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West Bengal

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Volume 33 No. 2 - August, 2025

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Correspondence
Dr Chiranjib Das
Editor
Bengal Journal of Otolaryngology and Head Neck Surgery
C/O The Association of Otolaryngologists of India, West Bengal
CMC House, 91B Chittaranjan Avenue, Kolkata - 700073
Email: editor@bjohns.in

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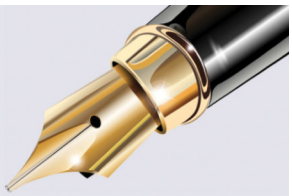

Upper Aero Digestive Tract (UADT) cancers are very common in India, contributing up to 30-40% of all cancers, driven primarily by high rates of tobacco (smoking/chewing) and alcohol use. Though these cancers are curable if diagnosed early, presently these are one of the major causes of all cancer deaths in our country. The reason behind high mortality in spite of curable surgical and medical advancements is delay in the diagnosis and subsequent delay in the initiation of treatment. Often the patients are diagnosed to have Stage 3 / 4 cancers due to delay in the diagnosis.

The term "diagnostic delay" generally refers to the time gap between the first recognition of a sign or symptom of illness by the patient and the arrival of a definitive diagnosis. (1) The delay may be divided grossly into two parts. The first one is patient delay—due to lack of awareness to recognize the symptoms by the patients, who often consider the symptoms as those of upper aerodigestive tract infection and self-/over-the-counter use of medicines. The second one is health care-related delay—either primary health care delay (delayed referral to specialists) or specialist health care delay (delay in diagnostic processes). (2)

As otolaryngologists, our role is very crucial to minimize the delay in every stage. As ENT surgeons, we can directly influence and minimize the specialist health care delay only (that also needs collaboration of pathologists, radiologists, and other specialties). But the other causes of delay should also be interfered with by ENT surgeons indirectly. Proper awareness among the population about the ominous symptoms and signs (through periodic health camps) and training of health workers as well as primary care physicians about their responsibilities in terms of appropriate suspicion, basic examinations, and timely referral may curtail the delay to a considerable extent.

Another cause of delay in initiation of therapy is seeking treatment from non-qualified healers by the patient and their relatives, even after final diagnosis. The reason behind this is economical or medical. The high cost of therapy for cancer treatment sometimes compels them to depend upon other forms of therapy. Experience of high morbidity, shared by other patients, may also be an important reason to refuse surgery, radiotherapy, or chemotherapy.

Dr. Sirshak Dutta
Managing Editor
Bengal Journal of Otolaryngology and Head Neck Surgery

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Comparative Study of Temporalis Fascia and Tragal Cartilage Grafts Used in Myringoplasty

https://doi.org/10.47210/bjohns.2025.v33i2.247

Indu Rajkumar,[1] N. S. Thirumaran[2]

ABSTRACT

Introduction

In myringoplasty, the choice of graft material is crucial for the successful outcome of surgery. The selection of ideal graft is directly related to the size and location of the perforation and also surgeon's preference. In this study, we compared the efficacy of temporalis fascia graft with tragal cartilage on hearing outcomes. To compare the hearing outcomes between temporalis fascia graft and tragal cartilage graft in myringoplasty. To compare the postoperative hearing improvement between the temporalis fascia graft group and the tragal cartilage graft group.

Materials and Methods

In this retrospective study, the records of 40 patients who underwent myringoplasty were included out of which 20 patients (group A) underwent type 1 tympanoplasty with temporalis fascia graft and 20 patients (group B) underwent type 1 tympanoplasty with tragal cartilage graft. Both groups were assessed for hearing on the day before surgery and compared with hearing assessment done 3 months following surgery.

Results

There was no statistically significant difference between the postoperative air-bone gap values of Group A and Group B ($p < 0.001$).

Conclusion

This study validates that both graft types effectively restore hearing levels.

Keywords

Tympanoplasty; Temporalis Fascia; Tragal Cartilage; Myringoplasty; Grafts

Surgical repair of tympanic membrane along with the reconstruction of ossicular chain is called as tympanoplasty. Wullstein in 1956 classified tympanoplasty, with myringoplasty being classified as a Type I tympanoplasty.[1] Various materials including autologous to allogenous and heterogenous materials are used in the repair of tympanic membrane. However there is no one ideal material used. In our study, we compared the effect of temporalis fascia graft with tragal cartilage graft on hearing outcomes.

Materials and Methods

40 patients having dry central perforation of tympanic membrane were selected for the study. These 40 patients were divided into two equal groups of 20 patients each. All of the selected patients underwent endoscopic myringoplasty using 0 degree rigid endoscope which was performed under general anaesthesia. All surgeries selected were performed by the same surgeon to prevent bias in technique. In the first group (Group A), temporalis fascia and in the second group (Group B), tragal cartilage

1 - Department of Otorhinolaryngology, Vels Medical College & Hospital

2. Sri Venkateswaraa Medical College Hospital & Research Institute

Corresponding author:

Dr Indu Rajkumar

email: indurajkumar@yahoo.com

was used as graft material. Pure Tone Audiogram (PTA) was taken prior to surgery and 3 months after surgery to assess the hearing levels.

Patient's age, gender, operated ear, size of tympanic membrane perforation, type of graft used, status of middle ear and graft were documented during pre-operative evaluation and post-operative follow up of all the cases. Middle Ear Risk Index (MERI) score developed by Kartush et al[2] was used to assess the middle ear status. Patients with MERI scores above five were excluded from the study. Perforations of pars tensa of tympanic membrane were classified as large, medium and small based on the size of perforations.

The Statistical analysis was performed by STATA 11.2 (College Station TX USA). Students Independent sample t-test was used to find the significant difference between the age, pre and post op PTA, improvement of dBHL with treatment groups and expressed as mean and standard deviation. Chi square test was used to measure the association between the genders, PTA levels with treatment groups and expressed as frequency and percentage. $p<0.05$ was considered as statistically significant.

Inclusion Criteria :

1. Patients with chronic otitis media (COM) – mucosal type with dry ear presenting to the outpatient department.
2. Patients with chronic otitis media – mucosal type with conductive hearing loss.

Exclusion Criteria :

1. Patients with systemic diseases and other comorbid conditions.
2. Patients with post operative residual and recurrent perforations of tympanic membrane.
3. COM patients with ossicular chain abnormalities.
4. Patients with sensorineural hearing loss.
5. Patients with secondary cholesteatoma and granulation tissue in middle ear.
6. Cases with MERI score > 5

Technique :

Under general anaesthesia, central perforation of tympanic membrane was assessed endoscopically in all cases prior to harvesting the grafts. Hopkin's rigid endoscopes (zero degree, 4mm diameter) were used in all cases. The perforation was identified and it's margins were freshened. In Group A, the grafts were obtained from the temporalis muscle fascia through a supra auricular incision. In Group B, the grafts were obtained from the anterior or posterior perichondrium along with tragal cartilage. In all cases, the tympanomeatal flap was elevated 5 mm lateral to the annulus to access the middle ear. Ossicular continuity checked and the grafts were placed using underlay technique (Figure 1 & 2).

Fig. 1. Preoperative otoendoscopic image showing anterior perforation of left ear

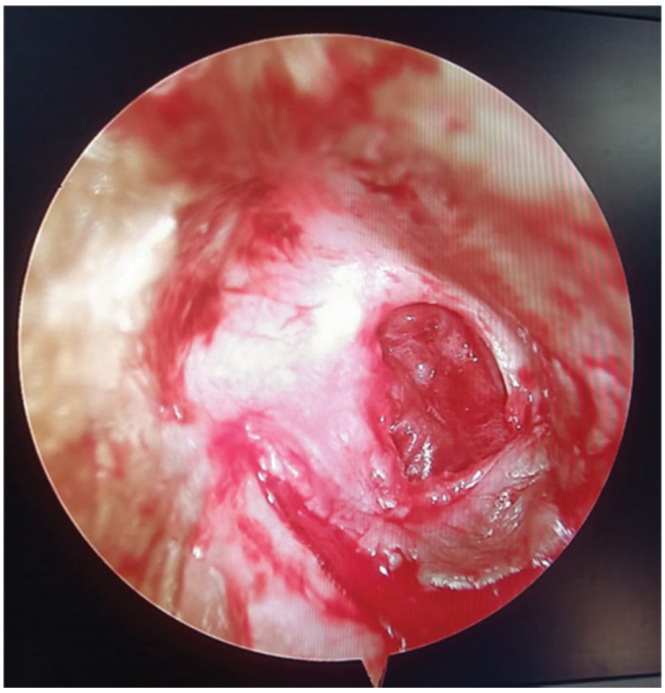

Fig. 2. Intra operative image showing underlay graft

Results

In total, 40 patients were enrolled in this study of which, 16 were males and 24 females. The age of the patients ranged from 18 to 55 years. In our study, Group A had mean age of 37 ± 8.58 years, and Group B had 35.65 ± 10.57 years, with no significant difference (p = 0.660) (Table I). In gender distribution, Group A had an equal split between males and females (10 each), while Group B had more females (14) than males (6), but this difference was not significant (p = 0.197). Based on the number of quadrants involved, the size of the perforations were classified into large (3 or more quadrants), medium (2 quadrants) and small (1 quadrant). Group A comprised of 2 small (10%), 6 medium (30%), 12 large (60%) sized perforations whereas Group B comprised of 1 small (5%), 7 medium (35%) and 12 large (60%). The p-value for the size distribution between groups was 0.815, indicating no significant difference (Table II).

Table I: Age Characteristics

	GROUP A TEMPORALIS FASCIA	GROUP B TRAGAL CARTILAGE	P-VALUE
AGE	37 ± 8.58	35.65 ± 10.57	0.660
RANGE	18-48	35.65 ± 10.57	

Table II: Types of Perforation

TYPE OF PERFORATION	GROUP A TEMPORALIS FASCIA	GROUP B TRAGAL CARTILAGE	TOTAL	P- VALUE
SMALL	2 (10%)	1 (5%)	4	0.815
MEDIUM	6 (30%)	7 (35%)	13	
LARGE	12 (60%)	12 (60%)	24	
TOTAL	20	30	40	

Table III : Comparison of PTA levels between the two groups pre and postoperatively

	GROUP A TEMPORALIS FASCIA (DBHL)	GROUP B TRAGAL CARTILAGE (DBHL)	P - VALUE
PRE OP PTA	47.47 ± 9.95	46.97 ± 8.75 dB	0.865
POST OP PTA	28.94 ± 9.25 dB	26.8 ± 9.89 dB	0.483
PVALUE	< 0.001	<0.001	

It was inferred that there were no statistically significant differences in the distributions of age, gender, groups and the sizes of perforation (all p-values > 0.05).

The mean preoperative air-bone gap in Group A was 47.47 ± 9.95 dB, and mean postoperative air-bone gap was 28.94 ± 9.25 dB. Mean preoperative air-bone gap in Group B was 46.97 ± 8.75 dB, and mean postoperative air-bone gap was 26.8 ± 9.89 dB. There was no statistically significant difference between Group A and Group B in preoperative air-bone gap values (p = 0.608). There was no statistically significant difference between the postoperative air-bone gap values of Group A and Group B (p < 0.001) (Table III).

In conclusion, it was inferred that there were no significant differences between the temporal (Group A) and tragal (Group B) groups in terms of demographic data, tympanic membrane size, or audiometric outcomes. Both surgical techniques appear to yield similar results.

Discussion

Our study was done to compare temporalis fascia with tragal cartilage graft to assess which grafting material yielded better post operative hearing levels. The results suggest that both graft types are similarly effective in improving hearing outcomes and achieving successful tympanic membrane closure. There were no statistically significant differences observed across various metrics, including pre and post-operative pure tone audiometry (PTA) and tympanic membrane size distribution.

Demographic characteristics, such as age and gender were evenly distributed across the two groups. The lack of significant difference between age and gender implies that demographic factors were unlikely to affect the comparison of surgical outcomes. Similar gender distributions further reduce potential biases thereby supporting the robustness of the results. Research suggests that demographic factors like age and gender do not significantly impact myringoplasty success, allowing the study's focus to remain on the intrinsic qualities of each graft type. This aligns with prior research, which indicates that age and gender generally have limited influence on myringoplasty success when comparing graft materials.[3,4,5]

Pre and post-operative PTA results showed that both temporalis fascia (Group A) and tragal cartilage grafts (Group B) resulted in notable improvements in auditory thresholds. However, neither graft type demonstrated a statistically superior improvement. Temporalis fascia has been traditionally favoured due to its thin, pliable nature, which more closely resembles the tympanic membrane, theoretically allowing for better sound transmission. However, tragal cartilage has gained attention for its durability and resistance to retraction, eminently in cases of eustachian tube dysfunction or revision surgeries.

The lack of disparity between the two groups studied are consistent with findings from other comparative studies where there were no significant difference in hearing threshold between temporalis fascia and tragal cartilage grafts. A study by Yu et al.[6] found comparable hearing improvements using either graft material, attributing their efficacy to surgical skill and patient-specific factors rather than inherent differences between the graft types.

Both grafting techniques achieved high rates of tympanic membrane closure, with comparable outcomes in both small and large perforations. The study results

showed no significant variation between groups in the distribution of small, medium, and large tympanic membrane sizes postoperatively. This aligns with existing literature suggesting that cartilage grafts are particularly beneficial for large or subtotal perforations due to their robust structural support, while temporalis fascia may be effective for smaller perforations given its favourable elasticity and integration with surrounding tissue.[7,8]

In a study by Indorewala et al., [9] it was proven that the added thickness and rigidity of cartilage helps in preventing retraction pockets, specifically in cases with eustachian tube dysfunction. Although cartilage grafts were more stable in structure, it did not seem to affect postoperative hearing levels significantly. Our study's results support the notion that cartilage is as effective as fascia for auditory outcomes, consistent with other research indicating no substantial differences in PTA scores between the two materials.

Given the equivalent outcomes, temporalis fascia and tragal cartilage grafts remain viable options for myringoplasty. It is pertinent to consider factors such as the patient's anatomical and clinical profile when choosing the graft material. Patients with normal middle ear pressures or small perforations can be selected for temporalis fascia due to its thinness and acoustic properties. In terms of durability, tragal cartilage can be opted for patients with high risks of retraction or eustachian tube dysfunction.

Surgical skills can also impact myringoplasty outcomes due to the surgeon's expertise and familiarity with each graft material. It is proven in some studies wherein the experience of the surgeon with specific graft types has accounted for variability in success rates. This warrants for procedural standardization across clinical settings.[10]

Conclusion

Our study supports both temporalis fascia and tragal cartilage grafts in myringoplasty, with each material offering unique advantages suited to particular clinical scenarios. Temporalis fascia provides acoustic benefits and ease of integration, making it ideal for smaller perforations. Tragal cartilage offers superior durability which is beneficial in cases with Eustachian tube dysfunction. These findings reaffirm the versatility of myringoplasty graft options, emphasizing the need for individualized graft selection based on patient-specific factors and surgical context.

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Main Article

Microbial Spectrum and Antibiotic Resistance Patterns in Chronic Otitis Media: A Cross-Sectional Study with Emphasis on Atypical Organisms

https://doi.org/10.47210/bjohns.2025.v33i2.248

Sayan Banerjee,[1] Sumanta Kumar Dutta,[2] Biswajit Sikder,[2] Pranabashish Banerjee,[2] Soma Sarkar[1]

ABSTRACT

Introduction

Chronic Otitis Media (COM) is a persistent inflammatory condition of the middle ear with a high global prevalence, particularly in developing countries. The emergence of drug-resistant and atypical pathogens underscores the need for regular microbiological surveillance. This study is aimed to determine the microbial profile in active COM, focusing on atypical organisms and their antibiotic susceptibility.

Materials and Methods

A prospective cross-sectional study was conducted at a tertiary care hospital in Kolkata from February 2021 to August 2022. A total of 150 clinically suspected patients with active COM were enrolled. Aural discharge samples were cultured and analyzed for antibiotic sensitivity using Kirby-Bauer disc diffusion and the VITEK system.

Results

Of the patients, 63% were female and 84% had positive cultures. The right ear was more often affected (55%), with mucosal COM being more common (83%). Gram-negative bacteria (63%) predominated, mainly Pseudomonas aeruginosa (30%), Staphylococcus aureus (22%), and Klebsiella pneumoniae (9.3%). Pseudomonas showed fluoroquinolone sensitivity, while Staphylococcus and Klebsiella showed resistance. Rare pathogens included Stenotrophomonas maltophilia, Proteus hauseri, and Alcaligenes faecalis.

Conclusion

Chronic Otitis Media shows a female preponderance, with Pseudomonas aeruginosa and Staphylococcus aureus as the most commonly isolated pathogens. The emergence of atypical and drug-resistant organisms underscores the need for culture-guided therapy and regular antibiogram surveillance. Patients should be encouraged to adhere to the full course of prescribed antibiotics to minimize resistance and improve outcomes.

Keywords

Chronic Otitis Media; Atypical Pathogens; Antibiotic Resistance; Microbial Spectrum; Culture Sensitivity

Chronic infection of the middle ear cleft for at least 2 weeks or more is known as chronic otitis media (COM). COM can be of mucosal and squamosal varieties in active and inactive stages. COM can even be in healing stages manifesting as dimeric tympanic membrane, tympanosclerosis and fibro-osseous and fibro-cystic sclerosis.[1]

It is more prevalent in developing countries due to various predisposing factors such as malnutrition, overcrowding, poor hygiene, inadequate health care, and recurrent upper respiratory tract infection. Due to advancement in medical facility, India still falls under high prevalence zone. In India, the average prevalence of COM is 7.8%.[2]

COM can be due to repeated infections and usually manifests as a complication of acute otitis media. It can also be a result of eustachian tube defect and GERD.

1 - Department of Otorhinolaryngology and Head & Neck Surgery, ID & BG Hospital, Kolkata.
2 - Department of Otorhinolaryngology and Head & Neck Surgery, NRS Medical College, Kolkata
Corresponding author:
Dr. Sayan Banerjee
email: sayanmanta@gmail.com

It is the common cause of conductive deafness which may lead to delayed development of speech and language in children.

All the cases of COM should be evaluated by examination of ear under microscope, audiological investigations, vestibular assessment and radiological imaging (HRCT Temporal bone/ X-Ray B/L Mastoid in Lateral-Oblique view) followed by otoendoscopic evaluation and culture/sensitivity of the pus/ discharge (in a case of COM in active stages).

The microbial profile and antibiotic sensitivity patterns in cases of chronic otitis media (COM) are crucial for effective treatment planning. The indiscriminate use of antibiotics has led to the emergence of drug-resistant strains, complicating therapeutic approaches.

While surgery is the definitive treatment for COM, early medical intervention with proper antibiotics based on common pathogens and their sensitivities is vital during active disease stages.

This study aims to identify aerobic, anaerobic, and atypical (i.e., rare microorganisms found in the cultures) microorganisms associated with COM and explore differences in microbial profiles between mucosal and squamosal varieties during active stages.

Materials and Methods

This single centre, hospital based prospective and cross-sectional study was conducted at Department of Otorhinolaryngology with collaboration of Department of Microbiology, in a tertiary care hospital, Kolkata between February 2021 to August 2022.

The sample size was calculated using the formula:

where Z = 1.96 (for 95% confidence), p = 0.078

$$n = {Z^2\,pq}/{e^2}$$

(prevalence of CSOM 7.8%, based on previous studies), q = 1 – p, and e = 0.05 (precision). Based on this, a minimum sample size of 150 was determined.

Thus, 150 clinically suspected patients of any age group & of both the sexes with history of repeated ear discharge (Unilateral or Bilateral) for more than 3 months, clinically diagnosed as cases of COM in active stages, were considered for *inclusion*.

Patients with ear discharge of acute onset (<2 weeks duration), patients with draining ears but intact tympanic membrane (otitis externa), patients with history of taking antibiotic either systemic or local in the form of ear drops for last 7 days, patients who refuse to consent to participate in the study and patients with COM with co-morbidities like neoplastic conditions of ear were *excluded* from the study.

Ear discharge was aspirated with a sterile pipette under aseptic precautions in clinically diagnosed cases of COM and immediately sent to the laboratory for microbiological analysis, i.e., culture and antibiotic susceptibility testing [using Kirby-Bauer disc diffusion method/ VITEK (automated system)].

After ear swabs were taken, wet mopping was done to clean the external auditory canal and clinically classify the ear as a mucosal or squamous variety of COM. Data were compiled and analyzed using IBM SPSS Statistics software (version 29), with Microsoft Excel used for data tabulation.

Results

Out of 150 cases, 55 (37%) were males and 95 (63%) were females (Figure 1)

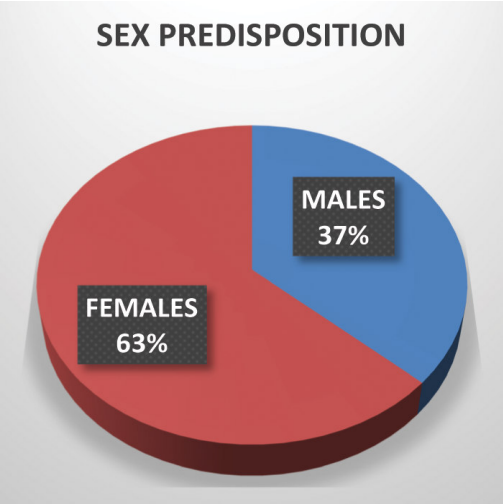

Fig. 1. Sex Distribution of the cases

Out of 55 males studied, 45 (35.71%) were positive and 10 (41.67%) were negative for culture and of 95 females 81 (64.29%) were positive and 14 (58.33%) were negative for the culture (Figure 2).

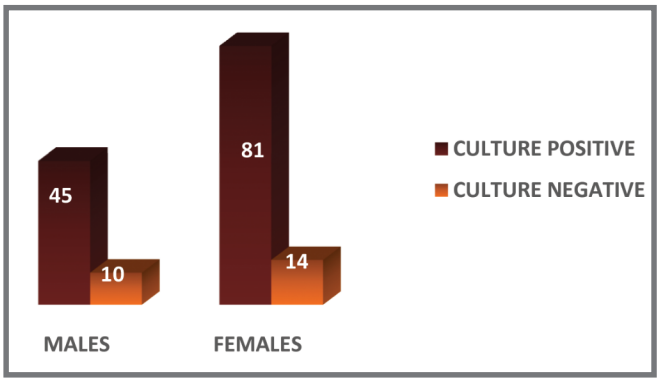

Fig. 2. Culture Positivity among different sex groups

Out of 150 cases, 37 (24.66%) cases were observed in 36-45 years age group. Out of 37 cases, 25 (26.32%) cases were females and 12 (21.82%) cases were males. 32 (21.33%) cases were observed between 26-35 years age group, 25 (16.67%) cases were observed between 16-25 years (Figure 3 & 4).

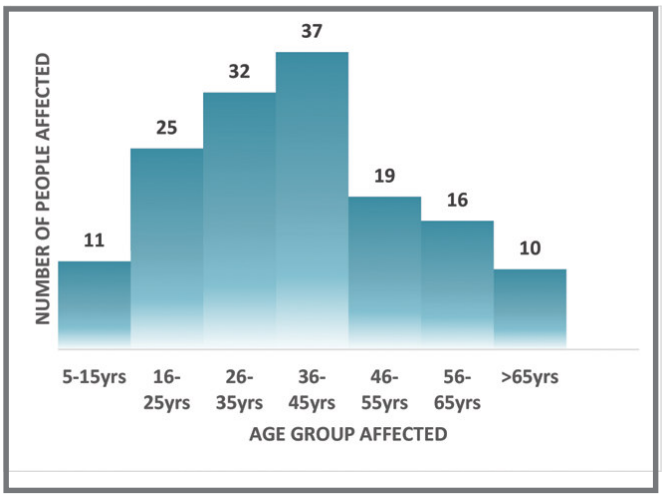

Fig. 3. Age Distribution of the cases

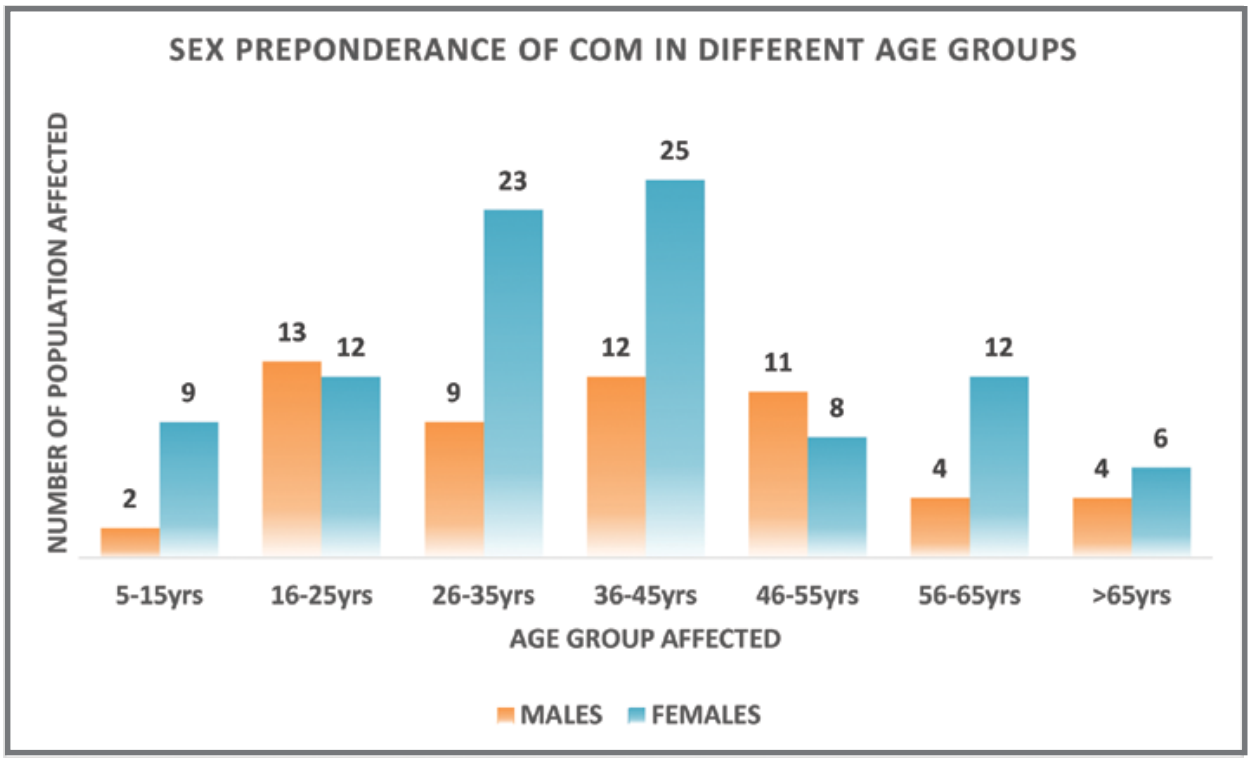

Fig. 4. Sex Preponderance of COM in different age groups.

In most of the age groups, female preponderance is seen, except in the 16-25 years and 46-55 years age groups (Figure 4).

Mucosal type of COM was encountered in 125 cases (83%) as compared to 25 (17%) Squamosal COM cases (Figure 5) and mostly the right ear (55%) was seen to be affected (Figure 6).

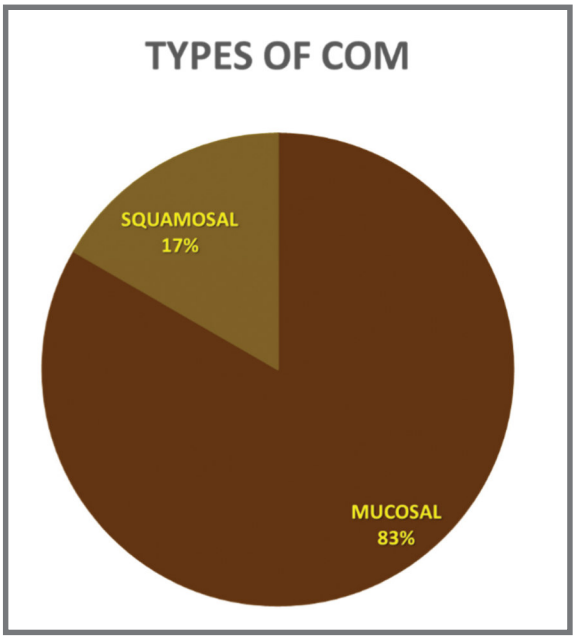

Fig. 5. Types of COM cases encountered

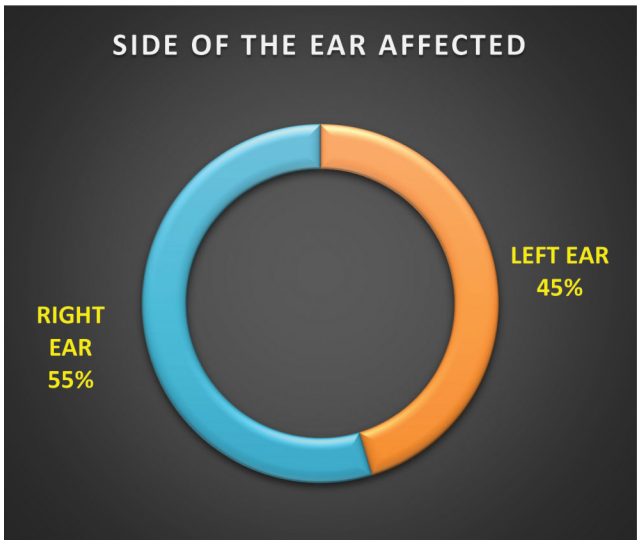

Fig. 6. Side of the ear affected in COM cases encountered

126 (84%) cases were culture positive and 24 (16%) cases yielded no growth on culture in this study (Figure 7).

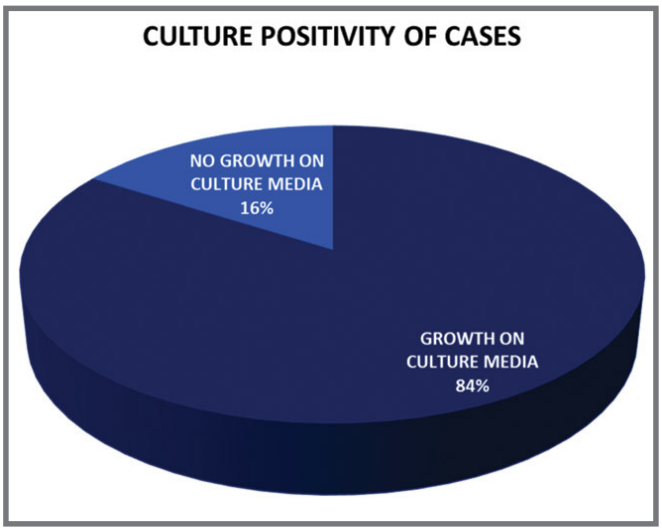

Fig. 7. Culture positivity of total COM cases

Among all the organisms isolated, *Pseudomonas aeruginosa* (30%), *Staphylococcus aureus* (22%) and *Klebsiella pneumoniae* (9.33%) were maximum in number. There were some atypical (rare) microbes also isolated, which include *Acinetobacter baumanii complex*, *Enterobacter cloacae complex*, *Stenotrophomonus maltophilia*, *Providencia stuartii*, *Proteus hauseri*, *Alkaligenes faecalis* (Figure 8) (Figure 9).

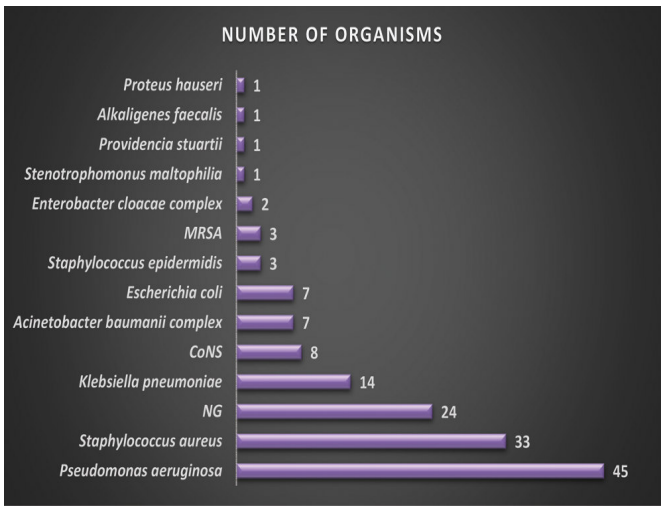

Fig. 8. Number of different microbes isolated in total COM cases studied

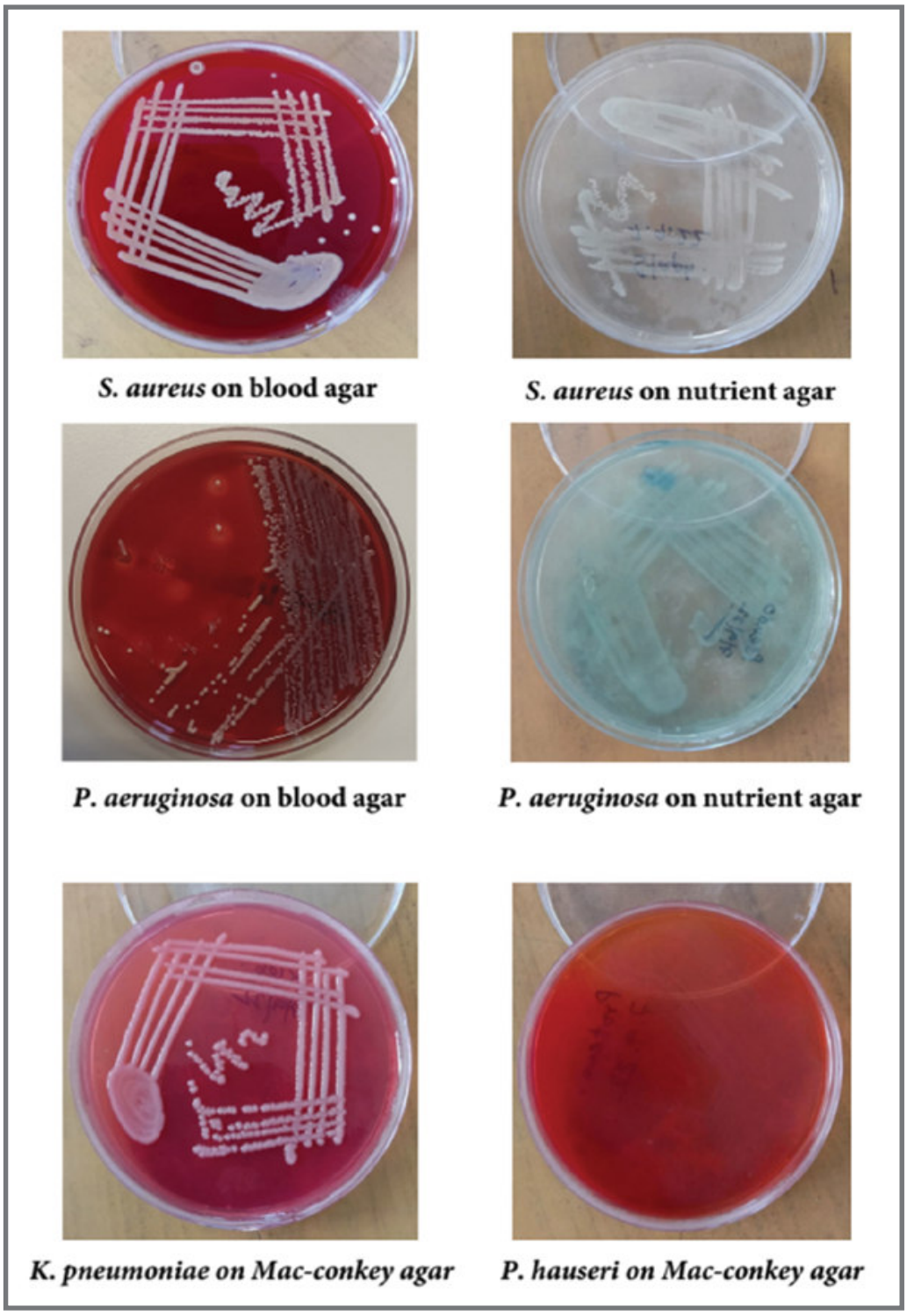

Fig. 9. Different bacterial isolates in different culture media

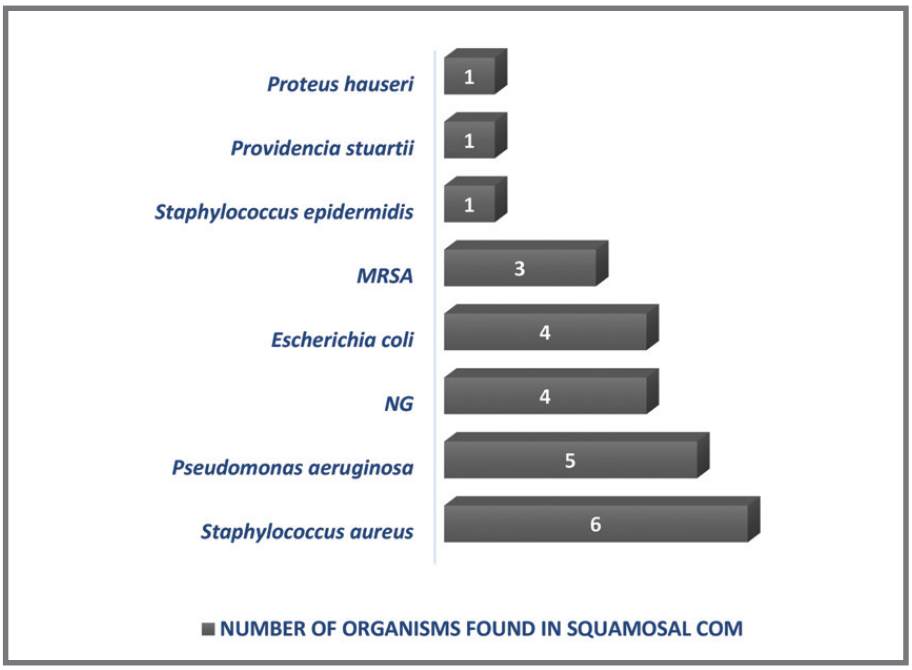

Fig. 10. Number of different microbes isolated in Squamosal COM cases studied

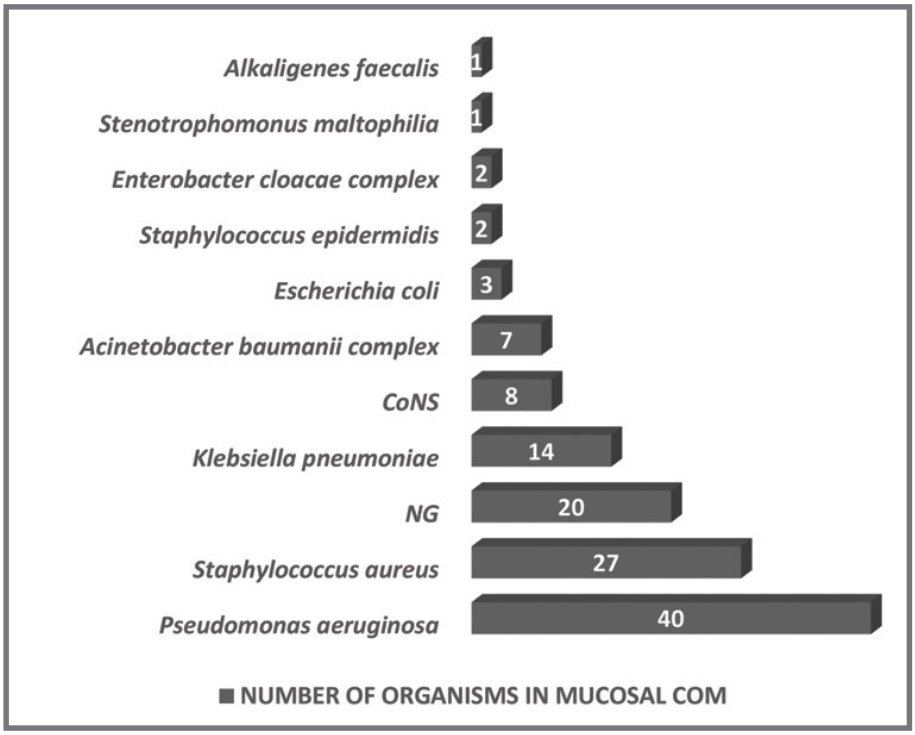

Fig. 11. Number of different microbes isolated in Mucosal COM cases studied

In squamosal COM cases, *S. aureus* (24%) isolates followed by *P. aeruginosa* (20%) were the most common (Figure 10); whereas in patients with mucosal COM, *P. aeruginosa* (32%) followed by *S. aureus* (21.6%) were most commonly isolated (Figure 11).

Gram-negative organisms (63%) outnumbered Gram-positive isolates (37%) (Figure 12). *S. aureus* (70%) and Coagulase negative Staphylococci (CoNS) (17%) were the most Gram-positive isolates (Figure 13) and among all Gram-negative isolates, *P. aeruginosa* (57%) and *K. pneumoniae* (18%) were the maximum (Figure 14).

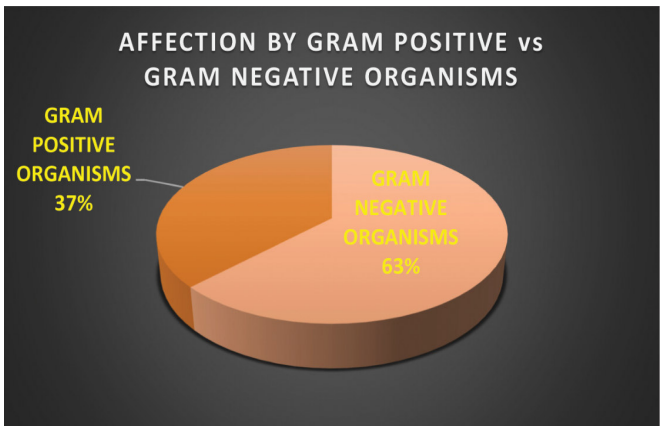

Fig. 12. Gram positivity of isolated organisms

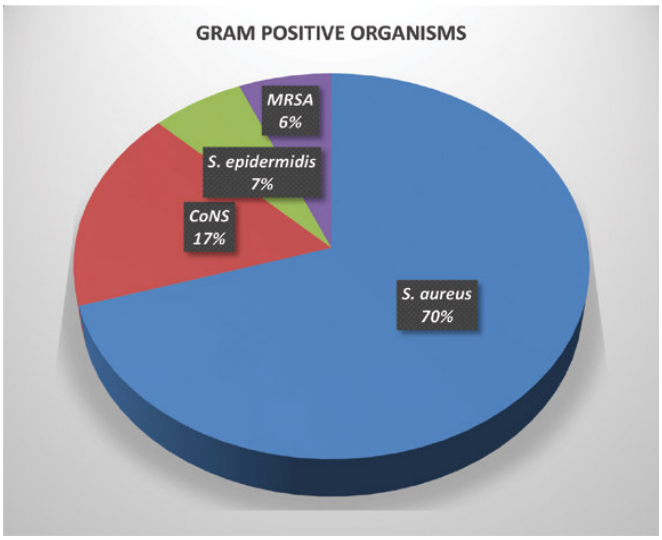

Fig. 13. Distribution of Gram-positive organisms

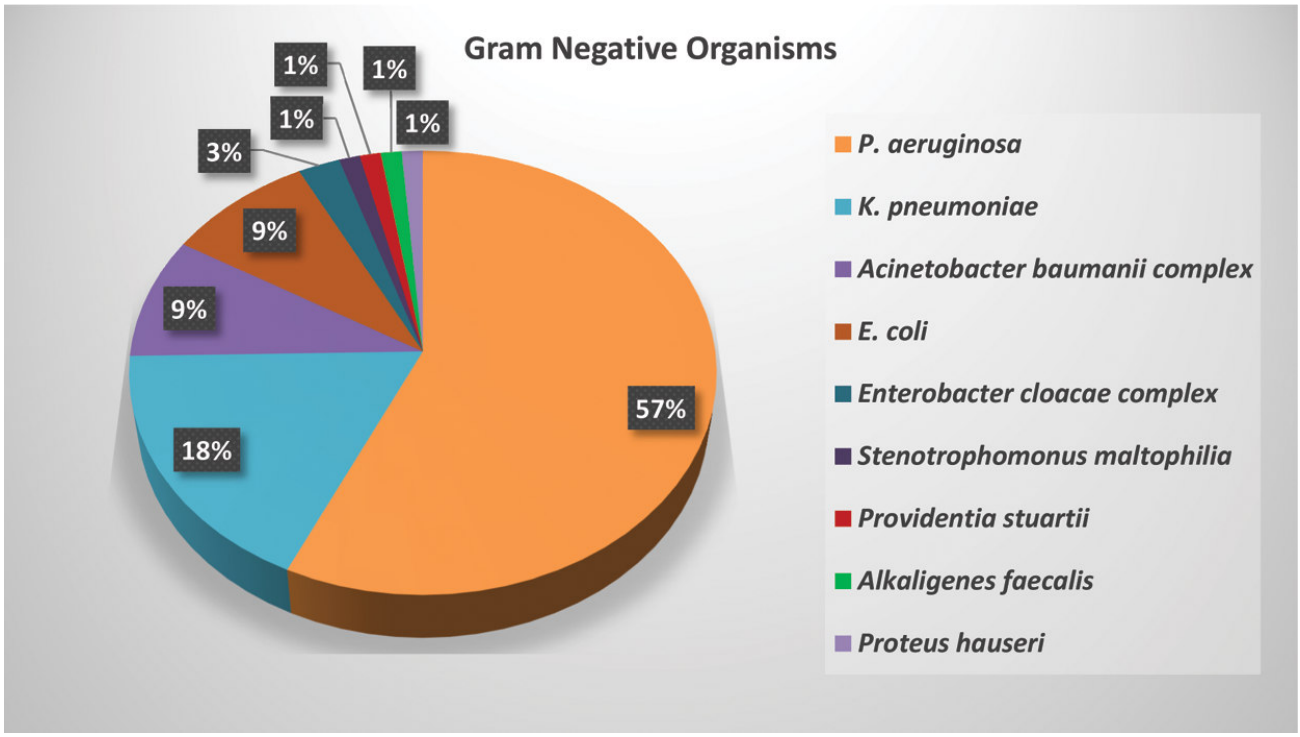

Fig. 14. Distribution of Gram-negative organisms

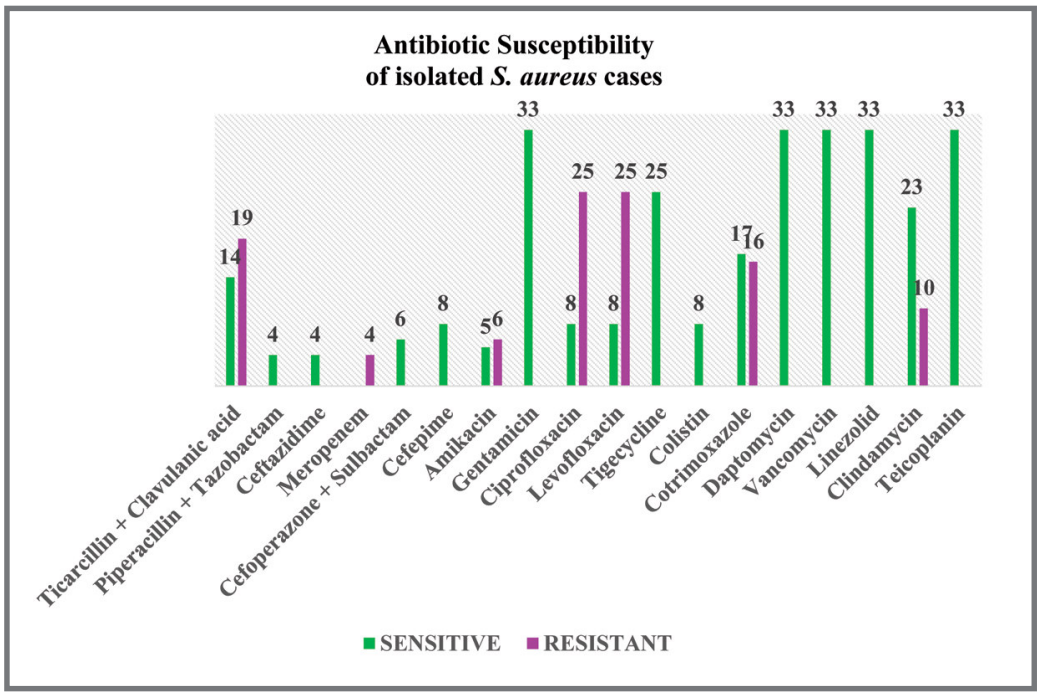

Fig. 15. Antibiotic Susceptibility of isolated *S. aureus* cases

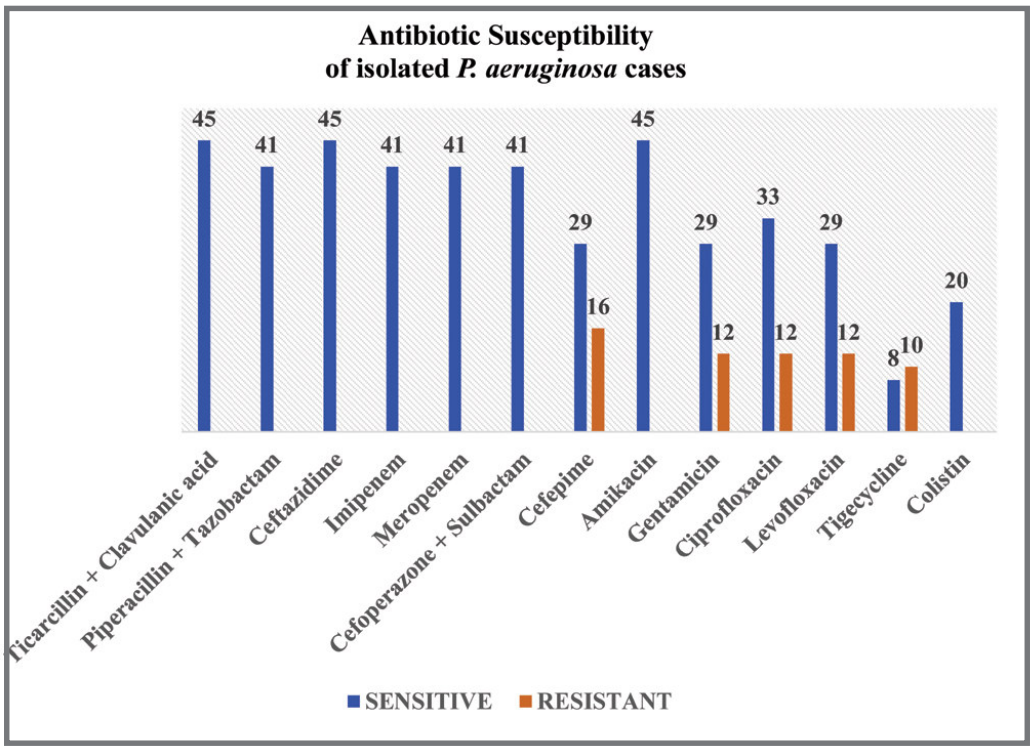

Fig. 16. Antibiotic Susceptibility of isolated *P. aeruginosa* cases.

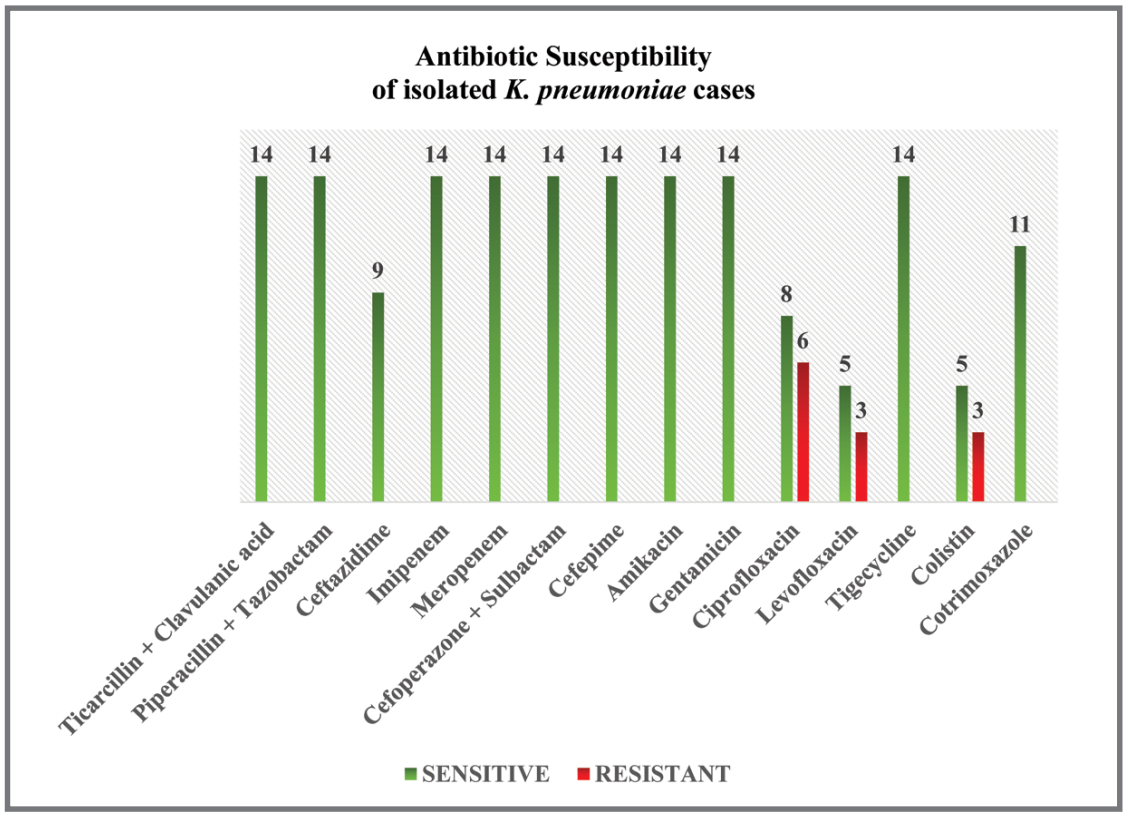

Fig. 17. Antibiotic Susceptibility of isolated *K. pneumoniae* cases.

The cases isolated with *S. aureus* were seemed to be much more sensitive to Gentamicin, Vancomycin, Daptomycin, Linezolid and Teicoplanin followed by Tigecycline, Clindamycin and Cotrimoxazole and were mostly resistant to Fluoroquinolones (Ciprofloxacin/ Levofloxacin), Meropenem, Amikacin and Ticarcillin + Clavulanic acid (Figure 15).

P. aeruginosa isolates had more sensitivity to Ticarcillin + Clavulanic acid, Ceftazidime, Amikacin followed by Piperacillin + Tazobactam, Imipenem, Meropenem and Cefoperazone + Sulbactam as well as to Fluoroquinolones (Ciprofloxacin> Levofloxacin), Cefepime, Gentamicin and Colistin. These are intrinsically resistant to Cotrimoxazole, thus sensitivity not checked (Figure 16).

The cultures, which yielded *K. pneumoniae*, were seemingly sensitive to most of the antibiotics except some cases had resistance against Fluoroquinolones (Ciprofloxacin/ levofloxacin) and Colistin (Figure 17).

Discussion

Bacteriological and fungal cultures are of potential value only when the ear is active or if there are infective complications. If systemic antibiotic therapy is being contemplated, culture of any secretions with antibiotic sensitivity pattern of any growths being assessed can be of value in deciding which antibiotic to prescribe as most do not cover the full range of bacteria that can be isolated as potential pathogens from the ear.

In a study by G. Sweeney et al, the cultured isolates showed 64% only aerobes, 32% both aerobes and anaerobes, and 5% had no growth.[3]

The predominant isolates in most of the studies were *Pseudomonas aeruginosa* and *Staphylococcus aureus*

followed by *Klebsiella spp.*, *Proteus spp.*, *Escherichia coli* and few studies also isolated *Serratia marcescens* and *Shelwanella spp.*[4] None of the patients in this study had been treated with oral or topical antibiotics for the previous 4 weeks.[5]

Some studies have shown no difference in the microbiological cultures between squamous epithelial disease and mucosal disease[3] whereas other studies have suggested that *Pseudomonas* is less common in squamous epithelial disease.[6]

It seems obvious and logical to assume that the activity of the ear in COM would be caused by pathogenic organisms. However, cultures from almost 50% of patients with inactive COM yield an identical flora to that found in active COM.[5]

Furthermore, although anaerobes can be isolated from 32% of ears, their elimination by metronidazole does not cause the ear to become inactive.[7]

Pseudomonas aeruginosa is not commonly found in the normal ear and rarely initiates acute infection. *Pseudomonas* is ubiquitous in our physical environment and has a predilection for moist areas. It is thought to infect tissues first by adherence to epithelial cells by means of pili or fimbriae.[8] *Pseudomonas* infections typically encounter resistance in normal tissues, unless there's cellular injury, as seen in chronic lung conditions like cystic fibrosis. This *"opportunistic adherence"* may play a crucial role in the development of middle ear infections, similar to respiratory infections. Therefore, bacteria in chronic otitis media (COM) can be viewed as secondary invaders following mucosal inflammation from other causes.

Bacteria primarily exist in Biofilms, which are complex, surface-attached communities offering advantages over planktonic forms. Biofilm bacteria demonstrate enhanced antimicrobial resistance and host defense, functioning as "*self-assembling multicellular communities*". These biofilms play a significant role in chronic infections. Studies to examine the presence of biofilms in active COM have shown a 60% biofilm incidence as opposed to 10% in the control, uninfected group.[9] Biofilms are more abundant in squamous OM, where 82% of cholesteatoma ears were found to have biofilms as opposed to 42% of the mucosal COM and 9% of the control, normal middle ear (cochlear implant) group.[10]

The bacteria cultured in paediatric COM with cholesteatoma are similar to those in adult disease. Studies show that in children with cholesteatoma *Pseudomonas aeruginosa*, *Proteus mirabilis* and *Staphylococcus aureus* are the most common isolates.[11]

There was no significant geographical variation of pathogens in India. Recently, the rise of multidrug-resistant organisms, due to irrational antibiotic use, has made CSOM treatment more difficult. Colistin and polymyxin-B showed up to 100% effectiveness against *P. aeruginosa*, while carbapenems exhibited good sensitivity, though sensitivity to piperacillin-tazobactam, amikacin, gentamicin, ceftazidime, and ciprofloxacin declined. Nine studies found methicillin-sensitive *S. aureus* to be more prevalent than methicillin-resistant strains. For *S. aureus*, vancomycin and linezolid showed e" 90% sensitivity, with amikacin, gentamicin, erythromycin, and ciprofloxacin demonstrating significant resistance.[4]

In five studies which isolated anaerobic bacteria, *Bacteroides fragilis* was isolated as the most common pathogen followed by *Prevotella spp.*, *Fusobacterium spp.*, and *Clostridium spp.*[4]

Furthermore, fungi are frequently found within CSOM samples, specifically *Aspergillus spp.* and *Candida spp.* Only Juyal et al. reported *Penicillium spp.* and *Mucor* in their study.[4] There are some speculations that fungi may result as overgrowth after initial treatment with antibiotic drops.

The bacteria that have been identified in children with post-tympanostomy otorrhea include *Haemophilus influenzae* (41%), *S. aureus* (40%), *P. aeruginosa* (18%), and *Streptococcus pneumoniae* (7%).[12]

In our study, about 25% cases were observed in 36-45 years age group, which is similar to the studies done by TU Samanth et al,[13] Jianghong Xu et al[14] and MR Khatun et al.[15] Although most of the studies shown higher number in school-going ages (11-20yrs).[16-21] This

difference in our study may be due lack of consciousness in parents of the children, being screened in this study.

There was a female preponderance in our study (about 63% cases were females), which is in accordance with the studies done by A Sharma et al,[22] B Sikder et al[23] and ML Casselbrant et al.[24]

Gram negative organisms (63%) outnumbered the Gram positives (37%) in culture positive cases as also evident from most of the studies.[25-27]

Among all the organisms isolated, *Pseudomonas aeruginosa* (30%) and *Staphylococcus aureus* (22%) followed by *Klebsiella pneumoniae* (9.33%) forms the major bulk isolated in our cases. This finding seemed to be consistent with the study results of R Sharma et al,[28] A Mallick et al[(29)] and D Juyal et al.[30]

The cases isolated with *S. aureus* were seemed to be much more sensitive to Gentamicin, Vancomycin, Daptomycin, Linezolid and Teicoplanin followed by Tigecycline, Clindamycin and Cotrimoxazole and resistant to Fluoroquinolones (Ciprofloxacin/ Levofloxacin), Meropenem. Amikacin, Ticarcillin + Clavulanic acid. These results were mostly similar to that of the studies by TU Samanth et al,[13] R Sharma et al,[28] M Nagraj et al,[31] A Agarwal et al,[32] and S Rathi et al.[33]

Isolated *P. aeruginosa* cases were seemingly more sensitive to Ticarcillin + Clavulanic acid, Ceftazidime, Amikacin followed by Piperacillin + Tazobactam, Imipenem, Meropenem and Cefoperazone + Sulbactam, along with Fluoroquinolones (Ciprofloxacin> Levofloxacin), Cefepime, Gentamicin and Colistin. These findings also somewhat match with the results of R Sharma et al,[28] A Agarwal et al,[32] ST Rangaiah et al[(34)] and KA Deshmukh et al.[35]

Conclusion

Chronic otitis media (COM) is a disease with female preponderance and *Pseudomonas aeruginosa* and *Staphylococcus aureus*, being the common microbes associated with it. The patients should be advised to take drugs for the complete prescribed duration as per the culture sensitivity reports obtained, to avoid resistance. The antibiotic susceptibility patterns must be continuously and periodically assessed to prevent the emergence of resistant strain and to decrease the potential risk of complications.

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Main Article

Extra-pulmonary Tuberculosis in ENT: Clinical Manifestations and Overview

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Ankita Yadav,[1] *Ila B Upadhya*[1]

ABSTRACT

Introduction

Tuberculosis (TB) is a chronic granulomatous, infectious and communicable disease caused by Mycobacterium tuberculosis.A prospective study of patients who presented to us, at a tertiary care hospital, primarily with TB of head and neck was done from June 2023 to July 2024. Patients were categorised into proper category of Anti Tuberculous Treatment (ATT) and were treated according to ATT regimen. The aim of this study was to increase awareness of the different presentations of head and neck tuberculosis (TB) and to discuss its diagnostic difficulties and to evaluate efficacy of treatment regimen. All patients were followed up at 3 months and 6 months after starting ATT. A total of 75 patients presented with primary head and neck TB during the study period.

Materials and Methods

Detailed history was obtained from all the patients. After obtaining history, a detailed clinical examination including General Examination, Systemic Examination and E.N.T. examination was done. All routine investigations were carried out. X ray chest, Sputum AFB and HIV Testing was done for all the patients. Relevant investigations were carried out according to presenting complaint. After diagnosis of Tuberculosis was made these patients were categorised into proper category of Anti Tuberculous Treatment (ATT).

Results

Most of these (80%) had cervical lymphadenopathy, 8 patients of tubercular otitis media, 3 patients had laryngeal TB, 2 patients had salivary gland tuberculosis, and there was 1 patient each of oral TB & TB perichondritis. 39 were females, and 36 were males. Maximum number of patients were from 21-30 years of age group. In 2 patients of TB otitis media, diagnosis was confirmed by histology of tissue removed during surgery. Patients completed category I AKT. Hearing was improved.

Conclusion

Diagnosing TB requires a high index of suspicion & proper tissue diagnosis. As the symptoms of EPTB in otorhinolaryngology are varied; hence, all otorhinolaryngologists should be aware of the manifestations of EPTB to suspect and diagnose/ rule out by specific investigations. Tuberculosis of the cervical lymph nodes is the commonest presentation followed by TB otitis media. Fine needle aspiration cytology (FNAC) is a reliable and easy way to diagnose TB. However, Histopathological examination is gold standard & newer diagnostic tests such as CBNAAT increases the yield of positive cases and should be used whenever required. In the larynx, true vocal cords were the commonest site affected and laryngeal TB need not be associated with lung TB or positive sputum always. Patients who have TB of head and neck must be investigated to exclude pulmonary or systemic TB. Category I ATT is effective.

Keywords

Extrapulmonary Tuberculosis; Prospective Study; CBNAAT; ATT; Tuberculous Otitis Media; Cervical Lymphadenopathy; TB Laryngitis

Tuberculosis (TB) is a chronic granulomatous, infectious and communicable disease caused by *Mycobacterium tuberculosis*. Tuberculosis usually attacks the lungs but can also affect other parts of the body. Worldwide, TB is second leading infectious killer after COVID-19. In 2022, an estimated 10.6 million people fell ill with TB worldwide, including 5.8 million men, 3.5 million women & 1.3 million children. TB is

1 - Department of ENT, BJMC, Civil Hospital, Ahmedabad
Corresponding author:
Dr Ankita Yadav
email: dr.ankitarao@gmail.com

present in all countries & age groups.[1]

Mycobacterium tuberculosis (MTB), a slow-growing strict aerobic bacillus, causes TB, and the human body is the only natural reservoir. It is spread through airborne particles discharged into the air by a patient with infectious TB coughing, talking, or sneezing. The tubercle bacillus is an obligate aerobe which primarily affects tissues with high oxygen tension, such as the lungs. However, the bacillus can affect any body part, and extrapulmonary involvement is frequently secondary to pulmonary involvement. Among various extrapulmonary types of TB, ORL, H & N TB contributes to ~ 10% to 15% of the cases. It is an engaging field of exploration because of the different presentations and sites of involvement.[2]

The cervical lymph nodes are most commonly affected. Multiple, matted lymph nodes may be observed, and there may be bilateral lymph node involvement. The posterior triangle lymph nodes are involved in most cases[2].

Tubercular otitis media commonly manifests as persistent otitis media with otorrhea, unresponsive to medical treatment, which is profuse, thick and purulent, and traditionally occurs painlessly. The otoscopic examination can additionally reveal thickened bulging tympanic membrane with loss of landmarks, or multiple perforations, followed by purulent otorrhea.[3]

In laryngeal TB, the presenting symptoms generally encompass change in voice, difficulty in swallowing, loss of weight, and loss of appetite.[4] Fiberoptic laryngoscope examination shows diffuse erythema/edema of the vocal cords with surface irregularity with white tubercles occasionally.[5]

Patients with nasal TB complain of nasal obstruction and blood-stained nasal discharge. The commonest site is the antero-inferior part of the nasal septum, referred to as the Kiesselbach plexus. In anterior rhinoscopy, a pale, dull mucosa with perforation of the nasal septum can be observed.[2]

Tuberculosis of tonsils is an extremely rare variety of extra-pulmonary tuberculosis which frequently simulates the tonsillar malignancy, especially in elderly individuals. Secondary form is more common than primary one, and in present day, contact with the infected sputum or saliva in a case of sputum smear positive pulmonary tuberculosis is the main source of the disease. Chronic or recurrent tonsillitis with enlarged tonsils and sore throat is the main clinical presentation. As it is very difficult to differentiate it from tonsillar malignancy on clinical ground, histopathological examination of the tissue is must for the diagnosis of tonsillar TB. Antitubercular therapy is adequate for its successful resolution.[6]

Fig. 1. Patient with left posterior triangle Tuberculous lymphadenitis.

The oral cavity is an infrequent site of involvement by TB. This is probably due to protective role of saliva. Infection in the oral cavity is usually acquired through infected sputum coughed out by a patient with open pulmonary TB or by hematogenous spread. The tongue is the most common site of involvement & accounts for nearly half the cases. The lesions are usually found on the tip, borders, dorsum, & base of tongue. They may be single or multiple, the lesions may or may not be painful. Other sites of involvement include the floor of mouth, soft palate, anterior pillars, & uvula. Secondary

involvement of the draining lymph nodes may occur. Majority of these patients also have pulmonary TB.[7]

Salivary Gland Tuberculosis:

Tubercular sialadenitis is most frequently seen in immunosuppressed patients. Diagnosis of this disease is difficult.[8] Although fine needle aspiration cytology is useful in diagnosis, excisional biopsy is often required. Polymerase chain reaction for mycobacterium tuberculosis is a reliable diagnostic tool, and if available, it should be performed before surgical intervention to enable differential diagnosis of a salivary gland tumour.[9]

The most common presenting symptom is a slowly growing painless mass. Patients may also present with mild pain over the swelling. Acute presentation is rare, wherein the patient presents with a swelling below the angle of mandible associated with severe pain. Associated pain is often attributed to dental infection.[9]

This study was conducted basically with the aim to study demography of the disease, to identify various clinical manifestations of EPTB in head & neck region, to increase the awareness of this disease, to evaluate diagnostic efficacies and to study treatment regimen efficacy at tertiary health care centre.

Materials and Methods

This was a prospective study of 14 months starting from June 2023 July 2024. Patients attending E.N.T. OPD at tertiary care centre with ENT manifestations of Tuberculosis were selected as the subjects for the study.

Inclusion criteria:

- All Patients presenting to ENT OPD with suspected clinical diagnosis of EPTB irrespective of age & gender.
- Patients proven to have EPTB by standard evaluation methods like CBNAAT, USG, CT Neck, FNAC, Pus C&S, Excision biopsy of neck node, Trucut biopsy of swelling, Vocal cord biopsy.
- Patients with proven EPTB, whose treatment has not been started yet.

Exclusion criteria:

- Patients presenting with acute attack of neck lymphadenitis of less than 3 weeks.
- Patients not willing to participate in the study.
- Proven patients of EPTB who are on treatment with ATT & who are defaulters.
- Patients not willing for follow up visits.
- Patients who are with immunocompromised status.
- Patients who are with multisystem TB involvement.

Detailed history was obtained from all the patients. After obtaining history, a detailed clinical examination including General Examination, Systemic Examination and E.N.T. examination was done.

All routine investigations were carried out. *X ray chest, Sputum AFB and HIV Testing* was done for all the patients. Relevant investigations were carried out according to presenting complaint. After diagnosis of Tuberculosis was made these patients were categorised into proper category of Anti Tuberculous Treatment (ATT).

According to category of Anti Tuberculous Treatment, these patients were treated by respective regimen. All patients were followed up at 3 months and 6 months after starting Anti Tuberculous Treatment.

Results

The present study was an observational study conducted in Department of ENT of Civil Hospital Ahmedabad. This study was inclusive of 75 patients of tuberculosis of ENT region, evaluated from June 2023 to July 2024.

1. Age (years) Distribution of Patients:

In our study out of 75 patients, 8 patients (10.6%) were in less than 10 years age group, & 2 patients (2.6%) belonged to more than 60 years of age.

Maximum number of patients were in 21-30 years range, 24 (32%), with mean age of 26.25 years.

2. Gender Distribution of Cases:

Out of total 75 patients, 36 (48%) were males, 39 (52%) were females.

3. Distribution of Cases According Nature of Lesion:

Table I: Distribution of cases according to site of involvement

SITE OF LESION	NUMBER OF CASES	PROPORTION
TB lymphadenitis	60	80%
Tuberculous otitis media	8	10.6%
Laryngeal TB	3	4%
Salivary gland TB	2	2.6%
Oral TB	1	1.4%
TB Perichondritis	1	1.4%

4. Distribution of Cases According Clinical Symptoms:

Table II : Presenting complaints with proportions in patients of TBOM.

PRESENTING COMPLAINTS	NUMBER OF PATIENTS	PERCENTAGE %
Ear discharge	8	100
Decreased hearing	3	37.5
Facial weakness	0	0
Giddiness	0	0

- Ear :

Among 8 patients of tubercular otitis media major presenting complaint was chronic ear discharge. Discharge was profuse, mucopurulent, non blood stained, non foul smelling and not relieved on different antibiotics for about 2 months followed by decreased hearing. While no patient presented with facial weakness & giddiness.

On examination, external auditory canal showed mucopurulent discharge which was cleaned. Tympanic membrane showed multiple perforations with pale middle ear mucosa. Pure Tone Audiometry was s/o moderate conductive hearing loss. These findings along with history of persistent discharge not responding to antibiotics arose the suspicion of Tuberculous Otitis Media.

Under all aseptic precautions, pus swab was taken and sent for examination and came out to be Positive for ZN stain and AFB. Thus diagnosis of Tuberculous Otitis Media was confirmed.

- Nose :

In present study, out of 75 patients of EPTB of ENT, no patient of nasal TB was found.

- Larynx :

In all 3 patients of TB laryngitis, change of voice or hoarseness of voice was major presenting complaint.

- Neck :

In Neck following presenting complaints were seen :

Painless neck swelling : 48 (80%) out of 60 patients.

Painful neck swelling: 12 (20%) out of 60 patients.

Discharging sinus : 8(13.34%) out of 60 patients.

Out of 60 patients of tubercular lymphadenitis, majority were presented with painless neck swelling (80%) followed by painful neck swelling (20%).

- Oral TB :

Out of 75 patients of EPTB, 1 patient was diagnosed as

case of oral TB. She presented with chronic non healing painful ulcer over palate.

5. Constitutional Symptoms:

Fever was seen in 63 (84%) out of 75 patients. Weight loss was seen in 45 (60%) out of 75 patients.

6. Methods of diagnosis of various forms of EPTB:

Microbiological diagnosis: 24 cases

Cytopathological diagnosis: 37 cases

Histopathological diagnosis: 67 cases

7. Treatment Outcome of Various EPTB Patients :

Out of 75 patients, 71 were cured, 3 patients had relapse of disease and 1 was lost to follow up.

As per treatment operational guidelines 2016 (WHO), histopathological diagnosis is deemed accurate hence the sensitivity & specificity of FNAC & microbiological analysis is calculated taking histopathology as the gold standard.

Discussion

Tuberculosis, "Captain of all these men of death", as referred to by John Bunyan in the 18th century is still the biggest health challenge of the world. It is known that 1.5% of India's population is affected with tuberculosis. Extra-pulmonary involvement can occur in isolation or along with a pulmonary focus as in the case of patients with disseminated tuberculosis (TB). EPTB constitutes about 15-20% of all cases of tuberculosis in immunocompetent patients.[10]

The present study of is an observational study conducted in the Department of Otorhinolaryngology in Civil hospital Ahmedabad. The study included 75 patients, coming to ENT OPD with suspected signs and symptoms of tuberculosis were included in the study and subjected to various diagnostic evaluations, the results of which were extrapolated to an assortment of bio-statistical analysis.

- Age :

The most commonly affected age group is 21-30 years (32%) followed by 11-20 years age group (21%). The mean age of affected patients in this study is 26.25 years.

In Yashveer et al,[11], the most commonly affected age group is 21-30 years followed by 11-20 years. Sample size was of 113 proven cases of tuberculosis of Head & Neck region.

In Jha et al,[12] the age of the patients ranged from 9 months to 62 years with a mean age of 23.7 years. The frequently affected age group by the disease in this study was 11-20 years (41%) followed by 21-30 years (36%).

VK Arora et al.[13] portrayed that the frequently affected age group is 15-24 years (8%). The study group was of 2849 EPTB cases.

Akkara et al.[14] reported that the peak incidence was noted in the 30s in their patient population, while Ricciardiello et al. reported that the mean age at diagnosis was 16.5 years.

Chavan et al.[15] reported the peak incidence in age group 11-40 years of age.

Akkara et al.[14] had 230 cases of EPTB, out of which 211 had TB of the ENT region.

Ricciardiello et al.[16] study included 323 cases presenting ENT localization of TB.

Table III : Comparison of present study (age group) with various studies.

	NUMBER OF PATIENTS (%)	AFFECTED AGE GROUP (YEARS)
Our Study	**32**	**21 - 30**
Chavan et al.	**75**	**11 - 40**
Yashveer et al.	**46**	**21 - 30**
Jha et al.	**41**	**11 - 20**

But no age is bar, as we have seen cases as young as 5 years and as old as 62 years.

- Gender :

In our study male to female ratio is 1: 1.08 exhibiting female preponderance. Female predilection has been reported in other studies as well. Male to female ratio was found to be 1:1.13 by Jha et al.,[12] 1:1.2 by Dandapat et al. and 1:13 by Subrahmanyam, 0.90:1 by Gupta et al.[17]

Table IV : Comparison of present study (male: female) with various other studies.

	MALE : FEMALE
Our study	1:1.08
Gupta et al.	0.90:1
Jha et al.	1:1.13
Dandapat et al.	1: 1.2

In our study, most of the patients have constitutional symptoms, fever was observed in 84% patients, while weight loss was observed in only 60% patients. Though in a series of 100 patients, Patel et al.[18] observed weight loss in 77% and fever in 73% cases. Similarly, Dandapat et al. also noted weight loss in 85% and fever in 40% of their patients.

Table V: Comparison of present study (constitutional symptoms) with other studies.

STUDY	FEVER	WEIGHT LOSS
Our study	84%	60%
Patel and Mehta et al.	73%	77%
Dandapat et al.	40%	85%

- Tuberculous Lymphadenitis:

TB lymphadenitis of the cervical region is the most typical manifestation of EPTB. In our study, 80% of the cases presented with Tuberculous Lymphadenitis. Similarly, in Akkara et al.[14] the incidence of tubercular lymphadenitis is 87.4% followed by the middle ear (2.8%), larynx (1.4%), and nasal cavity (0.5%). In a study by Bokare et al.[7] out of 170 patients studied, they found 164 patients (96.4%) of Cervical TB lymphadenitis, 5 patients (2.9%) of laryngeal TB and 1 patient (0.6%) of Tuberculous otitis media.

In the study by Ricciardiello et al.,[16], the most common site was the cervical lymph nodes (94.12%), followed by the larynx (4.33%) palatine tonsil (0.62%), oral cavity (0.31%), middle car (0.31%), and nasal cavity (0,31%). Thus, all studies report that the cervical lymph nodes are the most commonly affected site.

Table VI: Comparison of present study (TB lymphadenitis) with other studies.

STUDY	TB LYMPHADENITIS (%)
Our study	80%
Chavan et al.	89.5%
Bokare et al.	96.4%
Akkara et al.	87.4%
Ricciardiello et al.	94.12%

In our study, the most frequently involved nodes are level V (48%) followed by supraclavicular nodes (8%).

In the Oishi et al.[19] study, the most commonly affected cervical lymph node was the supraclavicular node (60%), followed by the internal jugular node (26.7%), whereas, according to the report by Bruzgielewicz et al.,[20] the internal jugular node (57.7%) and submandibular node (42.3%) were the only affected nodes.

Table VII: Comparison of present study (most commonly involved LN group) with other studies.

STUDY	LEVEL OF NODE INVOLVED	NUMBER OF CASES
Our study	Level V	48%
Bokare et al.	Level V	65%
Akkara et al.	Level V	88%

Male to female ratio for peripheral lymphadenopathy in our study was 1:1.4,. Fontanilla et al.[21]' in their study had found the same ratio.

Similarly, male to female ratio of 1:1.2 was noted by[22] and Nidhi et al.[23] in the studies done in Indian population.

Male predominance was noted by Bezabih et al.[24] where they found male to female ratio of 1.3:1. They found the peak incidence of tuberculous lymphadenitis in the age group of 30-40 years. In our study, the peak incidence was in the age group of 21-30 years.

In a study conducted by Singh & Tiwari,[25] the peak incidence was in the 20-30 years age group.

In Khan et al.[26] study, incidence of co-existing pulmonary TB is 11.4%.

Iguchi et al.[27] study revealed 14.3% of their cases with pulmonary TB.

In Nidhi et al.[23] study, the incidence of the pulmonary disease is 27.3%.

In the current study, none of the patients were seropositive, However, Akkara et al.[14] study revealed 2% of their cases had co-existing HIV. The incidence of HIV positivity in patients with TB lymphadenitis has been reported around 8 %

- The result of Ultrasonography in Extra-Pulmonary TB cases:

In our study, 7 cases (10%) showed Suppurative Lymphadenitis. In this group, the lymph nodal status was unilateral and single node being involved. There were only 3 cases which showed multiple nodal afflictions.

According to Desa, the three features which help to establish the diagnosis of tuberculous lymphadenitis are multiplicity, matting, and caseation.

In Yashveer et al.[11] although patients having multiple matted nodes form the largest group (47%), the number of patients having single discrete node was quite significant (32%).

Abscess and sinus formation were most common in the supraclavicular group of the lymph node. The number of patients having cervical abscess or sinus is 8 (13%) in our study. Yashveer et al.[11] had 5% of their cases with cervical abscess.

Fine needle aspiration cytology is well established diagnostic tool in the assessment of cervical masses. In developing countries, where the tuberculous infection is typical, the presence of granulomatous features on cytology is highly suggestive of tuberculosis.

In our study. We found it a handy diagnostic tool to identify the patients with tuberculous lymphadenopathy positively. It obviates the need for excisional biopsy most of the patients. Similar views were expressed by others. Mantoux test and ESR were useful adjuncts in helping to make the diagnosis.

Most common cytological pattern noted in our study was granulomatous inflammatory lesions (37%),

In Singh & Tiwari et al.[25] study, epithelioid granuloma with caseous necrosis (32.84%) followed by granuloma without caseous necrosis (30.9%) were the prominent cytological features.

A study by Handa et al.[28] in patients of tuberculous lymphadenitis reported a combination of well-formed epithelioid cell granulomas, giant cells, and caseous necrosis in 34% cases, epithelioid cell granulomas but no caseous necrosis in 12% cases, and only caseous necrosis not associated with granulomas, in 26% cases.

While in a study by Gupta et al.,[17] epithelioid clusters with or without Langhans giant cells with necrosis was most commonly observed a cytological pattern in 50.35% cases.

In the present study, we diagnosed 89% of the cases based on histopathological examination.

Similarly, Lee et al.[29] reported that they often diagnosed EPTB based on histopathological findings, including evidence of typical caseous granuloma and positive acid-fast stain.

It has been suggested that the paucibacillary nature of tissue other than sputum compromises the diagnosis rate in TB.[30]

- Ear Tuberculosis :

The tuberculous affliction of the ear is one of the rarer manifestations. It accounts for 10.6% of EPTB cases in the present study.

In a study Sharma et al.[31] 69 cases had the manifestations of TB in the ENT region. These included patients with tuberculous cervical lymphadenopathy

Table VIII: Comparison of present study (ear TB) with other studies.

STUDY	TB OTITIS MEDIA
Our study	10.6%
Bokare et al.	0.6 %
Akkara et al.	2.8%
Sharma et al.	1.4%

(91.3%), laryngeal TB (4.3%), tuberculous otitis media (1.4%), nasal TB (1.4%) and oral tuberculosis.

Though the classical description of TBOM has been multiple tympanic membrane perforations with painless ear discharge and disproportionate sensorineural hearing loss, in the present study, the findings were also of post-aural swelling and abscess formation with otitis media. The diagnosis was done when pus was sent for gram's & AFB staining and granulations from the middle ear sent for histopathological examination.

TBOM has also been known to be associated with PTB up to 32 %, but it was not seen in our study. 1 of the cases presented with post-aural abscess and a normal tympanic membrane.

The incidence of facial palsy in TBOM has been reported in the contemporary literature to be up to 35% and recovery even after successful treatment has been variable. HPE of diseased tissue from the ear is the surest way to confirm the diagnosis of TBOM. Detection rates of AFB have been reported to be in the order of 5-35%. AKT with or without surgery can cure TBOM effectively.[30] our cases had complete cure with category I AKT, with 2 patients diagnosed after ear surgery.

- Laryngeal Tuberculosis (LTB):

Dysphonia is the most typical presenting complaint, also being a prominent feature in laryngeal TB. 3 of our patients were detected with laryngeal TB. A study done by Akkara et al. shows cases with laryngeal affliction complained of hoarseness, and pain was not a chief complaint.[14] As per reports in the literature, 1 % of cases of PTB have LTB, and 100 % of cases of LTB have PTB.

Table IX: Comparison of present study (TB laryngitis) with other studies

STUDY	TB LARYNGITIS
Our study	4 %
Bokare et al.	2.9%
Akkara et al.	1.4%
Chavan et al.	4.5%

In a study conducted by Nupur Nerurkar et al.[32] out of 34 suspected cases of TB laryngitis, seen over a period of 3 years viz. 2009 to 2011, 13 were proved to have TB laryngitis.

The variation in incidence could be attributed to the difference in geographical distribution, nature of the population (native/migrant), socio-economic status and the expertise of the department conducting the study.

Besides, the predisposing factors (H/o smoking) and the presenting complaints (dysphonia and pain) are suggestive of carcinoma in Patients with laryngeal TB, even the histology may mimic carcinoma due to epithelial hyperplasia.[32]

Though it has been reported that hoarseness usually responds to AKT, the fibrotic healing of the tuberculous lesions may lead to long term compromise of voice. Again, AKT has proven to be effective; but surgery may be required in cases of airway compromise due to the active disease process or scarring in cured cases.

- Nasal Tuberculosis :

Nasal TB is a very rare entity even in countries with high disease load. We have not detected even a single case. There is a definite preponderance of females in all reported literature though no reasons have been ascribed to it. Mean age in the case series by Kim et al.[33] was 31 years. However, cases as old as 89 years have been reported. Reports of concomitant PTB range from 0 to over 75 %.

The complaint of bloody nasal discharge is reported by Dixit et al.[34] in their case report. Akkara et al.[14] Study had a case of nasal mass with sinus involvement. However, the most characteristic feature of nasal tuberculosis is septal involvement with perforation resulting in external nasal deformity.[14] A high index of suspicion is the only key especially since there can be different differential diagnosis. AKT has been reported to be sufficiently effective in achieving complete cure.

- Salivary Gland Tuberculosis :

The various manifestations of submandibular gland TB are :

1. Acute: an acute inflammatory lesion such as suppurative sialadenitis is rare.
2. Subacute: this is the most common type of manifestation. Majority of patients present in this form.
3. Chronic: chronic asymptomatic masses tend to grow slowly over years and often get confused with a benign neoplasm.[8]

In our study among 75 patients, 2 (2.6%) were diagnosed as submandibular salivary gland tuberculosis.

Both pati ents responded well to antitubercular therapy and surgery was avoided.

- GeneXpert :

In a study by Raja et al. of 67 patients of tubercular lymphadenitis, In GeneXpert M tuberculosis/RIF assay had a sensitivity of 82.60% and specificity of 85% when compared to histopathology. Further the PPV and NPV was found to be 92.68% and 68% respectively. GeneXpert M tuberculosis/RIF showed 2 cases of rifampicin resistance out of 67 cases. The GeneXpert M tuberculosis/RIF showed the results in 0.79 days.[35]

As per Chavan et al.[15] CBNAAT is 93.42% sensitive and 86.96% specific and has a positive predictive value of 95.95%.

Our study showed similar results with specificity of GeneXpert 70.76% when compared to histopathology. PPV was found to be 95.35%.

All the detected cases were rifampicin sensitive in this present study except 1 patient of supraclavicular lymphadenitis. Patient was primarily detected as a case of EPTB, drug resistant TB.

Conclusion

Extra pulmonary tuberculosis is a significant health problem worldwide. It poses a challenge in diagnosis and monitoring of the treatment. EPTB specially in high disease load countries like India is still an important disease entity.

In this present study female predilection was more as compared to males and maximum number of patients were from age group 21-30 years of age, with mean age 26.25 years.

The ear, nose, paranasal sinuses, pharynx, larynx & cervical lymph nodes are very important anatomical sites of extrapulmonary affliction. Peripheral lymphadenopathy is the most common site of EPTB. In our study 80% of the cases presented with tubercular lymphadenitis.

Out of 75 patients studied in present study, there was no case of nasal tuberculosis.

The symptoms of EPTB in otorhinolaryngology are varied; hence, all otorhinolaryngologists should be aware of the manifestations of EPTB to suspect and diagnose/ rule out by specific investigations.

Only a high index of suspicion with proper tissue diagnosis can detect these cases. Patients usually respond well to the recommended category I AKT. Surgery may be required in some cases.

CBNAAT helps in quick diagnosis, and also tells about rifampicin sensitivity, as compared to gold standard test HPE, which leads to early initiation of drug sensitive treatment, early resolution and less lost to follow up with better quality of life for patients.

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Main Article

Otomycosis with Tympanic Membrane Perforation : Treatment using Clotrimazole - Soaked Gelfoam

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Deekshith Shetty,[1] Blessy B Prabha,[1] Chinmayee R Hebbar[1]

ABSTRACT

Introduction

Otomycosis with perforated tympanic membrane is commonly encountered in clinical practice and can pose a challenge to treat since commonly used clotrimazole solution can irritate the middle ear cavity. Here, the objective of the study was to use self-absorbing material like gelfoam soaked in antifungal cream as a patch over the tympanic membrane perforation to reduce seepage of clotrimazole solution into the middle ear and patient's compliance was studied.

Materials and Methods

26 patients presenting to the out-patient department with otomycosis and a perforated ear drum underwent thorough aural toileting followed by placing multiple pieces of gelfoam soaked in clotrimazole cream to patch the perforation and were asked to instill clotrimazole ear drops for 2 weeks and followed up. Compliance to treatment in the form of pain tolerance and response to treatment were noted down.

Results

44% of patients complained of pain of which 28% experiencing mild and 11% experiencing moderate pain at the beginning of therapy. 13 out of 26 experienced mild pain on continuing therapy and all but one were compliant with the entire treatment. 73% of patients had complete resolution at the end of 2 weeks and the remaining 6 out of 26 needed additional week of ear drops for complete resolution. 3 of them with a pinpoint perforation had a healed membrane at the end of the therapy.

Conclusion

Using Clotrimazole-soaked gelfoam pieces may be a safer and more effective alternative for enhancing treatment compliance, achieving better disease clearance, and reducing the number of follow-up visits.

Keywords

Otomycosis; Tympanic Membrane Perforation; Medicated Gelfoam

Otomycosis is one of the common conditions encountered in a general otolaryngology clinic setting. It poses a challenge for both patient and the doctor since patient requires a long term treatment in order to prevent recurrence. Treatment generally involves thorough aural toileting and use of topical clotrimazole preparations in the form of ear drops which need to be given for 2-3 weeks. The treatment can be more challenging in the event of a tympanic membrane perforation associated with otomycosis. The perforation can be a pre-existing condition secondary to a otitis media or can be a new perforation secondary to the existing otomycosis. In event of such perforation use of clotrimazole ear drops can pose a challenge since exposure of middle ear mucosa to the preparation can cause intense pain and burning sensation for patient and also long term use is known to cause ototoxicity. Alternative treatment therapy using instillation of drops with a cotton bud applicator or use of other preparation like

1 - Department of ENT, Father Muller Medical College Hospital, Kankanady, Mangalore.

Corresponding author:
Dr Deekshith Shetty
email: dishu.shetty@fathermuller.in

clotrimazole creams has been tried with varying success. Various alternatives like paper patch has been tried to prevent the seepage of drops to middle ear during instillation. But most act as a foreign body in long run and need frequent changing and removal thereby increasing out patient visit and burden to the patient. Using a self absorbing material as a patch to block the tympanic to prevent seepage and exposure of middle ear mucosa to the drops would be beneficial by reducing the outpatient visit of the patient since the material need not be removed or changed over a long periods. Hence the study was undertaken.

Materials and Methods

The aim of the study was to note the compliance of the patients to Clotrimazole ear drops given for otomycosis with a perforated Tympanic membrane and to study the outcome of the treatment in such cases. 26 patients visiting Out Patient Dept of ENT at a peripheral center of our institute with Otomycosis with a perforated Tympanic membrane were included in the study from July 2023 to June 2024 after obtaining informed consent and after ethical clearance obtained from the institutional ethics board. All the patients >18yrs suffering from Otomycosis with a perforated Tympanic membrane were included in the study. Patients with an active middle ear disease and patients with Diffuse Otitis externa or narrow canal with difficult access for insertion of gelfoam were excluded from the study. Most cases included in the study were diagnosed with otomycosis clinically, microscopic examination of the debris was done using Gram's and/or Lactophenol Cotton Blue staining in a few doubtful cases (Figure 1 & 2). Included patients were assessed for the extensiveness of the hyphae in the EAC (Figure 3), TM and middle ear[11] as 0 - None (No mycotic hyphae), 1 - Mild (Mycotic hyphae of one side of EAC), 2 - Moderate (Mycotic hyphae of two or more sides of EAC), 3 - Severe (Diffuse mycotic hyphae involving EAC and the middle ear), then underwent thorough aural toileting and the Tympanic Membrane findings were noted down (Figure 4) followed by insertion of multiple pieces of Clotrimazole cream soaked gelfoam, of appropriate sizes, to cover the perforation (Figure 5) and Clotrimazole ear drops were instilled in the OPD itself. Pain was noted according to the Pain assessment scale and any other discomfort were noted down. Patients were asked to continue the drops three times a day for 2 weeks and were asked to review. History of any pain or discomfort were assessed on follow up and presence of any residual disease and Tympanic Membrane findings were noted down (Figure 6).

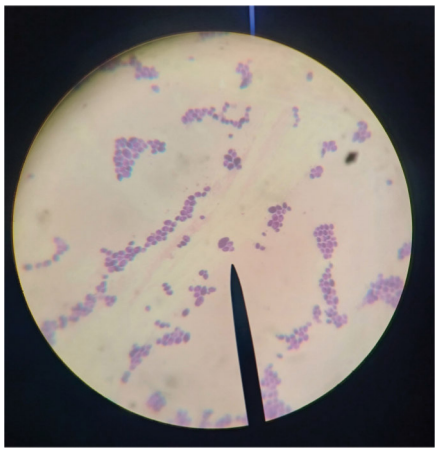

Fig. 1. Shows Gram positive budding yeast cells under Gram's stain in 100x

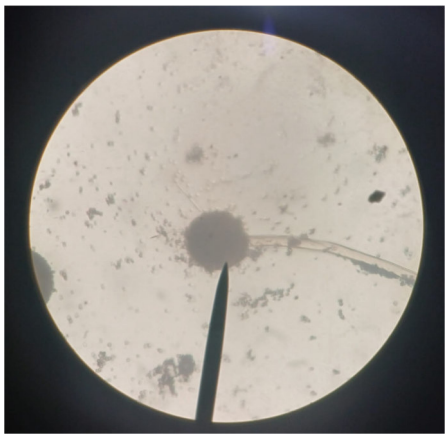

Fig. 2. Shows Aspergillus niger under LPCB mount in 40x

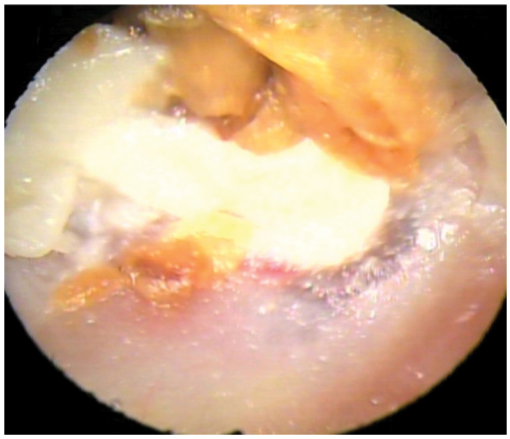

Fig. 3. Otomycotic debris seen adhered to the Tympanic Membrane.

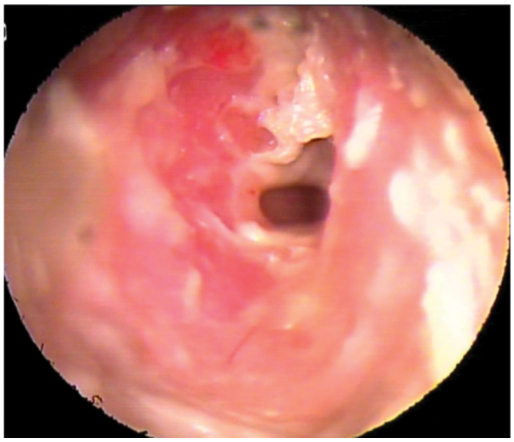

Fig. 4. Small Central Perforation seen involving Anterior quadrant after aural toileting.

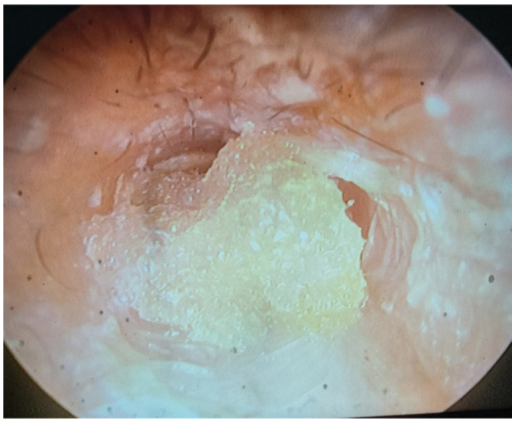

Fig. 5. Medicated Gelfoam inserted into the canal.

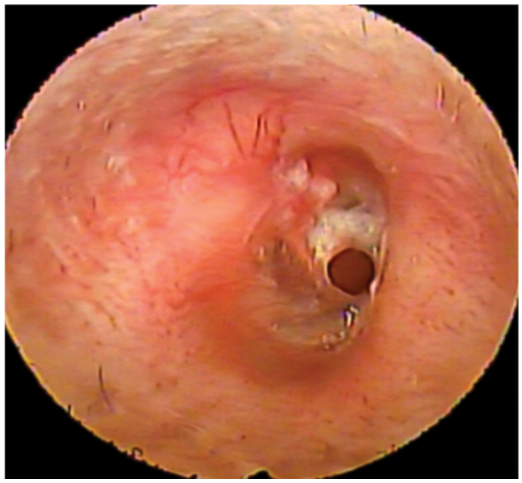

Fig. 6. Two weeks follow up showing disease clearance and a residual perforation

Results

Table I: Age Distribution

AGE DISTR-IBUTION	<20 YRS	21-30 YRS	31-40 YRS	41-50 YRS	51-60 YRS	61-70 YRS
Subjects	0	5	8	5	2	6

Table II: Grading of Extensiveness of Otomycosis

EXTENSIVENESS OF OTOMYCOSIS	AT PRESENTATION	AFTER 2 WEEKS OF THERAPY
Grade 0	0	19
Grade 1	7	6
Grade 2	9	0
Grade 3	10	0

In our study we included 26 patients with otomycosis and a perforated eardrum over one year, including 8 males and 18 females (Table I). The average patient age was 44 years (Table I). Initial use of Clotrimazole drops caused pain in 44% of patients, with 28% experiencing mild pain and 11% moderate pain (table III). One patient reported very severe pain upon instilling the drops at the clinic. Following gel foam insertion, 7 out of 26 patients felt a blocked sensation

Table III: Pain Scale on Instillation of Drops

PAIN DURING INSTALLATION OF DROPS	AT THE HOSPITAL (WONG - BAKER SCALE)	AT HOME (VISUAL DESCRIPTOR SCALE)
No pain	18	12
Mild pain	5	13
Moderate pain	2	0
Severe pain	0	1
Very severe pain	1	0
Worst pain	0	0

Table IV: Status of Tympanic Membrane Perforation

TYMPANIC MEMBRANE STATUS	AT PRESENTATION	AT 2 WEEKS FOLLOW UP
Small CP	13	10
Medium CP	9	9
Large CP	4	4
Subtotal CP	0	0
Healed membrane	0	3

in their ear canals. After one week of treatment, 13 patients experienced mild pain when applying drops at home, and all but one patient adhered to the treatment plan (Table III). The non-compliant patient reported severe pain and blocked sensation on the third day, returned for suction clearance of the gel foam, and chose an alternative treatment. The majority of patients (15 out of 26) had no prior ear issues. At the start, 10 patients had grade 3 otomycosis (Table II), and a small central perforation was the most common finding after aural toileting. After two weeks of treatment, 73% of patients showed complete disease clearance, and in 3 patients with pinpoint perforations, the membrane healed completely (Table IV). No gel foam was seen in the ear canal, at 2 weeks follow up, in all but six patients who had grade 1 residual disease (with remnant gel foam) and required an additional week of Clotrimazole drops.

Discussion

Otomycosis is one of the common conditions encountered in a general otolaryngology clinic setting and its prevalence has been quoted to range from 9%[1] to 27.2%[2] among patients who present with signs and symptoms of otitis externa and up to 30%[3] in patients with discharging ears. It is worldwide in distribution with a higher prevalence in the hot, humid, and dusty areas of the tropics and subtropics[4]. Symptoms of otomycosis include pruritis, pain, otorrhoea, and hearing loss. Otomycosis can also lead to tympanic membrane perforations[4] and spread to the middle ear. In a clinical study by Ram Kumar, the incidence of tympanic membrane perforation in otomycosis was found to be 11%, and perforation was more common with otomycosis caused by Candida albicans.[5]

The most widely used treatment regimen for otomycosis includes mechanical debridement of the ear canal along with local antifungal agents. However, the presence of TM perforation is associated with 2 problems: antimycotic solutions are irritant to middle ear and may be ototoxic to the cochlea. Namely, direct instillation of antifungal agents with a dropper is associated with stinging and burning sensation.[6] Clotrimazole, which is the most commonly used antimycotic medication, is practically insoluble in water. Solvents used in dermatologic solution are propylene glycol, isopropyl alcohol, and polyethylene glycol. Although they have a good drying effect, they are irritant to middle ear mucosa and cause burning or stinging sensation.[6] Some of the antifungal agents also known to be potentially ototoxic.[7] These medications may reach the inner ear by perfusion via the round window membrane.[8] Arguably, some of the antimycotic agents have been implicated as a cause of sensorineural hearing loss by inflicting damage to the inner hair cells of the organ of corti.[9] Various treatment methods have been

proposed to avoid exposure of middle ear cavity to the antimycotic solutions.

In a study done by Hurst et al, twenty two patients with perforated Tympanic membrane secondary to otitis externa where studied. They treated them by inserting a gauze wick saturated with hydrocortisone, clotrimazole, framycetin, and gramicidin.[10] Inserting ear wick saturated with antifungal solution or cream can increase the contact period with canal skin and prevent seepage of medication into the middle ear but the wick can act as a foreign material in the canal and may need frequent follow ups for changing.

Abou-halawa et al proposed self medication with clotrimazole solution using Q-tips. They compared them with a group who had a gauze wick impregnated with clotrimazole cream inserted in the ear with wick being changed every third day for a week. After three weeks all patients in Q-tip group and ear wick group had relief of their ear itching and complete disappearance of fungal growth but patients in ear wick group had sense of ear blocking and wetness during period of treatment and transient burning sensation was reported by 2 patients in Q-tip group.[6] Also self medication needs proper training in technique to avoid any additional injury.

A study done by Görür K et al included Fifty-six otomycosis patients with central tympanic membrane perforations were randomized into two groups as patched (PG), were the perforated tympanic membrane was covered with carbon paper soaked in Castellani's solution, and non-patched (NPG) groups. In both groups, Castellani's solution was applied to the external auditory canal. They found that the time to complete recovery and disease recurrence was significantly shorter in patched group than non patched group.[11]

In our study we used Clotrimazole soaked gefoam as a barrier to avoid seepage of Clotrimazole ear drops into middle ear when instilled at home by patients. We noted that all but one patients had no to mild pain on instilling drops at home following gelfoam insertion and were compliant for the entire treatment course. 19 out of 26 had complete disease clearance and 3 of them with a pinpoint perforation had a healed membrane at follow up. Our study is comparable to a study done by Dorasala S et al who used a similar technique in six patients of recalcitrant Otomycosis and achieved complete cure with no further recurrence of otomycosis. The gelfoam acts as a very good desiccant by absorbing the excess water and reducing the moisture in the external auditory canal. It holds the antifungals instilled and swells up maintaining contact with the external auditory canal skin for prolonged time and also facilitating slow release.[12] It also prevents seepage of solution to middle ear to a large extent and being absorbable doesn't demand frequent follow ups or clearance.

Conclusion

The study concluded that treating otomycosis with a perforated eardrum presents challenges due to the stinging sensation and potential effects of Clotrimazole drops on the middle and inner ear. Various treatments have been explored to improve treatment compliance and disease clearance.The use of Clotrimazole-soaked gelfoam pieces may be a safer and more effective alternative for enhancing treatment compliance, achieving better disease clearance, and reducing the number of follow-up visits.

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Case Series

Giant Sphenochoanal Polyp - A Case Series

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Lakshanadeve V.M.,[1] Sivaranjini,[1] Sithananda Kumar,[1] Surendra,[2] Gadha,[1] Hari[1]

ABSTRACT

Introduction

Chronic rhinosinusitis with polyposis is a common condition occurring world wide . Polyps arising from unusual regions of the nasal cavity and paranasal sinuses are quite rare. One such uncommon entity is the sphenochoanal polyp. There is very less literature on the occurrence of sphenochoanal polyps world wide. It is most commonly seen in children and young adults.

Case Series

We present three of our cases with isolated sphenoid sinusitis with polyps hanging in to the nasopharynx. These patients were managed surgically by functional endoscopic sinus surgery and removal of polyp under GA . They were all given a course of oral steroids under antibiotic cover post operatively.

Conclusion

Although sphenochoanal polyps have been described about in literature they are less common from those occurring from the other paranasal sinuses. A slim probability of immotile cilia syndromes should be kept in mind in case where there are recurrences. A unilateral nasal mass arising from the posterior part of roof of nasal cavity should rise suspicion of malignancy, rathkes cleft cyst and meningoenchephalocoels. Drainage of the middle meatus is crucial in preventing iatrogenic complications.

Keywords

Sphenochoanal Polyp; Isolated Sphenoid Sinusitis, Giant Sphenochoanal Polyp

Chronic rhinosinusitis is a common disorder affecting the upper respiratory tract. Most common presenting feature of chronic rhinosinusitis is sinonasal polyposis. A choanal polyp is a benign solitary mass originating from the edematous and inflamed mucosa of the paranasal sinuses, passing through the sinus ostium, located within the nasal cavity, and extending to the nasopharynx with a wide pedicle[1]. Sphenochoanal polyps are a rare occurrence and they constitute to 3-6% of the nasal polyposis worldwide[1]. The most common presentation is with an antrochoanal polyp. Because isolated sphenoid sinusitis with polyposis is not well-known, underreported and requires radiological imaging to confirm the diagnosis, it is misdiagnosed as antrochoanal polyp , meningoencephalocoel and rathkes cleft cyst.[1,2,3]

1 - Department of ENT, Pondicherry Institute of Medical Sciences

2 - Department of ENT, Christian medical college , Vellore

Corresponding author:
Dr Sithananda Kumar
email: drkumar123@gmail.com

Here, we present a case series of sphenochoanal polyps in young adults.

Case Series

Case 1 : A 26 years old male patient presented with complaints of headache with bilateral nasal obstruction since 2 years associated with nasal discharge. He also had snoring and mouth breathing with one episode of spontaneous nasal bleed for one day. Patient had history of surgery for Phimosis and syndactyly of right index and middle finger at age of 4 years. On anterior rhinoscopy examination there was a polypoidal mass arising from the left nasal cavity. In the oropharynx polypoidal mass was seen with prominent blood vessels hanging from nasopharynx obscuring posterior pharyngeal wall. Diagnostic nasal endoscopy shows polypoidal mass extending from roof of nasopharynx filling the choana hanging downward to oropharynx (Fig.1 a, b) A CT nose with PNS was taken shows cluster of peripherally enhancing polypoidal soft tissue density lesion collectively measuring 9.2 x 2.8 x 3.1 cm in the nasopharynx with extension and suspicious communication with left sphenoid sinus (Fig.1 d, e). Hence diagnosis of sphenoid sinusitis with polyposis was made.

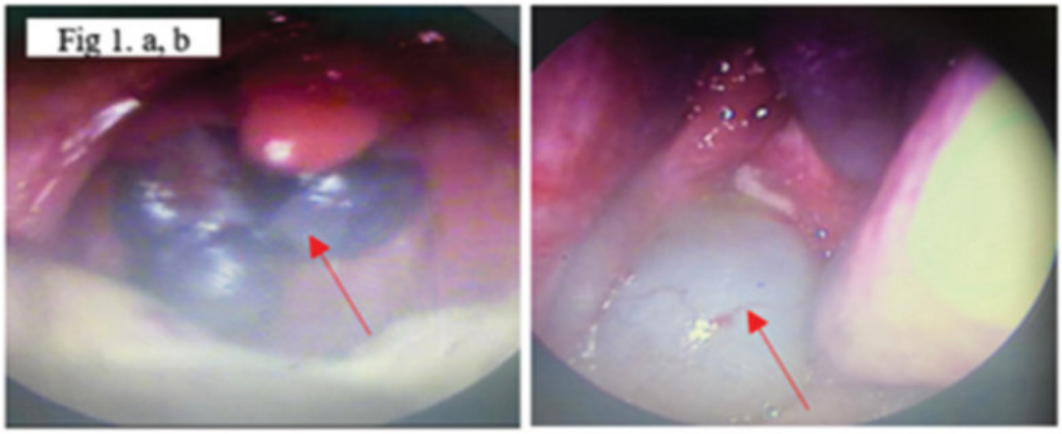

Fig. 1 a, b. Clinical endoscopic picture of the polyp hanging from the nasopharynx into the oropharynx.

Fig. 1. c. Intraoperative picture of the mass after excision

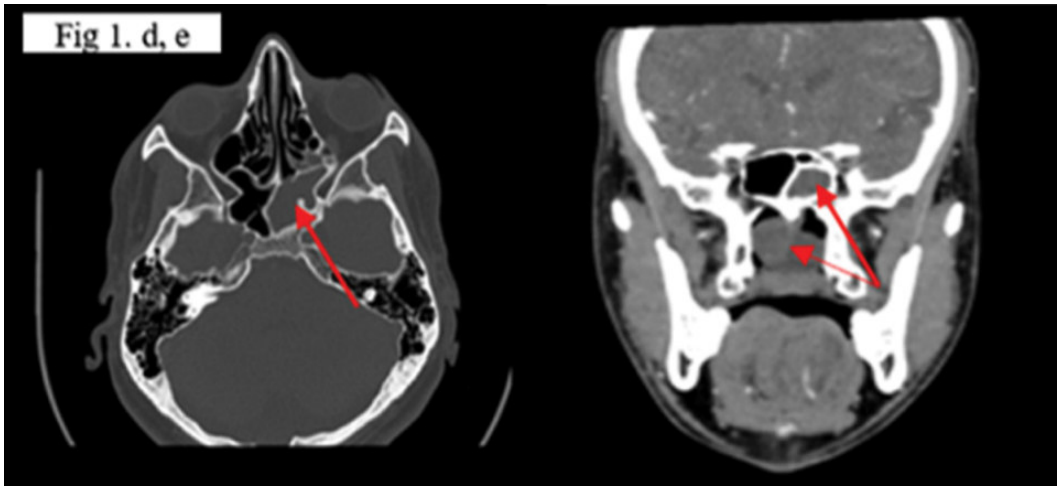

Fig. 1 d, e. CT nose and PNS : Image showing mass in the sphenoid sinus and in the nasopharynx.

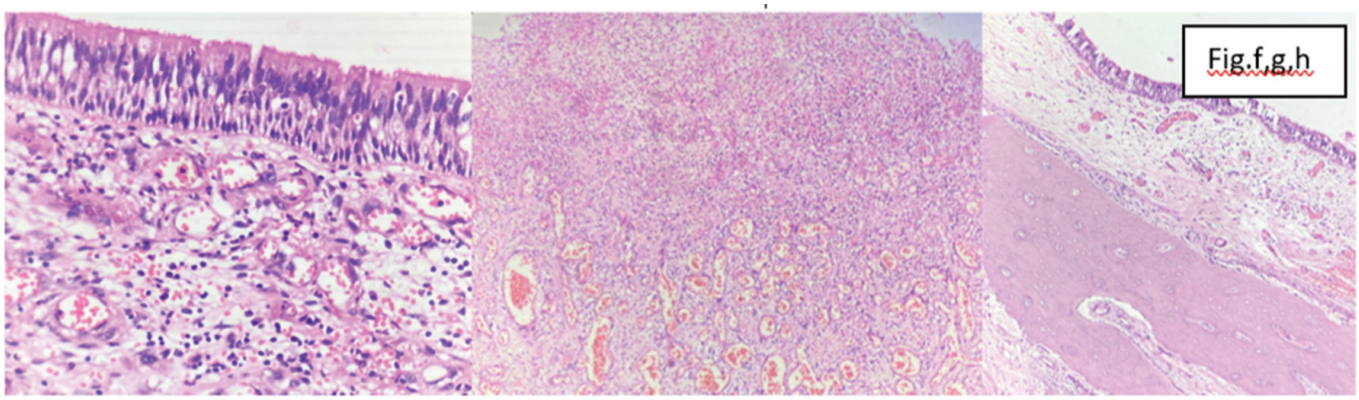

Fig. 1 f, g, h. Histopathology - hematoxylin and eosin staining with 40x and 10x magnification : Respiratory epithelial lining with congested vessels and lymphoplasmacytic infiltrate, with granulation tissue with area of necrosis and hemorrhage.

Case 2 : 17 year old male presented with bilateral nasal obstruction for 3 months and hyponasal voice. In anterior rhinoscopy no mass was visualised, although a polypoidal mass was seen hanging into the oropharynx. endoscopically, there was a single smooth fleshy pinkish polypoidal mass medial to left middle turbinate arising from the sphenoethmoidal recess reaching into the choana. A CT scan showed non enhancing polypoidal smooth marginated soft tissue mass measuring approximately 6 x 1.7 x 2.6 cm seen arising from left sphenoid sinus extending into the nasopharynx causing luminal compromise.

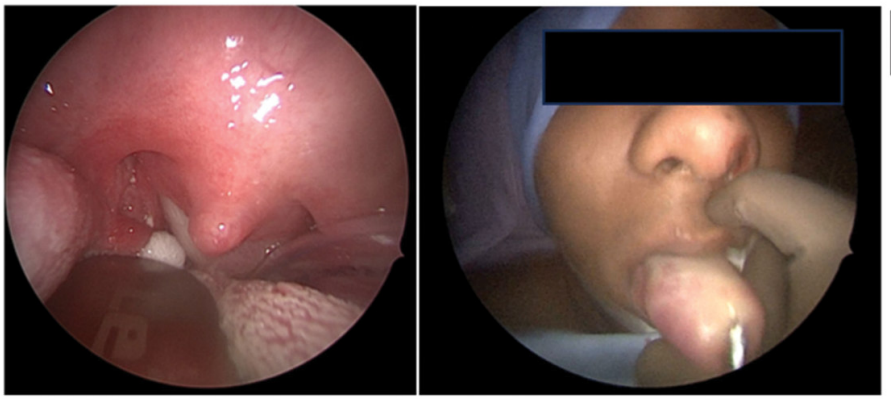

Fig. 2 a, b, c. Intraoperative picture : mass seen in the oropharynx and being delivered out through the oropharynx

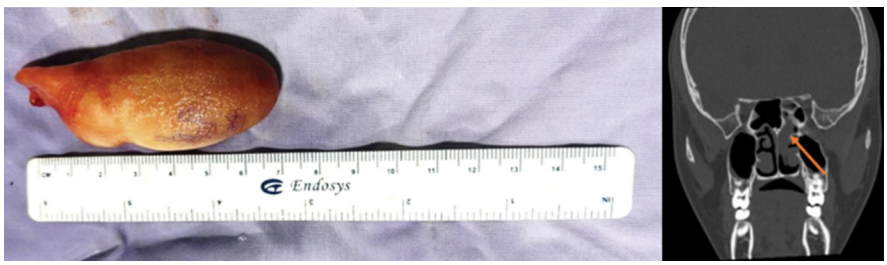

Fig. 2d. CT image showing mass soft tissue density in the sphenoid sinus reaching till the nasopharynx

Case 3 : 27 years old female came with complaints of left ear discharge for the past 2 years. Incidentally on examination of the nose a smooth polypoidal mass was seen at the level of middle turbinate on the left side of the nasal cavity. Endoscopically, a small polyp was seen arising from the sphenoethmoidal recess reaching medial to the middle turbinate. A CT of the nose and PNS showed 3.2 x 1.2 x 2.1cm smooth homogenous soft tissue density in the left sphenoid sinus reaching into the nasal cavity. She also had a medium central perforation of the left tympanic membrane with mild conductive hearing loss.

Fig. 3. CT showing isolated left sphenoid sinus polyp

In all three patients Frustenbergs sign and cough impulse was negative. The mass was insensitive to touch and did not bleed, probe passed all around except superiorly. The first two patients were taken up for surgical intervention. The third patient did not comply with surgical management of the nasal mass along with grafting of the tympanic membrane.

Management : After haematological and preanesthetic evaluation patients underwent Endoscopic Polypectomy with Functional Endoscopic Sinus Surgery, anterior to posterior Messeklingers approach.

FESS was done to avoid obstruction of the sinuses draining into the middle meatus. Hence a wide middle meatal antrostomy was done on the affected side for both the patients. This was followed by opening up of the anterior and posterior ethmoidal air cells leading to the sphenoid sinus by trimming the superior turbinate. This approach was used to make the sphenoid sinus drain into the middle meatus along with the other paranasal sinuses effectively and for post operative cleaning; to ensure that there is no recurrence. Intraoperatively polyp was seen arising from floor of sphenoid ostium extending to choana till the tip of epiglottis in the first case and touching the posterior one third of tongue ion the second case. This huge polyp measuring about 10 cm in length was excised in toto and was sent for biopsy.

Histopathology reported both the cases to be inflammatory sinonasal polyp with areas of necrosis and Infarction. There were also areas of congested and dilated blood vessels with lymphoplamacytic infilterates.

Postoperatively, patients were given intravenous amoxicillin clavulanate 1.2g twice a day with gastroprotectant. Nasal pack was removed on the second day followed by nasal douching thrice a day and discharged. All three patients were given oral antibiotics and oral steroids in the dosage 1g/kg body weight for 7 days. After 1 week post op, regular FESS cleaning was done at fortnight interval and the patients have been on 6 months follow-up after surgery until date and there has been no recurrence. The third patient has lost to follow up after the first 3 months. She had completed a course of steroids under antibiotic cover.

Discussion

Nasal polyps can originate from any of the paranasal sinuses. Those due to allergic etiology present more anteriorly, probably attributed to the allergen exposure occurring anteriorly. Larger polyps spread to the choana and nasopharynx as this part of the nasal cavity is mroomy and the hard palate also descend downwards posteriorly. The sphenoid sinus ostium that is situated posteriorly is one of the major reasons for these polyps to present more towards the choana.[1,2] Zuckerkandl initially reported these rare sphenochoanal polyps in 1892. These are more

commonly seen in younger adults as compared to sinonasal polyposis.[3] only 11 cases have been found with sphenochoanal polyps in children.[1] They represent 4-6% of the nasal polyposis. There is less association between choanal polyp and allergic diseases along with aspirin triad but still the aetiology of the choanal polyp remain uncertain.[4,5] According to Berg's study these choanal polyp are believed to arise from intramural cysts in the antrum or the sphenoid sinus. Inflammatory aetiologies accounted for 61%–82% of isolated sphenoid lesions in the major documented series.[3,4,5]

Sphenochoanal polypi symptoms are nonspecific. In children with acute isolated sphenoid sinusitis, unilateral nasal symptoms like nasal discharge , nasal obstruction common which later progresses to bilateral symptoms when the polyp reaches the choana.[1] There may be head ache more over the vertex and occipital region, aural fullness related to eustachian tube obstruction and even ophthalmic symptoms depending on the degree of disease.[2,3,6]

The diagnosis is made with the help of radiological imaging, such as computer tomography or magnetic resonance imaging of the paranasal sinuses. when radiation exposure is a risk factor.[3] This is because, clinical examination gives deceptive impression of a maxillary antrochoanal polyp or in certain cases, meningocoele, meningoencephalocoele, rathkes pouch or nasopharyngeal angiofibroma due to its posterior location and origin from the sphenoethmoidal recess.[3,4,5] These uncommon lesions seen in 1% to 2.7% of people with a diagnosis of paranasal sinus illness is treated surgically after ruling out the possibilities of encephaloceles, vascular malformations, and vascular neoplasms. Antrochoanal polyps, benign lesions like inverted papillomas, fungal sinusitis, foreign bodies, malignant tumors, lymphomas, pituitary lesions and Thorwaldt cysts, are among the conditions included in the differential diagnosis.[4,5]

Histology confirms the diagnosis as they are found to have a cystic core encircled by oedema and inflammatory cells, with respiratory epithelium covering the surface.[6,7,8]

The preferred course of action for Sphenochoanal polyps is functional endoscopic sinus surgery, that is considered as the "gold standard" [1] which aims to remove the polyp En -bloc and widen the sphenoid ostium along the inferior and medial wall as well as clear the sinuses. Compared to simple polypectomy, endoscopic procedures are less aggressive and better visualised due to the close relationship between the sphenoid sinus and important anatomical structures, reducing the likelihood of recurrence. [1,4,5]

The stalk of the polyp needs to be excised with care as yanking the polyp under improper vision may lead to injury to the proximal structures like the optic nerve and the internal carotid artery.[6]

Conclusion

Sphenochoanal polyps are rare,[8] but not uncommon in younger age groups. There is no clearcut cause postulated for isolated sphenoid sinus polyp. Cases of isolated sphenoid sinusitis are the most common cause of sphenoid lesions. They can be misleading as a possibility of intracranially extending benign nasal mass such as meningocoele, encephalocole, rathkes cleft cyst, angiofibromas needs to be ruled out with radiological imaging before diagnosing as isolated sphenochoanal polyp. During excision, drainage of all the paranasal sinuses adequately into the middle meatus is essential in preventing iatrogenic sinusitis. Similar to the CRS with polyposis, post operative steroids is crucial to prevent recurrence.

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Case Series

Cat Scratch Disease - A Diagnostic Dilemma in Cervical Lymphadenopathy

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Pruthvi Raj S,[1] Suhasini,[1] Vijaya T N,[1] Jagannath B,[1] Anuja[1]

ABSTRACT

Introduction

Cervical lymphadenopathy in adults can be infective, benign or malignant. Wide spectrum of clinical diagnosis is possible as patients experience constituitional symptoms along with regional lymphadenopathy. Histopathological examination and serological tests provide diagnostic confirmation for accurate treatment.

Case Series

This is a descriptive case series study conducted at a tertiary care centre between Feb 2023- March 2025. We report the clinico-epidemiological profile and management of 3 patients with cat scratch disease. All patients presented with cervical lymphadenopathy and were diagnosed and managed with surgery and antibiotics.

Conclusion

Cat scratch disease is an uncommon cause of cervical adenopathy in India. It is a benign self-limiting disease caused by Bartonella Henselae. Histopathological examination can vary from lymphoid hyperplasia to chronic granulomatous inflammation with necrosis. All patients in our case series were managed successfully and were followed for 6 months post treatment.

Keywords

Cat-Scratch Disease; Lymphadenopathy; Lymph Nodes

Cervical lymphadenitis in adult population can be infective, benign or malignant. Wide spectrum of clinical diagnosis is possible as majority of the patients experience similar constituitional symptoms such as fever, malaise, fatigue along with regional lymphadenopathy. Cat Scratch Disease (CSD) is characterized by self-limiting lymphadenopathy caused by *Bartonella Henselae*.[1] *B. Henselae* is a gram negative intracellular bacteria present in various mammals including cats, rodents and humans. They are transmitted mainly by direct contact such as animal scratches and bites, or by some arthropods such as sand flies, lice, fleas, biting flies, and ticks.[2] It usually presents with skin lesions with regional lymphadenopathy. Atypical presentation is seen in in about 5%–25% of all cases having fever, multi-organ involvement with or without lymphadenopathy.[(3)] Histopathological examination & serological tests provide diagnostic confirmation for accurate treatment. We are reporting 3 such cases for emphasizing its importance in the differential diagnosis of cervical lymphadenopathy.

1 - Department of ENT, Kempegowda institute of medical sciences, Bengaluru

Corresponding author:

Dr Pruthvi Raj S

email: pruthvirajjs@gmail.com

Case Series

This is a descriptive case series study conducted at a tertiary care centre between Feb 2023-March 2025. All 3 patients presented with neck swelling (Fig.I) along with constituitional symptoms in 2 patients. The clinico-epidemiological profile is presented in table I.

Table I : Clinico-Epidemiological Profile of Patients

CASE NO.	AGE / GENDER	DURATION OF CERVICAL LYMPHADENOPATHY	CONSTITUITIONAL SYMPTOMS	CO-MORBIDITIES	H/O CONTACT WITH ANIMALS	CLINICAL EXAMINATION LEVELS OF LYMPH NODES INVOLVED
1	40/M	10 days	Fever, weight loss	Nil	+	Left IB, II
2	48/M	2 weeks	Fever (on/off)	Diabetes mellitus	+	Left IB, II, III
3	52/F	3 months	-	Nil	-	Right IA, IB, II

Fig. 1. Left cervical swelling (CASE 1)

Patients underwent complete ENT examination, blood, radiological & FNAC (fine needle aspiration cytology) investigations. The findings are mentioned in table II. ESR was raised in all 3 patients. In all the cases, chest x-ray was normal, mantoux was negative and sputum for AFB & CBNAAT was negative.

Table II: Investigations profile

CASE NO.	ESR	USG NECK	CECT NECK	FNAC
1	70mm/hr	Multiple enlarged lymph nodes with altered echotexture & loss of fatty hila with areas of necrosis clumped together in the form of conglomerated hypoechoic abscess	Conglomerated multiloculated hypodense lesion showing rim enhancement & focal areas of necrosis (left IB,II,III,IV measuring 4.8x4.9x4.6cm, vol 40cc)	Granulomatous inflammation with abscessZN stain – negativePAS – negativeNo malignant cells
2	88mm/hr	Multiple enlarged lymph nodes with altered echotexture & loss of fatty hila with areas of necrosis clumped together in the form of conglomerated hypoechoic abscess	Multiple matted lymph nodes showing focal areas of necrosis (left IB,II,III measuring 3.2x3.4x3.1cm, vol 20cc)	Granulomatous inflammation with abscessZN stain – negativePAS – negativeNo malignant cells
3	52mm/hr	Multiple enlarged lymph nodes with altered echotexture & loss of fatty hila with areas of necrosis.	Enlarged lymph nodes with matted appearance showing peripheral enhancement & areas of necrosis (right IA.IB,II,III measuring 4.8x4.9x4.6cm)	Reactive lymphadenitisZN stain – negativePAS – negativeNo malignant cells

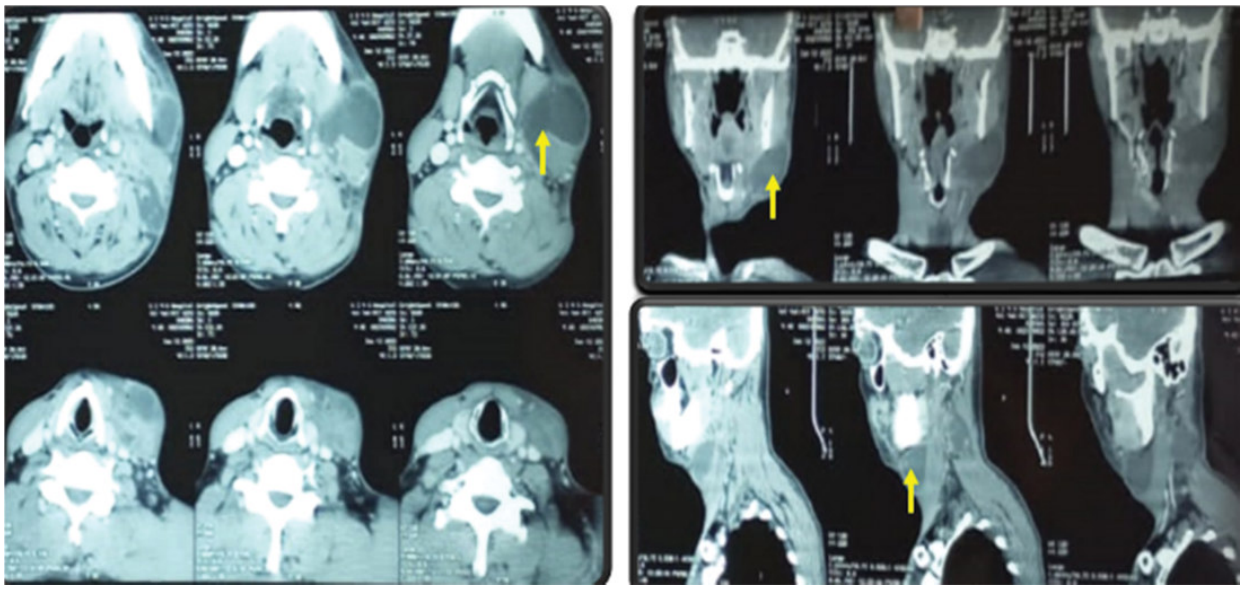

Fig. 2. CECT Neck

Table III: Management & treatment outcomes (WSSS- Warthin starry silver stain)

CASE NO.	ANTIBIOTICS	SURGICAL EXCISION OF INVOLVED LYMPH NODES	HISTOPATHOLOGICAL EXAMINATION	SERUM IMMUNOASSAY FOR BARTONELLA HENSLAE	OUTCOME (POSTOP FOLLOW-UP)
1	Ceftriaxone + metronidazole Cotrimoxazole (Post-op)	Yes	Areas of stellate necrosis, microabscesses with palisading histiocytes WSSS +	+	Recovery satisfactory Recurrence- nil
2	Ceftriaxone + metronidazole Cotrimoxazole (Post-op)	Yes	Areas of stellate necrosis, microabscesses with palisading histiocytes & giant cells WSSS +	+	Recovery satisfactory Recurrence- nil
3	Ceftriaxone Cotrimoxazole (Post-op)	Yes	Areas of stellate necrosis, microabscesses with palisading	+	Recovery satisfactory Recurrence- nil

All patients were initially treated with intravenous antibiotics (Table III) and anti-inflammatory drugs. In case 1, patient was already started on anti-tubercular treatment (ATT) by a physician before presenting to us based on FNAC findings. USG guided aspiration of pus was done in case 1 & 2. Gram stain showed plenty of pus cells and gram negative bacilli. Pus for CBNAAT was negative. As patients were not responding to the antibiotics and anti-inflammatory medications, CECT neck (Fig. 2) was done to evaluate further and patients were further managed with neck dissection (Fig. 3) and was sent for histopathology. (i.e., excision of involved lymph nodes; Fig. 4).

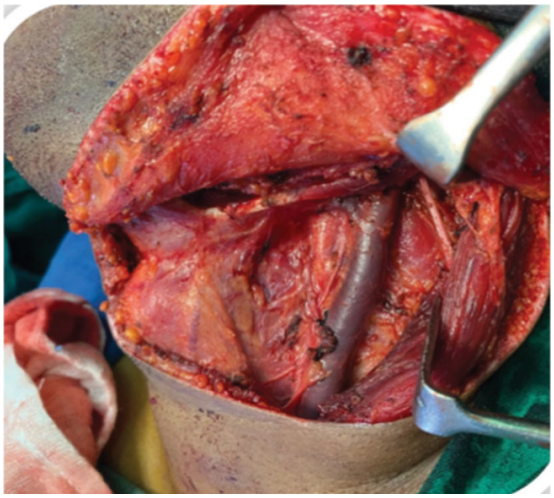

Fig. 3. Surgical site after excision of left side lymph nodes (level IB, II, III)

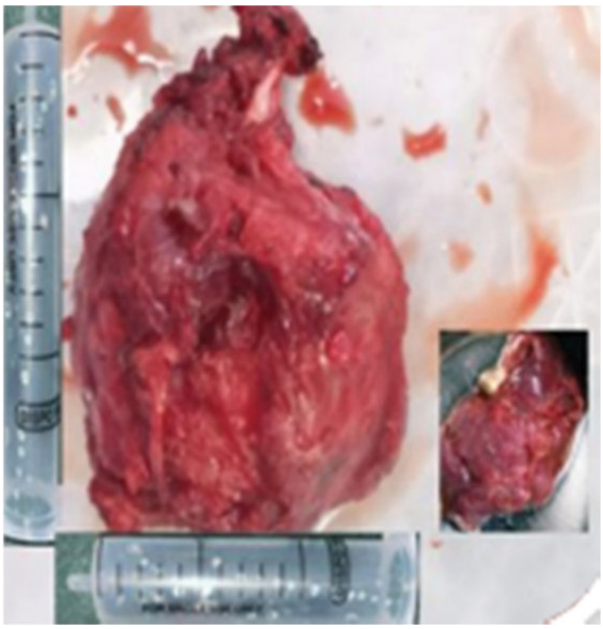

Fig. 4. Excised specimen of lymph nodes

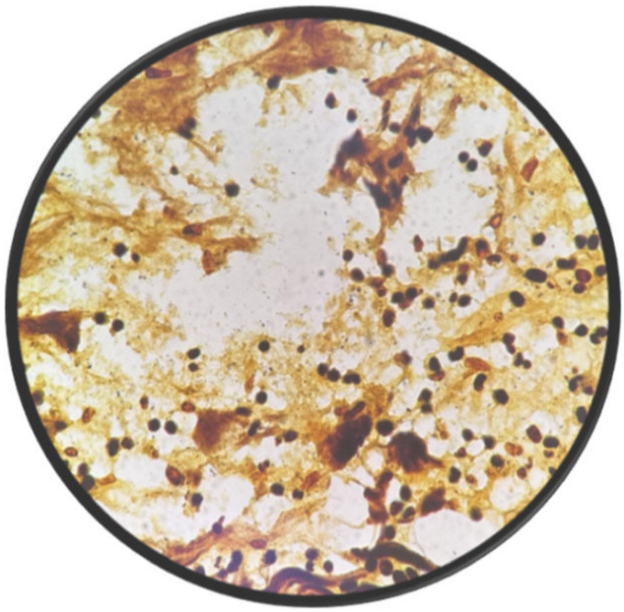

Fig. 5. Warthin starry silver stain (magnification 40X)

Histopathological examination showed classical findings of stellate necrosis with microabscesses and positive warthin starry silver stain (Fig. 5). Hence, patients were further assessed with serum immunoassay which was positive for Bartonella Henselae. Patients were further managed postoperatively with oral antibiotics for a period for 2 weeks. In case 1, ATT was stopped after serological immunoassay confirmation. All the patients were followed up for a period of 6 months and recovery was satisfactory. There was no recurrence of symptoms.

Discussion

CSD is a benign, self-limiting infectious disease caused by Bartonella Henselae. The classical presentation of CSD is small reddish papular rash which develops 3-10 days after a cat scratch, followed by a prolonged regional lymphadenopathy after another 14 days, with a self-limiting outcome within 2-4 months.[4] The atypical variety of CSD has a broader clinical spectrum which includes fever, abdominal pain, multiregional lymphadenopathy and multiorgan involvement affecting the eyes, liver, spleen, central nervous system, skin and bones.[5,6]

Diagnosis of CSD is made when at least two of the following three criteria are fulfilled:

1. Presence of clinical symptoms typical for CSD,
2. Serological detection of antibodies against *B. Henselae* including negative serological results for other infectious diseases,
3. Detection of Bartonella DNA in extirpated lymph nodes or aspirated pus. Other diagnostic criteria are also adapted as suggested by Margileth AM[7] which include (a) cat contact history, (b) splenic micro-abscesses on CT scan, (c) positive IFA assay for *B. Henselae* and (d) granulomatous inflammation of a lymph node. In many of the patients, the history of a cat scratch may not be remembered by the patient. Also, FNAC and radiological findings may be inconclusive making it difficult to diagnose the condition. Thus, the diagnosis of CSD remains a challenge for the clinician in cases of cervical lymphadenopathy.

In our case series, case 1 was started on ATT by an outside physician i/v/o granulomatous disease on USG & FNAC findings without any confirmation of tuberculous aetiology. As the patient didn't respond to the medications,

he had visited our hospital and was further managed as per the protocol mentioned in table II & III. Proper history and essential diagnostic investigations helped in stopping the unnecessary usage of ATT in the patient. The other 2 cases were also treated, according to their clinical presentations.

Case-to-case based approach should be advocated in patients presenting with cervical lymphadenopathy where a proper clinical history and examination helps in having a differential diagnosis. Radiological and pathological investigations helps in narrowing the diagnosis. Serological tests like immunoassays should be done wherever necessary and if serological testing is not available, one should not hesitate in excising the involved lymph nodes and subjecting the specimen to histopathological examination, microbiological test and molecular study to clinch the diagnosis. A proper insight into the history of "cat scratch" preceding the initial presentation to the clinician can help in the diagnosis especially when all corroborative radiological & laboratory analysis for tuberculosis and other granulomatous diseases is negative.

Conclusion

Cat Scratch Disease though rare should be included in the differential diagnosis of lymphadenopathy in the head and neck region to avoid unnecessary treatment especially in cases with history of contact with animals.

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Case Report

A Rare and Challenging Case : Trident Injury to the Neck

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Mainak Maitra,[1] Akash Mandal,[1] Rimpi Aich,[2] Ananki Chakrabarti[2]

ABSTRACT

Introduction

Penetrating neck trauma though rare (5-10 % of all trauma cases) carries a high degree of morbidity and mortality. They not only pose a challenge to the surgical team but also to the anesthesia team with respect to securing the airway and induction of general anesthesia.

Case Report

We report a case of a 9 year old male child who presented with penetrating neck trauma with a metallic trident Clinically the child was stable and had no signs and symptoms of potential neurovascular injury. Xray examination of the neck in antero-posterior and lateral views revealed that the trident had missed the vascular structures of the neck and the spine. Surgical removal of the metallic trident was planned after proper informed consent. Patient was intubated in lateral decubitus and the metallic trident was successfully removed from the neck in retrograde manner along the path of entry after incising along the entry wound to dislodge the foreign body from the submuscular plane.

Conclusion

Exclusion of neurovascular injury in penetrating neck trauma is of utmost importance in selection of imaging modality for the specific case. Multi-disciplinary team approach is desirable in selected cases with an experienced anesthesia team well versed in lateral decubitus intubation, videolaryngoscopy and flexible fibreoptic bronchoscopic intubation.

Keywords

Penetrating Neck Trauma; Foreign Body; General Anesthesia

Among all trauma cases, 5-10% are constituted by penetrating neck injuries.[1] Injury by different penetrating foreign bodies to the head neck region are rare and carries a high degree of morbidity and mortality.[2,3] The neck is a vital region of the human body as a large number of neurovascular structures are concentrated in a limit space. Penetrating trauma to the neck not only pose challenge to the surgical team with respect to the structures involved but also to the anesthesia team with respect to securing the airway and induction of general anesthesia.

1 - Institute of Otorhinolaryngology & Head Neck Surgery, IPGMER & SSKM Hospital
2 - Department of Anaesthesiology IPGMER & SSKM Hospital
Corresponding author:
Dr Mainak Maitra
email: drmaitram@gmail.com

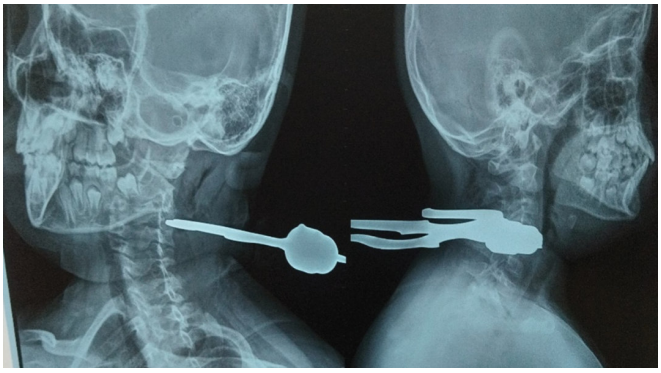
Case Report

A 9 year old boy attended the trauma centre with history of alleged accidental penetrating trauma to the posterior aspect of the neck with a metallic trident (Trishul) (Figure 1).

On arrival, patient's vital signs were stable and the child was conscious, alert and co-operative with complaint of neck pain. Physical examination revealed that 1 metallic spike of the trident had passed through and through the posterior aspect of the neck of the patient , clinically through the subcutaneous and submuscular plane in a right to left direction of trajectory. No sensory or motor neurodeficit was found and there was no active bleeding noted from the entry and exit wound. X-ray examination was done in antero-posterior (AP) and Lateral view and

Fig. 1. Metallic trident lodged in the posterior aspect of the neck with trajectory from right to left direction

it was found that the metallic trident had narrowly missed the vascular corridor of the neck as well as the spine (Figure 2 & 3).



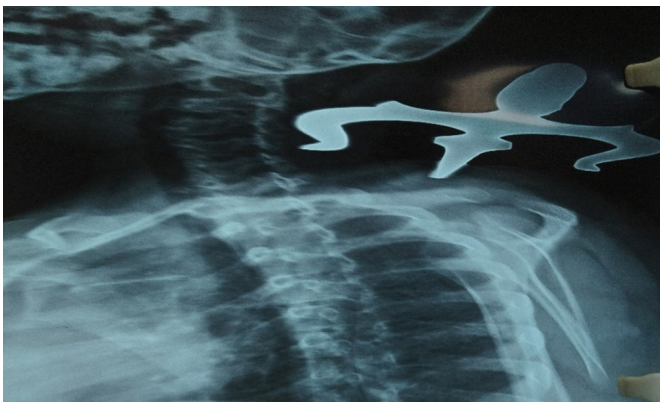


Fig. 2 & 3. Radiographs in anteroposterior and lateral views demonstrating the position of the metallic trident

The child was posted for surgery for removal of the metallic trident under General Anesthesia (GA) after Informed Consent. A Difficult Airway Cart was kept ready along with a Laryngeal Mask Airway, Videolaryngoscope and Fibre-optic bronchoscope. Intubation of the child was done in lateral decubitus after positioning the head on a head rim with proper shoulder support with roller bandage while an assistant was keeping the head and the trident in steady position with a Macintosh Laryngoscope (Figure 4).

Fig. 4. Intubation done in lateral decubitus with adequate support to head, neck and torso

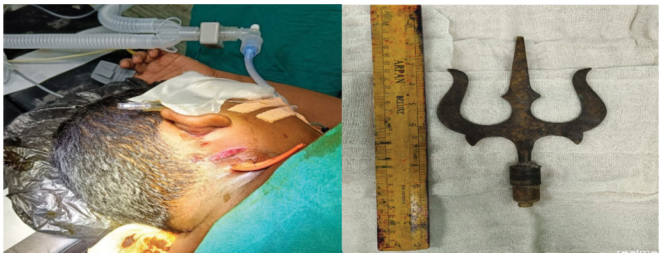


Fig. 5 & 6. Entry wound just before closure after placement of corrugated rubber drain and the metallic trident after removal

Incision was made at the entry wound along the path of the trajectory to dislodge the metallic foreign body. After sufficient dislodgement the metallic object could be

successfully removed in a retrograde manner along the path of entry itself (Figure 5 & 6).

Soft tissue repair was done with 2-0 absorbable polygalactin suture and skin was sutured with 2-0 non-absorbable monofilament polyamide suture after placing of corrugated rubber drain . Child was successfully extubated and post-operative recovery was uneventful. The patient was discharged after 7 days.

Discussion

Neck injury by penetrating metallic foreign body should be done in a systematic manner comprising of Clinical, radiological and anaesthetic assessment. Vascular injury to be assessed at the earliest. The physical findings of vascular injury are pulse deficit, active bleeding, expanding hematoma, bruit, murmur, neuralgic deficit or hypotension.[4] If vascular injury is suspected, CT Angiography forms an essential part of pre-operative assessment.[5] In our case, no red flag signs of neurovascular injury was found and so X ray examination was the only investigation done considering the cost-benefit ratio. Induction of GA was a challenging task on part of the anesthetist team as the patient couldn't be positioned in supine position on the operating table considering the site of injury. Intubation in lateral decubitus is a very effective method to secure the airway and induction and maintenance of anesthesia in such situations.[6]

Conclusion

Penetrating Neck trauma is not so common in day to day practice but can have devastating consequences. Early diagnosis of neurovascular injury is of utmost importance in proper planning of selection of imaging modality for the specific patients. Surgical intervention to be done in a multi-disciplinary approach and vascular surgeons, neurosurgeons should be included in the team as back up if indicated to avoid on table catastrophy. Anesthesia team should be well versed with intubation in lateral decubitus and other methods like videolaryngoscopy, flexible fibreoptic bronchoscopy for such cases of penetrating neck trauma where neck movement is restricted and patient positioning is difficult.

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Case Report

Chondroblastic Osteosarcoma of Nasal Bone - Report of a Rare Case

https://doi.org/10.47210/bjohns.2025.v33i2.252

Lalit Ray,[1] Aritro Bhattacharji,[2] Sabyasachi Chakravarty[3]

ABSTRACT

Introduction

Chondroblastic osteosarcoma is a rare malignant bone tumor which is characterised by the presence of osteoid and cartilaginous components and its occurrence in the lateral nasal wall is extremely unc ommon which presented with nasal obstruction.

Case Report

A 15 year old boy presented with a history of chronic right nasal obstruction lasting for more than 1 year. It was gradually progressive in nature. Clinical examination revealed a large sinonasal mass in the right nasal cavity. On Anterior rhinoscopy the mass extended upto the middle meatus. Posterior rhinoscopy revealed that the mass was extending laterally towards the maxillary sinus. It was insensitive on probing and free on the medial side. Laterally the probe could not be moved as the mass was attached.

Conclusion

Chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is an extremely rare entity and only a few cases have been reported in the literature. It predominantly affects the adolescents and young adults with a slight male predominance. The clinical presentation is often non specific and includes symptoms such as nasal obstruction, facial swelling, epistaxis and pain. Radiological imaging including CT and MRI is essential for assessing the tumour extent and the involvement of adjacent structures. Surgical management with wide excision is the mainstay of treatment. Adjuvant Radiotherapy and chemotherapy may be considered depending on the risk factors. Histopathological examination and Immunohistochemistry play a crucial role in confirming the diagnosis.

Keywords

Chondroblastic Osteosarcoma; Nasal Bone; Lateral Nasal Wall; Histopathology; Immunohistochemistry

Chondroblastic osteosarcoma is a rare malignant bone tumour characterized by the presence of osteoid and cartilaginous components. Its occurrence in the lateral nasal wall and nasal bone is extremely uncommon.[1,2] Only a limited number of cases have been reported in the literature. We present a case of chondroblastic osteosarcoma of the right lateral nasal wall and right nasal bone in a 15-year-old boy who presented with chronic nasal obstruction. The patient underwent surgical management with lateral rhinotomy and medial maxillectomy, resulting in complete tumour removal and post operative radiotherapy. Histopathological examination confirmed the diagnosis of chondroblastic osteosarcoma, which was further supported by immunohistochemistry.[3] This case report highlights the clinical presentation, radiological features, management and pathological characteristics of chondroblastic osteosarcoma of the lateral nasal wall and the nasal bone, along with a review of the existing literature on this rare entity.[4,5,6]

Chondroblastic osteosarcoma is a subtype of osteosarcoma characterized by the presence of both osteoid and chondroid components. It primarily affects the long bones and involvement of the craniofacial skeleton, particularly the nasal bone[3] is extremely rare.

Incidence

Incidence of Sino nasal carcinoma is 1-2 per 1000000 person and Chondroblastic Osteosarcoma is 0.5% to 8.1% among Sino nasal carcinomas.[8]

1 - Department of ENT, Midwest Hospital, Asansol, West Bengal
2 - Department of ENT, Asansol District and Superspeciality Hospital, Asansol, West Bengal.
3 - Dept of ENT, Gouri Devi Medical College, Durgapur, West Bengal.
Corresponding author:
Dr. Lalit Ray
email : lalitray66@gmail.com

Case Report

A 15-year-old boy presented with a history of chronic right nasal obstruction lasting for more than 1 year. It was insidious in onset and gradually progressive in nature. Primary complaint was nasal obstruction without any pain. Clinical examination revealed a large sinonasal mass in the right nasal cavity. Anterior Rhinoscopy revealed the mass was extending upto the inferior meatus. Posterior Rhinoscopy revealed that mass was extending laterally towards the maxillary sinus. On probing, the mass was senseless. Probe could be moved freely on the medial side and was attached on the lateral side. Visual acuity was normal.

Fig. 1. Preoperative picture showing Right nasal fullness

Fig. 2. CT scan coronal view showing Right nasal wall and maxillary sinus is completely filled with tumor.

Radiological investigations including computed tomography (CT), demonstrated an enhancing mass in the right nasal cavity, with destruction of the nasal septum and erosion of the orbit, right lateral nasal wall and was extending into the right maxillary sinus.

Fig. 3. Medial maxillectomy with full exposure

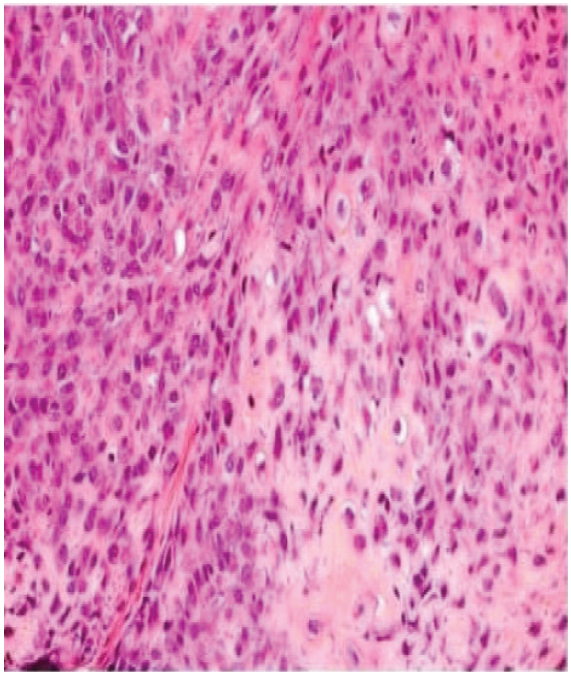

Fig. 4. Histopathology image with 40x magnification (using H&E stain) showing predominant chondroid matrix with hyaline cartilage along with abnormal osteoid matrix deposition

The patient was advised to undergo surgical intervention for tumour excision. Lateral rhinotomy and medial maxillectomy was performed, resulting in complete en bloc removal of the tumour followed by radiotherapy. Histopathological examination revealed a proliferative osteoblastic tumour involving the lateral nasal wall and nasal bone. Further immunohistochemistry analysis confirmed the diagnosis of chondroblastic osteosarcoma[6,7]. The patient responded very well to surgery and post op radiotherapy and there is no recurrence till five years under strict follow up.

Discussion

Chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is an extremely rare entity and only a few cases have been reported in the literature. It predominantly affects the adolescents and young adults, with a slight male predominance[2]. The clinical presentation is often nonspecific and includes symptoms such as nasal obstruction, epistaxis, facial swelling, and pain.[1,2,5] Radiological imaging, including CT and MRI is essential for assessing the tumour extent and involvement of the adjacent structures.[3,7] Surgical management with wide excision is the mainstay of treatment and adjuvant chemotherapy and radiotherapy may be considered depending on the risk factors associated with the tumour.

Histopathological examination plays a crucial role in confirming the diagnosis of chondroblastic osteosarcoma.[2,4,5] The presence of osteoid and chondroid components within the tumour, as observed in our case, is characteristic of this subtype of osteosarcoma.

Immunohistochemistry including markers such as osteocalcin, S-100 protein is diagnostic. Chondroblastic osteosarcoma of the nasal bone carries diagnostic challenges due to its rarity and resemblance to other benign and malignant nasal tumors. Differential diagnosis includes chondrosarcoma, osteoma, fibrous dysplasia, and sinonasal carcinoma.

Immunohistochemistry plays a crucial role in differentiating chondroblastic osteosarcoma from these entities.[2,6,7] Positive staining for osteocalcin and S-100 protein, as observed in our case, supports the diagnosis of chondroblastic osteosarcoma.[1,6]

The prognosis of chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is variable and largely dependent on tumour stage, histological grade, and adequacy of surgical resection.[1]

Tumour size, depth of invasion, lymph node involvement, and the presence of metastasis are significant prognostic factors. The overall survival rates for chondroblastic osteosarcoma of the nasal bone are relatively lower compared to osteosarcomas in other locations, emphasizing the aggressive nature of this tumour.

The role of adjuvant chemotherapy and radiotherapy in the management of chondroblastic osteosarcoma remains controversial. Limited evidence exists regarding the use of chemotherapy for nasal bone osteosarcomas due to the rarity of the disease[5]. However, in cases with high-risk features such as large tumour size, deep invasion, positive surgical margins, or evidence of metastasis, adjuvant chemotherapy may be considered to improve the outcomes[1,2]. Close surveillance with regular follow-up visits and imaging is crucial to detect any recurrence or metastasis.

A review of the existing literature reveals a scarcity of reported cases of chondroblastic osteosarcoma of the lateral nasal wall and nasal bone. The rarity of this tumour carries challenges in understanding its natural history, optimal treatment strategies and long-term outcomes. Collaborative efforts among different institutions are necessary to accumulate more cases and gain a better understanding of this entity.

Chondroblastic osteosarcoma is a rare subtype of osteosarcoma, accounting for approximately 25% of cases. While it commonly affects the long bones, its occurrence in the nasal bone is exceptionally rare, with only a few cases reported in the literature.[1,6,7]

The optimal management of chondroblastic osteosarcoma involves a multimodal approach.[2,7]

Surgery remains the mainstay of treatment, with the

goal of achieving complete tumour resection while preserving functional and aesthetic outcomes. Adjuvant therapies including chemotherapy and radiotherapy are often employed to target micro metastatic disease and minimize the risk of local recurrence.[1]

Prognosis in chondroblastic osteosarcoma is generally poor due to its aggressive nature and high metastatic potential.[5,6] The presence of distant metastasis at the time of diagnosis, incomplete tumour resection and large tumour size are associated with an unfavourable prognosis.[2]

Conclusion

Chondroblastic osteosarcoma of the lateral nasal wall and nasal bone is an extremely rare entity.[1] This case report highlights the clinical presentation, radiological features and management options for this aggressive malignancy. Prompt diagnosis, appropriate surgical intervention and multimodal treatment approaches are crucial for improving the patient outcomes. Further studies and case reports are warranted to enhance our understanding of this rare subtype of osteosarcoma and refine treatment strategies.[4,5]

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