

# Zygomatic abscess as a complication of otitis media

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## ABSTRACT

Zygomatic abscess is a very rare complication (extra cranial) of acute otitis media. Unfamiliarity with the underlying cause of a swollen cheek can lead to delay of proper treatment with potential harm to the patient. The ideal treatment for these cases is modified radical mastoidectomy with drainage of abscess. We herein present a rare case report of zygomatic abscess associated with otitis media along with its clinical presentation, root of spread and review of its medical and surgical management, with emphasis on the methods for accurate diagnosis. We report on a 55-years-old man who presented with right ear discharge with decreased hearing. High-resolution computed tomography of temporal bone showed irregular osteolytic area involving the posterior portion of the right zygomatic process and zygomatico temporal junction, mastoid air cell, middle ear cavity with erosion of anterior, lateral, and superior wall. There is a evidence of peripherally enhancing collection seen around the right zygomatic process and it measures 3.9\*1.6 cm with ill-defined swelling of the soft tissue of right temporal region (masticatory space). Anterior and posterior margin of EAC also shows erosion. The patient underwent a modified radical mastoidectomy with drainage of zygomatic abscess. There was an automastoidectomy and organized granular mass. Zygomatic root abscess is a rare complication of acute otitis media. HRCT scans or magnetic resonance imaging of the temporal bone with wider windows are necessary. Appropriate intravenous antibiotics and adequate surgeries, as soon as possible, are recommended.

**Key words:** Zygomatic abscess, otitis media, a rare case

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## INTRODUCTION

Acute mastoiditis is the most common complication of acute otitis media (AOM) and its early recognition and management still poses a challenge due to potentially serious consequences. The advent of antibiotics has significantly reduced the incidence and associated morbidity of autogenic (intracranial and extracranial) complications;<sup>[1]</sup> yet, they remain a serious clinical problem, especially when caused by bacteria resistant to antibiotics. Zygomatic abscess is very

rare complication (extra cranial) of acute otitis media. Zygomatic root abscesses have only been described in a few scattered case reports<sup>[2-4]</sup> Unfamiliarity with the underlying cause of a swollen cheek can lead to delay of proper treatment with potential harm to the patient. Friedrich Bezold (1824-1908) was one of the first who reported about this.

It is described as temporo parietal swelling secondary to mastoid abscess eroding the root of the zygomatic process.<sup>[1]</sup> Extracranial extension of mastoid infections was further characterized by Henri Luc in 1900 when he described the subperiosteal temporal abscess of otitic origin without intraosseous suppuration.<sup>[5]</sup>

The ideal treatment for these cases is modified radical mastoidectomy with drainage of abscess. Radiographic investigation of the mastoid can be useful in the diagnosis of cholesteatoma in the presence of a

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subperiosteal mastoid abscess.

We herein present a rare case report of zygomatic abscess associated with otitis media along with its clinical presentation, root of spread, review of its medical and surgical management, with emphasis on the methods for accurate diagnosis.

## CASE REPORT

We report on a 55-year-old man who presented with right ear discharge with decreased hearing for 5 months and right ear ache for 2 months. It was dull aching in beginning but sharp shooting for 5 days accompanied with right-sided facial swelling [Figure 1] and decreased mouth opening for 5 days. No associated tinnitus, vertigo, or any other constitutional symptoms were present. The affected external auditory canal was swollen and erythematous. His facial nerve was intact. High-resolution computed tomography (HRCT) of temporal bone showed irregular osteolytic area involving the posterior portion of the right zygomatic process and zygomatico temporal junction, mastoid air cell, middle ear cavity with erosion of anterior, lateral, and superior wall. There is an evidence of peripherally enhancing collection seen around the right zygomatic process and it measures 3.9\*1.6 cm with ill-defined swelling of the soft tissue of right temporal region (masticator space). Anterior and posterior margin of EAC also shows erosion [Figure 2]. Ear swab send for culture and sensitivity report came as *Pseudomonas aeruginosa*. We initiated intravenous antibiotics, which resulted in notable improvement; the patient underwent a modified radical mastoidectomy with drainage of zygomatic abscess. There was an automastoidectomy and organized granular mass completely filling the mastoid cavity with complete erosion of zygomatic process and presence of attic cholesteatoma. Histopathology sample shows no evidence of malignancy. The patients exhibited excellent postoperative recovery, without facial palsy, vertigo or other complications. The diagnosis of zygomatic abscess associated with unsafe otitis media was made.

## DISCUSSION

The incidence of complications resulting from suppurative otitis media has significantly decreased since the introduction of antibiotics. At the start of the 20<sup>th</sup> century, 50% of all cases of otitis media developed a coalescent mastoiditis. By 1959, the incidence had fallen to 0.4%. Recent studies suggest a current incidence of only 0.24%.<sup>[6]</sup>

An acute mastoiditis can occasionally present as a



Figure 1: Clinical photograph showing zygomatic abscess



Figure 2: High-resolution computed tomography of temporal bone irregular osteolytic area involving the posterior portion of the right zygomatic process and zygomatico temporal junction, mastoid air cell, middle ear cavity with erosion of anterior, lateral, and superior wall

swelling in front of the ear. An inflammation of the air cells of the mastoid cavity can spread, via the cells in the root of the zygomatic arch, to the soft tissues of the cheek. The infratemporal or zygomatic fossa is the space bounded laterally by the ramus of the mandible, medially by the lateral wall of the pharynx and pterygoid process of the sphenoid bone, anteriorly by the zygomatic surface of the superior maxilla and superiorly by the lower surface of the greater wing of the sphenoid and the adjacent temporal bone. The posterior limit of the space is represented by a plane passing directly medial ward from the posterior border of the ramus of the mandible to the pharynx.<sup>[7]</sup>

The diagnosis of zygomatic root abscesses some times is very difficult due to variable clinical presentations and often distinct from suppurative mastoiditis. Some times they appear as a masked condition despite the presence of a potentially fatal complication. Patients may lack

constitutional symptoms. Investigation includes advanced HRCT or magnetic resonance imaging (MRI) of the temporal bone with wider window to see soft tissue involvement and cholesteatoma in the presence of subperiosteal abscess

or to rule out intracranial extension. Treatment of the zygomatic root abscess associated with otitis media includes modified radical mastoidectomy with drainage of zygomatic abscess. Some times, patients may respond to conservative therapy alone.<sup>[3,4]</sup>

## CONCLUSIONS

- In summary, zygomatic root abscess is a rare complication.
- Of acute otitis media to be a contemporary otologist, we should not overlook such severe complications of otitis media diseases.
- Appropriate intravenous antibiotics and adequate surgeries, as soon as possible, are recommended.
- Advanced HRCT scans or MRI of the temporal bone with wider windows are necessary for the diagnosis of cholesteatoma in the presence of a subperiosteal

mastoid abscess.

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