The base cauterized with sucker cum cautery and mass was removed (Fig. 5).

Rhinosporidiosis of lacrimal sac was removed via subciliary incision (Fig. 6).

Excised mass was sent for histopathological study. In recurrent cases, Dapsone 100 mg daily for 6 months was given. Patients were followed up endoscopically at 2 weeks, 1 month, 3 months, 6 months and 1 year.



Fig. 4 Transoral removal of nasopharyngeal rhinosporidiosis

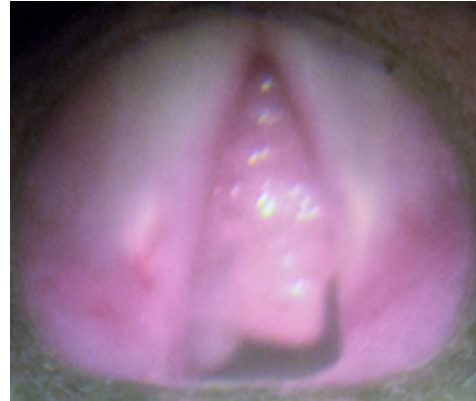


Fig. 5 Rhinosporidiosis in larynx being removed by microlaryngeal surgery

Results

A total of 112 cases were treated over 3 years from April 2012 to March 2015. There were 62 males (55.36%) and 50 females (44.64%) in this study. Patients ranged from 7 years to 77 years of age, being predominantly in the 2nd decade of life (Fig. 7). All of them came from rural area and had history of bathing in pond where cattle were also cleaned. Nasal obstruction (85.71%)

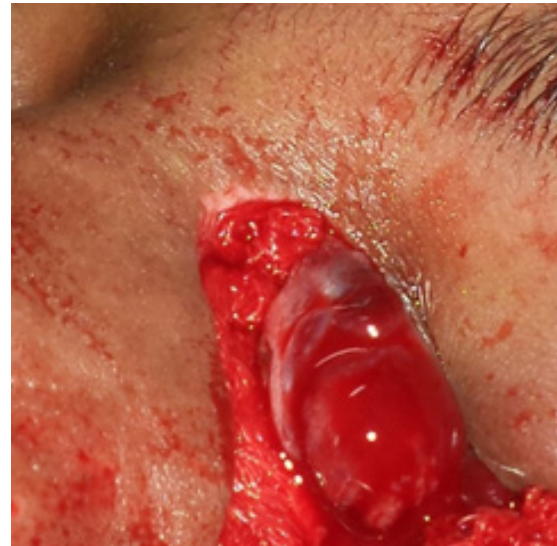


Fig. 6 Rhinosporidiosis of lacrimal sac being removed via subciliary incision

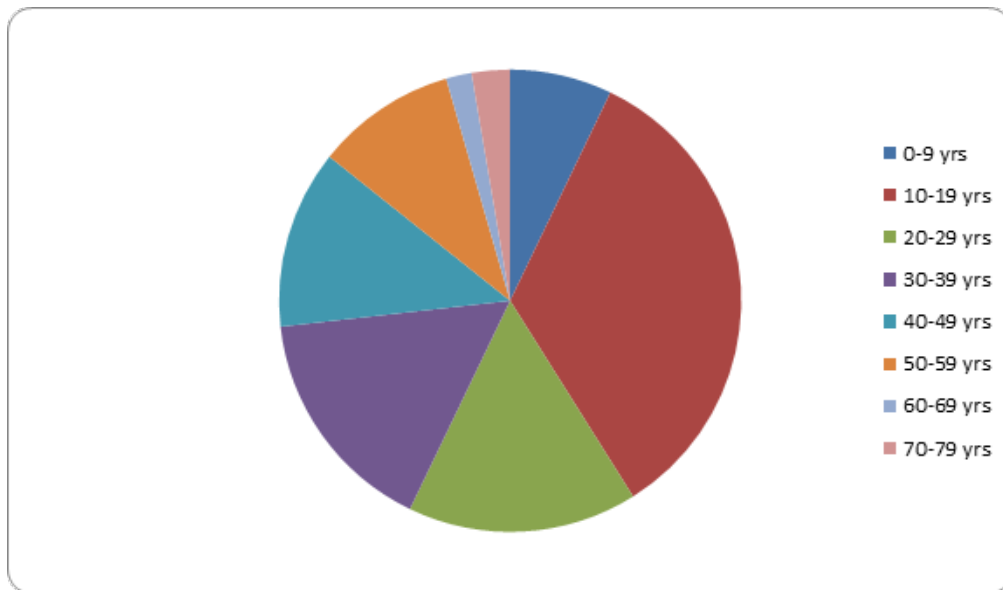


Fig. 7 Distribution of patients according to age

was the most common symptom followed by sensation of something coming out from nose (78.57%), nasal discharge (71.43%), epistaxis (32.14%), change in

voice (9.82%), foreign body sensation in throat (6.25%), difficulty in breathing (1.79%) and swelling at medial canthus (0.89%) (Fig. 8).

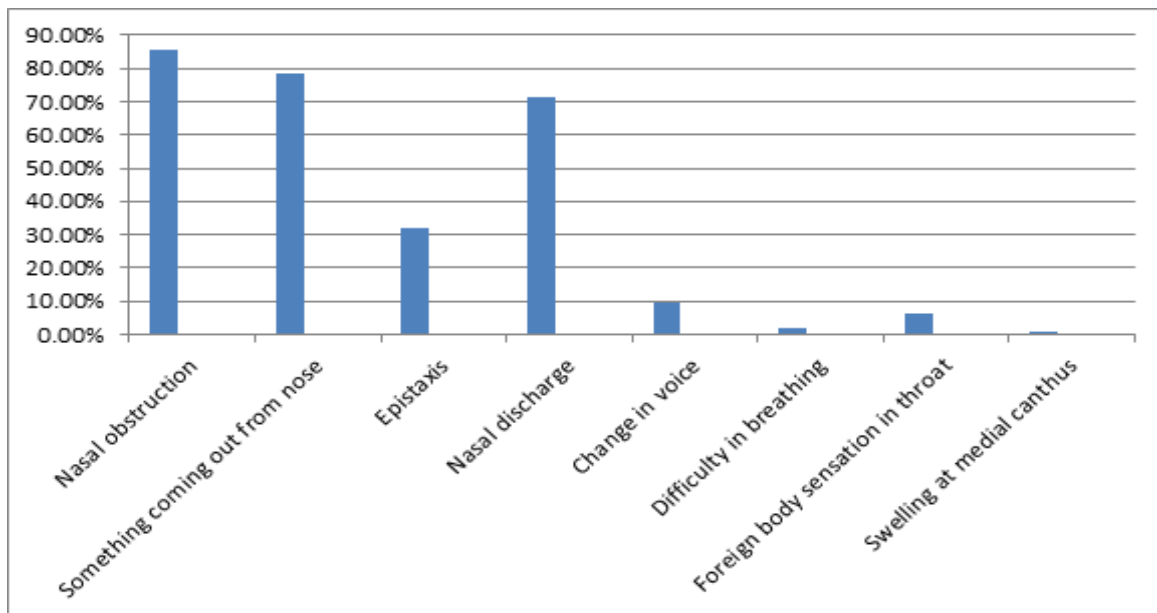


Fig. 8 Distribution of patients according to presenting symptoms

Nasal septum (52.68%) was the most common site of origin. Other sites in decreasing order were inferior meatus (31.25%), inferior turbinate (15.18%), vestibule, floor of the nasal cavity and nasopharynx (7.14% each), faucial pillars (4.46%), middle turbinate and soft palate (3.57% each), middle meatus (2.68%), vallecula, larynx and lacrimal sac (0.89% each) (Fig. 9). 11 patients (9.82%) had previous history of excision of rhinosporidiosis. All of them had multiple sites of origin. None received Dapsone earlier. All patients were treated with wide local excision and electrocautery of the base.

91 cases were operated under local anaesthesia and 21 cases under general anaesthesia. Severe intra-operative

the septum and middle turbinate.

Discussion

The causative organism was considered as a fungus when Asworth in 1923 described its life cycle establishing the nomenclature *Rhinosporidium seeberi*.¹⁰ However, the most accepted hypothesis today is that, *Rhinosporidium seeberi* belongs to a novel group of fish parasites (Mesomycetozoa) located phylogenetically between fungal and animal divergence.¹¹ Stagnant water is suggested as source of infection. Human infection is presumed to occur due to contact of traumatized epithelium with contaminated water.¹² In our study, all

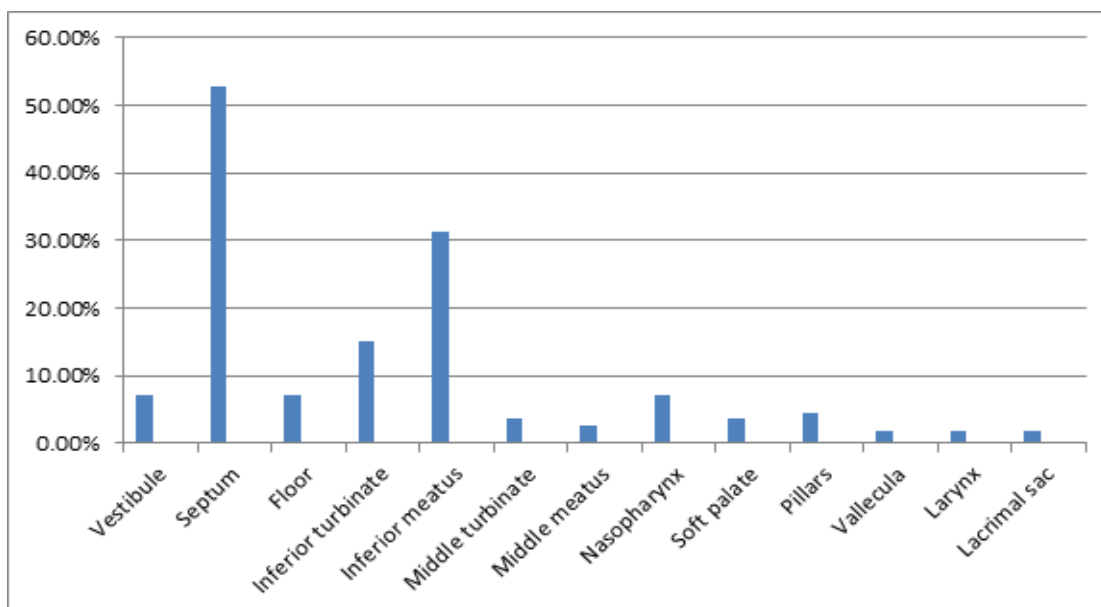


Fig. 9 Distribution of patients according to sites involved

haemorrhage was encountered in 2 cases (1.79%) where blood transfusion was needed. Dapsone 100 mg daily for 6 months was given in all recurrent cases. All specimens were reported histopathologically as rhinosporidiosis (Fig. 10). We noticed recurrence or residual mass in 3 patients during the 1 year follow up period, all of which were in the nasopharynx. No recurrence was noted in any other site. Synaechia was noted in 3 cases between the septum and inferior turbinate and in 2 cases between

patients came from rural area with habit of pond bathing. Some significant findings emerged while comparing the data of the present series with those of the study reported by Das (1974) from the same district.¹³ Though the commonest age group affected remains the same (2nd decade), the incidence of the disease in female is on the rise. The male: female ratio is now 1.24:1 compared to 6.7:1 in the previous report.

The most frequent site is the nasal cavity although

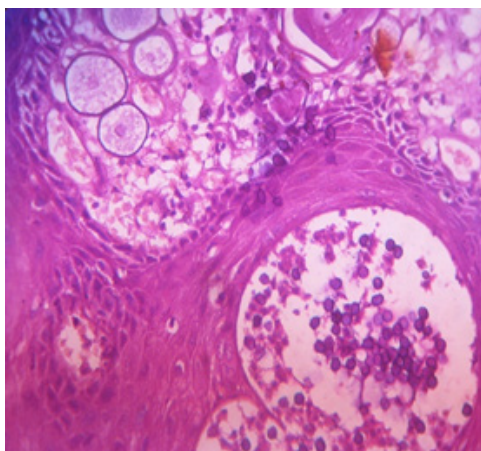


Fig. 10 Photomicrograph showing sporangia in different stages of maturation (100X H&E)

it is found in other localizations such as the paranasal sinuses, nasopharynx, oral cavity, larynx, conjunctiva, lacrimal sac, urethra, skin, and bone.¹⁴ Our findings suggest nasal septum (52.68%) as the most common site of involvement. Our series included 11 patients with previous history of surgery presenting to our hospital with recurrences. All of them had multiple sites of attachment.

The progression of disease is slow and the presenting complaints are nasal blockage, epistaxis, nasal discharge, nasal mass, and sensation of a foreign body.¹⁵ Clinically rhinosporidiosis presents as a polypoidal lesion, granular, red in colour with multiple yellowish pin head-sized spots representing underlying mature sporangia. It is friable, painless, sessile or pedunculated and bleeds on touch.¹⁶ Our findings revealed nasal obstruction (85.71%) being the most common presenting symptom.

The treatment of choice is wide local excision and cauterization of the base. Recurrence is the rule rather than the exception.⁷ Most of the recurrences are thought to be due to incomplete removal of mass due to excessive bleeding or auto-inoculation by surgical trauma.¹⁷ Cottonoids soaked with 4% lidocaine hydrochloride with epinephrine in a ratio of 4:1 used in rhinosporidiosis of nose ensured adequate decongestion, mucosal anaesthesia, easy access and a bloodless field. Endoscope helps to detect the base of the lesion thereby removing the entire mass under vision. Blood

loss also is less due to limited manipulation of the mass and the operative time is shortened. We need to transfuse blood in only 2 patients. All specimens were sent for histopathological examinations which showed sporangia in different periods of maturation and stroma with predominance of plasma cells, lymphocytes and scarce neutrophils.

Literature review suggests a residual or recurrence rate between 10 and 70%. Most of the reports show an incidence on average of 10%, related to incomplete excision of the mass.⁷ In the present study we observed recurrence in 3 cases (2.68%). All them had recurrence in the nasopharynx. We found that clearance of rhinosporidiosis from nasopharynx is the most difficult job because of multiple attachments and difficulty in exposure and instrumentations. No recurrence was noted in the fresh cases.

Medical treatment is described in the literature. However it is without useful results when used as the only modality of treatment. Dapsone has been used by some authors as an adjuvant to the surgical treatment to reduce the recurrence of disease. It appears to arrest the maturation of the sporangia and promotes fibrosis in the stroma when used as an adjunct to surgery.⁸ We used Dapsone in the dose of 100 mg orally per day for 6 months for all 11 patients of revision surgery.

Conclusion

Rhinosporidiosis is disease of dubious etiology. Although recurrence is very common, in our series it is much less because of meticulous and complete removal. It was possible due to use of epinephrine soaked cottonoids along with the guidance of endoscope or microscope whenever needed. Dapsone can be used as an adjuvant therapy in recurrent cases. The population at risk should be educated to avoid bathing in ponds and rivers open to animals. Regular postoperative follow up with endoscopy is a must to detect and treat early recurrence.

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Identifying Recurrent Laryngeal Nerve in Thyroid Surgery Using Relationship with Superior Parathyroid Gland and Tubercle of Zuckerkandl

Somesh Mozumder,¹ Shirish Dubey,¹ Aniruddha Dam,¹ Anup Kumar Bhowmick¹

ABSTRACT

Introduction

Recurrent laryngeal nerves (RLN) are particularly prone to injury during thyroid surgeries due to its intimate relationship and proximity with the gland. Zuckerkandl's tubercle (ZT) helps in preserving RLN intra operative.

Materials and Methods

A prospective study for identifying RLN in thyroid surgery using relationship with superior parathyroid gland and tubercle of Zuckerkandl was conducted on 50 thyroidectomy patients between August 2013 and February 2014.

Results

In all cases ZT was identified. Temporary paralysis of RLN was seen in 3 (6%) cases and permanent paralysis in 2 (4%) of cases.

Discussion

The site of greatest risk during thyroidectomy to the RLN is in the last 2-3 cm extralaryngeal course of the nerve. Relationship of recurrent laryngeal nerve with superior parathyroid gland and tubercle of Zuckerkandl (ZT) is known.

Conclusion

Use of ZT and superior parathyroids as a landmark allows safe dissection of RLN.

Keywords

Thyroidectomy; recurrent laryngeal nerve; parathyroid

Zuckerkandl's tubercle (ZT) is defined as posterior extension of the lateral lobes composing of thyroid tissue only as per the name of Austrian anatomist Emil Zuckerkandl (1849–1910) who described it.^{1,2} Near this tubercle, on the posterior surface of thyroid gland superior parathyroid gland is located outside thyroid capsule and deep to pretracheal layer of deep cervical fascia. Below the above two structures, lies the recurrent laryngeal nerve approaching to enter the larynx behind cricothyroid joint and under the inferior constrictor muscle. Using these relationships, the recurrent laryngeal nerve can be safely and effectively identified and preserved while thyroidectomy surgeries.

Material and Methods

A prospective study for identifying recurrent laryngeal nerve in cases of thyroid surgery using relationship

with superior parathyroid gland and tubercle of Zuckerkandl was conducted on 50 thyroidectomy patients between August 2013 and February 2014. Patients were evaluated clinically, by FNAC (Fine Needle Aspiration Cytology) and radiologically by ultrasonogram or neck computed tomography (CT) scans. Pre-operative vocal cord movement status were evaluated in every patient by indirect laryngoscopy. Total thyroidectomy and hemithyroidectomy (unilateral total lobectomy+isthmusectomy) are our procedures for the treatment of benign and neoplastic diseases of the thyroid. All operations were performed by a single

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surgeon in order to provide a standard dissection. Post-operative vocal cord movement status was evaluated in every patient by indirect-laryngoscopy immediately after surgery and every monthly for 6 months thereafter.

Results and Analysis

Out of total 50 patients who underwent thyroidectomy during the said period, 30(60%) underwent total thyroidectomy [FNAC proved malignancy], 15 underwent hemithyroidectomy [FNAC was suspicious of malignancy or proved to be benign] and 5 patients with extrathyroidal extension and or cervical nodal metastasis, underwent total thyroidectomy with central and lateral neck dissection on the diseased side.

Those who underwent simple hemithyroidectomy (15 patients) and only total thyroidectomy (30 patients), they neither had any extra-thyroidal extension nor neck node involvement; their thyroid anatomy was unaltered. So in their cases it was easy to identify and preserve recurrent laryngeal nerve using the relationship with tubercle of Zuckerkandl and superior parathyroid. Their post-operative vocal cord mobility and voice remained unaltered even after 6 months of follow up.

In the 5 cases (10%) where there were gross extrathyroidal extension of disease and or the anatomy was altered or there was presence of central or lateral cervical nodal metastasis, the recurrent laryngeal nerve

was difficult to locate during surgery as the reference land marks were already altered or lost. For them we tried extra capsular dissection as the superior parathyroid gland and recurrent laryngeal nerve lie outside the thyroid capsule.

Thus in 5 cases out of 50 (10%) the tubercle of Zuckerkandl could not be identified.

3 patients, in whom ZT could not be identified, postoperatively revealed restricted mobility of vocal cord on the operated side with postoperative voice change but improved subsequently over 6 months as we followed up them monthly.

But 2 of them developed vocal cord palsy on one of the operated side with permanent voice change even after 6 months. (Table I)

Discussion

The recurrent laryngeal nerve supplies all muscles of larynx except cricothyroid and sensation of vocal cords and below. Injury to unilateral nerve causes ipsilateral vocal cord palsy in paramedian position and produces some degree of hoarseness which may recover in time due to compensation by the healthy cord which eventually crosses the midline to meet the paralysed one. Injury to both nerves is less likely to produce hoarseness as both the cord are in paramedian position but are prone to develop dyspnoea and stridor. Recurrent

Table I: Results of the Study

TYPE OF OPERATION DONE	NO. OF CASES	INCIDENCE OF RECURRENT LARYNGEAL NERVE PALSY	
		TEMPORARY	PERMANENT
Only hemithyroidectomy (using said land marks)	15 (30%)	0	0
Only total thyroidectomy (using said land marks)	30 (60%)	0	0
Total thyroidectomy with central \pm lateral neck dissection done (with altered local anatomy)	5 (10%)	3	2
Total cases	50 (100%)	3 (6%)	2 (4%)

laryngeal nerves are particularly prone to injury during thyroid surgeries due to its intimate relationship and proximity with the gland.

The left recurrent laryngeal nerve arises from the vagus in the mediastinum at the level of arch of aorta, loops around it and then ascends into the neck in the tracheo-oesophageal groove. Right nerve arises from the vagus at the level of subclavian artery, hooks around it and then ascends between the trachea and oesophagus.

Zuckermandl's tubercle is a posterior extension of the lateral lobes composing of thyroid tissue. Near this tubercle, on the posterior surface of thyroid gland superior parathyroid gland is located outside thyroid capsule and deep to pretracheal layer of deep cervical

fascia [more or less constant in location]. Below the above two structure lies the recurrent laryngeal nerve approaching to enter the larynx anterior to cricothyroid joint and under the inferior constrictor muscle.(Fig. 1).

At the apex of the Beahr's triangle (formed superiorly by inferior thyroid artery, below by recurrent laryngeal nerve and laterally by common carotid artery and apex is formed by meeting point of inferior thyroid artery and recurrent laryngeal nerve) the nerve is found below the Zuckermandl's tubercle and superior parathyroid gland.

Otto Wilhelm Madelung had described in 1867 "posterior horn of the thyroid."^{1,3} Emile Zuckermandl has been reported in 1902 "processus posterior glandulae thyroideae."^{1,2} The ZT is posterior extension of the gland

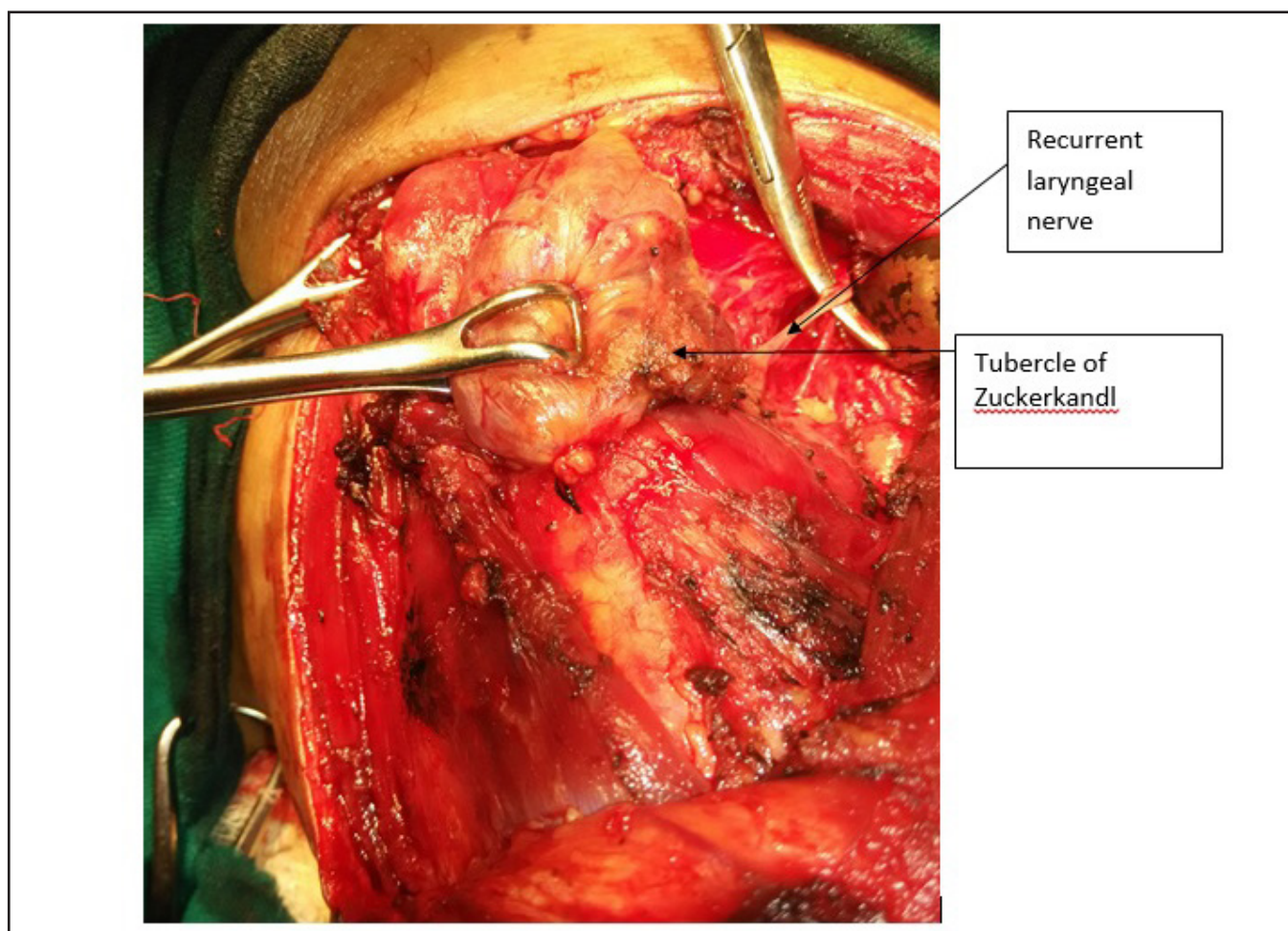


Fig. 1 Relation of recurrent laryngeal nerve with Tubercle of Zuckermandl

composed of thyroidal tissue. Surgical importance of the ZT arises from its relations with RLN. The resection of enlarged tubercle at posterior site of the thyroid requires delicate and careful dissection adjacent to the nerve. Identification of ZT and an understanding of the relationship between the ZT and RLN are essential for safety of thyroid operations.^{3,4,5} Surgeons generally perform thyroid operations on voluminous goitre that when present larger tubercles are observed on surgical specimens. Therefore, by surgical point of view an enlarged ZT parallel to goitre formation merits more interest than smaller one. It makes surgical dissection challenging at posterior site of the lateral lobes around RLN and inferior artery.

Numerous authors reported the incidence of ZT as more than 50% of their patients; Kaisha et al.⁶ 59%, Hisham and Lukman⁴ 55%, and Gauger et al.⁵ 63%. On the other hand, Page et al.³ have identified ZT only in 7% of their patients.

RLN injury may be prevented by its full isolation based on intimate knowledge of the anatomy including all its variations.⁷ Some anatomical landmarks help surgeons identifying RLN.

ZT appears as an indicative arrow for the nerve and neurovascular crossing point in some patients. We can comment that after medial mobilization of the lobes, when present, ZT may be used as a landmark facilitating identification of the nerve. In our patient sample 90% of the patients had a recognisable ZT.

Many authors have previously stated that the ZT is a reliable and constant anatomical landmark as an arrow pointing the RLN.^{6,8,9-11} The site of greatest risk during thyroidectomy to the RLN is in the last 2-3 cm extralaryngeal course of the nerve before its laryngeal entry above the trunk of the inferior thyroid artery.¹²

Based on our findings ZT pointing, like an arrow head, neurovascular crossing point promotes surgeon's challenge to identify RLN. On the other hand, larger tubercle generally covers anterior surface of the nerve. Mobilization of the tubercle medially allows easy identification of the nerve at this dangerous site.

Relationship between the nerve and the tubercle leads to perform safer thyroid surgery.

The neighbouring of ZT and RLN is another

important point for their relation. The resection of ZT for total thyroidectomy requires refined and meticulous dissection adjacent to the nerve. When enlarged by disease, the tubercle passes over the nerve like a bridge. This normal anatomical relationship is retained in the majority of cases.⁹

Excision of ZT is mandatory for completeness of thyroidectomy. Fine and delicate dissection with care around the ZT is also mandatory after identification and isolation of the RLN for preventing nerve injury.

Hisham and Lukman⁴ have previously reported that in 6% of dissection, the RLN was on the anterior surface of the tubercle. Gauger et al.⁵ have also reported that in 93% of patients with enlarged ZT, the RLN lays medial to the tubercle, and the nerve was found lateral to it in the remaining 7% of their cases. Anterior course of RLN is at highest risk of injury. In none of our patients, did we find the nerve to be on the anterior surface of the ZT.

The surgeon must be aware of the tubercle, and he must face the ZT without fear but with care.¹³ Identification of RLN is easier because of the constant relationship between these two structures at a level where the risk of injury is greatest.¹³ Identification of ZT, an understanding of the relationship between the ZT and RLN, and isolation of the nerve before dissection of ZT are essential for performing safer thyroid surgery.

Conclusion

Zuckermandl's tubercle which is defined as posterior extension of lateral lobes of the thyroid gland, is a common anatomical structure found in the majority of cases. Excision of the tubercle requires fine and meticulous dissection with great care because of close relationship between ZT and RLN.

Per operative identification of recurrent laryngeal using its relation with tubercle of Zuckermandl and superior parathyroid in uncomplicated cases of hemi/total thyroidectomy is a safe and easy method to avoid postoperative vocal cord paresis/palsy and voice change can be followed as a standard routine procedure.

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Acetic Acid Instillation after Canal Wall Down Mastoidectomy

Hamsa Shetty,¹ Gangadhara K S¹

ABSTRACT

Introduction

Persistent otorrhoea and granulation tissue in the mastoid cavity are common post-operative complications of Canal Wall Down Mastoidectomy. In order to avoid the same and to achieve a dry cavity instillation of acetic acid into the mastoid cavity during the post operative period is common practice.

Materials And Methods

In this study we assessed the results of 4% acetic acid instillation in varying quantity and frequency, in the ears after modified radical mastoidectomy. 40 Patients of chronic suppurative otitis media (atticoantral) / cholesteatoma, who underwent modified radical mastoidectomy during one and a half year period, were included in the study. The patients were divided into two groups; Group A with 30 patients and Group B with 10 patients, by simple randomization method. All the patients belonging to both the groups were asked to instill acetic acid in to the mastoid cavity from second post-operative week onwards. Group A patients were asked to instill 4% acetic acid approximately 10 to 12 drops (generously) into the mastoid cavity thrice a day for the subsequent 8 weeks and were followed up every week. 10 patients of Group B were asked to instill the same preparation only once weekly and followed up for the next 12 weeks. Systemic antibiotic cover was given up to 10th post operative day.

Results

In Group A, dry mastoid cavity was achieved remarkably faster within six to eight weeks and in all the 30 patients. In Group B, 9 patients out of the 10 showed positive result whereas 1 patient had persistent otorrhoea even at the end of 3 months' follow-up. The nine patients in whom the dry cavity was achieved, the results were delayed by up to 4 to 6 weeks in comparison to the Group A patients.

Conclusion

Though acetic acid instillation is known to help in achieving a dry cavity but a slightly higher concentration (4% acetic acid) used more frequently is highly effective in rendering dry cavity much earlier without proliferation of granulation tissue even upto three months of follow up.

Keywords

Otitis Media, Suppurative; Acetic Acid; Mastoid

Indications for canal wall down mastoidectomy in most cases are chronic suppurative otitis media (atticoantral)/cholesteatoma of varying extent. However, absolute indications for modified radical mastoidectomy or canal wall down mastoidectomy are tumours and cholesteatoma.¹ During the post-operative period persistent otorrhoea and granulation tissue can be bothersome complaints. In most patients creating a dry cavity takes a long time. Wet cavity is common in

open technique than closed and persistent or temporary otorrhoea is about 12 to 60%.² In order to avoid the same and to achieve a dry cavity, instillation of acetic acid into the mastoid cavity during the post operative period is common practice.

In this study we assessed the result in 40 patients who presented with atticoantral type of chronic suppurative otitis media and subsequently underwent modified radical mastoidectomy with adequate meatoplasty. Post operatively the 40 patients were divided into 2 groups. Group A consisting of 30 patients and Group B consisting of 10 patients. All the patients were asked to instill acetic acid (8% acetic acid diluted with equal amount of normal saline in the ratio of 1:1 which resulted in acetic acid concentration of 4%) in varying quantity and frequency.

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Patients of both groups were followed up for the next 12 weeks to assess the results in terms of achieving a dry cavity.

Materials and Methods

40 Patients (Tables No. I, II & III) who presented with chronic suppurative otitis media (atticoantral)/cholesteatoma (of varying extent) (Tables No. IV & V) to the ENT outpatient department during one and

During the post operative period (after 1 week) all the patients belonging to the both the groups were asked to instill acetic acid in to the mastoid cavity. Group A patients were asked to instill 8% acetic acid diluted in equal amount of normal saline in the ratio of 1:1 (resulting in 4% acetic acid) approximately 10 to 12 drops (generously) into the mastoid cavity thrice a day (for three to five minutes) for the subsequent 8 weeks and followed up weekly. Group B – 10 patients were asked to instill the same preparation only weekly once and followed upto the next 12 weeks. Systemic antibiotic cover was given up to 10th post operative day (5 days intravenous crystalline penicillin and the next 5 days oral amoxicillin 500 mg tid).

Table I: Age Incidence amongst Group A and Group B patients

AGE GROUP	GROUP A	GROUP B
1-10	-	-
11-20	4	2
21-30	9	3
31-40	11	2
41-50	6	1
51-60	0	2
Total	30	10

a half year period were included in the study. All the patients subsequently underwent modified radical mastoidectomy with adequate meatoplasty. 40 patients were divided into two groups. Group A – 30 patients, Group B – 10 patients by simple randomization method. (Although simple randomization method is used when a large number of subjects are involved; yet in our study this method was chosen as this seemed to be the safest method to eliminate selection bias). All the 40 patients were operated by the same surgeon in the same institute.

Table II : Sex distribution amongst Group A and Group B patients

	GROUP A	GROUP B
MALE	21	6
FEMALE	9	4

Results

In the first study group (Group A) dry mastoid cavity was achieved remarkably faster within six to eight weeks and in all the 30 patients the above results could be achieved, whereas in the other group (Group B), 9 patients out of 10, showed positive result whereas 1 patient had persistent otorrhoea even at the end of 3 months follow-up period. The nine patients in whom the dry cavity was achieved, the results were delayed by upto 4 to 6 weeks compared to Group A patients. None of the patients complained of any effects like pain or burning sensation, neither did any patient discontinue instilling the drops. In Group A, all the thirty patients showed a dry cavity and there was no negative outcome, whereas, in Group B, one patient showed persistent otorrhoea. It can be considered as a negative outcome. Therefore by Fischer's exact test for statistical analysis, p value is found to be 0.25 which is statistically insignificant (at 0.05 level of significance) (Table VI) (Fig. 1).

Discussion

Atticoantral type of chronic suppurative otitis media with cholesteatoma possesses significant challenge for the treating surgeon as good surgical outcome depends largely on the extent of disease clearance and post operative care. Canal wall down mastoidectomy or modified radical mastoidectomy is the accepted surgical procedure. The procedure is very effective in treating

Table III: Stage of pars flaccida retraction amongst 9 patients

STAGE	NO. OF PTS
I	Nil
II	Nil
III	3
IV	6

cholesteatoma, which allows the surgeon to access and remove completely the diseased tissue while preserving significant anatomy.³ The cavity created at surgery, can easily be examined and monitored for any cholesteatoma recurrence and cleaning of the cavity is also simple. In many patients achieving a dry cavity may be difficult.⁴

Granulation tissue is a highly vascularized reactive tissue that is able to absorb the bone by inflammation and direct contact. It is a main component of wound that

Table IV: Type of COM amongst Group A and Group B patients

TYPE	GROUP A	GROUP B
Cholesteatoma	11	6
Retraction pocket in the attic	9	0
Postero-superior granulation with marginal perforation	7	4
Postero-superior retraction pocket	3	0

is healing but if it grows abundantly it will cause scarring and fibrosis.⁵ Meyerhoff et al. observed that granulation tissue was the predominant tissue in 49%, 20%, 5.5% of chronic otitis media, cholesteatoma and cholesterol granuloma respectively.⁶ To achieve a dry cavity after modified radical mastoidectomy, acetic acid, in different concentrations, is routinely used. Acetic acid helps in restoring the normal pH of the cavity.⁷ In the presence of granulation tissue it is used as a chemical cauterization

Table V: Laterality amongst group A and Group B patients

	GROUP A	GROUP B
RIGHT	18	7
LEFT	12	3
BILATERAL	0	0

agent.

In our study all the 40 patients who underwent modified radical mastoidectomy, were advised to instill acetic acid diluted with equal amount of normal saline (1:1) resulting in 4% acetic acid solution. Earlier studies have described the use of 2% acetic acid as well as 2% acetic acid + antibiotic solution instillation into the mastoid cavity to achieve a dry cavity.^{7,8} But none have described the use of 4% acetic acid solution as in our study.

Out of the two study groups, Group A (30 patients) with generous daily instillation (10-12 drops thrice a day for upto 8 weeks) of 4% acetic acid showed a faster achievement of dry cavity within 6 - 8 weeks. All the 30 patients showed dry cavity with no side effects, whereas the patients of Group B (10 patients), who were asked for once weekly instillation of 4% acetic acid for up

Table VI: Table for Fischer's Exact Test

OUTCOME	GROUP A	GROUP B
Positive	30	9
Negative	0	1
Total	30	10

to 8-12 weeks, showed the desired results (dry cavity) much later than the former group, i.e. at the end of 10-12 weeks. Moreover, out of 10 patients one patients had persistent otorrhoea even at the end of three months.

Conclusion

Though acetic acid instillation is known to help in achieving a dry cavity but a slightly higher concentration

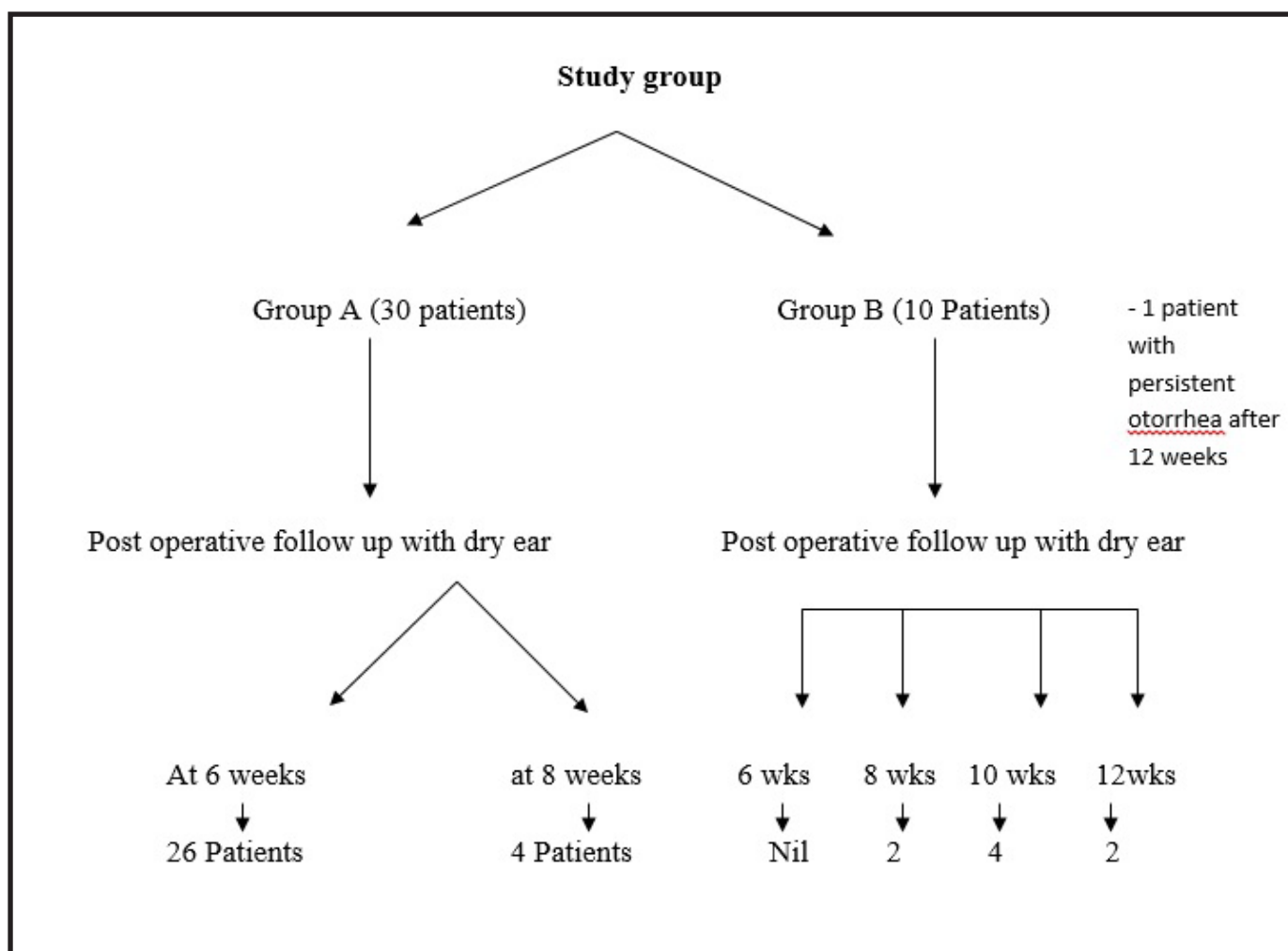


Fig. 1 Results of the Study

(4% acetic acid) used more frequently is highly effective in rendering a dry cavity much earlier with no granulation tissue, even upto three months of follow-up.

Clinical significance: To the best of our knowledge, no earlier literature has used exclusive 4% acetic acid for post-operative (post MRM) mastoid cavity care. Our study demonstrates the efficacy of 4% acetic acid in terms of achieving a dry cavity relatively earlier when instilled more frequently with no reported side effects. However more studies need to be done with regard to the above to substantially prove the role and efficacy of 4% acetic acid.

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Operating Room Essentials for Budding Doctors - A Perspective

Tushar Chakravorty¹

ABSTRACT

Young doctors walking into the operating room are eager to develop their skills to become efficient and knowledgeable professionals in future. But precious little is done to actively develop the basic practical skills of the budding doctors. They remain unaware about the layout of the operating room, the OR etiquette and often do not have sound scientific understanding and importance of meticulous execution of the basic operating room protocols.

This article stresses the need to develop the basics of OR protocol and to improve the confidence of the young doctor by strengthening his foundation by showing him that attention to the basics of medical care and empathy for the patient can really make a difference to the outcome of a treatment.

Keywords

Operating Rooms; Cross Infection; Disinfectants; Hand Disinfection; Sterilization; Surgical Attire; Social Responsibility

Working in two teaching institutions in Kolkata, as an Anaesthesiologist for nearly twenty-five years, I have observed the predicaments of medical students, internees, house surgeons and PGTs of different surgical units/departments, when they come into the Operating Rooms. I have also noticed the gaps in their knowledge of minute basic practical matters, which are thought to be learnt by them on their own, by simple observation only. But the fact that glaring gaps do remain has given me impetus to write this article. If it, at all, helps the target readers, my objective will be fulfilled.

First of all, let us take the word “Operating Theatre.” Historically, Galleries used to be there, where surgeries were performed (like a theatrical performance) to be watched by other doctors, medical students etc. Medical College and Hospital, Kolkata, could boast of two such “Operating Theatres” with galleries, one in Eden Hospital, another in David Hare Block (both have been restructured after dismantling the galleries). The “Theatre” concept has been banished, as chance of infection do increase manifold with such “galleries” and presence of multitude of “spectators” inside.

Hence “Operating Theatre (O.T.)” has been replaced by more simplistic “Operating Room (O.R.)”. There is

also the concept of “Operating Room Complex” where multidisciplinary Operating Rooms are clubbed together for following reasons:¹

(a) Common infrastructure of sterilization etc including manpower optimisation save financial expenditures;

(b) Interdepartmental surgical specialists of various branches may help each other as, when and where required;

(c) Expertise of skilled Anaesthesiologists, Operating Room technicians and other Paramedical personnel’s may be utilised in the whole of such O.R.Complex;

(d) Monitors, Gadgets, C-arms etc too may be shared wherever required.

Centrally placed such O.R. Complex from where the postoperative patients can be easily transported to various surgical wards, High Dependency Units or even to Critical Care Units, is the Civil Engineering novelty

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of modern Hospital buildings. A vital point in the matter of O.R. Complex, apart from its central location, is that it must have some barrier system and it must be away from the In-Patient departments, so that crowding near the complex can be avoided.

There has to be four different zones in the O.R. Complex:

- (a) Outer zone- areas for receiving patients, toilets, pantry, administrative room etc.
- (b) Clean zone- changing room, store room, patients transfer area, doctors' & sisters' rooms, recovery room etc.
- (c) Aseptic zone- scrub area, preparation room, area for instrument sterilization and trolley laying, Operating room proper, etc.
- (d) Disposal zone- where used instruments are cleaned and bio hazardous waste is disposed.

Each Operating room proper must be big enough to accommodate one Operating table, anaesthetic and surgical machines, monitors, suckers, diathermy machines, ventilators etc, keeping enough space to work upon. It should have as little cleavage as possible (not to speak of galleries). The floor and walls should be built with large marble slabs with little junctions. Mosaic floorings have multiple pores which can harbour infections, must be avoided. A single steel sheet flooring spread to walls will be the best thing. Wall racks and almirahs are to be kept outside. Instrument trolley, anaesthetic drugs etc are to be brought in by modular system.

There has to be continuous laminar air flow by positive pressure through high efficiency particulate air (HEPA) filter located at the upper portion of the Operating room. At the same time scavenger system, either active or passive, to wash away the expiratory anaesthetic gases should be there. Carbolisation i.e. swabbing the floor walls (up to the accessible height), Operating table together with all gadgets kept inside the OR, has to be done daily before surgery starts. Swabs from floor walls and Operating table are to be sent periodically to detect growth of microorganisms inside O.R.

Nowadays, Operating rooms can be sterilized by dispersing disinfectants like hydrogen peroxide, hydrogen peroxide 4% with silver nitrate 0.1%, peracetic

acid or other compounds of formaldehyde through a fogger. The contact time is about an hour, after which, the OR is ready for use.²

The students must be taught precisely the procedure of surgical hand preparation (Fig. 1) and putting on gloves (Fig. 2), not leaving it to their power of observation only. Previously hand wash was done with soap water which does not have antiseptic property. Nowadays good quality antiseptic hand scrubs like povidone iodine and chlorhexidine etc. are available. One thing must be particularly mentioned that all ornaments like rings, bangles, watch etc including any sacred cotton threads must be taken off before washing hands for putting on gloves (Table I). After handwash and also after putting on the gloves the hands must not go below the waist or above the shoulder at no point of time, till the procedure is over (Table II).³

Consent - Before any procedure, not to speak of surgery & anaesthesia, informed consent is a must. It should be taken not at the time of admission; but only after the Operating has been duly planned and after explaining the pros and cons of the surgical treatment and its alternatives, in the patient's own language in front of proper witness. Only the patient's signature is valid unless he is minor, unconscious or insane. In case the patient is unconscious and is not accompanied by any guardian/relative, two responsible senior doctors can decide and sign for any Operating they feel would be lifesaving.

Institution of I.V. fluid line & catheterisation too will need proper informed consent. In this age of litigations, verbal consent will not suffice, as it would not hold water, if put to scrutiny. Before I.V. cannula insertion use of eutectic mixture of local anaesthetics should be advocated. Here comes the question of putting an airway in I.V. bottles--- The era of glass bottles has gone as they were bulky, fragile and needed an airway for the fluid to run. Through the airway enter dust, other floating particles, soluble materials and microorganisms. Hence came PVC bottles which won't need any airway, almost till the end. Then, instead of piercing the bottle by a needle, we can run the bottle by applying pressure.⁴

While catheterising, after antiseptic dressing of urethral meatus and its surroundings, some amount of

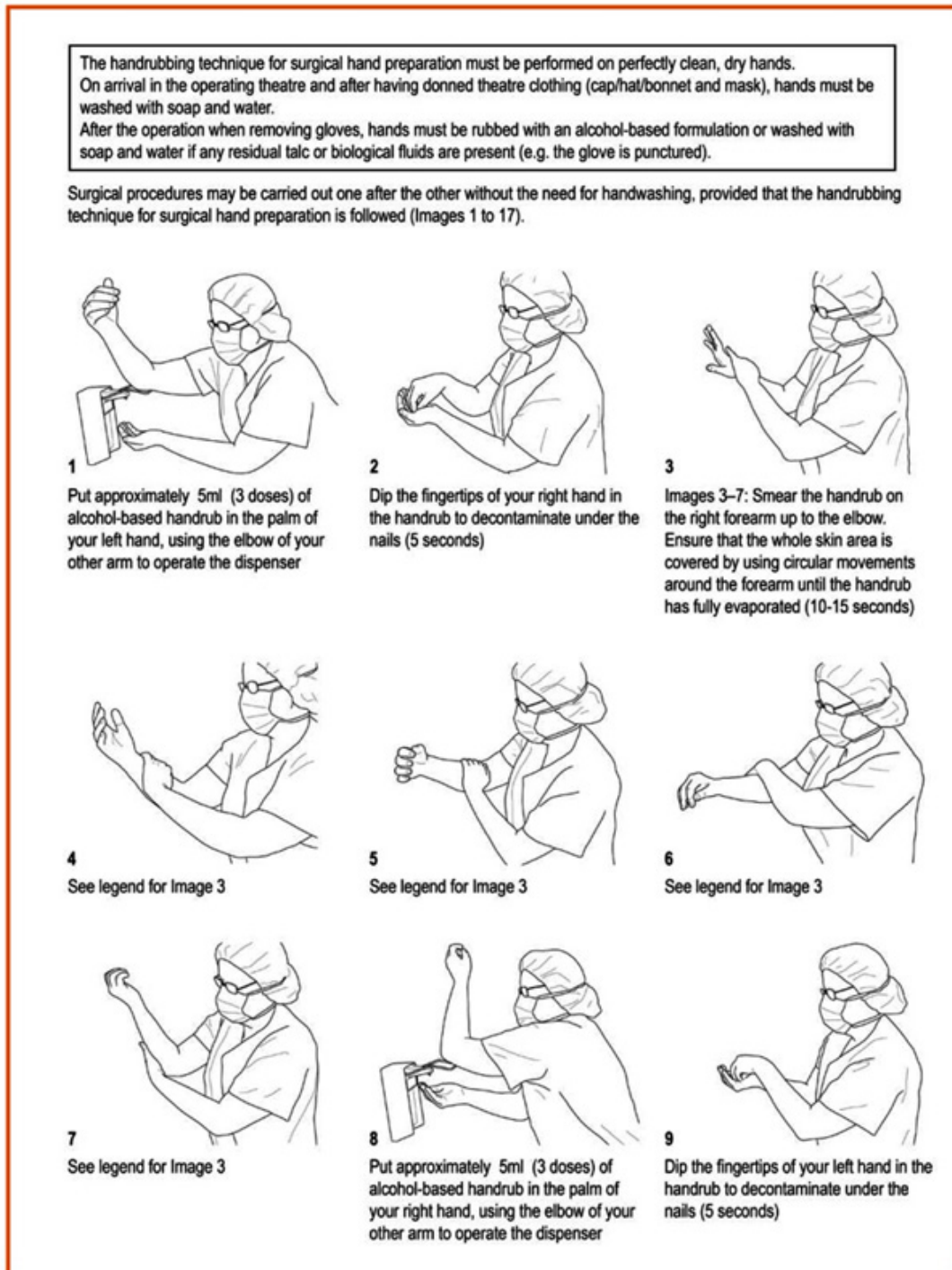
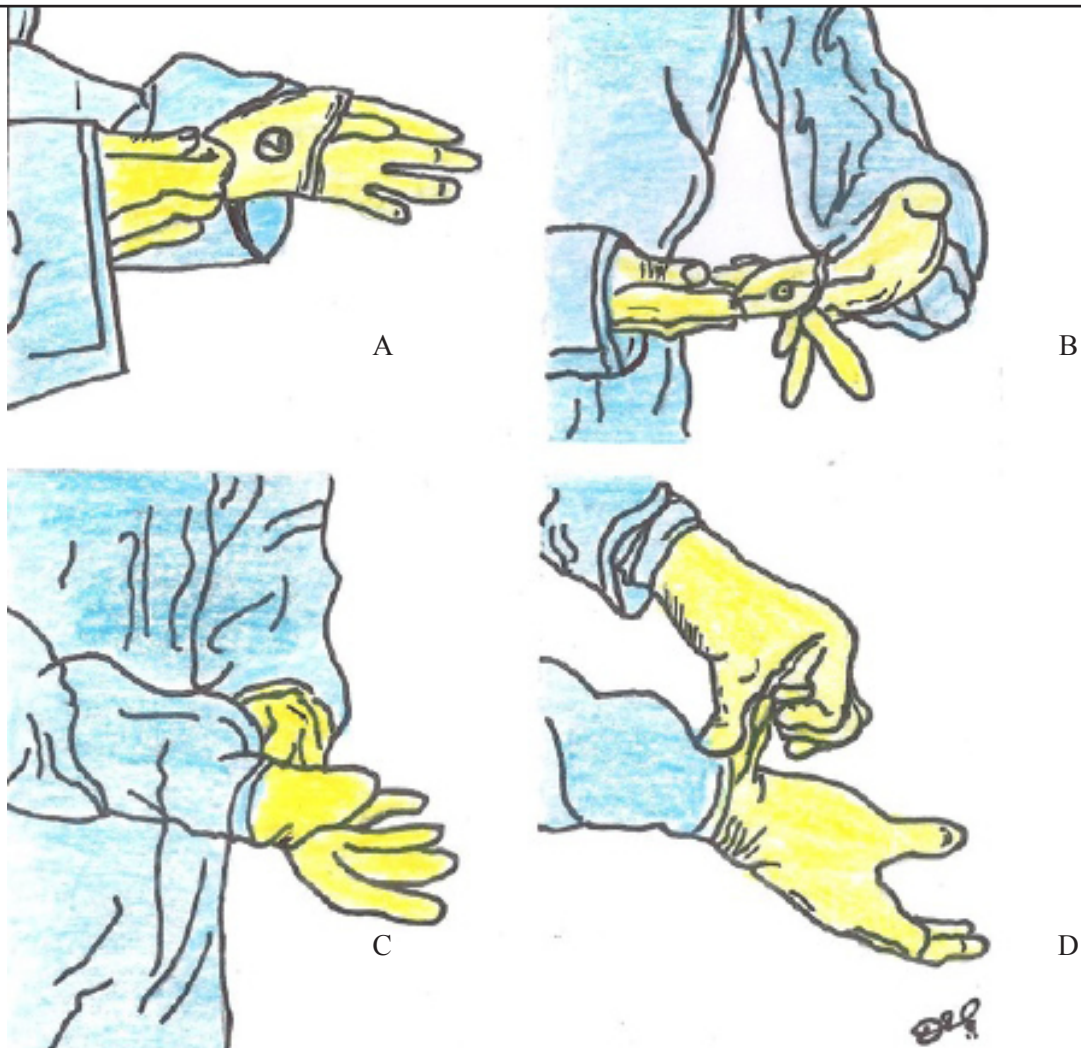


Fig. 1 Hand rubbing technique for surgical hand preparation (Reproduced with kind permission from WHO)



A. Pick up the cuff of the left glove with your left hand. Slide the the right hand into the glove until you have a snug fit over the thumb joint and knuckles. The bare right hand should not touch any other part of the right glove other than the folded cuff.

B. Insert the fingertips of the gloved left hand into the folded cuff of the right glove and pull it over the right hand to fit it in the glove.

C. Unfold the right cuff in the same movement over the gown sleeves.

D. Insert the gloved right fingers into the still folded cuff of the glove covering the left hand and unfold it over the gown sleeves.

Fig. 2 Technique for donning sterile gloves (Diagrams courtesy Dr Debasish Guha)

Table I: Key steps before starting surgical hand preparation (Reproduced with permission from WHO)

KEY STEPS BEFORE STARTING SURGICAL HAND PREPARATION
<ul style="list-style-type: none"> • Keep nails short and pay attention to them when washing your hands – most microbes on hands come from beneath the fingernails. • Do not wear artificial nails or nail polish. • Remove all jewellery (rings, watches, bracelets) before entering the operating theatre. • Wash hands and arms with a non-medicated soap before entering the operating theatre area or if hands are visibly soiled. • Clean subungual areas with a nail file. Nailbrushes should not be used as they may damage the skin and encourage shedding of cells. If used, nailbrushes must be sterile, once only (single use). Reusable autoclavable nail brushes are on the market.

lubricant jelly/local anaesthetic jelly should be pushed in. Catheterisation should be done gently by no touch technique i.e. without touching the catheter, which must

touched.⁵

When the medical students first come into wards and Operating rooms, they are overawed by the situation

Table II: Protocol for surgical scrub with a medicated soap: Procedural steps (Reproduced with kind permission from WHO)

PROTOCOL FOR SURGICAL SCRUB WITH A MEDICATED SOAP: PROCEDURAL STEPS
<ul style="list-style-type: none"> • Start timing. Scrub each side of each finger, between the fingers, and the back and front of the hand for 2 minutes. • Proceed to scrub the arms, keeping the hand higher than the arm at all times. This helps to avoid recontamination of the hands by water from the elbows and prevents bacteria-laden soap and water from contaminating the hands. • Wash each side of the arm from wrist to the elbow for 1 minute. • Repeat the process on the other hand and arm, keeping hands above elbows at all times. If the hand touches anything at any time, the scrub must be lengthened by 1 minute for the area that has been contaminated. • Rinse hands and arms by passing them through the water in one direction only, from fingertips to elbow. Do not move the arm back and forth through the water. • Proceed to the operating theatre holding hands above elbows. • At all times during the scrub procedure, care should be taken not to splash water onto surgical attire. • Once in the operating theatre, hands and arms should be dried using a sterile towel and aseptic technique before donning gown and gloves.

be introduced by holding the pack which should be rolled over the catheter. While attaching the urobag or inflating the balloon of the Foley's catheter, it may be

there, and are also overzealous (eager) to learn. If they are given a proper lecture about what they are expected to do and learn over there, then they can be spared many

a nervous moments.

While in the ward, they should know that before touching any patient for examination (or performing any procedure) they must wash their hands. Mere hand washing may reduce incidence rate of dreaded Hospital Acquired Infection (HAI) and/or nosocomial infection, which is the bane of today's hospital system.

While in Operating room complex, they must know the difference between unsterile, relatively sterile (clean) and sterile zones. They must change their shoes and socks before entering the clean zone and put on Operating room slippers. In the clean zone, they must change their outer apparel and wear Operating room dress (not the sterile surgeon gown) and cap mask (either cotton or disposable). None should even peep into the O.R. proper before changing, not even to ask for the O.R. dress. All, especially the female students must take special care to hide the whole of their hair by the cap. Mask should cover the mouth & nose properly, so that droplet infection may not be transmitted from them to others including the patient and also the surgical instruments kept in the open trolley.

Once inside the O.R. proper, they must follow the Operating room culture, which should be enumerated to them:

(i) All should speak in low voice, if at all. At the same time students must be allowed, even encouraged, to ask questions because seeking answers to correctly formed questions is the best way to acquire knowledge.

(ii) None should touch or lean on anything inside there; (a) the surgical trolley, the patient after draping has been done or the surgeon and assistants who have already put on surgical gown-lest they become unsterile. (b) The anaesthesia machine, ventilators, monitors etc-lest the settings are inadvertently changed.

(iii) Every student must be observing everything and every step being performed viz hand washing, wearing of gloves, anaesthetic procedure, surgical steps - from aseptic dressing & draping to suturing and final dressing, recovery from anaesthesia and finally, patient shifting.

At the beginning of surgical procedures, of course after anaesthesia has been undertaken, aseptic dressing by a contact antiseptic is applied on a large area around

where surgical incision will be given. If Povidone iodine is used, it ought to be 10% solution, it should be allowed to dry (otherwise its contact antiseptic property is not active) & it should not be wiped away with spirit.

Next is the step of covering the surroundings with drapings, lowest layers of which must be rubber/polythene sheet so that it does not get wet from below or above, lest microorganisms from underneath does not come up through wet sheets. Then on the top of that, cotton sterile sheets are placed, leaving the actual surgical area bare. By this time, students must have observed that their dress, surgeon's gowns, drape sheets are usually green in colour. It is not by chance, but due to two reasons: (1) The colour must be soothing to eyes (besides green, white, pink, a shade of blue also are soothing); and (2) when stained by blood it must not look gaudy, and that holds true only for green.

The drape sheets must cover the whole body of the patient leaving a bare area only at the site of surgical incision.⁵ This is to maintain body temperature of the anesthetized (hence poikilothermic) patient in the cold O.R. temperature. It is usually kept at 21-24 degree Celsius, for the sake of surgeons' convenience, otherwise they may sweat with their multiple dressings, inners, Macintosh & finally surgical gowns and their nimble finger work may be hampered.

The drapings must hang beside the table up to at least half of the height of the Operating table. Nowadays sterile disposable drapings are available, from the lowest rubber sheet layer, up to the uppermost cotton ones. Finally a transparent adhesive sterile layer is to be fixed covering the area which is kept bare for surgical incision. Incision is to be given through it, so that the incised skin margin is everted and drawn away by the adhesive layer. The purpose of antiseptic preparation of the skin is marred after sometime as the skin bacterial flora regenerates. By the use of this sterile adhesive transparent drape, the regenerated flora are kept away from invading the surgical field. Hence its use is always done in CTVS, Eye surgery, orthopedic surgery, Neurosurgery etc, wherever infection is very much dreaded.

Once draping is over, the surgical team is down to its business of Operating. Students must be observant

& inquisitive for the sake of learning. At the same time they must learn to keep away and not to disturb too much, particularly at crucial junctures of Operating and anaesthesia.

It has been observed that, surgical assistants of many departments do ask erroneously for various suture materials without naming them specifically. Then they scold and shout at the sisters why the latter have given the sutures which is not as thick/thin as required, why the size, curvature and tip of the needle is not what they felt essential. Students too notice that and thereby they don't learn that the assistant should ask for specific suture of specific material (silk, prolene, vicryl, nylon etc), specific thickness(2-0,3-0 etc) and specific needle size & edge. Otherwise wrong practice will perpetuate in the future generation too.

How to pass on an instrument by the trolley assistant to the surgeons? One should hold the working end (may be sharp edge also) and handover the grip end to the surgeon. Though nowadays, cuttables (sharp edged instruments like scalpels, needles, scissors etc) should be passed on small trays from where the surgeon himself should pick it up.

Needle holders are to be held by the thumb and the middle finger, with the extended index finger giving strength and support to the active movements during suturing. The needle is to be held near the tip of the needle holder at the level of anterior two third and posterior one third of the needle. The lever action for rotational movement during suturing is the best by the above two holds.

While cutting sutures during operations, the principle is to place left index finger laterally below the scissors to give support. Sutures should be cut flushed if they are inside the body and longer at the skin level.⁵ How much longer? They should be cut at the size just shorter than the interval between two skin stitches, lest the cut end gets included in the nearby suture. With Prolene®, as it slips, multiple knots (some call it in odd numbers) must be applied and tails must be longer, while with other suture materials just 2 or 3 knots would suffice.

About collecting and sending specimen for biopsies, it is almost always mistakenly said that they are to be preserved in formalin. Formalin actually is 40% formaldehyde, which is highly corrosive to tissues, hence it cannot be used as tissue preservative for biopsies. What should be used is Formal Saline i.e., 10% formalin in normal saline. For fungal culture, the sample has to be sent in normal saline only.

In conclusion, I would be happy to send two sermons to the budding doctors:

(1) Whatever comes, the students of all tiers must remember, that it is neither their merit nor money which can make them good doctors. It is only the chance they get to learn by examining, or by working upon, the general patients who come in the hospital, that will help them to be knowledgeable professionals in future. Hence, they must remain grateful to such patients throughout their medical profession.

(2) Secondly whatever they see being performed on, or they themselves do on a patient in their training period, they must think everyday at night whether it would have been proper if the same things were done on one of their own relatives. This alone will make them perfect in their dealings and techniques in their career.

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Ossicular Status in Cholesteatoma : Experience in a State Medical College of West Bengal

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ABSTRACT

Introduction

Chronic otitis media is a long standing infection of part or whole of middle ear cleft. Its active squamousal variant (cholesteatoma) is most dangerous due to its bone eroding property.

Aims & Objectives

Background knowledge of ossicular status in cholesteatoma will help us in determining the type of reconstruction needed during the surgery.

Materials And Methods

60 cases of cholesteatoma, irrespective of age and sex [diagnosed on the basis of clinical examination, audiological and radiological evaluation] were selected during the study period of two years and their ossicular status were recorded intra-operatively.

Result

Ossicles and their parts getting involved in cholesteatoma cases, in decreasing order are :

Lenticular process (in total 50 cases) > Long process of incus (in total 49 cases) > stapes super-structure (in total 29 cases) > body of incus (in total 26 cases) > head of malleus (in total 23 cases) > handle of malleus (in total 10 cases).

Ossicular chain defect in decreasing order are : M-I-S- > M+I-S- > M-I-S+ > M+I-S+.

Conclusion

In our study it was found that incus is the most vulnerable ossicle to get involved in cases of active squamousal variety of chronic otitis media where as malleus appeared to be the least susceptible one.

Keywords

Otitis Media; Cholesteatoma; Ear Ossicles; Incidence

Chronic otitis media is a long standing infection of part or whole of middle ear cleft. Its active squamousal variant (cholesteatoma) is most dangerous due to its bone eroding property. In most of cases it destroys middle ear ossicles partially or completely, to a lesser extent it may also erode skull bones thus causing intracranial complications.

This bone eroding property of cholesteatoma is still not very clear though it has been suggested that the

process is mediated by several factors like local pressure, inflammatory mediators i.e. TNF alpha, IL-1a & PGE2 and local enzymes i.e. collagenase and hydrolase.^{1,2}

In this study we have evaluated statistically the incidence of destruction of individual ossicle and at the same time, their extent of destruction in various cases of cholesteatoma.

Aims & Objectives

Background knowledge of ossicular status in cholesteatoma will help us in determining the type of reconstruction needed during the surgery. Therefore clear cut statistical data regarding involvement of individual ossicle and their extent of erosion in cholesteatoma is

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necessary.

Material and Methods

The present study was conducted at the Department of ENT of a state medical college of West Bengal between October 2010 to September 2012. Sixty (60) consecutive cases of cholesteatoma (diagnosed on the basis of clinical examination, audiological and radiological evaluation) taken up for surgery during the study period, irrespective of age and sex were selected and their ossicular status were recorded intra-operatively.

Results and Analysis

Status of malleus (Table I)

Out of 60 cases 27 (45%) cases presented with malleus involvement, in which the head was found to be necrosed in 17 (27.67%) cases, handle was necrosed in 4(6.67%) cases, head and manubrium in 1(1.73%) case. Malleus was totally absent in 5(8.33%) cases and was intact in 33(55%) cases.

Therefore the head of malleus was found to be eroded

Table I: Status of Malleus

SITE INVOLVED (MALLEUS)	NO. OF CASES	PERCENTAGE (%)
Intact	33	55%
Handle necrosed	4	6.67%
Head necrosed	17	27.67%
Head+ Manubrium	1	1.73%
Total absence	5	8.33%
Total no. Of cases	60	100%

in total 23 cases(5 in case of total malleus destruction + 17 in cases of isolated head destruction +1 along with handle destruction).

Handle was necrosed in total 10 cases (5 in case of total malleus destruction +1 along with head destruction + 4 in cases of isolated handle destruction).

Status of incus (Table II)

Out of 60 cases 50 (83.33%) presented with incus involvement in which entire incus was absent in 26 (43%) cases, long process and lenticular process absent in 23(38%) cases, only lenticular process absent in 1 (2.67%) case.

Therefore lenticular process is found to be eroded in total 50 cases(26 in case of total incudal destruction + 23 along with long process destruction +1 in cases of isolated lenticular process destruction).

Long process was eroded in overall 49 cases (26 in case of total incudal destruction + 23 along with lenticular process destruction).

Body was eroded in 26 cases (26 in case of total incudal destruction).

Table II: Status of Incus

SITE INVOLVED (INCUS)	NO. OF CASES	PERCENTAGE (%)
Intact	10	16.66%
Total absent	26	43%
Long process + lenticular process	23	38%
Only lenticular process	1	2.67%
Total no. of cases	60	100%

Status of stapes (Table III)

Stapes superstructure was found to be eroded in 29 (48.3%) cases.

Table III: Status of Stapes

SITE INVOLVED (INCUS)	NO. OF CASES	PERCENTAGE (%)
Intact	31	51.7%
Superstructure eroded	29	48.3%
Total no. of cases	60	100%

Status of ossicular chain continuity (Table IV)

In 10 (16.67%) cases, ossicular status was M+ I+ S+; In 9 (15%) cases, ossicular status was M+ I- S+; In 14 (23.33%) cases, ossicular status was M+ I- S-; In 12 (20%) cases, ossicular status was M- I- S+; In 15 (25%) cases ossicular status was M- I- S-.

Table IV: Status of ossicular chain continuity

OSSICULAR CHAIN STATUS	NO. OF CASES	PERCENTAGE (%)
M+ I+ S+	10	16.67%
M+ I- S+	9	15%
M+ I- S-	14	23.33%
M- I- S+	12	20%
M- I- S-	15	25%
Total	60	100%

Ossicles and their parts getting involved in cholesteatoma cases, in decreasing order were :

Lenticular process (in total 50 cases)>Long process of incus (in total 49 cases) > stapes superstructure (in total 29 cases) > body of incus(in total 26 cases) (Fig. 1) >

head of malleus(in total 23 cases)> handle of malleus(in total 10 cases).

Ossicular chain defects in decreasing order were :

M-I-S- > M+I-S- > M-I-S+ > M+I-S+.

Discussion

Out of 60 cases, 27 (45%) cases presented with malleus involvement. Head necrosed in 17 (27.67%) cases, totally absent in 5(8.33%) cases, handle necrosed in 4(6.67%) cases, head and manubrium in 1(1.73%) case. These findings were consistent with those of Udaipurwala et al.³ though Sade et al.⁴ found malleus necrosis in 26.00% cases.

Incus was found to be totally absent in 26(43%) cases, Udaipurwala et al.³ had a very similar incidence of necrosis of the incus at 41.00%; long process with lenticular process were eroded in 23(38%) cases, isolated lenticular process erosion in 1(1.73%) case. Incus was found to be intact in 10(16.66%) cases. However the long process appeared to be the most affected part alone (Fig. 2) or as a part of total necrosis (49cases)(81%).

Stapes superstructure found to be eroded in 29 (48.3%) cases. Sade et al.⁴ reported stapes involvement in unsafe CSOM to be 36.00% . Shreshtha et al.⁵ found involvement of stapes superstructure in 15.00% cases

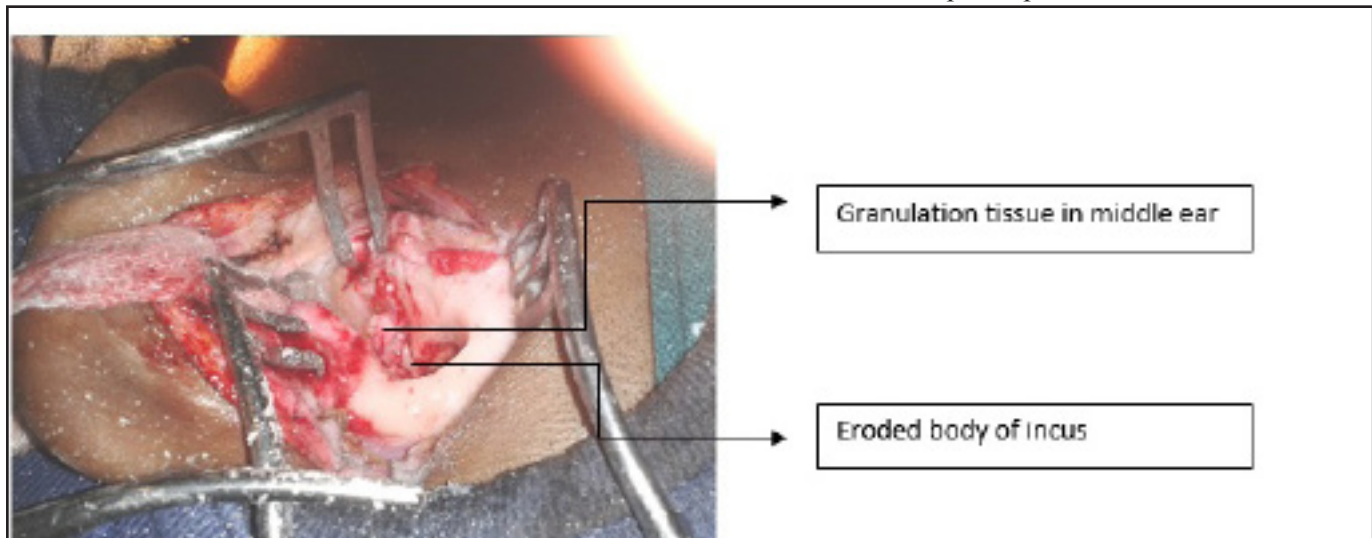


Fig. 1 Modified radical mastoidectomy showing eroded body of incus with granulation tissue in middle ear



Fig. 2 Incus, removed during mastoidectomy. Its long process got eroded by cholesteatoma

of unsafe CSOM. Motwani et al.⁶ reported stapes arch necrosis in 30.00% cases of COM.

In 10(16.67%) cases ossicular status was M+ I+ S+ . In 9(15%) cases ossicular status was M+ I- S+ . In 14(23.33%) cases ossicular status was M+ I- S- . In 12(20%) cases ossicular status was M- I- S+ . In 15(25%) cases ossicular status was M- I- S-. Therefore, the commonest ossicular chain status was M- I- S- followed by M+ I- S- & M- I- S+. These findings were in tandem with those of Dasgupta et al.⁷ in two studies on unsafe CSOM. Toran et al.⁸ reported similar findings of ossicular chain in M- I- S- category. Austin reported the most common ossicular defect to be the erosion of incus, with intact malleus and stapes, in 29.5% cases . Kartush⁹ found erosion of long process of incus with an intact malleus handle and stapes superstructure as the most common ossicular defect. Shreshtha et al.⁵ and Mathur et al.¹⁰ also reported similar findings in unsafe

COM .

Conclusion

In our study it was found that incus is the most vulnerable ossicle to get involved in cases of active squamosal variety of chronic otitis media where as malleus appeared to be the least susceptible one.

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A Rare Case of a Giant Hemangioendothelioma of Neck

Swagatam Banerjee,¹ Sharmistha Chakravarty,² Saurav Sarkar,³ Sankar Prasad Bera⁴

ABSTRACT

Introduction:

Hemangioendothelioma is a rare variety of vascular soft tissue neoplasm, classified as a borderline tumour with diverse modality of clinical presentation. It is seen mostly at sites like the liver, lungs and bones while very few head and neck cases have been reported.

Case Report

A rare case of an unusually large tumour mass presenting as an anterolateral neck mass with extensions to right parapharyngeal space, posterior triangle and prevertebral space is presented here. The entire tumour was removed en-masse surgically. Histopathological examination confirmed the mass to be an epithelioid hemangioendothelioma, the enormous size of which in the neck makes it unique and unusual.

Keywords:

Hemangioendothelioma, Epithelioid; Neoplasm

Hemangioendothelioma belongs to an infrequent class of vascular tumours, first described by Weiss and Enzinger in 1982.¹ It is a soft tissue tumour arising from endothelial-derived spindle cells and located in the connective tissue surrounding large to medium sized blood vessels. It is categorised as an intermediate-grade neoplasm with pathological features and clinical behaviour forming a borderline between well-differentiated hemangiomas and highly malignant angiosarcomas.^{2,3} Among the variants, endopapillary type is common among children while epithelioid type has a predilection for adults.⁴

Epithelioid hemangioendothelioma is a rare variety of vascular neoplasm and is commonly seen in upper and lower extremities, liver, lungs and bones. Few cases have been reported in head and neck including oral cavity, submandibular region, parotid, thyroid

gland, neck, scalp, larynx and mandible amongst which submandibular space is the most commonly affected.^{3,5}

Case Report

This is a unique case of an unusually large hemangioendothelioma in the neck of an adult female. She presented with an anterolateral neck mass extending to the posterior triangle and parapharyngeal space on right side. The grossly huge tumour which was successfully operated by an open transcervical approach weighed 453.5 grams. It is the biggest hemangioendothelioma recorded in the head and neck region. The post-operative recovery of the patient was uneventful.

A 30 year old Indian female presented with a huge neck swelling grossly measuring 14cm x 10cm, occupying the anterior neck and extending to the posterior triangle on the right side. It had gradually increased in size over the past four years. The skin over the swelling was stretched but had a smooth surface and no engorged veins or breach of skin was seen as in Figs. 1 & 2. It was firm in consistency, non-tender, non pulsatile, fixed mass and no movement with deglutition or nerve paresis was noted.

Fine needle aspiration report from the mass showed round/spindle shaped endothelial cells with cytoplasmic

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Fig. 1 Neck swelling (Right Lateral view)

vacuolation, interspersed with plump cuboidal cells. No malignant cells were found. High resolution contrast enhanced CT Scan of neck from skull base to root of neck with 5 mm axial cuts revealed a large homogenous, poorly enhancing hyperdense lesion, size approx. (6.1x6.3 cm) occupying the cervical region anteriorly and extending to right parapharyngeal space along with compression of great vessels on right side. Another hyperdense lesion of size approx. (4x3.5 cm)



Fig. 2 Neck swelling (Anteroposterior view)

was present near the prevertebral space as in Fig 3.

USG Doppler of neck did not reveal any arterial or venous feeder to this mass despite it being a vascular tumour. An unnecessary economic burden of doing



Fig. 3 CT Scan (axial cut)

a digital subtraction angiography was avoided after consultation with the interventional radiologist.

The patient was operated under general anaesthesia. Neck was extended and a horizontal skin incision was

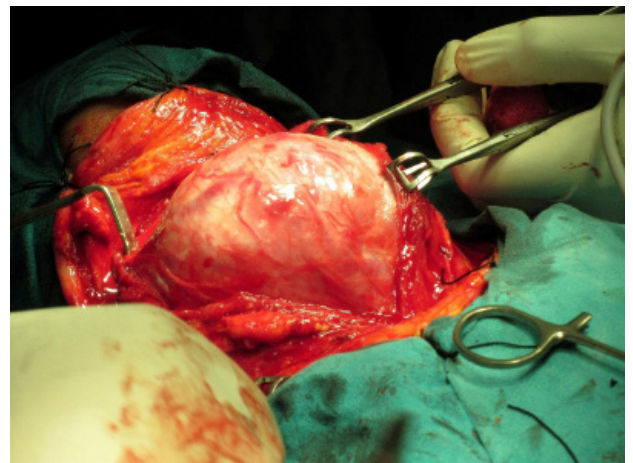


Fig. 4 Intraoperative view of neck swelling

made. The mass was exposed and was found to occupy the entire anterior aspect of neck lying just beneath the strap muscles as in Fig 4.

Further dissection revealed its fibrous attachments to the carotid sheath, almost engulfing the sheath. Once the carotid sheath was localised, the mass was carefully dissected from the internal jugular vein to which it was particularly attached. After mobilizing the major bulk of the mass, it was found to be connected with another by a narrow band of tumour tissue in the right posterior triangle. After mobilizing the smaller mass on the right side posterior triangle and prevertebral space, the two masses along with their connection were removed en-masse from the neck as in Fig 5. There was no involvement of the nerves of the cervical region and no major intraoperative bleeding. The patient's recovery was completely uneventful post-surgery.



Fig. 5 Mass after surgical removal

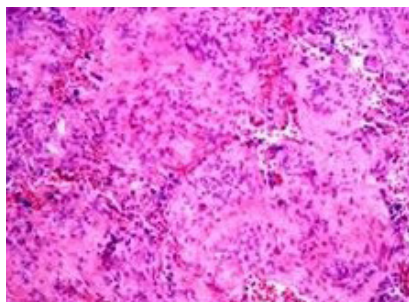


Fig. 6 Histopathological slide showing features of Hemangioendothelioma (10x, H&E)

The histopathological report of the resected mass confirmed it as a hemangioendothelioma (Fig 6) with the discrete masses in the posterior triangle being necrotic lymphatic channels with nodes.

At the 6 months follow-up visit, she was asymptomatic and there was no clinical evidence of local recurrence or distant metastasis.

Discussion

Hemangioendothelioma in the neck is an uncommon presentation. The submandibular region in the head and neck site is most frequently involved.⁴ This case is unusual because of the unusually large tumour weighing 453.5 grams. Though this tumour has been reported in the head and neck region in few cases, there wasn't any existing reports of epitheloid hemangioendothelioma presenting as such a huge anterolateral neck mass. This grossly enlarged tumour, which is atypical in both size and site, and in spite of its extensive spread to posterior triangle and prevertebral space, could be completely resected after hours of meticulous dissection is probably a unique as well as unusual case.

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Synchronous Squamous Cell Carcinoma of External Acoustic Meatus Following Pigmented Basal Cell Carcinoma of Cheek - A Rare Occurrence

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ABSTRACT

Introduction

A synchronous second primary malignancy as squamous cell carcinoma of external acoustic meatus following basal cell carcinoma of cheek is reported with their management and review of literature.

Case Report

Pigmented basal cell carcinoma of cheek was managed successfully by wide local excision followed by flap reconstruction and subsequently diagnosed squamous cell carcinoma of external acoustic meatus by concurrent chemoradiation after initial surgical debridement.

Conclusion

Second primary malignancy as squamous cell carcinoma of external ear canal is rare after basal cell carcinoma of cheek though there is anatomical vicinity. Surgery in case of basal cell carcinoma and concurrent chemoradiotherapy in case of external ear canal squamous cell carcinoma is the mainstay of treatment.

Keywords

Carcinoma, Basal Cell; Carcinoma, Squamous Cell; Ear Canal; Ear, Middle; Head and Neck Neoplasms; Neoplasms, Second Primary

Second primary malignancy (SPM) is a tumour that presents either simultaneously or sometimes after diagnosis of an index tumour. The criteria used for the diagnosis of multiple primary cancers were first given by Warren and Gates(1932) and modified later by Moertel et al and National Cancer Institute for their surveillance, epidemiology and end results(SEER) program.^{1,2,3,4} If the second cancer is of different histology or it develops in a different location then it is SPM. If the second cancer is of same histology and develop in the same region as the index cancer it can only be coded as SPM if greater than 60 months had passed since the diagnosis of an index cancer. SPM can be of two types. It is called synchronous lesion when the second primary lesion is detected within 2-6 months of diagnosis of first primary tumour or metachronous when this interval is at least 6 months or more after first primary.^{2,3}

Patients with head and neck carcinoma are at increased risk of development of SPM. Second primary

malignancies represent the second most common cause of death in patients with head and neck squamous cell carcinoma (HNSCC) contributing one-quarter to one-third of deaths in such patients highlighting the importance of SPM in head and neck cancers.⁵

Case Report

A 56 year old female presented to the department of ENT with complaints of a black pigmented area over the right cheek for one and half years and foul smelling discharge from right ear for three months. The ear

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discharge was occasionally mixed with blood and associated with severe earache and gradual decrease in hearing. On examination there was a black naevus measuring 1 cm x 1.5 cm in size and located 7 cm from midpoint of tragus over the right side of cheek. (Fig. 1) It was non-tender, firm in consistency and with smooth surface. Margins of the naevus were well delineated. No cervical lymphadenopathy was noted. On otoscopy there was right sided blood tinged purulent discharge. Provisionally we reached the diagnoses of black naevus right cheek and right active squamous chronic otitis media. The patient was referred to plastic surgery department and planned for incision biopsy from the naevus.



Fig. 1 Appearance of the patient before treatment

Histopathological examination (HPE) of the incision biopsy specimen revealed pigmented basal cell carcinoma (BCC). (Fig. 2) The patient underwent wide local excision of the nevus with 2 mm margin around it and reconstruction of the surgical defect was done with Limberg flap. After 3 days during her hospital stay the patient developed right mastoid subperiosteal abscess which was drained and pus sent for culture and sensitivity testing. As per culture sensitivity report Cefotaxime was administered in a dose of 1 gm. intravenous (IV) twice a day and continued for 10 days with regular antiseptic dressing.

Pure tone audiometry showed profound mixed hearing loss in right ear. High resolution computed tomography (HRCT) of temporal bone was done which

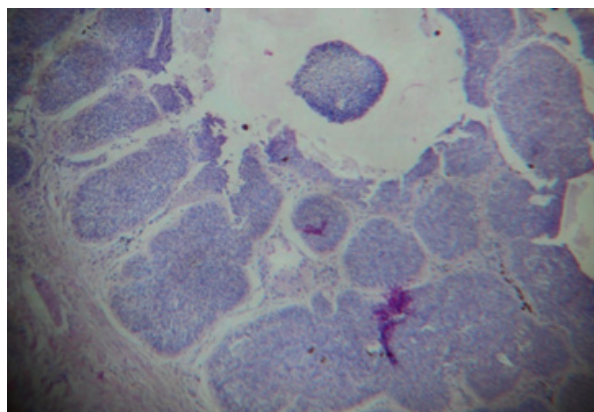


Fig. 2 Histological photomicrograph (10x, H&E) showing pigmented BCC of cheek. Arrow showing nests of basaloid cells separated by thin clefts

showed enhancing ill-defined soft tissue lesion in right external auditory canal and middle ear with erosion of bony inferior canal wall and absence of ear ossicles with probable involvement of labyrinth along with features of otomastoiditis. (Fig. 3) Based on this report biopsy was taken from post auricular region and sent for HPE. It was reported as pseudoepithelial hyperplasia with severe dysplasia along with extensive inflammation and necrosis in subepithelial tissue. No evidence of



Fig. 3 HRCT scan showing soft tissue density lesion causing bone erosion and widening of bony external meatus

maligancy was found.

The patient underwent right canal wall down mastoidectomy with debridement of soft tissue mass from

the external auditory canal. There was gross adhesion with the surrounding tissues and part of parotid tissue was found to be attached with soft tissue mass that was excised. Facial nerve could not be identified separately from the mass. Postoperatively patient developed House Brackman grade IV facial palsy that could be due to intraoperative injury. HPE of the excised mass was reported as well differentiated infiltrating squamous cell carcinoma (SCC) of right external auditory canal. (Fig. 4) The patient was referred to Department of Radiotherapy where three dimensional conformal external beam radiation therapy was administered with

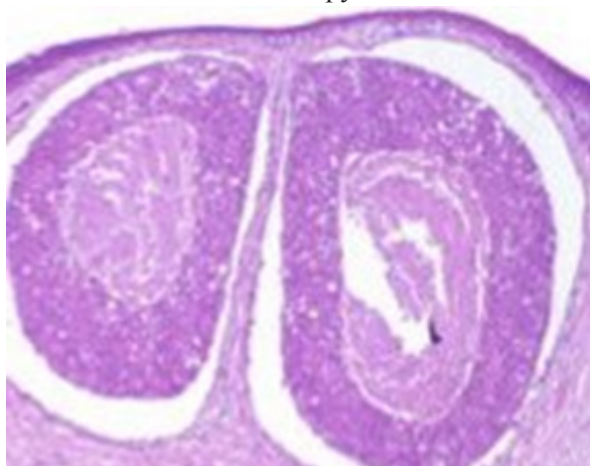


Fig. 4 Histological photomicrograph (10x, H&E) showing SCC of external ear canal. Keratin pearl is shown by the arrow

concurrent platinum based chemotherapy in 2 phases. Phase 1 consisted of 45 Gy in 25 fractions over 5 weeks (1.8 Gy per fraction). Phase 2 consisted of 18 Gy in 10 fractions over 2 weeks (1.8 Gy per fraction). The concurrent chemotherapy consisted of injection Carboplatin AUC 5 intravenous at three week intervals during the period of radiation. The patient was reviewed weekly for any treatment related complications.

The patient was reviewed after 2 weeks and thereafter monthly for next 6 months during which no recurrence was seen over the cheek or the external auditory canal. (Fig. 5) Now the patient is disease free but with grade-IV ipsilateral facial palsy. (Fig. 6)



Fig. 5 Appearance of the patient after 6 weeks of completion of chemoradiation

Discussion

Billroth first reported multiple primary tumours of different histology in separate organs at different time periods in same individuals in 1879.^{2,4} Incidence of second primary and subsequent tumours are increasing due to (a) increased survival after cancer and (b) improved detection of cancers. Head and neck cancers are associated with a high likelihood of developing second primary malignancies. The standardized



Fig. 6 Facial palsy of the patient persisting after treatment

incidence ratio (SIR) is approximately 2.18 with around 36% cumulative life time risk of developing SPM over 20 years after diagnosis of an index tumor for which the most common sites are the head and neck region, esophagus, and lungs.⁶ This is explained to some extent by “field carcinogenesis theory” related to common risk factors like tobacco use and alcohol consumption on top of some genetic contribution. This concept was introduced by Slaughter et al, who discovered that in oral cancers the epithelium beyond the boundaries of tumor possessed histologic changes resulting in wide array of premalignant diseases that give rise to multiple independent primary tumor.⁷ This is particularly true for skin cancers which have hereby increased in incidence by 20% over the last decade.⁸

BCC arises from pluripotent cells of epidermis or hair follicles. Usually these tumours take an indolent course and may take years to grow into significant size. BCC are most commonly seen in the sun exposed areas. The head and neck accounts for 85 to 93% of all skin carcinomas and nasal skin (31.5%) is the most common site of presentation followed by cheek (26.9%).⁹ There are several types of BCC like nodular, superficial, pigmented and morpohoeic. Among these nodular is the most common type accounting for 46.2% followed by pigmented variety (18.7%).¹⁰ Surgery for BCC can achieve high cure rate. It has been reported that 94% cure rate can be achieved using a 2 mm excision margin and a 95% cure rate with a 4 mm margin for tumours less than 2cm. in size.¹¹ Pigmented basal cell carcinoma comprises about 6% of all BCC.¹² Pigmentations produced in this type of cancer make it necessary to rule out melanoma. Dermoscopy is a useful tool for this but immunomarkers are confirmatory. HMB-45 and S-100 are the most useful markers for melanoma.

Squamous cell carcinoma arises from basal layer of epidermis. It has a poorer prognosis than BCC because of its aggressive local invasion and metastatic potential. It usually occurs within altered skin such as within an actinic keratosis, by malignant change in a chronic ulcer or sinus. The risk of metastatic spread is 2% to 5% and occurs usually via lymphatics. There are no variants of SCC but they are graded histologically to indicate the aggressive nature of individual tumour. Prognosis of SCC depends upon depth of tumour, degree of

differentiation and mitotic index. Squamous cell carcinoma of the temporal bone and external auditory canal are extremely rare with reported incidence of 1 to 6 cases per million population per year.¹³

The preferred treatment for external auditory canal SCC consists of en-bloc surgical resection with postoperative chemo and radiotherapy. For well differentiated carcinoma of less than 2cm diameter, a minimum of 4 mm margin and for ≥ 2 cm diameter tumour, a minimum of 10 mm margin is required.¹⁴ Surgery, that is most commonly performed, is lateral temporal bone resection (LTBR) or a subtotal temporal bone resection (STBR). Poor prognostic factors are wide extent of disease at presentation, positive margins, dural and cranial nerve involvement.

Patients with primary head and neck squamous cell carcinomas are also at elevated risk of second primary malignancies, most commonly of the head and neck, lung, and esophagus. In patients with HNSCC, the risk and distribution of SPM differs significantly according to subsite of the index cancer.³ Before the 1990s, hypopharyngeal and oropharyngeal cancers carried the highest excess risk of SPM. Since then during the human papilloma virus (HPV) era SPM risk associated with oropharyngeal SCC has declined to the lowest risk level for any subsite though the exact risk ratio is unknown. Data regarding subsite-specific risks and trends over time may be helpful in the rational application of surveillance to patients with HNSCC after treatment of the index tumor. As in our case it's difficult to suspect an SPM in a hidden location like external auditory canal, in a patient presenting with ipsilateral mastoiditis following long standing BCC of cheek.

Most of the synchronously diagnosed second tumors are incidentally diagnosed. They are often detected during the staging evaluation of the primary tumor. Metastatic disease has to be aggressively ruled out to stamp it as SPM. Any unusual site of metastasis should be thoroughly evaluated to rule out the rare possibility of second primary. A baseline positron emission tomography scan coupled with CT (PET-CT) may aid in the diagnosis of such multiple tumors and in some cases also helps in therapeutic planning. We treated both the tumours surgically while the patient remained admitted in our hospital and subsequent chemoradiation regime

was administered on ambulatory basis.

When multiple tumors are pathologically confirmed at the time of presentation itself, each tumor should be evaluated and staged as independent tumors. They should be treated aggressively with the curative intent depending on the stage of each disease to achieve maximum therapeutic benefit. If surgery is needed for both the tumors, it can be done in a single stage in majority of the cases with low rates of morbidity and mortality. We offered two surgeries to our patient in two stages as we could not diagnose squamous cell carcinoma of external ear canal till the first surgery for BCC was over.

Surgery and/or radiotherapy were the standard modalities used to achieve locoregional control, but since the publication of the 1st meta-analysis on chemotherapy in head and neck cancer (MACH-NC), Platinum based concurrent chemoradiotherapy has largely replaced radiotherapy alone in the treatment of unresectable squamous cell carcinoma of head and neck. Despite this therapeutic approach the prognosis of HNSCC patients remains poor. The 5 year survival rate in USA in the period 1996-2003 was around 50% compared to 32% in the control group.¹⁵ Chemotherapy can be administered in 3 ways in the treatment of locally advanced HNSCC: as induction chemotherapy, concurrent with radiotherapy and as an adjuvant after radiotherapy and/or surgery. The absolute benefit in 5 year survival was seen as 2%, 8% and 1% respectively.¹⁶ Taking this into account concurrent chemoradiotherapy has become the standard treatment for locally advanced HNSCC. We treated our case with the same.

Conclusion

The occurrence of two concurrent non melanoma cutaneous malignancies of head neck region is very rare. Second primaries in head neck carcinoma are a predominant cause of morbidity and mortality. Surveillance for a second primary malignancy following the diagnosis of an index malignancy could aid in early diagnosis of another life threatening condition that might still be in a curable stage and could be operated in the

same setting with the index tumour. Till date India lacks site-specific and histology-specific registries of SPM that might guide us in such surveillance procedures. Future studies are necessary in this direction.

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A Case of Oral Mucosal Malignant Melanoma in the Guise of Cervical Metastatic Lymphadenopathy with Apparently Unknown Primary

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ABSTRACT

Introduction

Primary malignant melanoma of the oral cavity is a rare neoplasm. The tumors tend to metastasize or locally invade tissue more readily than other malignant tumors in the oral region.

Case Report

A 55 year old male presented with left sided hard cervical lymphadenopathy with unknown primary with cytology of malignant melanoma. 18FDG-PET-C.T scan helped identification of the primary.

Discussion

The survival of patients with mucosal melanomas is less than for those with cutaneous melanomas. Tumor size and metastases are related to the prognosis of the disease. Early oral malignant melanomas can be clinically very difficult to distinguish from other benign oral pigmented lesions.

Conclusion

Any case presenting with cervical lymphadenopathy with a cytological diagnosis of Malignant Melanoma and without clinically identifiable primary, early detection using whole body 18FDG-PET CT is utmost important.

Keywords

Melanoma; Mouth Mucosa; Positron-Emission Tomography; Lymph Nodes

Malignant melanoma is a potentially aggressive tumor of melanocytic origin.¹ About 1–8% of all melanomas arise in the oral mucosa² and these account for 0.5% of all oral malignancies.³⁻⁵ The most frequently affected oral sites are the palate and the maxillary gingiva. The age of reported patients ranges from 20 to 80 years.¹⁻⁵ The neoplasm is more common in Japan and Africa than in Western countries.⁵

The etiopathogenesis of mucosal melanomas is poorly understood; however, it is well documented that the melanocytes migrate to both endodermally derived and ectodermally derived mucosa. The function of these melanocytes in the mucosa is not understood. Like their cutaneous counterparts, oral melanomas (OM) are believed to arise either from nevus, preexisting pigmented areas, Hutchinson's premalignant lentigo or denovo (30% cases).⁶

Case report

A 55 yrs old male from rural Bengal presented with left sided hard coalesced level-Ib,II, >6cm, cervical lymphadenopathy (N3) (Fig. 1). No definitive ulcerative or proliferative or endophytic growth could be detected anywhere in head and neck region by clinical/ endoscopic evaluation.

FNAC revealed metastatic malignant melanoma.

As primary was not detected by thorough clinical investigation, a whole body 18FDG-PET-C.T was done

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as the radiological investigation of choice to find the unknown primary.

PET-C.T found high FDG avid focus at left level-Ib, II L.N region and on left upper alveolus near 1st molar tooth (Fig. 2) Rest of the body was within normal limit .

Now retrospectively A small blackish <2cm patch noted over left upper gingiva adjacent to 1st molar tooth, without extension to hard palate or buccal mucosa(T1) (Fig. 3).

Final stage: c T1N3Mo(stage-II).

He underwent wide local excision of primary tumour with adjacent part of upper alveolar process and hard palate along with left sided type-1 MRND. Post op period was uneventful.



Fig. 1 Left sided hard coalesced level-Ib, II, >6cm, cervical lymphadenopathy (N3)

Final histopathology revealed clusters of spindle shaped cells with eosinophilic cytoplasm and large nuclei with prominent nucleoli. Immunohistochemically the cells are staining positive for S-100 and HMB-45. Surgical margins were free from tumour (>1.5cm). Neck dissection specimen showed lymph nodal metastasis.

He received adjuvant EBRT (66Gy; 2GY per# 6days a week for 6weeks). A post treatment whole body PET CT scan was done after three months, that

revealed no suspicious FDG avid area in oral cavity, neck or elsewhere. The patient is on monthly follow up during the last six months and is doing well without any obvious clinical feature suspicious of loco regional or cervical recurrence.

Discussion

The initial symptom and sign of oral mucosal melanoma is often a pigmented growth or swelling. The surface may be smooth, with an intact or ulcerated overlying mucosa. Satellite foci may surround the primary tumor. The color may be uniformly brown or black or may show variation of color, with black, brown, grey, purple, and red shades, or depigmentations.⁷ In amelanotic melanomas, pigmentation is absent.⁸ Oral malignant melanoma has an initial phase characterized by radial growth followed by a phase of invasion of the underlying tissues (the so-called “vertical growth phase”).

Other presenting signs and symptoms include bleeding, ill-fitting dentures, pain, increased mobility of teeth, and delayed healing of extraction sockets. The OM is more aggressive and the abundant blood supply of the oral cavity may permit blood vessel invasion and haematogenous dissemination early in the course of the disease.² Regional lymphadenopathy may be present and connotes a poor prognosis.⁹ Clinically, oral melanomas are classified into five types: pigmented nodular, nonpigmented nodular, pigmented macular, pigmented mixe and nonpigmented mixed.¹⁰

Early oral malignant melanomas can be clinically very difficult to distinguish from other benign oral pigmented lesions like oral pigmentations in Addison’s disease, blue naevi, ephelides (freckles), oral pigmentation of Kaposi Sarcoma, oral naevi , amalgam tattoo, graphite tattoo, oral melanotic macule, pigmentation of Peutz-Jeghers syndrome, physiologic pigmentation

When an oral pigmentation cannot be confidently diagnosed as benign on clinical grounds, a biopsy is mandatory. An excisional biopsy with a 1 to 2mm margin for small lesions or an incisional biopsy through the thickest or the most suspicious part of the tumor in case of a large lesion is required.¹¹ Fine needle aspiration

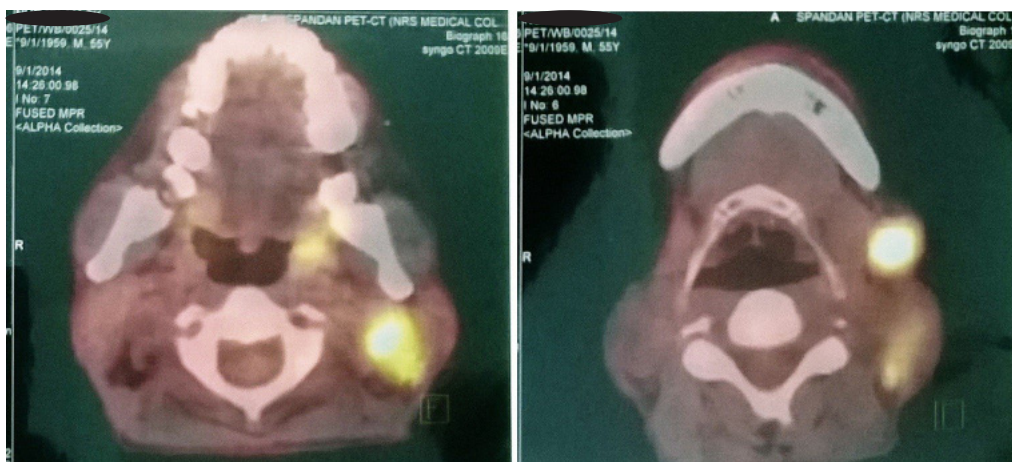


Fig. 2 FDG avid focus at left level-Ib, II LN region and on left upper alveolus near 1st molar tooth

or exfoliative cytology of primary pigmented lesions is contraindicated. It has been suggested that cutting into a malignant neoplasm during an incisional biopsy or other invasive procedure could result in accidental dissemination of malignant cells within the adjacent tissues (seeding) or even in the blood or lymphatic stream, with the subsequent risk of local recurrence, or regional or distant metastasis.¹ The most common sites of metastasis are lung, bone, brain, and liver, with widespread involvement occurring in advanced disease.²

Malignant cells of oral malignant melanoma show a

wide range of shapes, including spindle, plasmocytoid, clear cell, and epithelioid ones. These malignant cells possess considerable pleomorphism with large, irregular hyperchromatic nuclei, and prominent nucleoli, and have readily detectable mitotic activity. oral malignant melanoma can be histologically subclassified into (1) in situ melanoma, which is limited to the epithelium and the epithelial-connective tissue interface; (2) melanomas with an invasive pattern, in which the neoplasm extends into the connective tissue; (3) melanomas with a combined pattern of invasive melanoma with in situ

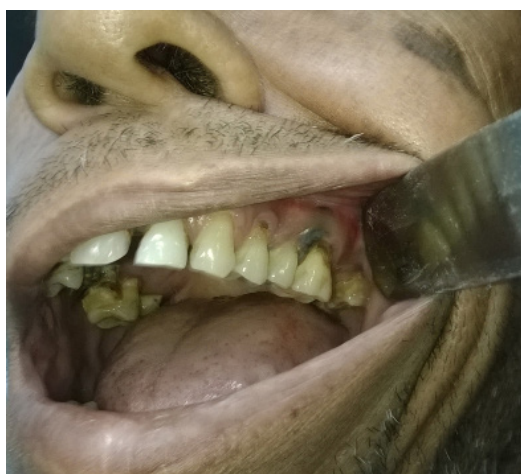


Fig. 3 A small blackish <2cm patch noted over left upper gingiva adjacent to 1st molar tooth, without extension to hard palate or buccal mucosa (T1)

component.⁷

A simple TNM clinical staging, recognizing three stages, has been shown to be of prognostic value. A recent histopathological microstaging for Stage I subclassifies it into three levels^{1,12,13}: Stage I: Primary tumour present only (Tany N0M0). Level I: pure in situ melanoma without evidence of invasion or in situ melanoma with “microinvasion,” Level II: invasion up to the lamina propria, Level III: deep skeletal tissue invasion into skeletal muscle, bone, or cartilage. Stage II: Tumour metastatic to regional lymph nodes (Tany N1M0). Stage III: Tumour metastatic to distant sites (Tany Nany M1).

Treatment of oral malignant melanoma is still controversial. Excision of the primary lesion, preferably using an intraoral approach and involving at least 1.5 cm of healthy tissue, is recommended.¹⁴ Patients with primary oral malignant melanoma present lymph node metastasis in 25% of cases.¹³ Neck dissection should be reserved for cases with preoperatively confirmed lymph node metastases and the choice of the neck dissection modality should be guided by the extent and the level of the nodes.⁸

Surgery could be combined with radiotherapy, chemotherapy, or immunotherapy even though the effectiveness of such therapies is mostly unknown. Postoperative radiotherapy is generally recommended if poor prognostic pathologic features are present, such as multiple positive nodes, or extranodal spread of metastatic melanoma, even though oral malignant melanomas are regarded as poorly radiosensitive. Other irradiation modalities such as intraoral mould (⁶⁰Co, ¹⁹²Ir, or ¹⁹⁸Au), intraoral electron beam or interstitial brachytherapy have also been used.¹⁵

Dacarbazine, platinum analogues, nitrosoureas, microtubular toxins, dimethyl triazeno imidazole carboxamide (DTIC), nimustine hydrochloride, or vincristine have been used as adjuvant therapy or postoperative chemotherapy. IFN-2b, IL-2, BCG, anti-Fas antibody, IL2, and cytokines have shown varied results.¹

The prognosis of oral malignant melanoma is poor. A tumor thickness greater than 5 mm, presence of vascular invasion, necrosis, polymorphous tumor cell

morphology and the inability to properly resect the lesions with negative margins have been associated with poor survival in patients with primary oral malignant melanoma.¹ Gingival melanoma has a better 5-year survival rate than palatal melanoma.³ Recurrences may occur even 10–15 years after primary therapy. Distant metastases to the lungs, brain, liver, and bones are frequently observed.¹⁶

Conclusion

Primary oral mucosal melanomas are exceedingly rare and biologically aggressive malignancies. Oral malignant melanomas clinically mimic many other pigmented lesions of the oral cavity.

Any case presenting with cervical lymphadenopathy with a cytological diagnosis of Malignant Melanoma without any clinically obvious pathology in head and neck region suspicious of the primary lesion, an urgent PET CT scan should always be indicated to seek for the primary because early oral malignant melanomas can be clinically very difficult to distinguish from other benign oral pigmented lesions.

Early detection can be life saving by quick initiation of treatment as survival of patients with mucosal melanomas is less than their cutaneous counterpart.

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Idiopathic Sialectasia of Stensen's Duct Treated by Marsupialisation of Ectatic Segment

Indranil Pal,¹ Saumitra Kumar,¹ Anindita Sinhababu,² Kushal Chatterjee³

ABSTRACT

Introduction

Sialectasis of parotid duct is an uncommon condition characterised by abnormal dilatation of a part or whole of the Stensen's duct. It may lead to recurrent parotid infections as well as a cause of concern for the patient. Superficial parotidectomy is the accepted surgical treatment for this condition.

Case Report

A case of idiopathic dilatation of parotid duct is presented. It was treated by marsupialisation of the sialectatic segment. This procedure proved to be much simpler and safer than superficial parotidectomy whilst being equally effective.

Conclusion

In cases of Stensen's duct sialectasis without any abnormality of the parotid gland, marsupialisation of the ectatic segment should be the treatment of choice.

Keywords:

Parotid Gland; Salivary Ducts; Dilatation, pathologic

The term sialectasis refers to dilation of the salivary ducts. Sialectasis of the Stensen's duct is an infrequent condition, characterized by the dilatation of a segment of a salivary duct. The dilatation can result from intra ductal papillomas,¹ sialoliths or kinks and partial strictures of the duct.² Ductal stenosis may occur secondary to sialolithotomy, traumatic ductal injury with resultant fibrosis, or as a consequence of long standing ductal inflammation associated with chronic parotitis³. We describe a case of parotid duct sialectasis where the cause of the dilatation is not clear. It was managed surgically with good results. The case is reported for its rarity and uncertain etiology. A review of

literature revealed only 5 articles depicting its occurrence in humans.³

Case Report

A 25 years old man presented at the Otorhinolaryngology outpatient clinic with a gradually increasing painless swelling on his left cheek in front of his left ear for the preceding 10 days. He reported repeated similar episodes over the past one year which culminated with discharge of watery material from the swelling into his mouth on massaging the swelling. The size of the swelling was unrelated to mastication. There was no history of pain, trauma or surgical intervention in the cheek or parotid region.

On examination there was a 2cm x 2 cm soft, non tender and fluctuant swelling on the left cheek which was bimanually palpable, though not evident on visual inspection. The intra oral parotid duct opening was normal in appearance. The overlying buccal mucosa and skin of the cheek were normal in appearance. Intraoral

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digital pressure on the swelling produced a watery discharge from the parotid duct opening with collapse of the swelling.

The Stensen's duct was cannulated with a 24 G intravenous cannula and a sialography performed. No resistance was encountered while inserting the cannula. The sialogram (Fig. 1) revealed a dilatation of the Stensen's duct some distance proximal to its opening into the oral cavity.



Fig. 1 Sialogram showing fusiform dilatation of the Stensen's duct

After local anaesthesia with infiltration of 2% lignocaine and 1/100,000 adrenaline solution, the parotid (Stensen's) duct was cannulated with a 24 G intravenous cannula and trypan blue solution was injected into the duct. A vertical semilunar incision, with an anterior convexity was made on the buccal mucosa about 1 cm in front of the parotid duct opening (Fig.2). The Stensen's duct opening was retracted medially with a 3-0 silk stay suture and using a small hemostat the dilated duct was dissected out. A vertical incision was made on the lateral wall of the dilated duct and the ductal ectasia opened up. The posterior lip of the incised duct was sutured to the anterior lip of the buccal mucosal incision. The Stensen's duct opening along with a large portion of the medial wall of the ectatic segment and the overlying mucosa was excised and the margins of the ectatic duct mucosa sutured with the surrounding buccal mucosa. The ectatic duct was thus marsupialised (Fig.3). The surgical site was dressed with a bolster sutured over it. The bolster was removed after 24 hours. Post operative recovery was uneventful. The sutured



Fig. 2 Semilunar incision made anterior to Stensen's duct opening

lining of the ectatic segment became continuous with the buccal mucosa and the proximal end of the ectatic segment became the new parotid duct opening into the buccal mucosa.

The patient had no recurrence of the condition till 2 years of follow up.



Fig. 3 Marsupialisation of ectatic segment

Histopathological examination of the excised segment after processing and staining with hematoxylin and eosin (H&E) showed a cystically dilated duct, mostly lined by flattened and cuboidal epithelium with focal areas of columnar epithelium (Fig. 4). The segment between the dilatation and buccal opening of the Stensen's duct was carefully examined after serial sections but no apparent cause of the dilatation of the duct (Obstructive lesion)

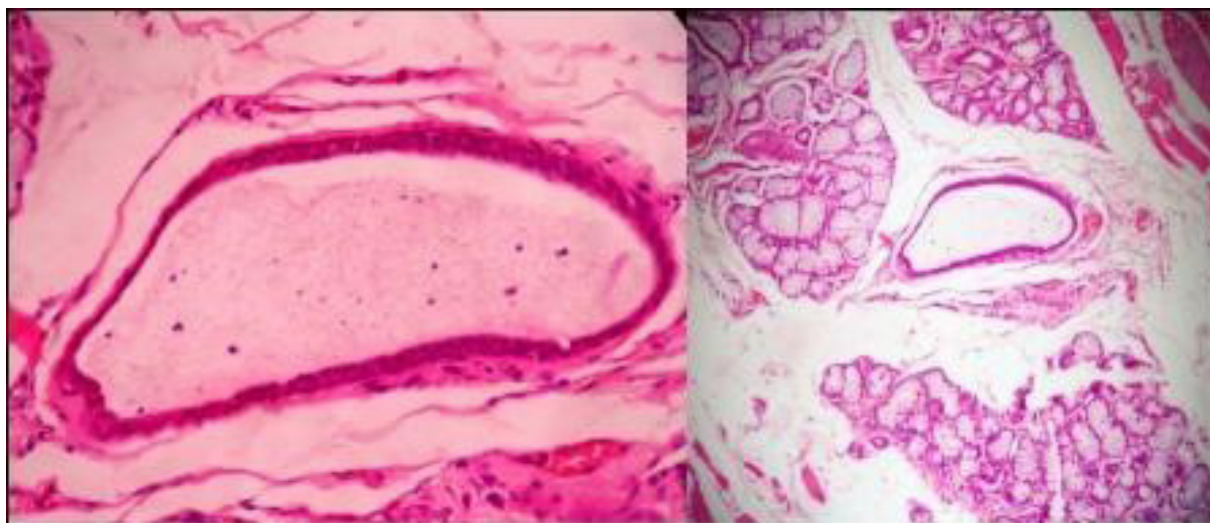


Fig. 4 (L)--Dilated duct lined by flattened to cuboidal epithelium with focal areas of columnar epithelium (400X, H&E). (R)--A cystically dilated duct amidst normal lobules of acini, (100X, H&E)

could be identified.

Discussion

The term “sialectasis” synonymous with “ptyalectasis” denotes an abnormal dilatation of a salivary duct. It presents itself as recurrent painful swellings during mastication and/or swallowing. Parotid duct ectasia is a fairly rare condition characterized by the dilatation of a segment of the parotid duct usually secondary to some kind of obstructive pathology in the duct downstream. The obstruction can be due to intra ductal papillomas,⁴ sialoliths or kinks and partial strictures of the duct.² Ductal stenosis may also occur secondary to sialolithotomy, traumatic ductal injury or bite injury to the Stensen’s duct opening with resultant fibrosis, or as a consequence of long standing ductal inflammation associated with chronic parotitis.³ The majority of the dilatations of salivary ducts in the major salivary glands are within the glands and the dilatation of the Stensen’s duct is very rare. In the case presented here the ductal dilatation began about 1 cm proximal to the Stensen’s duct opening in the buccal mucosa. We didn’t find any intra luminal obstruction in the distal undilated segment. Neither did histopathological examination show any obstructive lesion, fibrosis or otherwise on the walls of the duct or outside. The lining of the dilated segment

also didn’t show any abnormality indicating any kind of weakness of the duct wall. There was also no history of any pain on the affected side of the face or neck ever, as far as the patient could recall.

There is another condition called Congenital dilatation of Stensen’s duct (CDS) which is a rare heteroplasia of the parotid gland, which may have a hereditary background.^{5,6} It presents as a painless and progressive swelling in the cheek along the Stensen’s duct without an obvious cause. The static secretions undergo secondary infection causing pain, fever, and intraoral purulent flow from Stensen’s duct. Combining the literature with their experience, Wang et al (2011)⁷ summarized the diagnostic features of CDS as follows: 1) the primary symptom of painless swelling in the cheek that is not related to eating, without any evident etiology; 2) may be unilateral or bilateral, and may occur in any age group; 3) clinically, the presence of swelling along the Stensen’s duct (in patients without a history of inflammation, aggressive massage of the swelling can produce abundant intraoral salivary flow); and 4) parotid sialography demonstrates dilated Stensen’s duct with a smooth margin but no evidence of obstruction. Our patient fits the above mentioned diagnostic criteria for CDS. However, CDS patients show a tube-like mobile swelling in the cheek area following the entire route of Stensen’s duct. Our patient

showed an immobile, eccentric saccular dilatation of only a segment of the Stensen's duct. The dilation can affect the main duct or the terminal duct. Our patient showed an immobile, eccentric saccular dilatation of only a segment of the Stensen's duct. Though Wang et al recommended that CDS patients be treated with superficial parotidectomy, we found the dilated segment easily accessible intraorally and so performed a more conservative marsupialisation of the dilated segment with satisfactory results.⁷

We presume that there was some kind of partial obstruction of the affected salivary duct probably by a calculus which led to the duct ectasia. The obstruction must have thereafter cleared spontaneously to leave behind the permanently dilated segment without any symptoms of pain. The dilatation was responsible for the stasis of salivary secretions and since the patient could massage out the static salivary secretions, there was no microbial colonization of the fluid leading to infection and pain. Sialoendoscopy directly visualises the ductal system for any intraductal pathology. But sialoendoscopes are currently unavailable in our institution. Since we are unable to find a proper cause for the dilatation, our diagnosis can be termed as idiopathic dilatation of the Stensen's duct.⁸ Other differential diagnoses included pneumatocele, sialocele, lipoma, dental infection, juvenile recurrent parotitis (JRP) and chronic obstructive parotitis. JRP is the second most frequently encountered inflammatory disease of salivary glands in children next to mumps. JRP usually starts before adolescence and like in our case demonstrates sialiectases in terminal ducts. But, it is characterized by repeated (usually unilateral) parotid swellings associated with fever, pain, and malaise. The condition is self-limiting after adolescence in more than 90% of cases. Pneumatocele is seen in glass blowers and musicians who blow wind instruments. The patient had a clear history of painless fluid collection which could be expressed by application of digital pressure. Moreover, he did not have any history of blowing or antecedent trauma. This rules out JRP, lipoma, dental infection as well as pneumatocele. A sialocele is a cystic cavity containing saliva. It usually results from trauma or infection to the parotid gland parenchyma, laceration of the parotid duct or ductal stenosis with subsequent

dilatation. Our patient denied any history of trauma and the collection could be expressed through the Stensen's duct opening ruling out a sialocele. Moreover the histopathology of the excised segment of his Stensen's duct showed normal features and no evidence of any obstruction or duct wall weakness. We came to the conclusion that he had an idiopathic dilatation of the Stensen's duct.

Several treatment options are available for this condition. Conservative methods like repeated aspiration, compression, balloon dilatation under fluoroscopic guidance with stenting, sialoendoscopy with saline under pressure do not have very predictable results. Excision of the dilated portion of the duct with stent placement and suturing of the ductal orifice to the buccal mucosa or open ductal exploration and parotidectomy are more aggressive procedures.³ Aggressive surgical treatment is reserved for traumatic sialiectasis.^{9,10} Two reports show excellent results from marsupialisation of the dilated segment of the duct.^{3,8}

Though rare this entity needs to be diagnosed timely to prevent recurrent parotitis and treated accordingly. We also depict that a simple operative procedure like marsupialisation should be preferred over superficial parotidectomy in uncomplicated cases. It is easier, safer and operative time is significantly lesser.

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Bengal Journal of Otolaryngology and Head Neck Surgery
Published by: The Association of Otolaryngologists of India, West Bengal
CMC House, 91B Chittaranjan Avenue, Kolkata - 700073