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IMAGES IN EMERGENCY MEDICINE

ENT, Infectious Disease

Patient with swollen ear

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KEYWORDS: infection, mastoiditis, otitis

1 | CASE PRESENTATION

A 19-year-old male presented to the emergency department (ED) with 4 weeks of insidious-onset right ear pain. His symptoms began as nasal congestion but evolved into right ear pain and pressure. During the last week before ED presentation, his symptoms worsened to include intermittent malodorous drainage, right-sided headache, and diminished right-sided hearing. Physical exam revealed purulent drainage from the right ear (Figure 1) and swelling and tenderness behind the auricle (Figure 2). The patient underwent computed tomography (CT) of the temporal bones that revealed mucosal inflammatory changes in the middle ear cavity extending throughout the mastoid air cells consistent with otitis media and mastoiditis (Figure 3).

FIGURE 1 Purulent drainage from right ear

2 | DISCUSSION

CT revealed mucosal inflammatory changes in the middle ear cavity extending throughout the mastoid air cells consistent with otitis media and mastoiditis (Figure 3). Mastoiditis is a known complication of acute otitis media, most commonly caused by *S. pneumonia* followed by *S. pyogenes* and *S. aureus* in young children. The most common causative organisms in older patients shifts toward *S. aureus* over *S. pneumonia* and *S. pyogenes* and can include *P. aeruginosa*.[1] Mastoiditis can progress from exudate or pus within the mastoid air cells to necrosis of bone. Severe cases have abscess formation and extension of inflammation to contiguous structures that may lead to meningitis, vascular thrombosis, and osteomyelitis.[2] Physical findings associated with mastoiditis include fever, otalgia, otorrhoea, auricular displacement, external auditory canal and retroauricular swelling, and erythema.[3] CT findings associated with mastoiditis include loss of the mastoid bony septa, erosion through the mastoid cortical wall, and soft-tissue

FIGURE 2 Swelling behind right ear

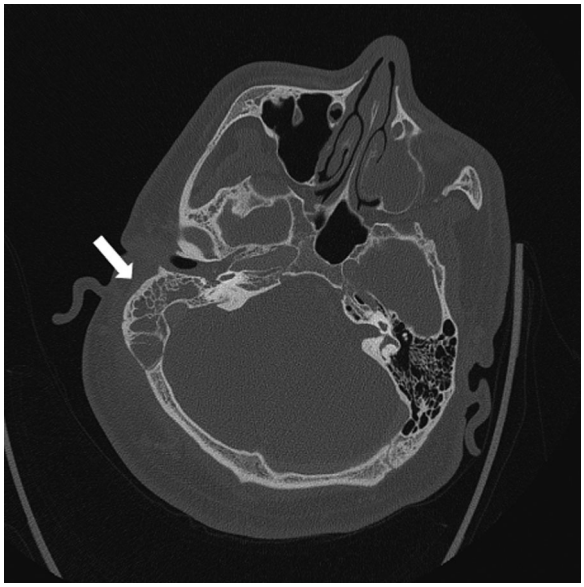

FIGURE 3 Computed tomography scan of head showing opacification of right mastoid

swelling overlying the mastoid process.[3] Definitive treatment entails surgical debridement of the mastoid bone. The patient was admitted to otolaryngology, received intravenous antibiotics, and underwent operative right mastoidectomy and myringotomy with tube placement.

In addition to mastoiditis, the differential diagnosis for posterior auricular swelling may include basilar skull fracture, cellulitis, cysts, tumors, lymphadenopathy, and otitis externa.[4] Providers may miss the relatively uncommon diagnosis of mastoiditis if the exam is curtailed after discovering an acute otitis media. Long hair may also potentially obscure physical findings. When caring for patients with ear complaints, providers should remember to examine the entire head.

DISCLOSURE

Dr. Wang is Editor-in-Chief of *JACEP Open*. He did not have any role in the editorial assessment of the work.

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