



## Bezold's Abscess Presenting as Parapharyngeal Abscess

Ameya bihani\*, Jyoti Dabholkar, Yogesh Dokhe and Priyanka Hardikar

\*Corresponding author: Ameya bihani, Department of ENT, Kem Hospital, Mumbai,  
Email: ameyabihani87@gmail.com

**Received:** March 02, 2016; **Accepted:** March 16, 2016; **Published:** March 19, 2016

### ABSTRACT

Bezold's abscess is a very rare complication of unsafe chronic suppurative otitis media. The diagnosis of Bezold's abscess is clinched by the presence of inflammation which is tracking down the anterior belly of digastrics and sternocleidomastoid. Surgery constituting incision and drainage of abscess with canal wall modified radical mastoidectomy is treatment of choice. We hereby present a case of 42 year male presenting with parapharyngeal abscess (Bezold's abscess) which was secondary to unsafe chronic suppurative otitis media.

**Keywords:** Bezold's abscess, cholesteatoma, lateral sinus thrombosis.

### Introduction:

Formation of abscesses secondary to erosion of mastoid bone by cholesteatoma is a dreadful complication. Bezold abscess is a very rare complication of this nature. Originally described by Bezold, this abscess runs along the posterior belly of digastrics muscle upto hyoid and may also ascend along the anterior border of anterior belly of digastric muscle. Here by, we present a case of 42 year old male presenting as a giant Bezold's abscess in form of parapharyngeal abscess with lateral sinus thrombophlebitis.

### Case report:

42 year old male presented with a 15 x 10 cms swelling in the neck which extended from inferior border of the mandible upto the upper level of thyroid cartilage just crossing the midline. The swelling appeared 1 month back which gradually progressed to the above mentioned extent. Patient

complained of multiple episodes of high grade fever which responded to oral paracetamol. He also complained of severe dysphagia and odynophagia till an extent that he had no oral fluid or food since last 2 days. Patient had a history of similar swelling 8 years back which was treated with aspiration and oral antibiotics. On enquiry, history of scanty and foul smelling ear discharge from the right ear was present. There were multiple episodes of such ear discharge which were also occasionally blood stained for last 25 years. Patients also complained of reduced hearing from the right side which has gradually worsened over last 25 years. There was no history of giddiness, facial palsy, altered sensorium, seizures or photophobia. There was no history of tuberculosis or tuberculosis contact, tooth pain or dental procedure, diabetes mellitus or any other medical comorbidity.

On examination, the swelling was firm, and indurated with areas of fluctuancy. It extended from the mastoid laterally and just crossed the midline. Inferiorly, it extended to the superior level of the thyroid cartilage. The swelling was firm with overlying skin was erythematous and warm (Figure 1).

On intraoral examination, the lateral pharyngeal wall was bulging suggestive of parapharyngeal extension of the abscess. On indirect laryngoscopic examination, the lateral bulge was present till the level of vallecula.

On otological examination of right ear, there was foul smelling scanty greenish pus discharge present in the external auditory canal. On aural toileting, pars tensa was retracted and draped over promontory



Figure 1: Clinical photograph of the patient showing firm and indurated swelling.

with small air pocket anteriorly in the region of Eustachian tube opening. There was no appreciable movement of pars tensa on Valsalva or seigalisation. There was a postero-superior retraction pocket whose fundus could not be visualized. There was presence of granulation with foul smelling discharge from the region. There was evidence of osteitis with bulging of postero-superior external auditory canal wall. Posterior malleolar fold was completely destroyed. Lateral attic was eroded with presence retraction pocket with white flaky discharge suggestive of cholesteatoma. Ossicles could not be visualized. There was no abnormality in the left ear. On tuning fork test, Rinne test was negative for 256 Hz, 512 Hz and 1024 Hz on the right side and positive for all these frequencies on the left side. On Weber test, the response was laterised to left and no abnormality was detected on modified Schwabach's test. There was deviated nasal septum towards right side with presence on inferior turbinate hypertrophy on the left side. There were no neurological deficit and no papilloedema on ophthalmic examination. Pure tone audiometry was suggestive of moderate to severe mixed hearing loss on the right side with mild conductive loss on the left side.

HRCT temporal with CT neck showed extensive erosion of scutum with presence of soft tissue in epitympanum and retrotympanum. Erosion of tegmen tympani and tegmen mastoidae was also present. Posteriorly the disease had eroded the sinus plate and was only separated from posterior fossa contents by dural sheet. Sigmoid sinus and lateral sinus thrombosis was present which extended into

the proximal part of internal jugular vein. Inferiorly, there was erosion of floor of mastoid medial to the tip of mastoid in proximity of stylomastoid foramen and insertion of digastric muscle. The mastoid tip was preserved (Figures 2, 3).

The abscess extended along the belly of digastric towards the hyoid with effacement of parapharyngeal space and extension of inflammation along the midline was present. Presence of air specs in the CT scan was suggestive of anaerobic flora of the abscess (Figures 4, 5).

Patient underwent incision and drainage of the abscess along with canal wall down mastoidectomy. Complete removal of cholesteatoma was done with hearing reconstruction was done by Wullstein's type III principle. The purulent discharge was sent for microbiological examination which revealed presence of *Pseudomonas* which was sensitive to imipenem. Patient was discharged after administering intravenous antibiotic for 2 weeks.

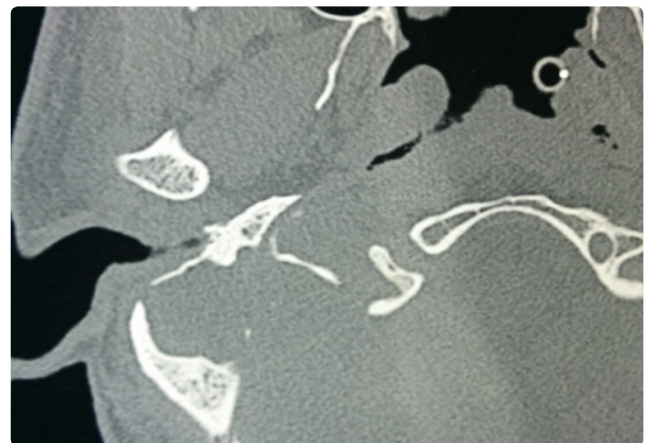


Figure 2: Erosion of floor of mastoid medial to the tip of mastoid in proximity of stylomastoid foramen and insertion of digastric muscle.

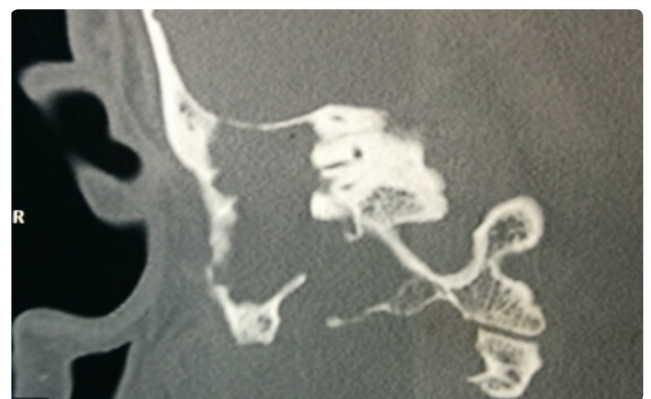


Figure 3: Mastoid tip was preserved.

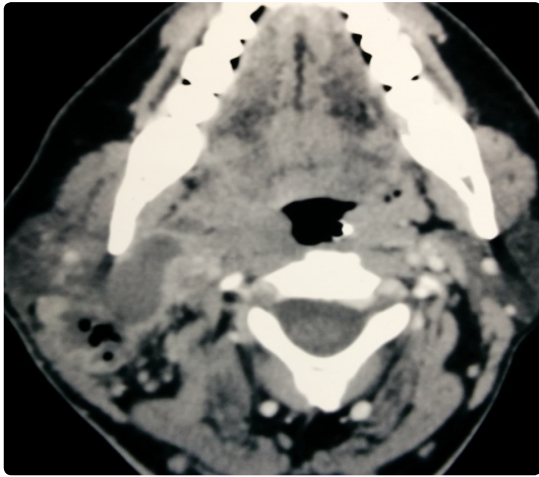


Figure 4: The abscess extended along the belly of digastric towards the hyoid with effacement of parapharyngeal space and extension of inflammation along the midline was present.

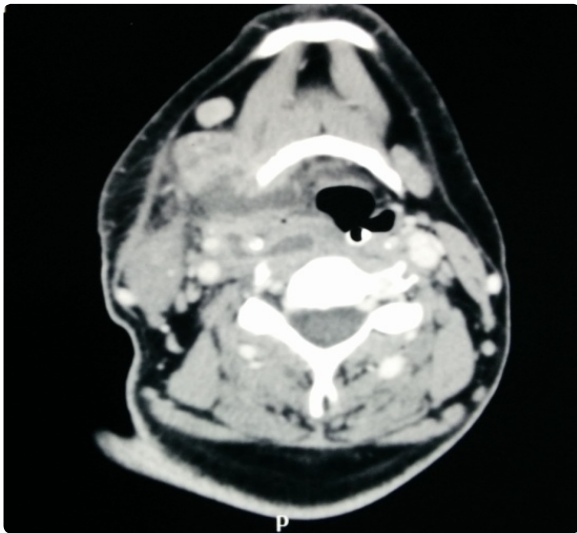


Figure 5: Presence of air specs in the CT scan were suggestive of anaerobic flora of the abscess.

#### Discussion:

Abramson in 1977 at "Cholesteatoma – First International Conference, Birmingham, 1977" defined cholesteatoma as "Cholesteatoma is a three dimensional epidermal and connective tissue structure, usually in the form of a sac and frequently conforming to the architecture of the various spaces of the middle ear, attic, and mastoid. This structure has the capacity for progressive and independent growth at the expense of underlying bone, displacing or replacing the middle ear mucosa, and has a tendency to recur after incomplete removal<sup>1</sup>.

Cholesteatoma has tendency to erode the bony structures and result in complications. The

complication secondary to cholesteatoma are classified as intra-temporal and extra-temporal. Intra-temporal complication can be sub-periosteal abscess, facial palsy, petrositis, labyrinthitis, Bezold's abscess, Citelli's abscess and Luc's abscess. Extra-temporal complications are meningitis, lateral sinus thrombophlebitis, otic hydrocephalus, cerebellar abscess, cerebral abscess, subdural abscess and epidural abscess.

Bezold's abscess is a very rare complication. It was introduced by a German otologist, Friedrich Bezold in 1881. In November 1881, Friedrich Bezold published an article describing the sequelae of pus escaping through the medial side of mastoid process in the incisura digastrica (digastric groove) and forming an abscess. This variety of abscess was known as Bezold's mastoiditis. In the classic description, the pus spread along the digastric muscle to chin, filling the retromaxillary fossa and along the course of the occipital artery. If left untreated further deep extensions occurred due to resistance to direct extension by sternomastoid, trapezius and splenius muscles. Bezold observed that pus tracked along these muscles and, if it reached the short deep muscles of the neck, might extend to transverse vertebrae low as second thoracic vertebrae. Current literature describes Bezold's abscess as an abscess arising within the substance of the sternocleidomastoid muscle following the spread of the pus through the tip of the mastoid process (Cheeseman, 1979)<sup>2</sup>.

Mastoid pneumatization is considered an important predisposing factor in the genesis of Bezold's abscess, since it leads to a thinning of the mastoid walls. In the absence of pneumatization, the mastoid's bony walls are thick and hinder the erosion process. For this reason, this type of abscess is rarely found in children, since pneumatization of the mastoid process is still not complete<sup>3</sup>.

The infection can spread along the subclavian artery to reach posterior triangle of the neck, axilla or the suprasternal space of neck. It may communicate to retropharyngeal space via intervertebral muscles or parapharyngeal space<sup>4</sup>.

Patients with Bezold's abscess present with fever, foul smelling ear discharge and neck swelling with torticollis. The patients may also have dysphagia or odynophagia as was in our patient due to parapharyngeal and visceral space involvement.

The most common organisms causing such extensive disease are generally gram positive cocci especially *Streptococcus*. Other organisms can be *E.coli*, *Proteus*, *Klebsiella*, *Staphylococcus* etc. these whole spectrum of microbes are generally sensitive to broad spectrum antibiotics which makes surgical drainage with 10 days of IV antibiotics as an accepted line of management. Radical mastoidectomy or modified radical mastoidectomy with complete removal of disease is the key to remission of disease.

High resolution CT of temporal bone and CT neck

with contrast is the radiological investigation of choice which delineates the extent of disease as well the occult complications.

Conclusion:

Bezold's abscess is a very rare complication of unsafe chronic suppurative otitis media in the antibiotic era. Otoscopic examination and CT of temporal bone with neck is diagnostic of pathology. Canal wall down mastoidectomy with incision and drainage of abscess is the procedure of choice.

Reference:

1. Abramson (1977) Cholesteatoma: First International Conference, Birmingham.
2. Gaffney RJ, O'Dwyer TP, Maguire AJ (1991) Bezold's abscess. *J Laryngol Otol* 105: 765-766.
3. B. McMullan (2009) "Bezold's Abscess: A Serious Complication of Otitis Media," *Journal of Paediatrics and Child Health* 45: 616-618.
4. Marioni G, de Filippis C, Tregnaghi A, Marchese-Ragona R, Staffieri A (2001) Bezold's abscess in children: case report. *Int J Pediatr Otorhinolaryngol* 61: 173-177.