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Rare Case of Bezold Abscess Left Post Auricular Region

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ABSTRACT

Background: Bezold's Abscess is a rare but serious complication of Chronic Otitis Media (COM) that occurs when purulent material from mastoiditis extends into the sternocleidomastoid and digastric muscles. Although the advent of antibiotics has reduced its incidence, delayed diagnosis can result in life-threatening complications such as lateral sinus thrombosis and intracranial infections. Early recognition and intervention are crucial to prevent irreversible damage. **Case Presentation**: We report the case of a 10-year-old male who presented with post-auricular swelling and purulent discharge from the left ear. Clinical examination identified a fluctuant, non-tender abscess, and High-Resolution CT (HRCT) imaging revealed mastoiditis, loss of mastoid pneumatization, coalescence, and bony cortical erosion. Culture and sensitivity testing confirmed *Pseudomonas aeruginosa* as the causative organism. Initial management included immediate abscess drainage, intravenous antibiotics, and supportive therapy. A Canal Wall down Mastoidectomy was performed to eradicate the infection and prevent complications. Pure Tone Audiometry (PTA) demonstrated mild conductive hearing loss pre-operatively, with a 5dB improvement post-surgery. Follow-up evaluations at 1, 2, 3, and 6 weeks indicated satisfactory recovery with no recurrence or further complications. **Conclusion**: This case illustrates the critical importance of early diagnosis, comprehensive imaging, and timely surgical intervention in managing Bezold's Abscess secondary to Chronic Otitis Media. Prompt medical and surgical management not only prevented life-threatening complications but also preserved auditory function, highlighting the effectiveness of a multidisciplinary approach in otogenic infections.

INTRODUCTION

Chronic Otitis Media (COM) is a persistent inflammation of the middle ear and mastoid cavity, typically associated with tympanic membrane perforation and recurrent ear discharge (Wallis, Atkinson, & Coatesworth, 2015). Despite advancements in medical therapies, COM continues to be a significant cause of morbidity, especially in regions with limited healthcare access (Borgohain, Sharma, & Saikia, 2022). One of the most severe complications of COM is the development of Bezold's Abscess, a deep neck abscess that arises from the spread of infection through the mastoid air cells into the surrounding tissues (Toros, Karaca, & Ertugay, 2017).

Bezold's Abscess is a rare but life-threatening complication of chronic suppurative otitis media, often linked with osteomyelitisof the mastoid and erosion of the bony cortex (Aslam & Alqahtani, 2020). Pathophysiologically, the infection breaches the mastoid cortex, allowing pus to collect in the deep neck spaces, particularly the sternocleidomastoid and digastric muscle regions (Meyerhoff, Kim, & Paparella, 1978). This can result in severe complications such as facial nerve paralysis, brain abscesses, and venous sinus thrombosis if not diagnosed and managed promptly (Nissen & Bui, 1996).

Early diagnosis of COM complications, including Bezold's Abscess, is critical to preventing severe outcomes. Imaging modalities like High-Resolution Computed Tomography (HRCT) of the temporal bone are indispensable in identifying mastoid involvement, bony erosion, and extension of infection into adjacent soft tissues (Abdulsattar, Alturaihy, & Hussein, 2019). The role of HRCT is particularly crucial as it allows for detailed visualization of anatomical disruptions that may not be evident during clinical examinations (Hutz, Moore, & Hotaling, 2018).

The present case highlights the clinical significance of timely diagnosis and intervention in managing complicated COM with Bezold's Abscess, emphasizing the importance of a multidisciplinary approach to prevent irreversible damage and life-threatening complications.

CASE PRESENTATION

A 10-year-old male presented to the Otorhinolaryngology Outpatient Department with a chief complaint of swelling behind the left ear and left ear discharge. The swelling was gradual in onset, progressive in nature, and notably painless, without any associated fever (Figure 1). On further inquiry, it was revealed that the patient had no significant past medical or surgical history, and his family history was unremarkable, with all family members reportedly healthy.

On clinical examination, the general physical assessment indicated that the patient was oriented to time, place, and person, fully conscious, and exhibited stable vital signs. Local examination of the left ear revealed prominence and a loss of the post-auricular crease. Furthermore, there was a noticeable post-auricular abscess that was fluctuant and non-tender. Purulent discharge was observed from the left ear, which was promptly collected and sent for culture and sensitivity testing. Importantly, there were no signs of local lymphadenopathy, and the contralateral ear appeared entirely normal.

To further investigate the condition, routine blood tests were conducted, which included basic hematological and biochemical parameters. These tests showed no significant abnormalities that would contraindicate surgical intervention. The culture and sensitivity test of the purulent discharge from the left post-auricular region revealed the growth of Pseudomonas aeruginosa, a common pathogen associated with chronic otitis media and often resistant to many antibiotics. In addition, Pure Tone Audiometry (PTA) assessments, conducted both preoperatively and postoperatively, showed mild conductive hearing loss. Notably, there was a 5dB reduction in the air-bone gap post-surgery, indicating a partial restoration of auditory function.

Further diagnostic imaging was performed using High-Resolution CT (HRCT) of the temporal bone(Figure 2) . The imaging results demonstrated significant loss of pneumatization in the bilateral mastoid bones, with adjacent sclerosis and a low-density collection that formed acoalesced cavity. There was clear communication between the collection and the overlying soft tissue, coupled with erosions in the bony cortex of the mastoid region. Additionally, there was marked thinning of the tegmen tympani and erosion of the bilateral scutum. Despite these findings, there was no evidence of venous sinus thrombosis, although soft tissue swelling persisted in the left mastoid region, accompanied by a small sinus opening in the post-auricular area.

The initial management of the patient involved the immediate drainage of the abscess to alleviate pressure and prevent the spread of the infection. Concurrently, injectable antibiotics targeting Pseudomonas aeruginosa were adminis tered intravenously, along with supportive IV fluids to stabilize the patient and prepare him for surgical inter vention. Broad-spectrum antibiotics were chosen based on the culture sensitivity results to enhance therapeutic effecti veness.

Subsequently, a pre-anesthetic evaluation confirmed the patient's fitness for surgery, leading to the decision to perform a Canal Wall Down (CWD) Mastoidectomy. This surgical procedure aimed to remove the infected mastoid air cells and prevent further complications, such as intracranial extension or facial nerve involvement. During surgery, the site was thoroughly cleaned, and necrotic tissue was excised. Following the surgical procedure, the patient was closely monitored in the recovery room. Appropriate analgesics and antibiotics were continued to effectively manage infection and alleviate pain.

Follow-up evaluations were conducted at 1-, 2-, 3-, and 6-weeks post-surgery. During these assessments, wound healing was thoroughly evaluated, and no signs of further infection were detected. Notably, the PTA conducted after surgery demonstrated a reduction in the air-bone gap, indicating a significant improvement in hearing function. Furthermore, there was a marked reduction in post-auricular swelling, and the patient displayed no evidence of further complications such as venous sinus thrombosis or intracranial spread of infection. The resolution of the infection following the appropriate antibiotic therapy and proper surgical intervention allowed the patient to return to normal activities without any signs of relapse, highlighting a successful recovery.

Figure 1: Preoperative images of prominent Left auricle with loss of left post auricular crease

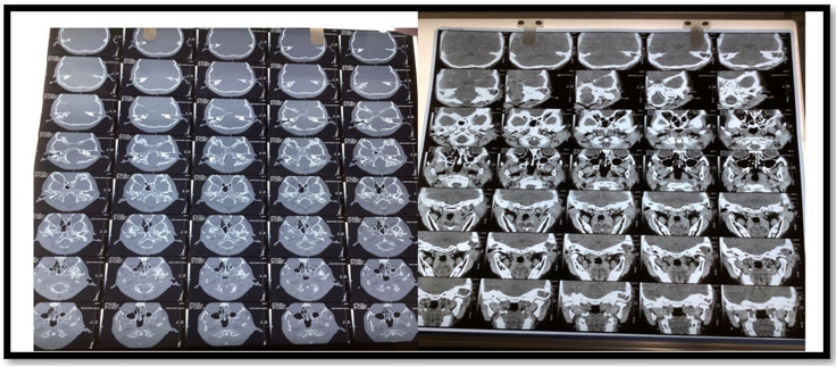

Figure 2: HRCT temporomastoid

DISCUSSION

Chronic Otitis Media (COM) is characterized by chronic inflammation and infection of the middle ear, often resulting in tympanic membrane perforation and persistent otorrhea (Anand & Amedee, 2009). A severe complication of COM is Bezold's Abscess, a rare deep neck abscess that arises when purulent material from mastoiditis extends through the mastoid tip into the sternocleidomastoid and digastric muscles (Pradhananga, 2014). The case presented aligns with typical findings of Bezold's Abscess, including post-auricular swelling, ear discharge, and mastoid cortical erosion. This is similar to cases documented by Shankar, Kurle, and Puneeth (2017), who reported a 13-year-old with left-sided chronic suppurative otitis media progressing to Bezold's Abscess (Shankar, Kurle, & Puneeth, 2017).

Pathophysiologically, the infection in the mastoid air cells leads to osteitis and subsequent cortical breach, facilitating pus drainage into the soft tissues of the neck (Darmawan, Darmayan, & Sulistyo, 2024). In advanced cases, the abscess may further extend to regions like the scapular area or lumbar regions, as reported in rare clinical instances (Pradhananga, 2014).

Early diagnosis through imaging is critical in detecting mastoid involvement and cortical erosion. High-Resolution Computed Tomography (HRCT) is particularly valuable as it delineates the extent of pneumatization, cortical breaches, and soft tissue involvement (Al-Baharna, Al-Mubaireek, & Arora, 2016). In the current case, HRCT imaging confirmed coalescence of mastoid air cells, low-density collections, and erosion of the bony cortex—findings consistent with chronic mastoiditis and Bezold's Abscess. These results are corroborated by studies emphasizing the role of CT in identifying neck extension and the exact anatomical pathway of infection spread (Steczko, Przeklasa, & Skladzien, 2003).

Prompt surgical intervention, combined with appropriate antibiotic therapy, is critical to prevent severe complications such as lateral sinus thrombosis, brain abscess, or meningitis (Angurana, Bansal, & Mehta, 2019). In this case, the Canal Wall Down Mastoidectomy effectively removed necrotic tissue and allowed for better drainage, preventing further intracranial spread. Early drainage and targeted antibiotic therapy, as described in a similar case by Maharani and Ferriastuti (2022), are vital in avoiding life-threatening complications (Maharani & Ferriastuti, 2022).

The presentation of post-auricular swelling, purulent discharge, and mastoid involvement necessitates differential diagnosis, including conditions like parapharyngeal abscess, tuberculous otitis media, and cholesteatoma-induced abscesses (Eswaran, Kumar, & Kumar, 2018). Tuberculous otitis media, in particular, mimics chronic otitis with persistent discharge and mastoid involvement but is often unresponsive to standard antibiotic therapy. HRCT in the present case ruled out parapharyngeal involvement and confirmed localized cortical erosion without intracranial extension, excluding these differentials effectively.

CONCLUSION

This case highlights the significance of timely diagnosis and comprehensive management in preventing life-threatening complications of Chronic Otitis Media (COM) like Bezold's Abscess. The patient's presentation of post-auricular swelling, ear discharge, and mastoid involvement was promptly investigated using High-Resolution CT (HRCT), leading to the early detection of cortical erosion and mastoid coalescence. Immediate surgical intervention through Canal Wall Down Mastoidectomy, combined with targeted antibiotic therapy, successfully managed the infection and prevented intracranial spread. This outcome emphasizes the critical role of imaging and early surgical management in avoiding severe complications such as lateral sinus thrombosis and brain abscess. Early recognition and intervention not only improved clinical outcomes but also preserved auditory function, reflecting the effectiveness of a multidisciplinary approach.

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