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ORIGINAL RESEARCH

CSOM with complications - our experience in a tertiary care centre

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ABSTRACT

Introduction: With the advent of modern-day antibiotics, the complications of otitis media have become less common but patient do present with complications. It is crucial to recognise otitis media with complications early and treat it appropriately. Herein, we present our institution's experience with patients who required emergency surgical intervention for complications of otitis media.

Aim: This study aimed to analyse the management of CSOM-related problems and their diverse clinical manifestations.

Results: A total of 4 patients who underwent surgery for complications of otitis media were included in the study. Out of the 4 patients, 3 patients were admitted in the casualty. Otalgia, otorrhoea, headache and fever were the main presenting symptoms.Mastoidectomy and drainage of abscess through the mastoid,was the main surgical approach. 1 patient required craniotomy. The mean length of hospital stay was 2-4 weeks. All 4had residual conductive hearing loss; 1 patient with facial palsy had full recovery.

Conclusion: Otitis media can still result in serious complications in the post-antibiotic era. Patients with otitis media should be monitored, and prompt surgical intervention should be performed when necessary to attain good outcomes.

Keywords: Chronic otitis media, abscess, complications, middle ear, otitis media.

INTRODUCTION

Otitis media is a common condition. The reported incidence of acute otitis media ranges from 2.8% to 4.4%[(1)]. Patients with acute otitis media are often young, with the incidence of the disease in children reported to be as high as 10.6%[(2)]. In contrast, the disease is less commonly seen in adults; the reported incidence of purulent otitis media in adults was only 0.25%[(1)].

With the advent of antibiotics and advances in surgical care, morbidity associated with otitis media has declined over the years[(3)]. Nevertheless, intracranial and extracranial complications can still occur, and are associated with significant morbidity and mortality[(4,5)]. While complications of otitis media in the paediatric population have been widely published in the literature, there have been very few studies reporting complications of otitis media in the adult population. Herein, we present our experience of managing complications of otitis media in adult patients.

METHODS

Patients who underwent surgery for complications of otitis media from 2021 to 2022from the Department of ENT, Bangalore Medical College and Research Institute.

RESULTS

A total of 4 patients (3 males, 1 female) had otitis media with clinical or radiological evidence of complications (1 had intracranial complicationand 3 had extracranial complication) and underwent surgical intervention between April 2021 and February 2022.

CASE 1

An 8-year-old female, presented to the emergency room withaltered sensorium, fever, and swelling behind the right ear for 15 days. History of right ear discharge for 8-9 months.

No h/o trauma, seizures, nausea & vomiting,not a k/c/o DM, HTN, TB. On examination, neck rigidity present.

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The patient underwent craniectomy and posterior fossa decompression under GA by our neurosurgery department.

CLINICAL FEATURES

Inspection: A sinus was noted behind the right ear which was approximately 2x2 cm Filled with granulation tissue and pus. Surrounding area swelling is present and skin around the sinus has hyperpigmented changes. Pinna appears to be a low set compared to the other side.
The preauricular area and pinna appear to be normal.
External auditory meatus filled with granulation tissue with erosion of scutum seen.
Left ear- normal.
PTA: Right ear - 43 db HL, Left ear – 15dbHL

Fig.1

HRCT Temporal bone: ill-defined soft tissue density lesion completely opacifying the right external auditory canal, right middle ear cavity, right epitympanum, right aditus ad antrum, right mastoid antrum as well as the right mastoid air cells obliterating the right tympanic membrane, partially eroding the bony ossicles as well as tegmen tympani-right com.

TREATMENT

Modified Radical Mastoidectomy was done.

CASE 2

23-year-old male presented to our OPD with Left ear blood-stained discharge. Intermittent type for 5 years.
No h/o ear pain or reduced hearing, trauma, seizures, nausea & vomiting, neck stiffness, or headache.
On examination: left side dull and retracted pars tensa with granulations & cholesteatoma flakes in the attic area.
Pure tone audiometry showed left 21.6 dBHL, right side shows 23.3 dBHL.
HRCT temporal bone showed soft tissues in the middle ear cavity, ossicular and bony erosions were noted.

Fig.2

MRI Brain showed abscess enhancing extra-axial lesion along the left temporal convexity.
Surgical intervention was done i.e. modified radical mastoidectomy with dural repair under GA.
Intraoperative findings of cholesteatoma sac abutting the dura was noted which was meticulously cleared.1-2ml pus trickling from the dural defect site noted. Dural repair was done using temporalis graft fascia, cartilage, surgical, and bone wax.
Post operative period was uneventful. Day 10 patient developed CSF otorrhea and was put on the lumbar drain with higher antibiotics as advised by neurosurgery.
Patient recovered well and was discharged on the 27th post-operative day.

Fig.3

CASE 3

54Y/M has come to our causality with altered sensorium, one episode of seizures, and fever for 2 days and with multiple cranial nerve palsy.
Post h/o: -otitis media with effusion and grommet insertion 3months back, k/c/o diabetes
The patient was referred to the ENT department as the patient was diagnosed with meningitis secondary to otogenic cause.
O/E: patient right ear with EAC filled with granulation tissue and grade 4 facial never palsy+
HRCT: Soft tissue attenuating content in the right mastoid cavity, middle ear, prussak's space with the erosion of right facial canal, right tegmen tympani.
Modified radical mastoidectomy under GA was done.
Intraoperative findings: granulation tissue with cholesteatoma sac noted in the mastoid cavity, the middle ear was cleared, ossicles were found eroded,

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and tegmen defect was repaired with temporalis graft and surgicel and bone wax. Facial canal dehiscence was noted and the facial nerve was also affected.
The post-operative period was uneventful. Was discharged after 1 week.

CASE 4

Case of 28Y/ male presented to causality with right ear pain, headache and fever since 1 week. 3-4 episodes of vomiting.
No h/o neck rigidity, trauma, seizures, nausea.
On examination: Granulation tissue noted in external auditory canal with foul smelling discharge.
HRCT Temporal bone: soft tissue density lesion is seen in hypo,meso and epitympanum on right side extending into EAC.
Erosion of tegmen and sigmoid plate on right side with air lucencyseen in neuroparenchyma in posterior fossa.
Surgical intervention done i.e modified radical mastoidectomy under GA.
Intraoperative findings of cholesteatoma sac noted in mastoid and middle ear cavity, all ossicles eroded, dehiscence of sigmoid sinus and tegmen.
Post operative period was uneventful patient was discharged on post operative day 7.

DISCUSSION

Complications of otitis media may result from acute otitis media or acute exacerbation of chronic otitis media. The reported overall incidence of complications from chronic otitis media ranges from 0.7% to 3.5%[6].The low incidence of morbidity from oto-genic infections has been attributed to improved access to healthcare, increased usage of antibiotics by primary care physicians, and improved standards of hygiene and quality of life[5].
In a study conducted by Dubey and Larawin, 85% of the patients with complications arising from chronic suppurative otitis media were aged less than 30 years[7].This disease was also observed among patients in this specific age group in other studies in the literature[3,8].
With the increased use of antibiotics, physicians should be aware that patients may not present with florid symptoms and signs that are suggestive of complications of otitis media. Patients may have had their mastoiditis partially treated with broad-spectrum antibiotics, and present with minimal otological symptoms and vague neurological signs and symptoms; in such cases, Holt and Gates described the clinical entity as 'masked mastoiditis'[9].In the present study, one patient experienced no ontological symptoms and two patients had a paucity of clinical findings. Furthermore, complications such as the presence of brain abscess and/or subperiosteal abscess could only be confirmed after imaging. Thus, we suggest that a thorough otological history be taken and a physical examination performed for patients suspected to have complications of otitis media, especially if they are young or have a compromised immune system.
Mastoiditis was the most commonly encountered extracranial complication in the present study. This is not surprising, given that the most direct pathway of middle ear infection extends posteriorly to the mastoid air cells, and no osseous barriers lie in this pathway. Direct extension of the infection can result in subperiosteal abscess formation, as was seen in seven of our patients. The presence of a fistula from the mastoid air cells to the subperiosteal abscess can help to decompress the middle ear cleft and, in turn, lower the chance of intracranial complication[7]. Nevertheless, this was not observed in the present study, as the patients were found to have intracranial complications in the presence of subperiosteal abscess.
Transverse sinus thrombosis is diagnosed on MRI. The management of sinus thrombosis is controversial, as the role of anticoagulation and thrombectomy in sinus thrombosis is still being debated. In general, early treatment with broad-spectrum antibiotics and concurrent cortical mastoidectomy is regarded as appropriate[10].We concur with the general recommendation that treatment should be directed toward the primary site of infection (i.e. the middle ear and mastoid air cells) to remove the precipitating cause. However, ligation of the internal jugular vein or open thrombectomy should be considered in cases with extensive progression of thrombosis, even though these procedures are not without morbidity.
In the literature, the most common site of brain abscess formation is reported to be the ipsilateral temporal lobe[8,11]). In the present study, 2 patients had intracranial abscesses – one had a temporal lobe abscess, while the other had extradural abscess. Both patients obtained their scans within 48 hours of presentation, andemergencydrainage of abscess performed within 24 hours of diagnosis.
While some authors have suggested a period of conservative treatment with intravenous antibiotics for otogenic brain abscesses[11], we opine that otogenic brain abscesses should be urgently managed by the neurosurgeon and neuro-otologist. We advocate the initiation of broad-spectrum intravenous antibiotics and emergent surgical drainage, as mortality from otogenic brain abscesses was reported to be 26% in a recent series, with the high rate of mortality attributed to late diagnosis and treatment[12].There were no deaths in the present study, possibly due to early diagnosis and early surgical intervention.
In our study, one patient had facial nerve palsyFacial nerve palsy in acute otitis media is believed to be a result of oedema of the nerve within the bony canal and neuritis. Hence, treatment should be largely conservative, comprising antibiotics, and perhaps myringotomy and grommet tube insertion[4,13].In the case of chronic otitis media with facial nerve palsy, early cortical mastoidectomy with careful removal of

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the diseased tissue around the nerve is advocated[5].Our patient underwent modified radical mastoidectomy and had complete recovery. The patient presented six days after the onset of facial paresis and was found to have a dehiscent horizontal segment of the facial nerve. It is unclear whether surgical intervention and the timing of the surgery played a major role in the recovery of the facial nerve.

The role of mastoidectomy in the treatment of otitis media with complications is well established. The purpose would be to determine the underlying pathology (e.g. a previously undiagnosed cholesteatoma) and control the disease process[11].While the extent of surgery is controversial, canal-wall-up mastoidectomy is advocated by several authors; more radical surgery is reserved for cases with cholesteatoma[14-16].In the present study, cortical mastoidectomy was performed for most of the patients, while modified radical mastoidectomy was performed for patients who had underlying cholesteatoma.

During follow-up after surgery, the patients underwent otoscopic examination, pure-tone audiogram and repeat CT to check if there were findings suggestive of residual or recurrent disease. We propose that all patients who have undergone treatment for complications of middle ear disease be followed up in the outpatient clinic until the middle ear is dry and well aerated; repeat CT should be ordered if otorrhoea persists. None of the patients had recurrence or persistent ear discharge.

The main morbidity encountered in the present study was that of persistent conductive hearing loss. This was observed all the 4 patients and was secondary to ossicular chain erosion. The severity of hearing loss was 10–40 dB HL, with air-bone gaps in the frequencies of 0.5–2 kHz. Hearing restoration procedures was done on 2 patients.

Despite the advent and accessibility of antibiotic therapy, complications arising from otitis media can still occur in young adults and in developed countries. Although rare, these complications are associated with significant morbidity and even mortality, if diagnosis is not made expeditiously and treatment is not instituted early. A high index of suspicion is needed; clinicians should be vigilant in looking out for swelling in the mastoid region, facial nerve weakness and neurological symptoms such as nausea and vomiting. Early treatment with directed antimicrobial therapy, a multidisciplinary surgical approach that includes mastoidectomy, and, if necessary, neurosurgical intervention (e.g. drainage of brain abscess) allow for good outcomes in patients with complications of otitis media.ly as possible.

The only effective way to prevent complications is by early diagnosis of cholesteatoma or squamosal disease and treating it.

Surgery is the only way to treat cholesteatoma. Better to not waste the time of the patient by giving prolonged unnecessary medical treatment**.**

CONCLUSION

CSOM is a preventable cause of hearingimpairments. To reduce the socioeconomic impact, timely detection and treatment strategies must beimplemented. Raising public awareness of the importance of ear discharge is essential for its earlydiagnosis and treatment. Individuals should prioritize good hygiene and nutrition to improvetheir prognoses. It is recommended to seek the expertise of Otorhinolaryngologists during theinitial stages of CSOM to prevent intracranial complications.Prompt diagnosis allows prompt intervention.

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