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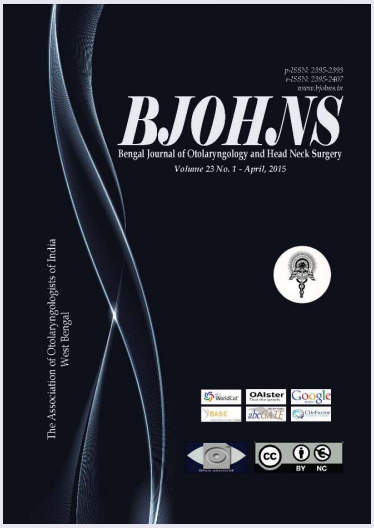

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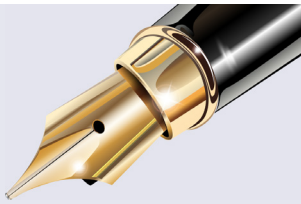

Dear Members,

I, on behalf of the Editorial Board of BJOHNS, present you with a bouquet of carefully selected articles encompassing the spectrum of the conventional and emerging fields of Otorhinolaryngology and Head Neck Surgery.

Negotiating the learning curve in mastering the intricacies of emerging techniques in our speciality is indeed a difficult task. We have a very interesting article that may help the teachers in medical education in developing an effective curriculum for the young doctors. Another article reports an innovative modification, that would make a conventional surgery much easier to perform. Different presentations of rhinosporidiosis have been showcased with lots of illustrations in another article. Authors of two other articles shared their experiences in the treatment of parapharyngeal tumours and in managing intractable posterior epistaxes, which would probably help us formulate our own protocols. One interesting case report states that an apparently common salivary gland tumour may also have some surprise for the surgeon on histopathology. Peculiar behaviours of foreign bodies were noted by two groups of authors. A letter to the Editor opens the scope for research on temporomandibular joint disorders.

I really appreciate the authors for coming forward with quality articles for publication in our indexed journal. I would request doctors involved in research from all over the world to publish their original papers with us absolutely free of charge. The editorial process is transparent and can be tracked online by the author. Please consider that there would be some inevitable delay for the double-blind peer review process to be completed before publication of each article. Please submit your manuscript early to reach out to the world without delay.

With best wishes,

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

Negotiating The Learning Curve In Endoscopic Skull Base Surgery: A Local ENT Perspective

Ranjan Raychowdhury,[1] Sandip Chatterjee[1]

ABSTRACT

Introduction

Skull base surgery, although recognised as an interdisciplinary specialty involving both Neurosurgery and Otolaryngology in the West, has been the domain of the Neurosurgeon in West Bengal. Several superspecialty healthcare facilities in the state are now actively promoting endoscopic skull base surgery.

Structured training

The Pittsburgh group has published a systematic training programme for skull base surgery.

Paradigm shift

Following the work of several groups, most notably the Pittsburgh group in the USA, a paradigm shift from open to endoscopic anterior skull base surgery has occurred.

Learning curve

This paper discusses how the ENT surgeon may negotiate the learning curve in endoscopic skull base surgery in the context of the local resources available.

Keywords

Skull Base; Endoscopy; Learning Curve; Otolaryngology; Neurosurgery

Anatomically and pathologically the base of the skull separates the specialties of Neurosurgery and Ear, Nose, Throat- Head & Neck Surgery (ENT-HNS). Pathology in this region would fall to the neurosurgeon if primarily intracranial (pituitary adenoma, craniopharyngioma, aesthesioneuroblastoma); to the ENT surgeon if primarily extracranial (e.g. inverted papilloma, juvenile angiofibroma, squamous carcinoma) and to either specialty if primarily basicranial (fibrous dysplasia, osteoma, chordoma, chondrosarcoma) depending upon the presentation. Combined open surgical approaches were reserved for lesions which transgressed the skull base: the anterior cranio-facial resection for invasive cancers and aesthesioneuroblastoma[1,2] and the various lateral approaches popularised by Fisch[3] for large glomus tumours.

The French neurosurgeon, Guiot,[4] in 1963 first suggested that the standard microsurgical transrhinoseptal approach to the pituitary might be usefully supplemented by endoscopy. More than 30 years later, following the invention of the Hopkins rod lens, Jho and Carrau in Pittsburgh described a purely endoscopic trans-sphenoidal approach to the pituitary.[5,6] The ability of the rigid endoscope to access the anterior base of the skull trans-nasally, avoiding any external incision, craniotomy and brain retraction, with consequent reduction in post-operative morbidity, has revolutionised skull base surgery.

Skull base surgery, although recognised as an interdisciplinary specialty involving both Neurosurgery and Otolaryngology in the West,[7] has been the domain of the Neurosurgeon in West Bengal. With increasing public awareness of endoscopic skull base surgery several superspecialty healthcare facilities in West Bengal are now actively promoting this technique, and ENT participation in recent national skull base meetings[8]

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testifies to the growing interest in this field amongst ENT specialists. Although the endoscopic approach has many advantages it comes with its own risks: per-operative neural and/or vascular damage may have devastating consequences for the patient. Safe surgery with excellent outcomes requires teamwork between the ENT specialist and his Neurosurgical colleagues, and there is a fairly steep learning curve to be negotiated before full competence is achieved.

Structured Training in Endoscopic Skull Base Surgery

The Pittsburgh group, who have been in the forefront of promoting this technique, have developed a modular scheme of training by which the budding endoscopic skull base surgeon can progress in a structured fashion along the learning curve.[9] The schema is applicable irrespective of whether or not the trainee is from an otolaryngological or a neurosurgical background (Table I).

Successful negotiation of this training scheme presupposes an extended period of training (the North American ENT Residency lasts for 6 years with a further two years Fellowship period) in a Department which has a high throughput of skull base cases and expert faculty to supervise training. Given the much shorter duration of MS/DNB training here, the most one can hope to achieve within three years is Level II training,

Table I: Modular scheme of training developed by the Pittsburgh Group

Level I	**Sinus surgery**	
Level II	**Advanced sinus surgery**	
		Cerebrospinal fluid leak
		Intrasellar – sella, pituitary
Level III	**Extrasellar – sella, pituitary**	
		Optic nerve decompression
		Intraorbital surgery
		Extradural skull base surgery
Level IV	**Intradural skull base surgery**	
	A. With cortical cuff	
		Transplanum
		Transcribriform
		Type I craniopharyngioma
		Intradural skull base surgery
	B. Without cortical cuff	
		Type II/III craniopharyngioma
		Transclival, intradural
Level V	**Coronal plane, carotid dissection**	
		Vascular surgery

that too in only a handful of well-equipped centres. Further expertise will have to be obtained during Senior Residency and initial Consultant period, by attending hands-on workshops and by Fellowships at Centres of Excellence, both within and outside the country.

The Paradigm Shift

From the neurosurgical point of view endoscopic skull base surgery demands an entirely new skill set – working off a two dimensional monitor image rather than traditional three dimensional microscopic surgery. The otolaryngologist may be forgiven for thinking that, with a background in Functional Endoscopic Sinus Surgery (FESS) and training in Head & Neck oncosurgery, the learning curve will be easier, but in reality taking the endoscope to the skull base requires a complete paradigm shift:

1. FESS, by definition, is a minimally invasive procedure, aiming to preserve as much normal anatomy and mucosa as possible, whereas endoscopic skull base surgery requires wide access to the lesion, for which sinonasal mucosa and structures like the middle turbinate are sacrificed on a regular basis
2. Skull base neoplasms are usually dealt with by intra–capsular debulking followed, if possible, by extra-capsular excision with minimal margins in order to preserve cerebral and/or cranial nerve function, rather than by en bloc excision with a 1 cm margin.
3. In FESS the surgeon is used to holding the endoscope in one hand and an instrument in the other, using one nostril, and changing instruments as required. In endoscopic skull base surgery the surgeon may hold either an endoscope and a suction cannula, or two instruments, and work via one nostril whilst the other surgeon uses the other nostril, and both surgeons work together in harmony.
4. For FESS, the otolaryngologist requires and uses a CT scan of the nose and para-nasal sinuses as a road map for the procedure. In endoscopic skull base surgery, however, the patients' imaging usually consists of MRI scans.
5. Much pre-operative discussion is required with the neurosurgical colleagues – both surgeons must have a clear idea of the aim of the procedure and the endpoint of surgery. Reconstruction of the dural barrier must always be kept in mind; e.g., arterial supply of naso-septal flaps should be preserved even if the flaps are not used, as they may be needed for revision surgery.
6. No amount of technology can replace a sound concept of the three dimensional anatomy of the skull base. Image-guidance/Neuro-navigation will not make your surgery safer if you are venturing into the para-sellar or clival areas without a clear understanding of the anatomical landmarks and neuro-vascular structures present.
7. Intra-operative haemorrhage can be extremely difficult to manage endoscopically, especially if the Internal carotid artery (ICA) is damaged. When imaging suggests proximity of the lesion to the ICA all necessary equipment and material for haemostasis must be kept readily available.

Finding the Way

Given that endoscopic skull base surgery requires close co-operation between the otolaryngologist and the neurosurgeon the interested ENT surgeon must find a neurosurgeon, preferably of the same generation, who is equally enthusiastic. Attendance at cadaveric workshops as a team is an excellent way of building operative co-ordination. Membership of the Skull Base Surgery Society of India apart from providing a valuable network of similar minded colleagues, also carries access to short fellowships at centres of excellence within the country.

Conclusion

Conventional skull base surgery, although recognised as an interdisciplinary specialty involving both Neurosurgery and Otolaryngology in the West, has been the domain of the Neurosurgeon in West Bengal. Endoscopic skull base surgery is a rapidly expanding, multi-disciplinary specialty which is gaining popularity amongst both neurosurgeons and otolaryngologists.

After a thorough grounding in endoscopic sinus surgery interested ENT surgeons must build a good working relationship with a neurosurgeon, and obtain further training by means of workshops and fellowships, to establish themselves in this field.

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A Novel Technique of Branchial Fistula Tract Delineation and Excision In Children Allergic To Dyes

Swagatam Banerjee,[1] Saurav Sarkar,[2] Sanjoy Ghosh,[1] Sharmistha Chakravarty,[3] Biswajit Sikder[4]

ABSTRACT

Introduction

Branchial arch fistula which results from a second arch anomaly is rarely seen in practice. The patients usually seek medical advice for persistent discharge from an opening in the neck or mucopurulent discharge from the opening of an infected fistulous tract. The treatment of choice for such a fistula is excision.

Materials and Methods

A total of seven patients were operated for branchial fistula between 2010 and 2012. Among them, three children could not undergo a fistulogram due to allergy to the dye used and hence they were selected for our modified procedure.

Surgical Procedure

A 3-0 or 4-0 polypropylene (Prolene™) thread was inserted into the fistulous tract. Both the ends of the tract were secured with the thread and the sinus tract was dissected out under gentle traction.

Results

The patients who were allergic to dye could not have preoperative fistulograms and per-operative injection of dye was also avoided. The blue colour of the polypropylene thread inserted in the fistula tract helped in tracing and excision of the sinus tract. No major complications occurred during or after fistulectomy and the post-operative recovery was uneventful. No recurrence was seen in the scheduled follow-ups.

Conclusion

Surgical excision of branchial fistulas in children with allergy to dyes can be challenging. Insertion of a polypropylene thread into the fistula tract makes its subsequent dissection easy with minimal disruption of adjacent structures.

Keywords

Branchial region/abnormalities; Cutaneous fistula/surgery; Fistula/diagnosis

The branchial apparatus was first described by von Baer but the anomalies related to its development were described by von Ascheron.[1] The branchial arches and pouches develop from mesodermal condensations on the lateral aspect of embryonic pharynx. The branchial fistulas arise from abnormalities of the embryonic development of the branchial apparatus.

Branchial arch fistula which results from a second arch anomaly is rarely seen in practice. The treatment of choice for such a fistula is excision.

A branchial fistula arising from the second branchial cleft or pouch usually has an external opening near the anterior border of the ipsilateral sternocleidomastoid muscle in the mid or lower neck region. The fistulous tract usually passes deep to the platysma along the carotid sheath, turns medially and passes distal to the bifurcation of the common carotid artery between the internal and external carotids and crosses the glossopharyngeal and hypoglossal nerves. The internal opening is usually in the ipsilateral tonsillar fossa, on the anterior part of the posterior pillar or in the intratonsillar cleft.[2]

The patients usually seek medical advice for persistent discharge from an opening in the neck or mucopurulent discharge from the opening of an infected fistulous tract.

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In most cases, the pathway described earlier is not completely present,[3] the common presentation being a tract extending up the neck for a varying distance with a simple sinus opening. The extent of the tract can be delineated with a dye test or fistulogram keeping in mind that an incomplete tract in preoperative testing may turn out to be a complete one peroperatively due to the effects of muscle relaxants during general anaesthesia.[2]

Materials and Methods

A total of seven patients were operated for branchial fistula between 2010 and 2012. A diagnosis of branchial arch fistula was made in all these cases but the three children in this study could not undergo a fistulogram due to allergy to the dye used and hence they were selected for this procedure.

Surgical Procedure

Under general anaesthesia with nasotracheal intubation, the neck and mouth were prepared as one operative field. The cervical opening of the fistulous tract was dilated with a Nettleship's punctum dilator. A 3-0 or 4-0 polypropylene (Prolene™) thread was then inserted into the cervical opening and passed via the fistulous tract as shown in Fig. 1. Of the three children who underwent this procedure, two were found to have complete tracts with the polypropylene thread coming out from the other end (intraoral) Fig. 2, while one had an incomplete tract.

In case of the incomplete fistulous tract, after inserting the polypropylene thread as much as possible, the cervical opening was incised around the polypropylene thread and proximal dissection done. The polypropylene thread was fixed in its position in the tract by tying a silk knot around it. The blue colour of the polypropylene thread helped in tracing the sinus tract and thus helped in complete excision of the tract.

In the complete fistulous tracts which were opening intraorally, the polypropylene thread was inserted after prior dilatation of the cervical opening as mentioned above. At the oral site, a small mucosal incision was made around the end of the polypropylene thread. The dissection of the parapharyngeal segment of the fistula, which was usually a few millimeters in length, was

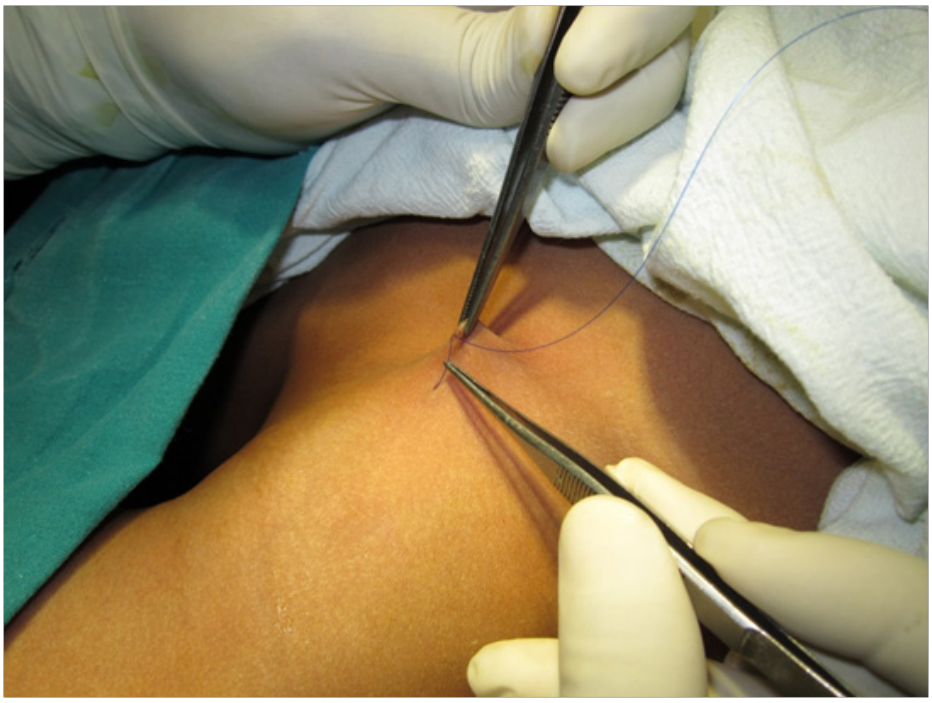

Fig. 1 4-0 Polypropylene suture material being inserted in the cervical opening of the fistulous tract

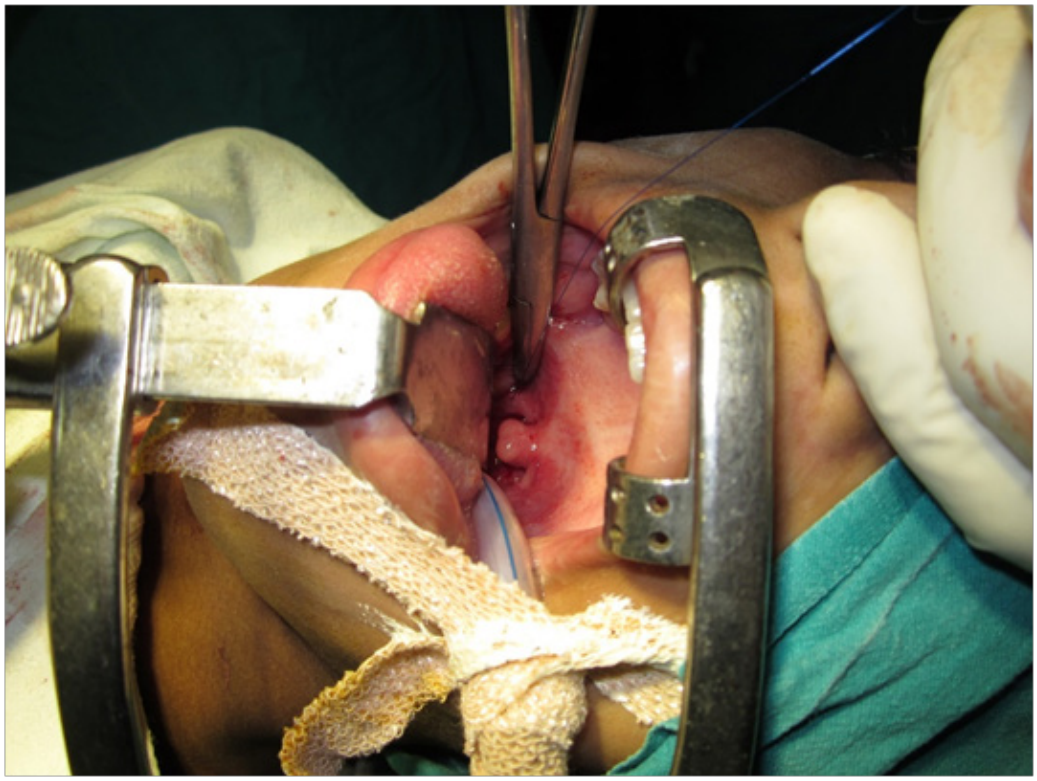

Fig. 2 Polypropylene thread coming out from the other end - intraoral, posterior pillar of tonsil in complete branchial fistula

carried out via the oral site using forceps. The oral part of the fistulous tract was tied over the polypropylene thread with 4-0 silk. Then, it was gently pulled from the neck site resulting in the fistula being straightened and shortened to half its length. The first few millimetres of the cervical portion of the fistula was freed by blunt dissection. Then, with a 3-0 or 4-0 silk thread, it was transfixed to the dissected tract. Under the gentle traction of both polypropylene and silk threads, only the fistula tract was carefully dissected from the surrounding structures, ultimately reaching the already dissected out portion from the oral side. The blue colour of the polypropylene thread served as a good guide for dissection of the tract. Thus, the entire tract was pulled out over the polypropylene thread and delivered entirely through the neck (Fig. 3).

Results

The patients comprised two boys and a girl, their ages being 4 years, 6 years and 3 years respectively. All the patients were allergic to dye, so preoperative fistulogram was not done and per-operative injection of dye was also avoided. No major complications occurred during or after fistulectomy. Histological examination showed a fistula tract with a muscular wall lined by benign squamous epithelia.

Fistula in the third case was found to be incomplete per-operatively. The post-operative recovery was uneventful. No recurrence was seen in the scheduled follow-ups.

Discussion

Embryonic developmental anomalies resulting in pharyngeal arch fistulas and cysts are usually uncommon.[1] However, among these, second arch anomalies are probably the most common and may manifest in various forms including a complete fistulous tract with external and internal openings, albeit rarely. It

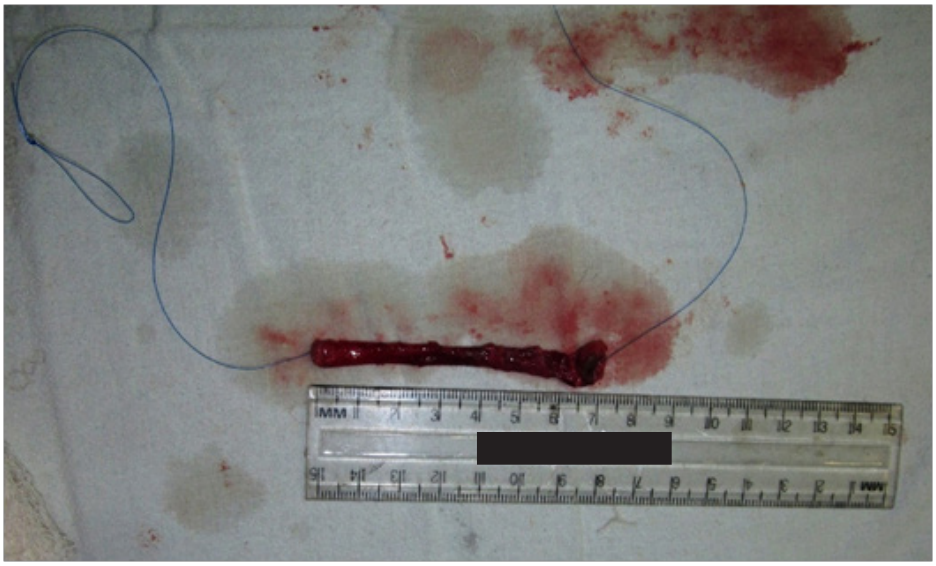

Fig. 3 The entire fistulous tract along with polypropylene thread

usually has an external opening near the anterior border of the ipsilateral sternocleidomastoid muscle in the mid or lower neck region. The fistulous tract passes deep to the platysma along the carotid sheath, turns medially and passes distal to the bifurcation of the common carotid artery between the internal and external carotids and crosses the glossopharyngeal and hypoglossal nerves. The internal opening is usually in the ipsilateral tonsillar fossa, on the anterior part of the posterior pillar or in the intratonsillar cleft.

Earlier, branchial fistulas were treated by injection of sclerosing agents to obliterate the tract with minimal scarring. However, the adjacent structures were quite often at risk because of the severe reaction produced.[4] Hence, total surgical excision of the fistulous tract is the mainstay of modern treatment. Amongst the various techniques described for surgical excision, the standard one involving stepladder incisions as described by Bailey in 1933 is commonly used.[4,5] Other methods described in medical literature include a pull-through branchial fistulectomy[2] and use of arterial intimal strippers.[4,6,7] However, these methods are not in common practice despite having cosmetic benefits over the conventional stepladder procedure. A procedure involving the insertion of a nylon thread into the fistulous tract was described by Azuma et al in 1986.[8] In our study, polypropelene was used as it is coloured which helped in better delineation of the tract peroperative.

Conclusion

Surgical excision of branchial fistulas in children with allergy to dyes can be challenging because of the difficulty in delineation of the fistulous tract. Insertion of a 3-0 or 4-0 polypropylene (Prolene™) thread into the fistula tract makes its subsequent dissection easy with minimal disruption of adjacent structures. Thus, it is a good alternative of fistulous tract delineation in children specially avoiding dyes and radiation during fistulogram.

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Rhinosporidiosis: Various Presentations and Different Sites

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ABSTRACT

Introduction

Rhinosporidiosis commonly affects nasal mucosa but may have varied presentations depending upon the site of involvement.

Materials and Methods

119 patients of rhinosporidiosis, attending the two medical colleges of West Bengal over a period of two years were reviewed.

Results

Granulomatous lesion in the nose and nasopharynx was the commonest presentation. The most common symptoms were nasal obstruction, bleeding from the nose and nasal discharge. The less commonly involved sites were the eye, penis, skin, subcutaneous tissue, muscle and bone.

Discussion

Most of the extranasal rhinosporisdiosis were secondary to nasal disease. Extranasal lesions do not have the typical granular polypoid appearance of the nasal and nasopharyngeal rhinosporidiosis. Extranasal rhinosporidiosis could be excised with minimal operative bleeding.

Conclusion

Rhinosporidiosis has nasal and extranasal presentations. This chronic disease may also present acutely with respiratory distress or haemorrhage. A high degree of suspicion helps the diagnosis of extranasal rhinosporidiosis. FNAC helps in the diagnosis. Histopathology is confirmatory.

Keywords

Rhinosporidiosis; Rhinosporidium; Diagnosis, Differential; Nose; Conjunctiva; Urethra; Skin; Subcutaneous Tissue; Bone; Polyps

Rhinosporidiosis is endemic in India and Sri Lanka. This chronic granulomatous disease usually affects the nasal mucosa but atypical presentations due to involvement of other sites are not uncommon and may cause a diagnostic dilemma. This study was undertaken to document different presentations of rhinosporidiosis and their management with review of the relevant literature.

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Materials and Methods

A total of 119 patients of rhinosporidiosis attending the Departments of ENT of the participating medical colleges during a period of two years (December, 2011 to November, 2013) were included for this study. Nasal Endoscopy was done in all cases of nasal presentations. FNAC was done in all suspected extranasal lesions. In a few selected cases CT Scan is advised to note the extent of lesion. All excised specimen were routinely sent for histopathological confirmation.

Results

The most common presenting symptoms of rhinosporidiosis were nasal obstruction (87%) followed

by bleeding from the nose (78%) while 30% of patients complained of sticky white nasal discharge (Table I). The extranasal lesions had either a coexisting nasal mass or history of excision of nasal rhinosporidiosis in the past, except in three cases. One of the three primary extranasal rhinosporidiosis presented with a mass coming out through the urethral opening and the other two were conjunctival rhinosporidiosis. Three patients with pedunculated mass hanging into the oropharynx had muffled speech. The lone patient of laryngeal rhinosporidiosis presented with sensation of lump in the throat. The single patient of disseminated rhinosporidiosis, in addition to the nasal mass, had subcutaneous swellings, cutaneous nodules and ulcerated growths that bled on touch, has been reported.[1] The different anatomical sites involved by rhinosporidiosis in this series have been noted in Table II.

Table I: Symptoms of the Patients Suffering from Rhinosporidiosis (n=119)

SYMPTOMS	CASES
Nasal obstruction	104
Nose bleed	93
Nasal discharge	36
Mass on the eyelid	03
Fleshy mass on the penis	03
Nodules/ warts on the skin	02
Fungating mass with ulceration on the skin	01
Subcutaneous swelling	01
Difficulty in breathing	03
Muffled speech	03
Sensation of lump in the throat	02

Eighty three patients were male and thirty six female; the male to female ratio being 2.3:1. The peak incidence was between 11-20 years of age (17%), followed by the 21-30 years age group (13%). The youngest patient was a 9 year old boy while the oldest was a 78 year old man.

Most of the nasal lesions had pink fleshy mass with white dots on the surface, which is typical of rhinosporidiosis (Fig.1). Out of the 114 nasal and nasopharyngeal lesions, 67 (60%) had pedunculated lesion and the rest 47 (40%) had sessile or mixed crops of some sessile and some pedunculated lesions (Fig.2). Larger masses hanging into the oropharynx, on the contrary, had the look of fleshy polyps with smooth lobulated surfaces without the history of recurrent episodes of bleeding (Fig.1). 83 of the nasal/ nasopharyngeal lesions (73%) were single and multiple fleshy masses were seen in the rest 31 (27%). Floor of the nasal cavity and the nasal septum were found to be the sites most commonly involved.

The conjunctival lesions were pink globular mass with finely irregular surface, attached to the lower palpebral conjunctiva with a short narrow stalk. There was white discharge from the affected eye (Fig.3).

The cutaneous lesions were either small, non-tender nodules or warty dark coloured excrescences with small pedicles (Fig.4). Ulcerated skin lesions had fungating irregular surface, which bled on touch. The growths were firm, mildly tender and had everted margins (Fig.5). These lesions were difficult to distinguish from soft tissue malignancy.

The subcutaneous and intramuscular lesions were

Table II: Anatomical Sites Involved by Rhinosporidiosis (n=119)

INVOLVED SITES *	NO. OF PATIENTS
Nose and nasopharynx	114
Conjunctiva	2
Lacrimal sac	1
Urethra/ Glans penis	3
Larynx	1
Skin	2
Bone	1
Subcutaneous tissue	1
Muscle	1
** Either singly or with associated involvement of other structures*	

of two types, firm and cystic. The firm lesions were lobulated, pale yellow with homogenous cut surface, which looked similar to brain tissue (Fig.6). The single cystic ovoid intramuscular lesion had smooth surface with a thick fibrous capsule (Fig.7) and contained about 20 ml of thick creamy fluid, which, on microscopy, showed presence of numerous sporangia of different stages of maturation (Fig.8). The fibrous capsule, on the other hand, did not show any presence of granulation or spore.[1]

The involvement of penis presented either as discrete pink polypoidal mass with granular surface, protruding from the urethral meatus or as a smooth globular sessile mass arising from the glans penis (Fig.9).

Involvement of the bone in rhinosporidiosis presented as almost painless swelling over the wrist joint with restriction of movement.[1] The skin covering the swelling got ulcerated and grew to form a huge fungating ulceroproliferative mass (Fig.10).

Fig. 1 Rhinosporidial mass filling up the left nasal cavity and the polypoid oropharyngeal extension brought into the mouth of the patient

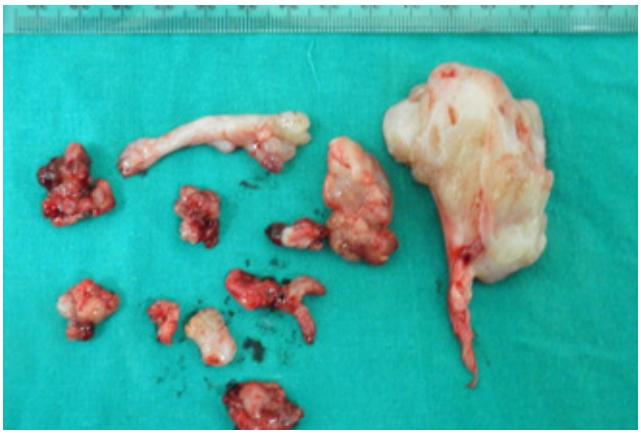

Fig. 2 Multiple polypoidal and sessile rhinosporidial mass removed from a single patient

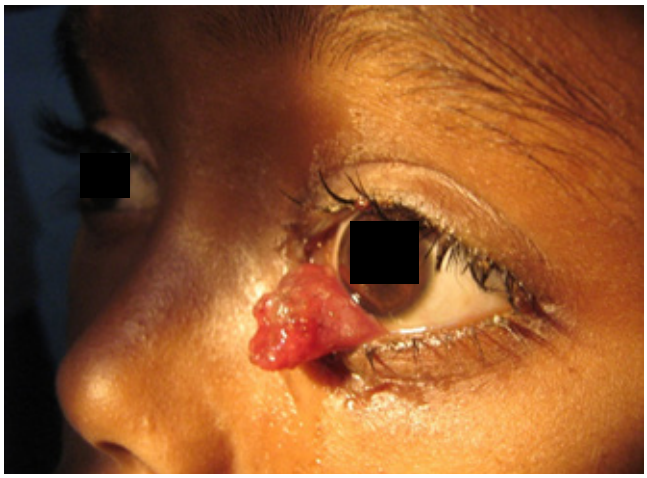

Fig. 3 Conjunctival rhinosporidiosis

Fig. 4 Cutaneous lesions of rhinosporidiosis: (clockwise from top left) nodules on cheek, nodule on the pinna, warty lesion on the upper lip and warty lesion with a small pedicle on the back

The laryngeal lesion was a solitary pink polyp attached to the left aryepiglottic fold with a short stalk.

None of the cases in this series showed any enlargement of the regional lymph nodes.

Radiologically rhinosporidiosis appeared as an inhomogeneously enhancing or hypodense SOL in CT scan, usually occupying the nose and nasopharynx. Bone erosion was not usually seen in rhinosporidiosis. Erosion of bony nasal septum was seen in one case. Turbinates were often seen to be incorporated in the nasal mass. Paranasal sinuses were never found to get involved. The single case of involvement of the distal end of the radius showed multiple osteolytic lesions (Fig.11).

FNAC from the subcutaneous swellings showed presence of sporangia in different stages of maturation and a few foreign body type giant cells (Fig.12). Histopathological diagnosis has been considered to be confirmatory in this series. All the excised masses were subjected to histopathological examination. Staining with H&E revealed multiple mature and immature sporangia of sizes 50-100 µm diameter packed with

Fig. 5 Fungating mass arising from the perianal skin

spores. A few plasma cells and lymphocytes were seen in the stroma (Fig.13).

Treatment of rhinosporidiosis was tailored according to the stage and mode of presentation. When patients presented with bleeding or an infected mass, pressure bandaging (for lesions on the surface) or nasal packing was applied where possible, to minimize bleeding. Whole blood transfusion was given in some cases. Antibiotics were needed to control infection. Preliminary tracheostomy was done in three cases who presented with respiratory distress due to huge rhinosporidial mass hanging into the oropharynx, causing upper airway obstruction.

The definitive treatment, as a rule, was wide

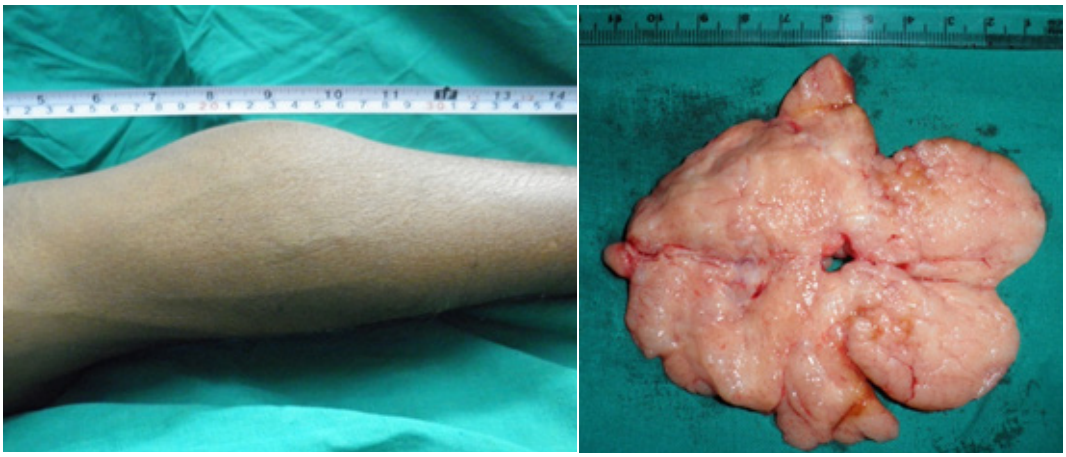

Fig. 6 (Left) Forearm with subcutaneous rhinosporidiosis. (Right) Cut surface of the excised subcutaneous rhinosporidiosis removed from the forearm

Fig. 7 Intramuscular cystic rhinosporidiosis being removed from the right calf

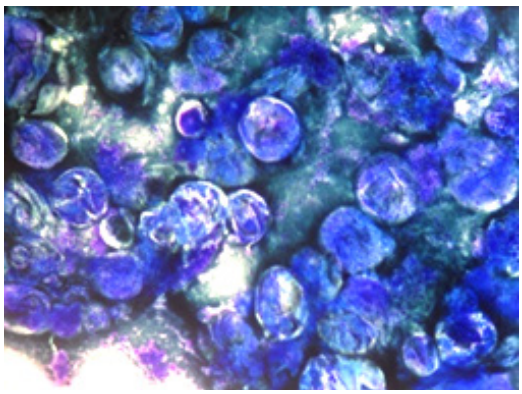

Fig. 8 Centrifuged deposit from cyst fluid showing numerous sporangia MGG x40

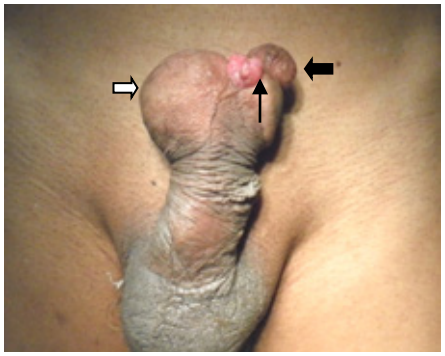

Fig. 9 The penile lesions showing the urinoma (white arrow), fleshy polypoid mass on the tip of the glans penis (bold arrow) and its under-surface (thin arrow)

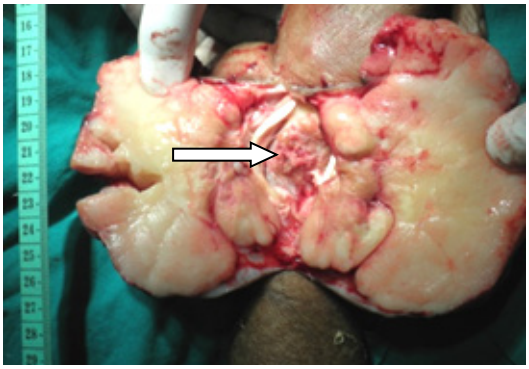

Fig. 10 The amputation specimen showing the cut surfaces of the growth on the wrist and involvement of the underlying bones (white arrow)

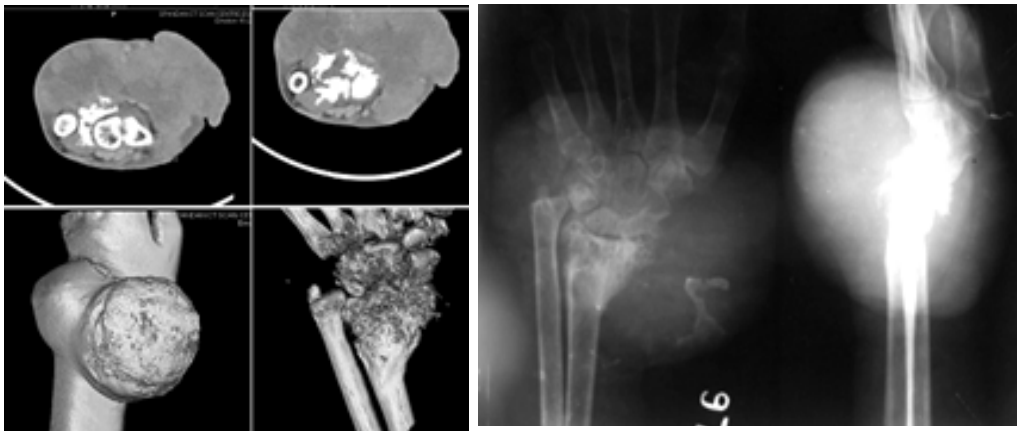

Fig. 11 X-ray of the wrist showing osteolytic lesions affecting the lower ends of the radius and ulna. CT scan windows showing the extent of the soft tissue and bone involvement

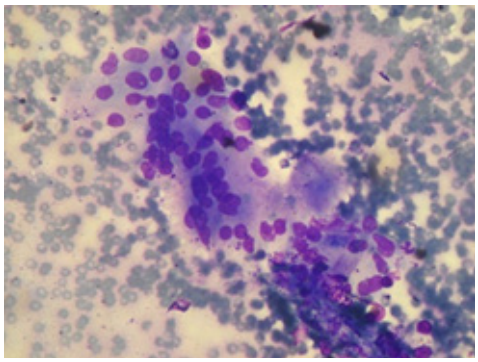

Fig. 12 Giant cell reaction with a ruptured sporangium having spores within, FNAC, MGGx100

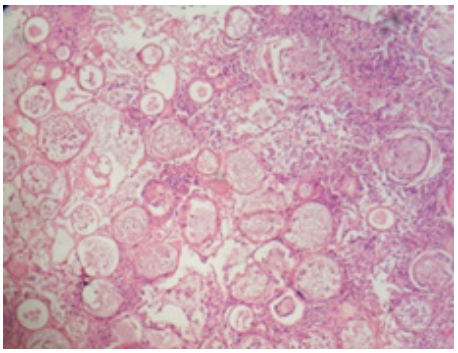

Fig. 13 Histopathological picture of rhinosporidiosis showing cysts of variable sizes, containing numerous spores in different stages of development, H&E X40

excision with diathermy coagulation of the base. Nasal endoscopy helped in dealing with the difficult-to-access lesions arising from the posterior part of the nasal cavity and nasopharynx. Lesions with multiple attachments or excessive operative bleeding were subjected to repeat endoscopy three weeks later to cauterize the granular areas on the mucosa. The subcutaneous lesions were enucleated from the subfascial or intramuscular locations with primary closure of the skin incision. These lesions had smooth glistening surfaces and could be easily enucleated with very little bleeding. Involvement of bone or joint necessitated partial amputation with wide margin as the marrow spaces were invaded by rhinosporidiosis. Genitourinary rhinosporidiosis involving the distal part of the penile urethra and the navicular fossa could be approached by ventral meatotomy and excision of the mass with diathermy coagulation of the base to prevent recurrence. Involvement of the glans penis required partial amputation of penis.

Discussion

Rhinosporidium seeberi, the causative agent of rhinosporidiosis, is a eukaryote pathogen, a protoctistan parasite of the class Mesomycetozoea.[2,3] The infective stage of the organism is the functional spore, which is approximately 10-12µ in diameter.[4] Definite mode of transmission, host and natural reservoirs are largely unknown but the disease is presumed to be transmitted by direct contact with spores through dust, infected clothing or fingers and bathing in stagnant water.[5,6] This explains the predilection of infection for mucosal sites, where the organism gains access through traumatized epithelium.[5] Over 70% of the reported cases involved the

nasal mucosa and about 15% were in the eye.[6] 95% of patients in this series presented with nasal involvement. Ocular and genitourinary involvement came next with involvement in 2.5% each.

Ocular rhinosporidiosis is usually airborne.[4,7] Ascending infection from the nose is implicated for involvement of the lacrimal sac. Occasional involvement of lips, palate, epiglottis, pharynx, larynx, trachea, bronchus, ears, conjunctiva, lacrimal sac, skin, vulva, vagina, penis, scalp and bone has also been reported.[8,9] Rhinosporidiosis is endemic in south Asia and approximately 90% of all reported cases were from India and Sri Lanka.[9,10]

The most common presenting symptom of rhinosporidiosis are nasal mass, nasal obstruction, epistaxis and nasal discharge.[4,11] Other symptoms may vary depending upon the site of infection. Oral mass, ocular mass, haemoptysis, swelling over bone or joint, nodules or warts on the skin or genitalia, ulcerative lesion or ulceroproliferative growth may be some of the other presentations.[1,4,6,9,12,13,14,15]

The typical look of rhinosporidiosis is usually sufficient to arrive at a diagnosis. But delayed presentation, extranasal presentation or involvement of multiple anatomically unrelated sites make the diagnosis difficult. Acute presentation of this chronic disease has also been noted. Three of the patients had to undergo preliminary tracheostomy to relieve respiratory obstruction caused by huge oropharyngeal mass hanging down from the nasopharynx.

The oropharyngeal masses lacked the typical look of rhinosporidiosis. The fleshy pink or pale lobulated oropharyngeal masses may look like antrochoanal polyp or inverted papilloma.[4] The possibility of angiofibroma should also be considered for a nasopharyngeal mass with history of epistaxis. Involvement of other parts of the respiratory tract is usually secondsary to nasal rhinosporidiosis. The single case of laryngeal involvement in this series presented with sensation of lump in the throat. There was history of bleeding par mouth. The patient had history of surgeries for nasal rhinosporidiosis twice in the last three years. It presented with a small fleshy mass on the arytenoid with granular surface.

The cutaneous lesions, found in patients with previous surgery for rhinosporidiosis, were nodular, warty or ulceroproliferative. Multiple skin coloured small nodules of less than 0.5 cm separated with normal intervening skin were found on the face. Slowly enlarging brownish-black warty lesions of sizes varying from less than 0.5 cm to 2 cm diameter with short pedicles were found on the skin of the upper lip and on the back. Ulceroproliferative growths were either pedunculated or sessile growth with everted margins and involvement of the underlying bone (the radius). Differential diagnoses of cutaneous rhinosporidiosis include coccidiodomycosis,[9] adiaspiromycosis,[9] wart, haemangioendothelioma,[15] sarcoma or other soft tissue tumours.

Subcutaneous firm swellings of rhinosporidiosis were excised from subcutaneous, subfascial or intramuscular locations.[1] These lesions were not vascular and could be excised with minimal bleeding. Subcutaneous rhinosporidiosis masses have cerebriform, cream coloured appearance, with homogeneous pale yellow cut surfaces and the consistency of the brain tissue.[12] In one of the cases in this series, the surface of a mass removed from the subfascial plane of the anterior chest wall was finely granular and surprisingly enough, one intramuscular lesion was cystic.[1] The cyst contained about 20 ml of thick cream coloured fluid. The wall of the cyst was fibrous and thick, with no evidence of granuloma or sporangia in it. The fluid was teeming with sporangia (Fig. 8).

Osteolytic lesions of rhinosporidiosis involving tibia,[6,8] fibula,[6] femur,[16] scapula,[17] hand and foot,[8,18] talus[6] and calcaneum,[6,15] have been reported.

Excision[17,19] or partial amputation,[6,8] are the suggested treatment modalities. Extensive soft tissue involvement, infiltration of the marrow space and involvement of the wrist joint prompted us to opt for a below-elbow amputation to ensure adequate disease-free margin.

Diagnosis of rhinosporidiosis is possible with FNAC and staining the aspirate with MGG, PAP or PAS. The biological agent has a mature stage that consists of large thick walled spherical structures called sporangia and smaller daughter cells called endospores. FNAC from the subcutaneous swellings in our patient showed

abundant intact sporangia filled with endospores (Fig.14) as well as ruptured sporangia with dispersed spores and few foreign body type giant cells (Fig.15). However a definitive diagnosis of rhinosporidiosis needs histopathological identification of the pathogen on the biopsied specimen in its diverse stages of maturation,[9] which is possible with standard H&E staining.

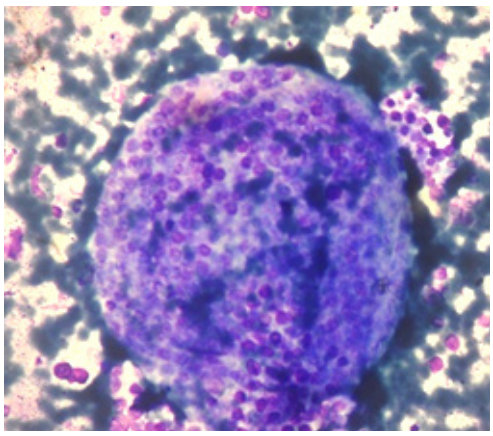

Fig. 14 Intact sporangium with numerous spores, FNAC, MGG x 400

Both recurrence and residual diseases are common in rhinosporidiosis. Wide excision of the lesion with diathermy coagulation of the base to prevent spread through the submucosal lymphatics is the definitive treatment of rhinosporidiosis. Complete excision sometimes becomes difficult in sessile lesions or when the lesions are located in the posterior part of the nasal cavity and nasopharynx. Brisk bleeding associated with

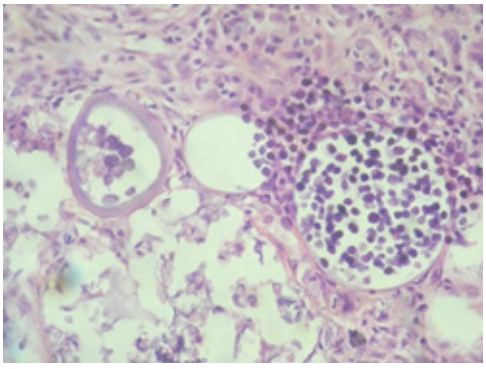

Fig. 15 High power view of an intact and ruptured sporangium containing numerous spores H&E x 100

surgeries may also be a cause of incomplete removal. Seeding of the operative sites with the spores present on the surface of the granuloma may also contribute to the recurrence of the lesion. The lifestyle and personal habit of the patient are also contributory factors. Haematogenous spread may be responsible for dissemination of the disease.[1,6,18] Eleven cases (9%) in this series were operated for recurrent disease and five (4%) of them had multiple recurrences. We tried to localize residual disease by performing nasal endoscopy three weeks post-op, when there was excessive operative bleeding or multiple attachments detected during the primary operation. All the patients were advised review every two months. Six of the patients, who were operated during the study period, had recurrence of nasal lesions within one year after operation. The actual recurrence rate may be higher because as many as thirty six patients (30%) were lost in the follow up. Patients with thick nasal discharge, history of previous operation, excessive operative bleeding and attachments in the difficult to access areas were the main reasons for recurrences. Use of KTP Laser,[20] Diode Laser,[21] Harmonic scalpel,[22] and coblation[23] has been mentioned in the literature to help minimize bleeding and recurrences.

Though recurrence of rhinosporidiosis is very common, dissemination of the disease is very rare. Only a few cases of disseminated rhinosporidiosis with involvement of anatomically unrelated distant sites like subcutaneous tissue, bone, urethra and widespread lesion on the skin have been reported.[6,8,9,12,15,17,18,24] One of the patients reviewed in this series had disseminated rhinosporidiosis with involvement of nasal and extranasal sites.[1]

Dapsone (100mg/day) has traditionally been used in the medical management of rhinosporidiosis, especially in recurrent and unresectable cases but the results so far has not been good. Orally administered drugs can take longer to reach the affected areas in the presence of haemorrhage, oedema and inflammation. Wherever possible, surgical excision followed by drug therapy would be more effective.[25,26] Multi-drug therapy using cycloserine, ketoconazole and dapsone, has recently been recommended for treating disseminated rhinosporidiosis, not responding to dapsone monotherapy.[27] We have used dapsone for the patient

of disseminated rhinosporidiosis in the postoperative period and the patient did not have any recurrence in the one year follow up period.

Conclusion

Nasal and nasopharyngeal mucosa are most commonly involved in rhinosporidiosis. The typical red, granular friable polypoid appearance may not be evident in extranasal rhinosporidiosis. Involvement of extranasal sites can make the diagnosis of rhinosporidiosis difficult. A high degree of suspicision may help in the diagnosis of such presentations. This chronic disease may also present with acute presentation like respiratory obstruction and haemorrhage. FNAC may help the diagnosis. Histopathology is confirmatory.

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Reliability of Free Radial Forearm Flap for Tongue Reconstruction Following Oncosurgical Resection

Gaurab Ranjan Chaudhuri[1]

ABSTRACT

Introduction

Primary closure following oncosurgical resection of carcinoma tongue has been found to compromise tongue function in regards to speech and swallowing very badly. In contrast, reconstruction of tongue with free radial forearm flap following oncosurgical resection has shown promising functional outcome.

Materials and Methods

Thirteen patients (ten male and three female) with squamous cell carcinoma involving anterior 2/3rd of tongue had undergone either hemiglossectomy or subtotal glossectomy. Reconstruction was done with free radial forearm flap following oncosurgical resection and neck dissection. All of them received postoperative radiotherapy. Follow-up ranged from 2 months to 2 years. The age of the patients ranged between 32 and 65 years. Flap dimension ranged from 7x6 cm to 10x8 cm. Vascular anastomosis performed in an end-to-end manner with 8-0 Ethilon® under loupe magnifiacation.

Results

Venous congestion occurred in one patient after 48 hours postoperatively and the flap underwent complete necrosis on postoperative day 5. Postoperative hematoma was found in one patient within first 24 hours of reconstruction. Re-exploration was done immediately, blood clots were removed. No fresh bleeding point was seen and the flap survived. In this series, 12 out of 13 flaps survived completely (92%).

Conclusion

The free radial forearm flap has become a workhorse flap in head and reconstruction due to its lack of extra bulk, relative ease of dissection, long vascular pedicle, good calibre vessels, malleability and minimal donor site morbidity. Furthermore its low flap loss and complication rate offer the best choice for tongue reconstruction.

Keywords

Carcinoma, Squamous Cell; Tongue; Glossectomy; Reconstructive Surgical Procedures; Free Tissue Flaps; Forearm; Radial Artery; Ulnar Artery

Squamous cell carcinoma of tongue is a highly malignant condition and results in significant mortality and morbidity. However, early detection and treatment results in better outcome and prolongs survival. The morbidity following extensive resection of tongue results in severe speech and swallowing disturbances and life threatening aspiration that needs reconstruction.

The ideal method of reconstruction should provide good functional and aesthetic outcome. The field of reconstructive surgery in the head-neck region is a dynamic one and has gone through numerous changes in past two decades. Microvascular free flap technique has largely replaced other techniques. Free flaps such as radial forearm flap and anterolateral thigh flap have become the first choice in tongue reconstruction. Preservation of function including speech and swallowing and restoration of appearance are the major goals of reconstruction.

Our technique of free radial forearm flap for reconstruction of tongue following oncosurgical resection in a series of patients could fulfil the reconstructive goals to a great extent.

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The free radial forearm flap is a workhorse flap in tongue reconstruction. Its lack of extra bulk, robust vascularity, long vascular pedicle, good calibre of the vessels, relative ease of dissection, flexibility in designing and lack of significant donor site morbidity are among its main advantages. Its low flap loss and complication rate offer the best choice for reconstruction of tongue following oncosurgical resection.

Materials and Methods

This paper included thirteen patients presented with proliferative or ulceroproliferative growth (squamous cell carcinoma as confirmed preoperatively by biopsy and histopathological examination) involving anterior 2/3rd of tongue who were operated between January, 2013 to March, 2015 (Figs. 1, 2); reconstructed with free radial forearm flap (harvested from left side in all cases) following oncosurgical resection (either hemiglossectomy or subtotal glossectomy) and neck dissection; all of them received postoperative radiotherapy; ten male patients and three female patients were included in this study. The age of our patients ranged between 32 and 65 years. Flap dimension ranged from 7x6 cm to 10x8 cm.

Fig. 1 Ulceroproliferative mass involving right lateral border of tongue

All patients were subjected to:

- Thorough history taking and clinical examination (including Allen's Test)
- Preoperative laboratory investigations
- Evaluation of coagulation profile
- CT scan of tongue, floor of the mouth and neck
- Doppler flowmetry of the forearm (left in all cases as flap donor site in this study) to assess the status of radial and ulnar arteries.

Fig. 2 Ulceroproliferative mass involving whole anterior 2/3rd of tongue

Surgical Technique

Two teams approach was utilized in all cases to shorten the whole surgical procedure where one team was involved in neck dissection and local resection; and other team harvested the flap at the same time (Figs.3,4).

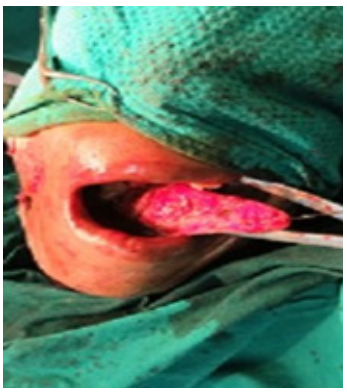

Fig. 3 Post excisional defect

The free radial forearm flap was raised from the distal third of forearm in subfascial plane from distal to proximal direction keeping the paratenon of the underlying tendon intact and preserving the septum in between brachioradialis and flexor carpi radialis muscles meticulously; the superficial venous system

Fig. 4 Post excisional defect

was preserved; the cephalic vein and vascular pedicle of the flap dissected up to the cubital fossa to gain a long pedicle that aided in tension-free anastomosis in the neck (Figs. 5,6,7).

Fig. 5 Preoperative flap marking done over the donor site

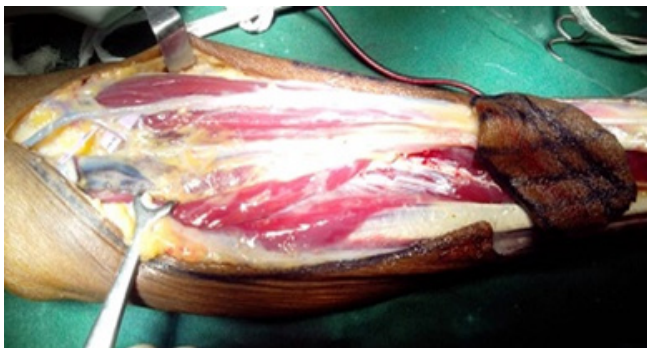

Fig. 6 Flap elevated off the donor site connected only by the vascular pedicles

One suitable recipient artery (facial artery or superior thyroid artery in our cases) and two veins (external jugular vein and common facial vein) were chosen in the neck; After partial flap inset with few anchoring sutures with the remaining part of the tongue and floor

Fig. 7 Flap completely detached from the donor site with division of its vacular pedicles

of the mouth, vascular anastomosis performed in an end-to-end manner with 8-0 Ethilon® (Fig. 8) under loupe magnification in following order:

- Cephalic vein with external jugular vein
- Radial artery with facial artery or superior thyroid artery
- One venae comitantes of radial artey with common facial vein

In our study, we performed double venous anastomosis in 10 patients and single venous anastomosis (one of the venae comitantes of radial artery with common facial vein) in 3 patients.

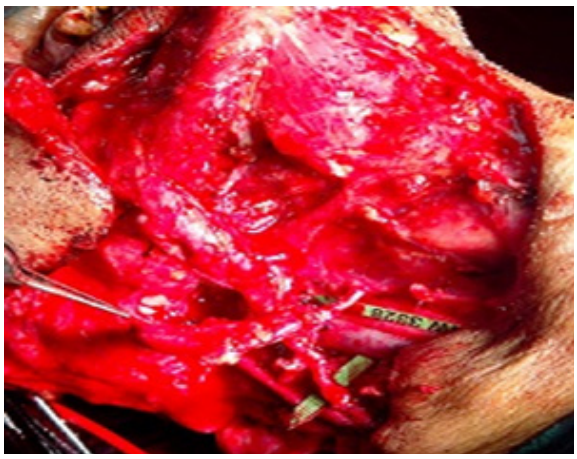

Fig. 8 Vascular anastomoses performed in the neck

Successful anastomosis was confirmed by 'milking test' and bleeding observed at the edges of the flap; and then the flap inset was completed. Flap donor site was

covered with split thickness skin graft harvested from thigh.

Discussion

Squamous cell carcinoma of tongue typically affects men in sixth to eighth decades having a strong association with alcohol and tobacco abuse over years. Less than 4% of these lesions have been reported in patients younger than 40 years. Retrospective analysis suggested that the disease runs a more aggressive course in under-40 age group. Metastatic spread of SCC of the tongue is facilitated by its rich lymphatic net work and tends to increase with the size of the primary tumour.[1] Approximately, 50% of tongue cancers present with neck node involvement. In order to achieve a good therapeutic control of the disease, a wide local excision and neck dissection are to be done as a primary procedure. This oncosurgical resection results in a large three dimensional defect of the tongue and floor of the oral cavity that impairs speech, swallowing and imposes risk of aspiration. It is therefore prudent to reconstruct the defect with a well vascularised tissue for a good functional substitution.

The free radial forearm flap is a workhorse flap in tongue reconstruction. Its lack of extra bulk, long vascular pedicle, good calibre of the vessels, pliability and minimal donor site morbidity are among its main advantages; the flap harvest is relatively easy and good calibre of the vessels is suitable for anastomosis with a high success rate. The free radial forearm flap, therefore, offers the best choice for reconstruction of tongue following oncosurgical resection.

In our study, venous congestion occurred in one patient after 48 hours postoperatively and the flap underwent complete necrosis on postoperative day 5; postoperative hematoma was found in one patient within first 24 hours of reconstruction; we immediately went for re-exploration, removed the blood clots and checked for anastomotic leakage or any active source bleeding; but couldn't detect any fresh bleeding point and the flap survived. Thus, our flap survival rate was approximately 92%.

Song et al.[2] reported a flap survival rate greater than 90%; Kruse et al.[3] reported that the success rate of free radial forearm flap was more than 95%; Shibahara et al.[4] reported a total success rate of 100%. It emphasizes the reliability of free radial forearm flap for reconstruction of head and neck defect.

Free radial forearm flap, also known as 'Chinese' flap, is a versatile fasciocutaneous flap was first described by Yang and colleagues in 1981, who used it to treat postburn neck contracture.[5]

Soutar proposed the use of free radial forearm flap for reconstruction of oral cavity in 1983 and thereafter the flap became the most utilized technique for intraoral reconstruction.[6]

Cheng first used this flap for tongue reconstruction.[7]

Khashaba and McGregor demonstrated equal and adequate flow through superficial and deep venous systems of forearm by occluding one or the other system in-situ during flap harvest.[8]

To reduce the donor site morbidity and to improve its aesthetic appearance, Webster and Robinson described free radial forearm flap harvest in suprafascial plane.[9]

Many surgeons compared the postoperative swallowing functions of patients who underwent reconstruction of tongue with free radial forearm flap with patients who underwent primary closure of post excisional defect and concluded that the flap added bulk, thus improved pharyngeal clearance and deglutition. Patients with primary closure were unable to lift the tongue tip, had poor tongue to palate contact during initiation of swallowing and premature spilling of bolus into the pharynx.

Some surgeons retrospectively compared the postoperative speech and swallowing in patients who underwent hemiglossectomy for carcinoma of anterior tongue. Immediate reconstruction was done with free radial forearm flap in 50% patients and other 50% were reconstructed with free anterolateral thigh flap. The functional outcome with both flaps were adequate and the two groups did not differ significantly for either speech or swallowing.

Some surgeons advocate an innervated FRFF in an attempt to produce a more favourable functional outcome; however, a number of studies have shown that very little and insignificant benefit is achieved when compared to an insensate flap.[10, 11]

In this study, we used free radial forearm flap in a series of 13 patients with squamous cell carcinoma of tongue following oncosurgical resection with satisfactory aesthetic and functional outcome in regards to speech and swallowing (Figs. 9,10,11,12,13) with minimal donor site morbidity.

Fig. 9 Postoperative 2nd week

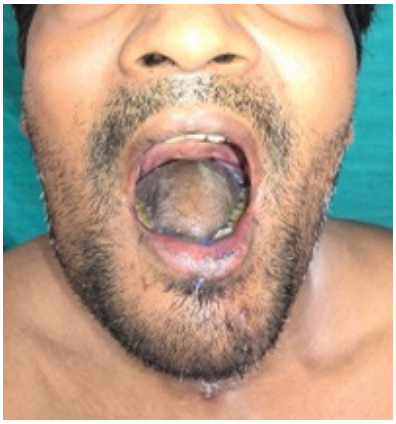

Fig. 10 Postoperative 2nd month

Fig. 11 Postoperative 6th month

Fig. 12 Postoperative 2nd year

Fig. 13 Complete skin graft taken over the donor site

Conclusion

Compared with primary closure of the post-excisional defect of the tongue, it is better to reconstruct the defect with free radial forearm flap when 50% or more tongue is resected. The overall satisfaction of the patients in regards to function and cosmesis in tongue reconstruction was high when using free tissue transfer in the form of free radial forearm flap following wide local oncosurgical resection. Although microvascular reconstruction is a lengthy procedure and requires utmost surgical skill and expertise, the post-excisional morbidity is reduced to a great extent while maintaining the function of the important organ like tongue.

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Endoscopic Cauterization of Sphenopalatine Artery in Posterior Epistaxis - Our Experience

Mukesh Kumar Singh,[1] Chiranjib Das,[2] Dwaipayan Mukherjee,[3] Aniruddha Majumder,[4] Tapan Kanti Hazra[4]

ABSTRACT

Introduction

Epistaxis is one of the commonest emergencies in Otorhinolaryngology. The management of intractable posterior epistaxis sometime becomes challenging to ENT surgeons. Over the last decade endoscopic cauterization of sphenopalatine artery has emerged as a viable and minimally invasive alternative.

Materials and Methods

Thirty four patients with intractable posterior epistaxis were treated by endoscopic sphenopalatine artery cauterization between March 2010 & February 2013.

Results

There was no recurrence of epistaxis with an average follow-up of 12 months in 30 out of 34 patients. Only 4 patients had anterior epistaxis in follow up period, which were managed with anterior nasal packing. The success rate of endoscopic sphenopalatine artery cauterization, in this study was 88%.

Conclusion

Endoscopic sphenopalatine artery cauterization is a safe & efficient method of controlling persistent posterior epistaxis with minimal complication.

Keywords

Epistaxis; Endoscopy; Ligation; Cautery; Diathermy

Epistaxis is one of the commonest emergencies in Otorhinolaryngology. Intractable posterior epistaxis sometimes can be life threatening because of hypotension, anaemia, aspiration and associated co-morbidities.[1] When the conservative measures fail to control the epistaxis, surgical measures should be considered.

The conventional surgical approaches are ligation of internal maxillary artery via Caldwell-Luc approach, ligation of ethmoidal artery via Howarth's incision and ligation of external carotid artery in intractable cases. More recently endoscopic ligation or cauterization of sphenopalatine artery has become a popular treatment option for posterior epistaxis that has failed conventional nasal packing.

Endoscopic sphenopalatine artery cauterization causes interruption of the nasal vasculature at a point distal enough to prevent direct, retrograde & anastomotic blood flow from ipsilateral and contralateral carotid system.[2] This technique is associated with fewer or no complication and shorter hospital stay.[3] However locating the sphenopalatine foramen in bleeding patient can be difficult. Thus good knowledge of local anatomy is essential.[4]

Materials and Methods

Between March 2010 & February 2013 we have treated 34 patients with intractable posterior epistaxis by endoscopic sphenopalatine artery cauterization in ENT

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department in a tertiary care hospital of West Bengal. All the patients with suspected posterior epistaxis were initially managed with classical posterior nasal packing or balloon catheter. The patient was then admitted to the ward for observation. The packs were removed on the next day and endoscopy was performed to confirm the site of bleeding.

In the meantime, all investigations were completed including haemoglobin, total leucocyte count, platelet count, bleeding time, clotting time, prothombin time, liver function test, chest X-ray and ECG. Any underlying disease like hypertension, coagulopathy if present was corrected. Patients with active posterior epistaxis were subjected to endoscopic sphenopalatine artery cauterization under local anesthesia. The procedure took about 30 minutes. All patients were discharged on the second postoperative day with advice of normal saline nasal douching & oral amoxicillin (500 mg) thrice daily for 5 days to prevent any infection. On follow-up they underwent endoscopic nasal examination after 2 weeks & 4 weeks. They were further followed up after 3 months, 6 months, 9 months & 12 months in ENT OPD clinic.

Surgical technique

The procedure was done under local anesthesia. At first nose was decongested using cottonoids soaked in 4% lignocaine with 1: 100,000 adrenaline solution half an hour before endoscopy. 3 ml of 2% lignocaine with 1:100,000 adrenaline was injected into mucosa overlying the lateral nasal wall of middle meatus under endoscopic guidance. An incision was made in the lateral wall of middle meatus 1 cm anterior to posterior attachment of middle turbinate.

A mucosal flap was then raised with Freer's elevator posteriorly and sphenopalatine artery identified as it exits from the sphenopalatine foramen (Fig. 1). This artery was then coagulated with a special nasal bipolar diathermy. The flap was then repositioned and nasal tamponade (Merocel™) was applied & kept for 24 hours. The patients were discharged & followed up in OPD clinic.

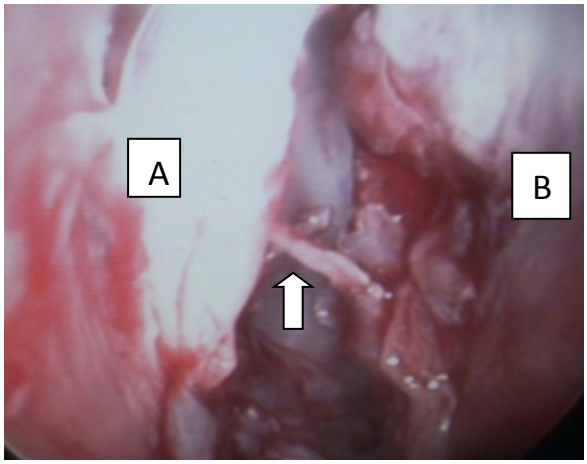

Fig. 1 Sphenopalatine artery (white arrow) seen after elevation of flap at the posterior end of middle meatus ***A = mucosal flap, B = lateral wall of middle meatus***

Results

Most patients were in the age group of 51-60 years (Fig. 2). There were 9 female patients and 25 male patients. Most common associated comorbidity was hypertension (Table I). Intraoperative and postoperative periods were uneventful. All patients had successful control of epistaxis. No significant complication or morbidity has been noted in the postoperative follow-up period of one year. Four patients had anterior epistaxis in follow up period. All of them were managed by anterior nasal packing. 30 patients had complete control of epistaxis with this procedure.

Discussion

Conservative management still remains the mainstay of treatment and is effective in majority of cases. Posterior epistaxis is usually controlled with Foley's catheter with its balloon inflated with 12-15 ml of water. Conservative measures, however, are often very troublesome for patients and can lead to prolonged hospital stay.[5] Direct cauterization, external carotid artery ligation, selective maxillary artery embolization, transantral maxillary artery ligation, anterior ethmoidal artery ligation and septoplasty are some of the other options for control of posterior epistaxis.[6] Yet none of these treatments is ideal.

Traditional surgical procedures for intractable

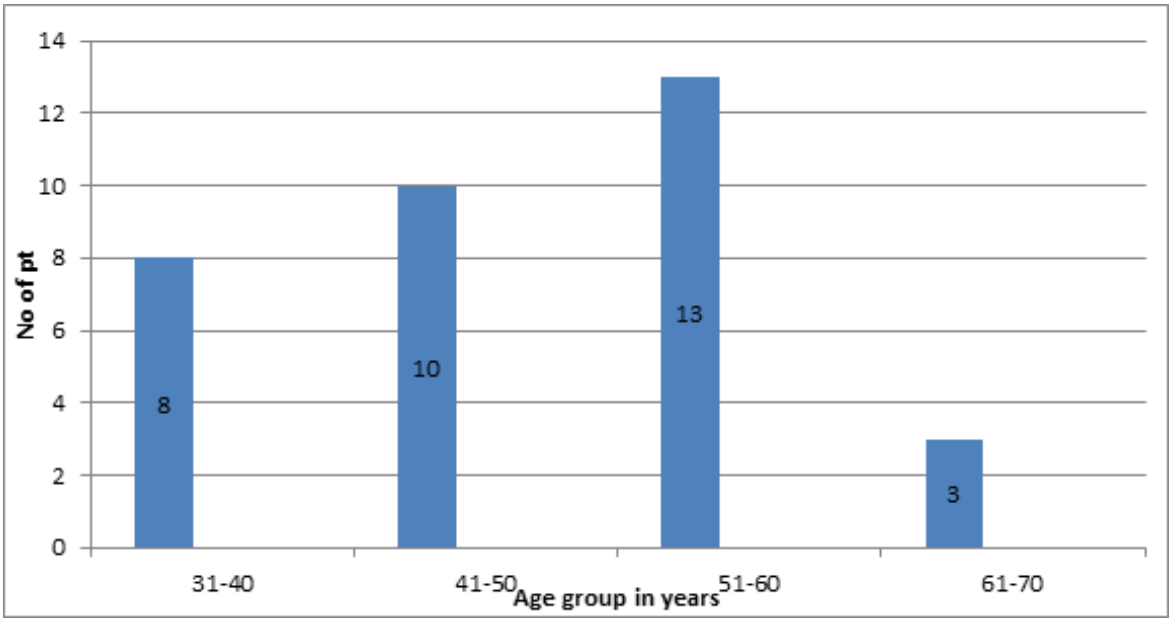

Fig. 2 Distribution of patients according to age

epistaxis have their drawbacks. All these measures have high failure rates ranging from 26-52%.[7] In recent years, the advent of nasal endoscopy has facilitated direct approach to the sphenopalatine artery. This avoids the morbidity associated with the more traditional surgical methods which can be up to 25%.[5]

Recent management protocols for posterior epistaxis include angiography and embolization of bleeding vessels, endoscopic clipping and cauterization of sphenopalatine artery. Angiography and embolization of offending vessel requires a sophisticated set-up which is not available in many centers. Moreover, this procedure may be associated with serious neurological complications.[8] Sharp et al. (1997) elevated a mucosal flap over the sphenopalatine foramen and then used a transnasal endoscopic approach to apply either diathermy or clips to the sphenopalatine vessels in 10 patients with intractable epistaxis.[9] They reported no treatment failure.

Similarly, Pritikin et al. applied bipolar diathermy

Table I: Distribution of patients according to associated comorbidity

ASSOCIATED COMORBIDITY	NUMBER OF PATIENTS	PERCENTAGE
Gross deviated nasal septum	2	6%
Hypertension	8	24%
Diabetes mellitus	2	6%
Coronary heart disease	3	9%
Alcoholic liver disease	2	6%
Chronic obstructive pulmonary disease	2	6%

and hemostatic clips to the sphenopalatine vessels via a transnasal endoscopic route in 10 patients with intractable epistaxis and they also reported a success rate of 100% .[6] Multiple studies have reported a success rate of over 90% with no significant complications.[9,10] This study reports a success rate of about 88% in controlling the posterior epistaxis.

Conclusion

The endoscopic approach is minimally invasive. It offers considerable reduction in surgical & anaesthetic time as compared to other methods and has minimal morbidity and failure rates. This technique improves the patient comfort, especially when there is associated chronic obstructive pulmonary disease. It reduces need for prolonged hospitalization. So, endoscopic sphenopalatine artery cauterization is a safe and efficient method of controlling intractable posterior epistaxis with minimal complication.

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Surgical Approach to Parapharyngeal Tumours - Our Experience

Devjani Ghosh Shrestha,[1] Kinjal Shankar Majumdar,[1] Nirmalya Samanta,[1] Utpal Jana[2]

ABSTRACT

Introduction

The complex anatomy of the parapharyngeal space, the surrounding vital structures and late presentation of the tumours affecting this space pose difficult surgical challenge to every otolaryngologist. The study gives an overview of the experience in managing parapharyngeal tumours in a tertiary care setting.

Materials And Methods

Fifteen patients with parapharyngeal tumours were treated surgically in a medical college hospital in Kolkata in the three year study period. Surgical approaches were chosen, considering the size, site, extent and histology of the tumours.

Results

Most of the patients (33.33%) were from 20-30 years age group. 60% were females. The most common presenting feature was neck swelling. 80% of the cases were benign.The most common histologic variant was Schwannoma. The tumours were accessed through Trans-cervical, Trans-cervical Trans-parotid or Trans-cervical with Midline Mandibulotomy approaches. The most common post-operative complication was wound dehiscence.

Discussion

The most common presentation of a parapharyngeal mass was neck swelling mainly behind the angle of mandible (86.67%). Younger patients in their third decade of life were found to be affected more. Gadolinium enhanced MRI was found to be the most important investigation in parapharyngeal tumours. Complications were minimal.

Conclusion

A conservative trans-cervical approach was found to be feasible and effective in majority of the cases over radical ones, which may be required in malignancies and skull-base involvement.

Keywords

Neck; Neoplasms; Parapharyngeal tumours; surgical procedures; operative; Neurilemmoma; Paraganglioma ; Carcinoma; Adenoma, Pleomorphic

Tumours of the parapharyngeal space pose a surgical challenge to every otolaryngologist. These tumours constitute only 0.5% all head and neck tumours, with 80% being benign in nature.[1,2] The most common histological type reported is Pleomorphic Adenoma involving the deep lobe of parotid gland, although some authors have found Paraganglioma to be the most common histological finding.[3,4,5,6] Delayed presentation complicates the procedure.

Different authors have suggested different approaches for successful surgical removal.[4,5,7,8,9] Here, we present our experience in the management of those tumours.

Materials and methods

Fifteen adult patients with parapharyngeal swelling, successfully managed surgically, over a period of 3 years from March, 2011 to February, 2014 in a teaching hospital in Kolkata, were reviewed. Careful intra-oral and cervical examinations (including bi-manual palpation) were carried out to assess the extent and consistency of the tumour. Neurological examination was done to exclude involvement of lower four cranial nerves and cervical sympathetic chain. The patients were subjected to routine investigations, imaging (MRI / CT Scan) and FNAC. MR Angiography was done in selected patients

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suspected of vascular tumour or paraganglioma only.

The type of operative approach was determined based on the size, site, extent and pre-operative diagnosis of the tumour. The patients were followed up post-operatively after 1 month, 3 months, 6 months and 1 year.

Results

In our study, the most common age group of presentation was 20 – 30 years i.e. 5 patients (33.33%). Nine cases (60%) were females and 6 cases were males (40%). The most common presenting symptom in our study was neck swelling (Fig. 1), followed by intra-oral swelling (Fig. 2), muffled voice, dysphagia, Horner's Syndrome, pain, cranial nerve palsy, symptoms of Catecholamine excess and trismus (Table I).

Table I: Clinical presentations of parapharyngeal tumours

CLINCAL PRESENTATION	NO. OF CASES	PERCENTAGE (%)
Neck Swelling	13	86.66
Intra-oral Swelling	9	60
Muffled Voice	7	46.66
Dysphagia	7	46.66
Horner's Syndrome	2	13.33
Pain	2	13.33
Cranial Nerve Palsy	2	13.33
Symptoms of Catecholamine excess	2	13.33
Trismus	1	6.66

The most common histologic variant in our study was Schwannoma i.e. 6 cases (40%), followed by Pleomorphic adenoma in 4 cases (26.67%) (Table II). Of these cases, 10 were seen in pre-styloid compartment and 5 in post-styloid compartment in a ratio of 2:1. Of the 6 cases of schwannoma, 4 cases were pre-styloid and 2 cases were post-styloid in origin.

Depending upon the size, site, extent and histology of the tumours, various surgical approaches were selected. The most common surgical approach that we used was the Trans-cervical approach – 9 cases (60%), followed by Trans-cervical Trans-parotid – 3 cases (20%) and Trans-cervical with Midline Mandibulotomy – 2 cases (13.33%). 1 case of Carotid body tumour was referred out to the Department of Cardio-Thoracic Surgery for further management.

The most common post-operative complication in our study was wound dehiscence in 4 cases (26.67%), followed by Facial nerve palsy in 2 cases (13.33%) and trismus in 2 cases (13.33%). Whereas, Vagus nerve palsy and Sympathetic chain involvement (Horner's syndrome) were seen in 1 case each (6.67%).

Table II: Histologic variants of parapharyngeal tumours

HISTOLOGY OF TUMOURS	NO. OF CASES	PERCENTAGE (%)
Schwannoma	6	40
Salivary Tumour	4	26.66
Paraganglioma	2	13.33
Carotid Body Tumour	1	6.66
Adenoid Cystic Carcinoma	1	6.66
Metastatic Carcinoma	1	6.66

Discussion

Parapharyngeal space is an anatomically complex inverted pyramid shaped area where the base is formed by lateral skull-base including basisphenoid and apex

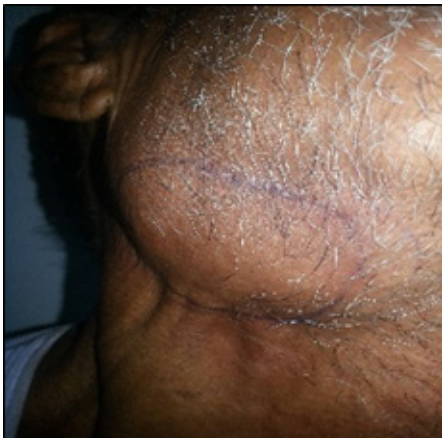

Fig. 1 Neck Swelling

Fig. 2 Intraoral Swelling

is formed at the greater cornu of the Hyoid bone. Styloid process, more precisely Tensor veli palatini fascia covering the muscle divides the space into pre-styloid and post-styloid compartments. Most of the vital structures like Internal Carotid artery, Internal Jugular vein, lower four cranial nerves and sympathetic trunk are present in the posterior compartment; whereas deep lobe of parotid gland and some lymph nodes reside in the anterior compartment.[4,6,7]

As most of the lesions in the parapharyngeal space are benign and tend to present late in its course, the most common age group of presentation is 4th and 5th decades of life.[4,6,7,10] On the contrary, in our study, the most common age group of presentation was 20 – 30 years. This may be due to small sample size (n=15) and majority of the cases being schwannoma, which are most commonly found in 20 – 35 years age group.[11]

A slight female preponderance (F:M = 1.5:1) has been noted in this series, which correlates well with various other studies.[4,6,7,10,12]

Parapharyngeal mass can give rise to a host of various symptoms depending on the different types of adjacent structures affected. In our study, the most common presentation was neck swelling mainly behind the angle of mandible (86.67%), which is in accordance with various published series.[5,6,7,8,12] This may be explained by the fact that the only resilient wall of parapharyngeal space is the medial wall. Rest of the walls are too rigid to cause any significant distortion by the tumour.[4] Although most of the cases that we came across were schwannomas which generally present with cervical swellings, their moderate size in most cases initially leads to intra-oral bulging rather than cervical swelling. Trismus indicates infiltration of the Pterygoid muscles in malignancies or mechanical obstruction to coronoid process. It was seen in only 1 case (6.67%) of adenoid cystic carcinoma in our study.

The next most common symptoms were dysphagia (46.67%) and muffled voice (46.67%). Cranial nerve palsies were seen in 2 cases (13.33%). These occur due to the involvement of the lower four cranial nerves in the post-styloid compartment. Involvement of the 9th (Glossopharyngeal) and 10th (Vagus) cranial nerves are more common which gives rise to nasal regurgitation, nasal intonation, hoarseness, flattening of palatal arch and dysphonia. It may be due to mass compression effect and their presence usually signifies malignancy or Paraganglioma as seen in two of our cases.[13]

Gadolinium enhanced MRI is the most important investigation. It is done to find out the site of origin, size, extent and involvement of the surrounding vital structures especially the Carotid sheath and its contents, lower four cranial nerves and cervical sympathetic chain. Due to its superior soft tissue contrast, MRI is better than Contrast Enhanced CT Scan (CECT);[14] the only drawback being its poor bony detail, for which CT is better. So in extensive tumours, extending upto the lateral skull-base, CT Scan is an useful adjunct to figure out Jugular foramen, Hypoglossal foramen and

Foramen lacerum areas.

A non-parotid pre-styloid parapharyngeal mass can be easily differentiated from a deep lobe parotid mass radiologically by a thin radiolucent line between the parotid capsule and the mass, which is absent in non-parotid lesions.

MR Angiography (Fig. 3) was done in four of our cases clinically suspected of having vascular tumour or encroachment of carotid sheath by the tumour. It is usually done in suspected case of paraganglioma including carotid body tumour.[4,7]

Fine Needle Aspiration Cytology (FNAC) was done in all cases externally or intra-orally, depending upon the clinical presentation for pre-operative tissue diagnosis. FNAC bears overall Sensitivity of 96% and Specificity of 99% with Accuracy being 98.8%.[15] However, FNAC suffers the drawback of yielding false positive or false negative results, especially in cases of paraganglioma. Incisional biopsy is usually avoided.

Sixty percent of the tumours in this series were excised through Trans-cervical approach (Fig. 4). As per existing literature, exposure through this approach is limited superiorly by the angle of mandible. It is suitable for only small and moderate sized tumours. Tumours extending up to the skull-base cannot be managed by this approach due to insufficient exposure superiorly.[4,5,7,8] However, in our experience, we found this to be the most practical approach, since not only small and moderate tumours but even large tumours, especially well encapsulated ones, can be approached trans-cervically with little difficulty and can be dissected out bluntly without causing significant injury to great vessels and nerves.

Second most commonly used approach was Trans-cervical Trans-parotid (Fig.5). Lateral mandibulotomy can be combined with this, if deemed necessary. This is particularly suitable for salivary gland tumours arising from the deep lobe of parotid gland. Facial nerve poses a certain difficulty and injury is quite common even in experienced hands.[4,7,10] Out of three patients approached by this method, two patients developed Facial nerve palsy, out of which, 1 patient recovered by administration of steroids post-operatively.

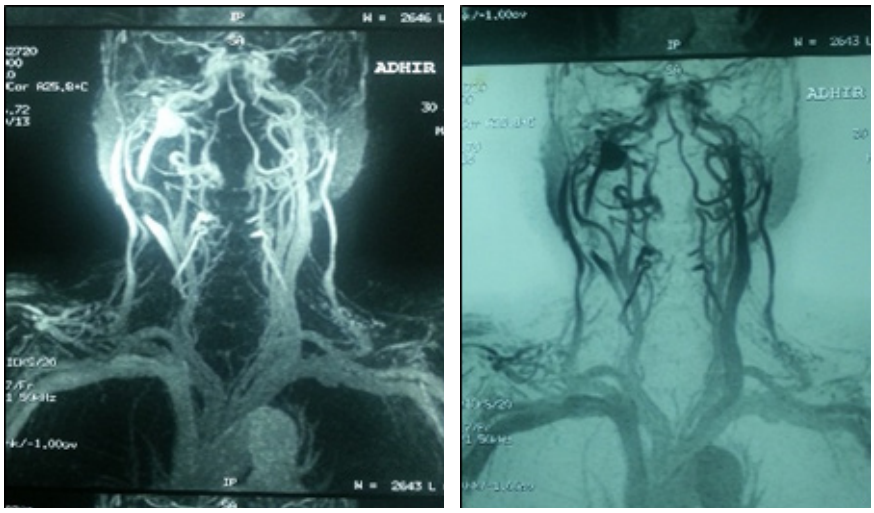

Fig. 3 MR Angiography showing lateralization of Internal Jugular Vein by the tumour

Third type of approach used was Trans-cervical Midline Mandibulotomy (Fig. 6). It provides excellent exposure for extensive tumours involving the lateral skull-base.[4,8,9] This approach is also known as 'Mandibular swing'. Extensive resection and ligation of major vessels is very well feasible. Repositioning and wire or plate and screw fixation of the mandible gives satisfactory cosmetic outcome. Our experience says that this approach is an excellent one in cases of

skull-base involvement as it gives enough exposure for complete removal of the tumour. However, it is more time consuming and chances of complications like wound dehiscence, marginal mandibular nerve injury, palate and dental complications are more, adding to the morbidity of the patient.[15]

The post-operative complications were very few. Most

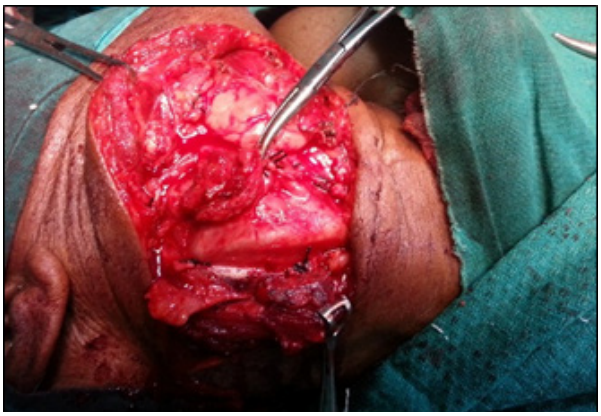

Fig. 4 Trans-cervical Approach

common complication was wound dehiscence, seen in 4 cases (26.67%). 2 cases of vocal cord palsy were seen in cases of vagal paraganglioma. One out these 2 cases opted for Medialization (Type-I) Thyroplasty later on.

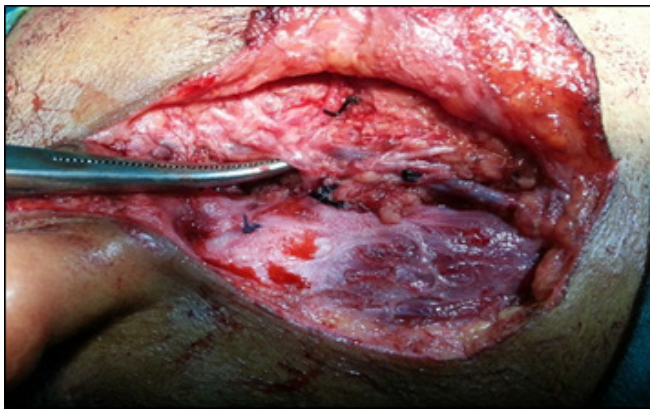

Fig. 5 Trans-cervical Trans-parotid Approach

Conclusion

From our study, we conclude that not only small to moderate sized parapharyngeal tumours but also large

Fig. 6 Trans-cervical Midline Mandibulotomy Approach

tumours, especially benign and well encapsulated ones, are quite well managed by an adequate Trans-cervical approach. Only Malignancies or Skull-base involvement entails a more radical approach like Trans-cervical Midline Mandibulotomy. Hence, a conservative and conventional Trans-cervical approach is feasible in most of the cases over an extensive and radical one.

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Occult Foreign Bodies in ENT

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ABSTRACT

Introduction

Foreign bodies are common ENT emergencies. Histories are usually forthcoming from the patient himself or the relatives . Three occult foreign bodies are reported here, which were missed even by treating doctors, with discussion about steps to avoid such errors in future.

Case Series

Case 1: Though the history was apparent, the foreign body was removed only after 13 years from the Zygomatic region.
Case 2: The parents were aware of the foreign body but inadequate investigations led to a delayed diagnosis.
Case 3: The history clinched the diagnosis. Pre operative localization and separate incision to remove the foreign body saved the vital structures.

Discussion

A high index of suspicion, meticulous history and proper investigation like x-ray or CT scan or MRI of the diseased area may help in locating the hidden foreign bodies in the ENT region.

Keywords

Foreign Bodies; Cheek; Palatine Tonsil; Trismus; Pain; X-Ray; Tomography, X-Ray Computed

Foreign bodies in natural orifices and aerodigestive tract are common. A foreign body in ear, nose or throat can cause harm by its mere presence if immediate medical attention is not sought.[1] Penetrating foreign bodies may be difficult to diagnose in absence of definite history. Here we present three case reports of penetrating foreign bodies those were missed for considerable time before being diagnosed by appropriate radiological investigations.

Case Series

Case 1

A 38 year old military personnel presented to the OPD with the complaint of a swelling over his right cheek for the past 7 months. There was a 2cm x 2cm cystic swelling tender on palpation, located below the zygoma. There was a scar over right cheek, which he informed, was due to trauma from a blast injury while serving in Kashmir 13 years back. The wound was treated at local field hospital on out-patient basis and the wound healed leaving behind the scar.

FNAC suggested inflammatory pathology, possibly an infected epithelial cyst. X-ray showed an opacity below the right zygoma (Fig. 1). Surgery was done under general anaesthesia. Incision was given over the swelling and a splinter was found within a tense cystic fibrous capsule. Wound was closed and healing was uneventful.

Case 2

A 7 year old male patient presented to the OPD with painful trismus and small swelling over the left cheek for past one month. Mouth opening of only about 1.5 cm was possible, with painful limitation. Parents informed that the problem had an abrupt onset after he hurt himself following a fall while brushing his teeth. Subsequently he was treated by a local physician, a surgeon and a dentist who offered him different types of oral antibiotics and gargle after X-rays failed to prove any pathology. The condition did not improve by these therapies.

On examination, an ulcerated depression with oedema was found anterior to left anterior tonsillar pillar, with a pus point. It was intensely tender on palpation with a tongue

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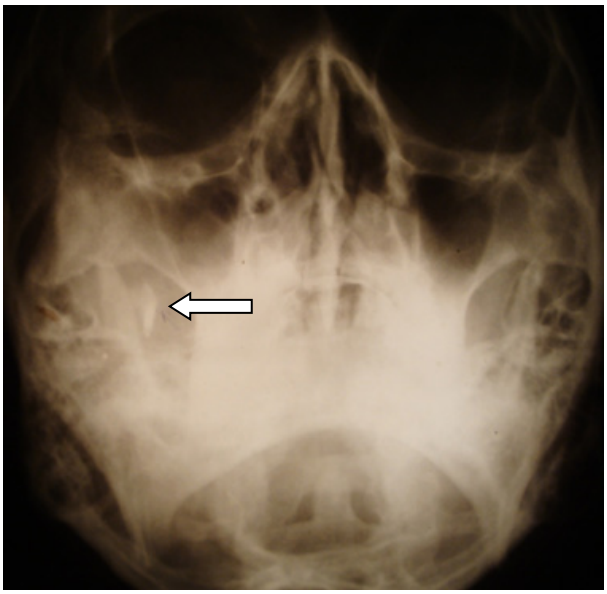

Fig. 1 White arrow showing the splinter

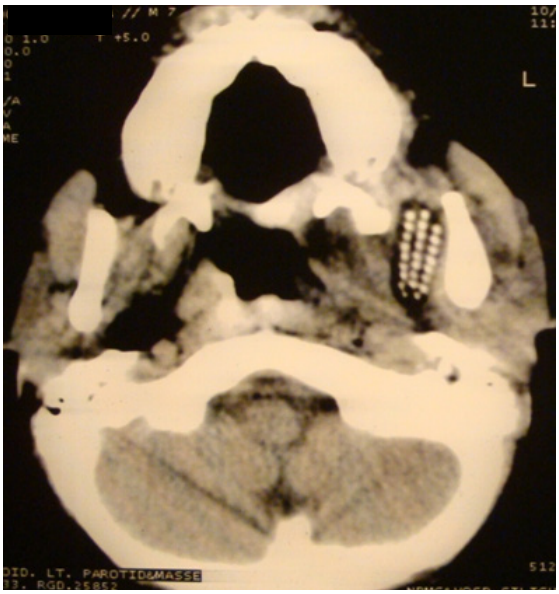

Fig. 2 CT Scan showing the head of the toothbrush

depressor. CT scan showed the presence of the head of a toothbrush between the medial and lateral pterygoids (Fig. 2).

Exploration was done under general anaesthesia. Plastic head of toothbrush was gripped with curved artery forceps after negotiating it through the ulcerated depression and delivered out. Finger palpation was done to confirm that there was no bristle left. Post-operative mucosal healing was adequate. Repeat CT scan was done to confirm that no bristle was left behind. There was only gas shadow at the site of impaction. Trismus gradually improved over a period of two months.

Case 3

A 6 year old male patient presented with painful swelling in the left side of the neck of ten days duration. There was also a history of painful mouth opening. Parents gave the history of an accidental fall while brushing his teeth. He was treated in a subdivisional hospital, but symptoms did not improve. Without any x-ray, he was treated by different types of antibiotics and analgesics. The patient did not fully recover from his symptoms.

On examination, a tender swelling was noted in the left submandibular region. An inflamed and indurated area was noted in the left anterior pillar of the tonsil. On digital X-ray, a brush like radio-opaque shadow was seen. CT scan was done to confirm the finding. A radio-opaque shadow was seen in the left submandibular triangle (Fig. 3). Exploration was done under general

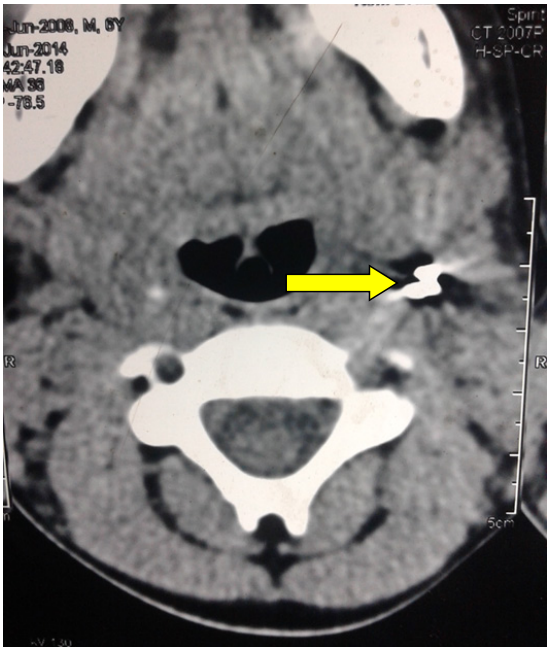

Fig. 3 CT Scan showing the broken toothbrush (Yellow arrow)

anaesthesia. A red coloured brush was seen posterior to the tonsil. Repeated pulling by artery forceps failed to disimpact the brush. The brush head was removed by giving an incision between uvula and anterior pillar, which was closed with Vicryl® sutures. Pain and other symptoms were subsided within one week.

Discussion

The three cases presented here have the similarity that all were penetrating foreign bodies that remained within the body undiagnosed for some time before being located by proper radiological assessment. Straight X-ray is the preferred investigation to confirm the presence of a foreign body in the aerodigestive tract and to diagnose the level of its impaction. Endoscopies and examination under microscope are the preferred methods to diagnose and retrieve foreign bodies in ENT.

Computed tomography is required in cases of respiratory passage foreign bodies to learn about the site of lodgment and the effect on the respiratory system before they are removed endoscopically.

In the three cases that we present, there was no history from the patient regarding any foreign body. The foreign bodies were missed even by treating doctors in their subsequent medical consultations. In the case of retained splinter, the radiopaque shadow was missed in one plate as an improper view caused overlap of the foreign body with natural opacity of the facial bones. It was documented by X-ray skull occipitomental and lateral views.

The incidence of gunshot injuries and splinter injuries in the head and neck region have increased during the past decade, but are not as common as they are in other areas. It may cause poisoning, fistula formation, recurrent infection or secondary hemorrhage, and its extraction is necessary even in absence of clinical symptoms. However, hisory of bullet injury is there in medical literature where the foreign bodies remained asymptomatic throughout life.

Our patient had the splinter for 13 long years inside the body without any symptom. Due to some unknown reason, there developed an infection with in the fibrous capsule ensheathing the foreign body resulting in delayed presentation as an infected cyst.

In the second case, the diagnosis was missed as the father of the child insisted on the trauma from toothbrush to be the cause of the pain and trismus in the child. Incidences of impaction of toothbrush in the oral cavity and parapharyngeal space are present in the medical literature. Incidents of tooth brush swallowing are also there.[2,3] But it is rare for such foreign bodies to present with no definite history of penetration. Immediate airway compromise is a threat in penetrating oropharyngeal injuries. The severity of injury is not always apparent. A foreign body can cause poisoning, fistula formation[4] recurrent infection or secondary hemorrhage. Its extraction is recommended even in absence of clinical symptoms.

The second patient had no information about whether the toothbrush had broken or any part was missing. On clinical inspection there was only ulcer and local inflammation visible without any part of foreign body showing. Finger palpation was not possible due to trismus, and toothbrush being plastic was not radiopaque. It was missed on X-ray. It was only CT scan that could document for the first time the presence of the head of the toothbrush and it was removed under general anaesthesia. Knowledge of the anatomy of the pharynx is essential in dealing with foreign bodies in this region.[5] There is incidence of development of pseudo aneurysm of the internal carotid artery after an infant fell on her face with spoon in mouth.[6] Care must be taken to ensure that a missing piece of foreign body does not remain lodged[2] which can be confirmed by finger palpation at time of surgery and a CT scan may be advised subsequently, if necessary. Trismus takes about two months to improve.

In the third case, parents gave a history of fall with brush in the oral cavity. But the diagnosis could not be established due to lack of X-ray and other radiological investigations. Tender and swollen areas were noted in the left submandibular region on clinical examination. Simple X-ray could diagnose the foreign body in the submandibular region. For better localization, CT scan can be done. Incision may be required in some cases to prevent injury to the vital structures.

Conclusion

Foreign bodies can remain in the body undiagnosed for a long duration. Foreign bodies may be missed by qualified doctors if not investigated adequately. Adequate radiology is the best procedure to diagnose foreign bodies. Foreign bodies, even if asymptomatic, must be removed to prevent recurrent infection or other complications.

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A Rare Variety of Adenoid Cystic Carcinoma involving Submandibular Salivary Gland

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ABSTRACT

Introduction

Adenoid cystic carcinoma, an uncommon malignant salivary gland neoplasm, is known for its long clinical course, indolent growth, neural invasion, local recurrence and late distant metastasis. Three distinct histological patterns have been identified, amongst which, solid pattern is the rarest one having the worst prognosis.

Materials And Methods

A case of sixty year old male patient presented with a swelling in the left side of the neck, below the jaw gradually enlarging during the last three years. FNAC from the neck swelling was suggestive of benign adenoma of the salivary gland, possibly basal cell adenoma or pleomorphic adenoma. Submandibular gland was excised. Histopathological examination confirmed the solid pattern of adenoid cystic carcinoma, which is the rarest among the three distinct histological subtypes of the malignancy.

Discussion

Adenoid cystic carcinoma is well known for its perineural spread. In cases of submandibular gland adenoid cystic carcinoma, surgical wide excision is very much possible and in T1 or T2 cases post-operative radiotherapy may not be needed. In our case, post operative radiotherapy was given for best local control, as the tumour showed histopathlogical solid variety, grade III pattern, which is known to have the worst prognosis.

Keywords

Carcinoma, Adenoid Cystic; Submandibular Gland Neoplasms

Adenoid cystic carcinoma, first described as "cylindroma" by Billroth in 1859, accounts for 10% of all salivary neoplasm and about 30% of all malignancies of the major and minor salivary glands, palate being its most common location in the oral cavity.[1,2] These tumours are usually very slow growing mass with an encouraging five year survival rate, but late distant metastasis with local recurrence accounts for rather low long term survival rate.[3]

Adenoid cystic carcinoma is very much unique for two reasons. First, it has a marked propensity for neural invasion, which occurs up to 50% of cases, causing pain (the most common symptom) and the second being its protracted natural history. Patients can even survive for 10-15 years even when local recurrence or distant metastasis has occurred.[3] Pulmonary metastasis is the commonest. Three histological patterns of adenoid cystic carcinoma are recognised: (1) Cribriform or Swiss-cheese pattern which is the most common; (2) Tubular, the next most common; (3) Solid, which occurs in around 21 percent of cases, and has the worst prognosis.[1,4,5]

Aggressive surgical resection is the mainstay of treatment. Post operative radiotherapy has been advocated to reduce local recurrence. Some consider, this should be standard therapy for adenoid cystic carcinoma of the head and neck and preferentially for high risk patients.[6] However, another study considered radiotherapy to be unnecessary where surgical margins were negative,[7] neutron beam therapy may be more effective.[8,9] Chemotherapy has not produced good results.[10]

Case Report

A sixty year old male patient was referred to

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Otorhinolaryngology Clinic with a swelling in the left side of the neck below the jaw for three years. The swelling was insidious in onset and gradually progressive to attain the size of a large marble. There was no associated pain and discharge from the swelling or difficulty in deglutition. The swelling did not increase in size during meals. The systemic examination was not contributory. Head and neck examination revealed 3x3 cm globular swelling on the left submandibular region (Fig. 1). Overlying skin had no scar or sinus. Local temperature was not raised and the swelling was non tender. The consistency was firm to hard, mobile, and not fixed to the overlying skin or any underlying structure. The swelling was bimanually palpable. The neck was supple with no significant lymphadenopathy. No bruit, thrill or venous engorgement was detected.

Fig. 1 Lateral view of the left side of neck showing swelling in left submandibular gland

X-ray neck showed no significant abnormality. CT scan of the neck showed a homogeneous mass lesion within left submandibular gland without any lymphadenopathy. FNAC from the neck swelling was suggestive of benign adenoma of the salivary gland, possibly basal cell adenoma or pleomorphic adenoma.

Patient was operated under general anaesthesia to excise the left upper neck mass, located at submandibular region. The submandibular gland was bulky and a hard swelling was found in the lower portion of the gland. The gland had no adhesion to the surrounding structures and the capsule was intact (Fig. 2). The submandibular

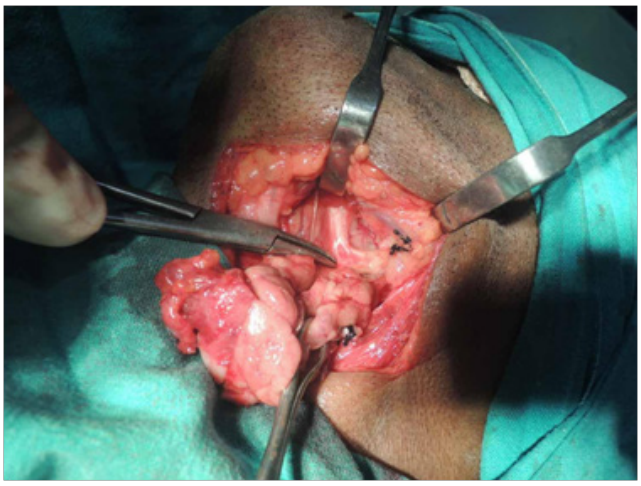

Fig. 2 Excision of submandibular gland - dissection from loop of lingual nerve

gland was removed completely along with the duct and sent for histological examination.

On gross examination the specimen was partially firm and partially hard, yellowish white in colour, measuring 4 x 2.5 x 1 cm. On microscopic examination nests of basaloid cells with hyperchromatic nuclei and scanty neoplasm was found. The cells did not show significant pleomorphism. The nests were separated by dense stroma. Occasionally the cells were arranged in gland like spaces containing hyaline material within (Fig. 3). Perineural invasion was noted. Section from the

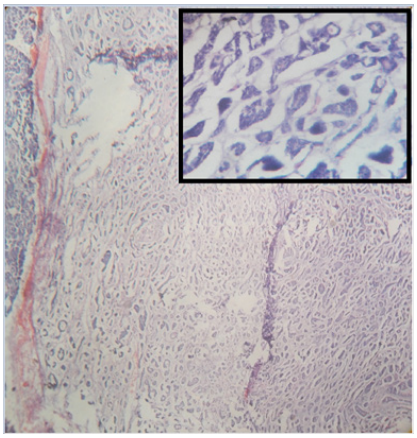

Fig. 3 Hematoxylin and Eosin stained HP section (10x) of Adenoid cystic carcinoma – solid pattern (inset showing view of hypermagnification- 100x)

apparently normal area showed unremarkable salivary gland tissue. So it was confirmed to be an Adenoid cystic carcinoma – solid pattern, grade III, pT1N0M0.

Discussion

Adenoid cystic carcinoma is a slow growing but highly malignant neoplasm of the salivary gland, commonly affecting the minor salivary glands of head and neck region.[1,2] Minor salivary glands are affected most by adenoid cystic carcinoma (40%), followed by the submandibular gland (18.2%) and the parotid gland (17.3%).[11]

The solid histological pattern is seen only in 21 percent of cases. The solid pattern of adenoid cystic carcinoma, involving submandibular salivary gland, presented here, was a very rare case. Most individuals diagnosed with this disease are in their fourth decade of life, though a wide age range has been reported. The female and male ratio is approximately 3:2. Usual presentation is an asymptomatic slow growing mass, the absence of symptoms being responsible for late diagnosis. Here our patient was sixty years old male patient having a slow growing mass in left sided submandibular region without other symptoms.

The three major histological patterns of growth have been described: cribriform, tubular and solid. Combinations of the patterns are common. The prognosis of adenoid cystic carcinoma is greatly influenced by the pattern of growth, tubular pattern having the best prognosis while solid is known to have the worst prognosis.[1,4,5]

Adenoid cystic carcinoma has a relatively slow growth and infrequent lymph node metastasis but is well known for its perineural spread. In a study of 160 patients of adenoid cystic carcinoma by Fordice et al, disease specific survival was 89% at five years but only 40% at fifteen years.[5] Distant metastasis was the commonest cause of treatment failure. Lung is the most common site for distant metastasis, followed by liver. Spiro in his retrospective study of 196 patients followed up for 10 years reported some form of treatment failure in 68%, distant metastasis in 38%, and lung involvement either alone or in addition to other sites in 34%.[12] In cases of submandibular gland adenoid cystic carcinoma, surgical wide excision is very much possible and in T1 or T2 cases post operative radiotherapy may not be needed.[7] Elective neck dissection is usually not done in N0 cases as lymph node metastasis is not common at all. Some authors prefer radiotherapy as a standard mode of treatment and especially in high risk cases.[6]

The involved submandibular gland, in the present report, was not adherent to surrounding structures and the surgical margin was clear. Lingual and hypoglossal nerves were free of disease and no lymph node was involved in surgical field. Histopathological examination of excised submandibular gland revealed adenoid cystic carcinoma – solid pattern with perineural invasion, grade III, pT1N0M0. After complete surgical removal patient was sent to radiotherapy clinic for radiotherapy for best local control as the tumour was solid variety grade III pattern of adenoid cystic carcinoma which has most poor prognosis.[6] Patient is under follow up for last 6 months having no local or systemic complaint till now.

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Migration of Ingested Fish Bone from Upper Aerodigestive Tract to the Skin of the Neck

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ABSTRACT

Introduction

Ingested foreign bodies commonly get impacted in the upper aero digestive tract, but only a few of these foreign bodies have perforated the oesophagus and an even smaller number of these have migrated extraluminally.

Case report

A 43 year old male patient presented with history of accidental ingestion of fish bone (F.B) 3 weeks back. On examination a sharp pointed swelling was seen over right side of neck and on palpation a pointed object was felt beneath the intact skin. Digital X-ray, ultrasonography of the neck and CT scan neck showed a linear obliquely placed foreign body on right side of neck at the level of thyroid gland. The foreign body was easily removed by an incision over the skin and was confirmed to be a fish bone.

Discussion

Horizontally oriented foreign bodies are more likely to penetrate the lumen of a hollow viscus. The muscular contraction of the neck might account for this unusual event to some extent, one possible factor being that the presence of the foreign body in the soft tissue might have led to inflammation and oedema, which made the texture of the surrounding tissue loose and lax ; a sort of gel-sol interconversion.

Keywords

Foreign Bodies; Neck; Esophagus; Punctures; Tomography, X-Ray Computed; X-Ray

In the literature, various cases have been described where foreign bodies have been ingested and have lodged in the upper aerodigestive tract, but only a few of these foreign bodies have perforated the oesophagus and an even smaller number of these have migrated extraluminally.[1] Fish bones constitute more than 85% of all foreign bodies.[2] There have been rare cases reported, in which the foreign body actually exits through a puncture wound in the skin of the neck.[3] Here we report a case of foreign body near extrusion through the skin.

The specific nature of the symptoms of course is very helpful in localizing the site of the foreign body. Endoscopic findings of ulceration, oedema, and laceration should lead to the suspicion of migration.[4] If untreated, these migratory foreign bodies may result in life threatening suppurative or vascular complications like deep neck space infection, mediastinitis, lung abscess, oesophageal-carotid artery fistula, retropharyngeal abscess, vascular complications and thyroid abscess.[5]

Case Report

A 43 years old male patient attended the Otolaryngology Out Patient Department with history of accidental ingestion of fish bone (FB) 3 weeks back. He had an episode of pain and dysphagia for few hours only. After 20 days of asymptomatic interval he suddenly felt a sharp pointed swelling on right side of his neck (Fig.1). On examination, a sharp pointed swelling was seen over right side of neck and on palpation a pointed object was felt beneath the intact skin. The swelling was nontender, local temparature was not raised. He did not have any pain, fever, dysphagia, respiratory distress, nausea, vomiting. Oral cavity and oropharynx were normal. No abnormality was found on indirect laryngoscopy.

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Digital X-ray showed a sharp linear pointed radio opaque foreign body towards the skin (Fig.2). Ultrasonography of the neck showed a linear obliquely placed foreign body on right side of neck at the level of thyroid gland, measuring approximately 2.6 cm. Jugular vessels on both sides were normal. (Fig. 3).

Fig. 1 Swelling on the right side of the neck

Fig. 2 X-ray soft tissue neck (lateral view) showing radiopaque foreign body

A noncontrast computed tomography of neck showed the foreign body tenting the skin (Fig. 4). Vital structures of neck were not involved. The patient was admitted and prepared for removal under local anaesthesia. The foreign body was easily removed by an incision over the skin & was confirmed to be a fish bone (Fig. 5).

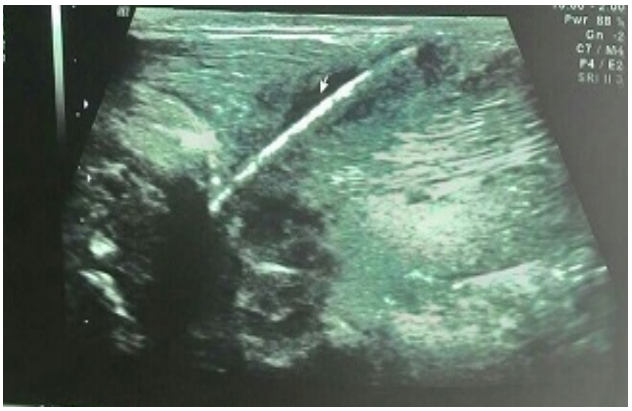

Fig. 3 Ultrasonography of the neck showing a linear foreign body

Discussion

Fish bones account for the commonest ingested foreign bodies in eastern and coastal regions of India. A majority of ingested foreign bodies pass through the gastrointestinal tract uneventfully. Rest of the foreign bodies are usually found intraluminally most commonly at tonsils, base of the tongue or the vallecula and can be easily removed. In about 5% of the cases, the foreign body becomes lodged at the cricopharyngeal region or at one of the other constrictions along the oesophagus, requiring a rigid oesophagoscopy under general anaesthesia for its removal.

Migration is said to have occurred in the event of a negative rigid endoscopy and the presence of a foreign body on radiography.[2] In the Remsen et al. series, 321 cases of penetrating foreign bodies were reviewed from literature and only 43 were found extraluminally.[5] They found that the sharper the foreign body the higher the risk of penetration. Chee and Sethi reported a series of 24 migrated foreign bodies in the neck. All of the foreign bodies in their series were sharp and linear.[2]

The risk of penetration is also influenced by

Fig. 4 Noncontrast CT scan neck showing foreign body

Fig. 5 The fish bone (after removal)

the orientation of the foreign body. Horizontally oriented foreign bodies are more likely to penetrate. Extraluminally migrated fish bones have been reported to cause neck abscesses. This happens due to the contractions of hypopharynx during deglutition which forces the fish bone to penetrate the wall. Thyroid gland penetration by a migrating foreign body with subsequent abscess of thyroid lobe has been reported for which thyroid lobectomy was done.[6]

Pathophysiology and biomechanical process by which a sharp fish bone has penetrated the walls of the pharynx or oesophagus and found its way towards the cutaneous surface, almost in a straight line along the axial plane of the neck, is difficult to ascertain. The muscular contraction of the neck might account for this unusual event to some extent, but even they might not be sufficient because as far as the strap muscles of the neck are concerned, their line of action is perpendicular to the direction of the movement of the fish bone. Theoretically then, no component of force vector should be available. However, the contractions of the constrictor muscles of the pharynx and circular muscle of the oesophagus might have produced the outward force acting on the surrounding soft tissue, thereby pushing the foreign body slowly towards the periphery.

One possible factor is that the presence of the foreign body in the soft tissue might have led to inflammation and oedema, which made the texture of the surrounding tissue loose and lax; a sort of gel-sol interconversion. Next, the complex muscular movement of the neck, as previously mentioned, might have generated some expanding pressure and directed the sharp foreign body to move outward slowly toward the skin surface.[7]

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Temporomandibular Joint Disorders – A Few Interesting Experiences to Share

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ABSTRACT

Temporomandibular joint disorders rarely present in a very direct way. Often, the complaints are far away from the joint itself, making the diagnosis difficult. But a high index of suspicion and a good clinical idea often clinches the diagnosis in many cases of otalgia with apparently no definitive finding.

Keywords:
Temporomandibular joint; Earache

In recent years, lots of patients are presenting with Temporomandibular (TM) joint pain. A handful of patients presenting with unexplained otalgia and headache are later diagnosed as TM Joint Arthritis. Instead of going in to the intricate details of TM Joint disorders which encompass varieties of pathology including subluxation, arthritis, malocclusion, etc.; we will concentrate here on the complaint of pain only. TM Joint pain is the second-most common type of orofacial pain (only next to dental pain).

However, patients with problems with their TM joint rarely give a direct history. It easily gets referred to other sites. There is often a complaint of vague to sharp ipsilateral or sometimes bilateral headache. Only in advanced cases, there is history of painful chewing. In fact, if we are not aware enough or we don't ask leading questions, there are possibilities of missing the correct diagnosis completely.

Here we present some of our statistical data from last 3 years. In 2012 (January - December), we diagnosed 80 cases of TM Joint disorders correctly. Only 15 of them gave us a definitive history of pain, particularly over the joint, mostly related with chewing. In 2013, we got 98 cases, of which 18 gave direct history. In 2014, our diagnosed patients were 109 in number, with 22 direct histories. So altogether, we got only 16 % of patients with helpful spontaneous direct history of joint pain (Table I).

The scenario is usually like this - patients come with complaint of moderate to severe pain in ear or temple or face or head; we find nothing in the external ear, tympanic membrane looks absolutely normal; we prescribe antibiotics expecting a miracle to occur and ask the patient to report to us if any rash comes out (with a positive hope to diagnose our first case of Herpes zoster oticus!) That never happens, patient gets just a little relief (due to the presence of NSAIDS in our highly confused prescription). So the patients, after one or two visits, continue with their 'doctor shopping' and find a fellow colleague.

In fact, for patients presenting with such apparently unexplained otalgia, a leading question like 'Do you feel pain while chewing solid, hard food?' often proves helpful. A handful of patients refuse even that but palpation clinches the diagnosis for us .There is definite tenderness with or without crepitus. After diagnosis, patient often feels astonished. Often so are we, because patient who jumps in pain on deep palpation, himself does not complain of pain while chewing. This is because even in our modern age, very knowledgeable patients have little idea of existence of any such joint. They think that since there is pain already over the face or head, it is obvious there has to be pain on chewing. (Similar surprise we have seen in them when an orthopedic

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surgeon refers a patient of vertigo to an ENT doctor!)

Few patients have complaints like - "Doctor, I am experiencing severe pain around my ear since I have consulted my dental surgeon for toothache." Here, we diagnose it easily; that it is a case of 'referred otalgia' from the teeth. But to our surprise, we find that, even after few visits to the dental surgeon and successful treatment for teeth (if at all), pain, instead of getting reduced, actually worsens! The explanation is however very simple. Dental surgeons often keep a patient's mouth wide open for quite long time span. Such a manoeuvre, with or without gag, injures the temporomandibular joint. In our case, we got 4, 3 and 7 such patients in 3 years (2012, 2013, and 2014 respectively).

Very recently we got a patient presenting with a complaint we had never heard before – "I am feeling severe pain on the right side of my face in the morning while bathing!' Our preliminary thought wasfavoring Trigeminal Neuralgia. But, on detailed history taking, it was found, while bathing, patient brushes his teeth. In an attempt to clear germs from the remotest parts of his oral cavity, he has to open his mouth widely and that was causing his hemifacial pain. Tender joint with crepitus on palpation confirmed it. The patient responded nicely to conservative management.

Another interesting finding we often get is that a handful of our patients present with the complaint of 'Pain near the ear while talking over a mobile phone.' Initially we were a bit (in fact, quite) confused, because we had never faced such complaints in practice or in the ENT text books. But again, little non-gentle palpation over TM Joint area, helped us. Later on, we asked many patients about this and a number of people have admitted to experience such a thing although only a few deliberately complained about it. We began to notice such things by the middle of the year 2013. In that year, we got 3 such patients. In 2014, we got 8 such patients (7.3 %). So, this is not an extreme rarity. Obviously, we don't have any data from 2012, probably because we had overlooked such complaints.

But why is it so? We don't know it yet; there is no publication in hand. May it be due to harmful effect of radiation of the mobile phone? May it be due to the heating effect? (Although we often see temporary relief of pain on superficial heat application) Or is it just aggravation by continuous talking over an already damaged but so far not symptomatic TM joint?

Table I: Incidence of diagnosed TM Joint Disorders in the last 3 years

YEAR	JAN - JUN	JUL - DEC	TOTAL PATIENTS	PATIENTS WITH DIRECT HISTORY
2012	41	39	80	15
2013	46	52	98	18
2014	48	61	109	22