

Otogenic Anterior Chest Wall Abscess: A Rare and Unique Presentation of Bezold's Abscess

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ABSTRACT

In the era of antibiotics, deep neck abscess is a rare complication of acute mastoiditis. Bezold's abscess, the most common cause of the otogenic deep neck abscess in preantibiotic era, is a rare complication of mastoiditis nowadays and it should be considered in the differential diagnosis of neck abscesses as well as unexplained intracranial/extracranial or upper thoracic abscesses. We report a case of 20-year old female with an abscess over anterior chest wall as a sequela of bezold's abscess which was a complication of cholesteatoma with mastoiditis.

Keywords: Cholesteatoma, Mastoiditis, Bezold's abscess, Anterior chest wall abscess.

INTRODUCTION

Otitis media is a disease of childhood but 1.5% of all adults suffered from active chronic otitis media.¹ Complications of otitis media can be summarized into two groups: extracranial and intracranial. 0.45% of the patients have extracranial complications and include facial nerve paralysis, labyrinthitis, perichondritis, coalescent mastoiditis and subperiosteal abscess; however, 0.24% of the patients have intracranial complications which include meningitis, encephalitis, brain abscess, epidural abscess and lateral sinus thrombosis.² Deep neck abscess is extremely rare in the era of antibiotics. Bezold's abscess, a deep neck abscess, is an uncommon complication of mastoiditis due to widespread use of antibiotics in management of otitis media and mastoiditis; however, it should be considered in the differential diagnosis of neck abscesses as well as unexplained intracranial/extracranial or upper thoracic abscesses. Common signs and symptoms are fever, otalgia, increased volume of the cervical region, otorrhea, restricted cervical mobility, facial paralysis and hypoacusis. Computed tomography (CT) is a useful test in this disease as it allows the identification of pus collections in the cervical region and mastoid involvement.³ CT imaging provides the best visualization of the temporal bone and mastoid when the diagnosis is suspected. Prognosis is excellent, if optimal management with surgery and appropriate antibiotics is provided.

CASE REPORT

A 20-year-old female came to our outpatient department with complaints of painful swelling over anterior chest wall

for five days with high-grade fever. She had decreased neck movement due to pain on right-side neck. On physical examination, 8 × 6 cm swelling was present over upper anterior chest wall with fluctuation, erythema. Tenderness and raised local temperature were noticed over swelling. There was tenderness with skin excoriation over mastoid tip along with the right sternocleidomastoid muscle. In the right posterior auricular area, there was erythema and tenderness over the mastoid (Figs 1 and 2). Otoscopic examination revealed posterosuperior retraction pocket of right tympanic membrane with purulent discharge and granulation tissue. After cleaning of the discharge, cholesteatoma was visible with erosion of posterosuperior attic wall. As there was history of chronic suppurative otitis media, she was clinically diagnosed as a case of acute



Fig. 1: Swelling over the upper anterior chest wall



Fig. 2: Excoriation over mastoid and along right sternocleidomastoid muscle

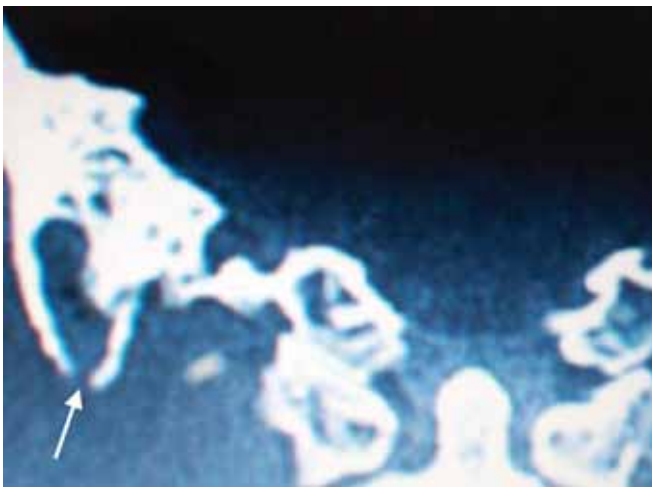


Fig. 3: CT scan coronal section (white arrow) showing cholesteatoma with destruction of the mastoid tip

mastoiditis complicated with Bezold's abscess formation subsequently leading to abscess over anterior chest wall. The patient underwent incision and drainage of chest wall abscess under local anesthesia and 50 ml pus collected and sent for culture and sensitivity. CT temporal bone showed soft tissue density filling the right tympanic cavity and cloudiness of the right mastoid air cells (Fig. 3). Patient planned for ear surgery under general anesthesia and right canal-down mastoidectomy with tympanoplasty with wide meatoplasty done. Pus culture showed moderate growth of anaerobic bacteria, including *Peptostreptococcus anaerobius* and *Peptostreptococcus asaccharolyticus*. Patient was treated by regular dressing of abscess cavity along with intravenous antibiotics and discharged after 3 weeks.

REVIEW OF LITERATURE AND DISCUSSION

The mucosa of the tympanic cavity and its extension into the mastoid cells has an inherent ability to overcome acute

infection resulting in self-limiting acute otitis media and mastoiditis in majority of cases. However, severe suppurative and necrotizing infections of the middle ear can cause systemic reactions.⁵ Discovery of antibiotics radically changed the course of mastoiditis cases and drastically reduced its complications over the last 50 years.³ Acute mastoiditis can be the complication of chronic disease of middle ear including cholesteatoma. In the preantibiotic era, it was very common and was associated with serious complications, like dizziness or vertigo, epidural abscess, facial paralysis, meningitis, partial or complete hearing loss and spread of infection to the brain or throughout the body, but nowadays complications resulting from suppurative otitis media has markedly decreased due to widespread use of antibiotics. In the beginning of the 20th century, 50% of all cases of otitis media developed coalescent mastoiditis. Recent studies suggested a current incidence of only 0.24%.⁶ Complications of otitis media are classified into two main categories: Intracranial and extracranial. Extracranial complications include subperiosteal abscess, labyrinthitis, facial paralysis, and perichondritis; on the other side, the intracranial ones include meningitis, encephalitis, cerebral and peridural abscess.⁴ Mastoid pneumatization is considered an important predisposing factor in the genesis of Bezold's abscess, since it leads to thinning of the mastoid walls. In the absence of pneumatization, the mastoid's bony walls are thick and hinder the erosion process. This is the reason why this type of abscess is rarely found in children, since pneumatization of the mastoid process is still incomplete.³ The primary reason for patients with otitis media to continue experiencing serious complications is the delay in diagnosis on the part of physicians, inadequate antibiotic therapy, increased bacterial resistance and concomitant presence of cholesteatoma.⁵ Inflammation and infection may result in necrosis of the mastoid tip, allowing the pus to track from the medial side of the mastoid process through the digastric groove. The pus is prevented from reaching the surface by neck musculature but can track along the fascial planes of the digastric or sternocleidomastoid muscle.¹ Bezold's abscess usually spreads into the substance of the sternocleidomastoid and confines to the posterior cervical and perivertebral spaces by the pharyngobasilar fascia and the deep layer of deep cervical fascia.^{2,7} It may extend into the carotid, prevertebral, danger and retropharyngeal spaces and through the danger space, an abscess may extend into the mediastinum or into the base of the skull.² Due to the depth of their location, Bezold's abscess may be difficult to be palpated. Radiological study is indicated in cases of acute mastoiditis or otitis media when there is clinical suggestion of coalescent mastoiditis, which signifies the transition from mucoperiosteal disease to bone

disease and even to intracranial complications. CT can show stages of disease progression when infection spreads by way of soft tissue and bone pathways into dural venous sinuses, meninges, labyrinth, facial nerve, epidural and other intracranial spaces.⁵ CT is also valuable in early diagnosis of cholesteatoma in the mastoid cavity and exact delineation of abscess formation.⁷ Early surgery should be done to treat severe mastoiditis, such as coalescent mastoiditis and subperiosteal abscess. The abscess in the neck should be treated by thorough drainage.

CONCLUSION

The decrease in incidence of mastoiditis leading to Bezold's abscess has led to decreased familiarity and subsequent increased delay in diagnosis and commencement of appropriate treatment.¹ Clinicians need to have a high index of suspicion in any patient presenting with neck abscesses as well as unexplained intracranial/extracranial or upper thoracic abscesses.

REFERENCES

1. Spiegel JH, Lustig LR, Lee KC, Murr AH, Schindler RA. Contemporary presentation and management of a spectrum of mastoid abscesses. *Laryngoscope* 1998;108:779-82.
2. Gaffney RJ, O'Dwyer TP, Maguire AJ. Bezold's abscess. *J Laryngol Otol* 1991;105:765-66.
3. Marioni G, de Filippis C, Tregnaghi A, Marchese-Ragona R, Staffieri A. Bezold's abscess in children: Case report. *Int J Pediatr Otorhinolaryngol* 2001;61(2):173-77.
4. Uchida Y, Ueda H, Nakashima T. Bezold's abscess arising with recurrent cholesteatoma 20 years after the first surgery: With a review of the 18 cases published in Japan since 1960. *Auris Nasus Larynx* 2002;29(4):375-78.
5. Mafee MF, Singleton EL, Valvassori GE, Espinosa GA, Kumar A, Aimi K. Acute otomastoiditis and its complications: Role of CT. *Radiology* 1985;155:391-97.
6. Kangsanarak K, Fooanant S, Ruckphaopunt K, Navacharoen N, Teotrakul S. Extracranial and intracranial complications of suppurative otitis media. Report of 102 cases. *J Laryngol Otol* 1993;107:999-1004.
7. Smouha EE, Levenson MJ, Anand VK, Parisier SC. Modern presentations of Bezold's abscess. *Arch Otolaryngol* 1989;115:1126-29.