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Facial Nerve Palsy After Ear Infection: A Case Report

PUBLISHED ABSTRACT

I. ELMUBARAK

J. EKEZIE

S. MANWANI

**Author affiliations can be found in the back matter of this article*

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ABSTRACT

Introduction: The incidence of acute mastoiditis, a common complication of otitis media, has significantly decreased with the emergence of antibiotic therapy [1]. Classical symptoms of acute mastoiditis include fever, irritability, otalgia, swelling of the mastoid area, and retroauricular erythema [2]. Delay in appropriate antibiotic treatment of mastoiditis may lead to intracranial and extracranial complications. Facial nerve paralysis is a rare complication of otomastoiditis with different pathophysiologic mechanisms postulated [3]. Extensive literature search showed cases of lower motor neuron involvement of the facial nerve in affected patients. We report an unusual case of mastoiditis without fever complicated by epidural abscess and upper motor neuron facial nerve palsy in a previously healthy adolescent.

Case Presentation: A 13-year-old male presented with painful progressive swelling behind his left ear of 5 days duration. Symptoms had started 2 weeks prior with complaints of left ear pain, and he was diagnosed with impacted cerumen and prescribed topical hydrogen peroxide. There was no history of fever, ear discharge, hearing loss or change in neurologic status. On admission, physical examination showed 4x4 cm tender swelling over the left mastoid region with forward displacement of the pinna and cerumen impaction. Neurological assessment was normal. Laboratory investigations showed peripheral leukocytosis (12,200 cells/uL) with neutrophilia (74%), and elevated c-reactive protein (87 mg/L). Head CT scan showed acute coalescent left mastoiditis with small left epidural abscess formation, displacing the left sigmoid sinus medially, and a developing left mastoid subperiosteal abscess (see ***Figure 1***). A diagnosis of acute mastoiditis was made, and he was commenced on intravenous ceftriaxone and vancomycin with resultant decrease in size of the swelling and normalization of inflammatory markers.

On the third day of admission, the patient developed mild right-sided facial asymmetry with sparing of the upper part of the face. Ceftriaxone was changed to piperacillin-tazobactam for broader-spectrum anerobic and gram-negative coverage. Otolaryngology evaluation revealed Bezold's abscess requiring mastoidectomy. The father initially declined, given improvement in the patient's symptoms, but consented

CORRESPONDING AUTHOR:
I. Elmubarak
Department of Pediatrics, BronxCare Health System, New York, USA
ielmubar@bronxcare.org

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to wide myringotomy and placement of a short-term myringotomy tube for further drainage and middle ear irrigation. Samples of pus collected were sent for aerobic, anaerobic, mycobacterial, and fungal cultures which all came back negative except for scant growth of Staphylococcus epidermidis. MRI done on the second post-operative day showed severe coalescent left otomastoiditis, mild meningeal enhancement compatible with meningitis along the left lateral temporal lobe, and a small sliver of epidural abscess along the left infratemporal fossa (see ***Figure 2***). Antibiotic treatment was escalated from Piperacillin-tazobactam to meropenem to provide a broader gram-negative and anaerobic coverage. At this point, father consented, and patient underwent mastoidectomy with craniotomy and epidural abscess drainage. Patient received 14 days of parenteral antibiotics. He showed clinical and radiological improvement on repeat MRI, facial asymmetry resolved and patient was discharged home in stable condition to complete 1-month of oral antibiotics (levofloxacin + amoxicillin-clavulanate) with subsequent outpatient follow-up.

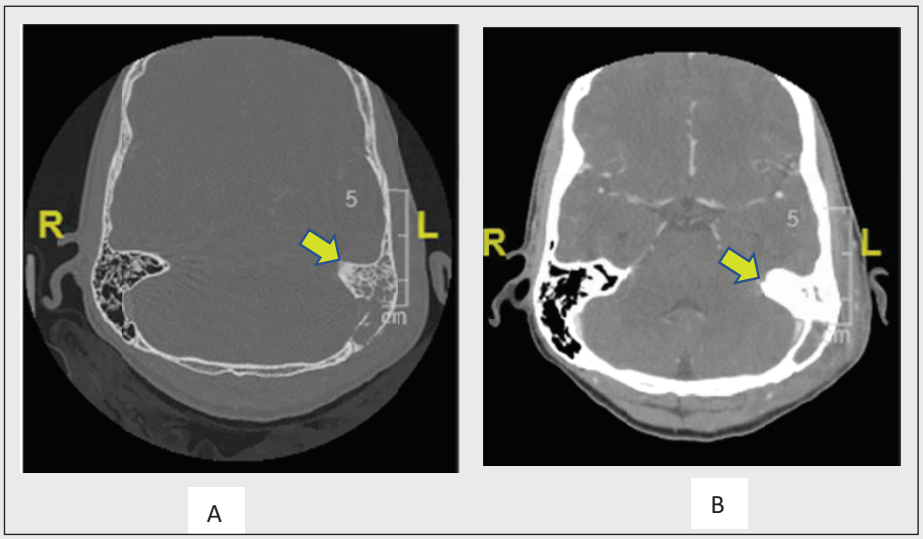

Figure 1 Head CT with (A) and without contrast (B) done at admission showing acute coalescent left mastoiditis (arrow).

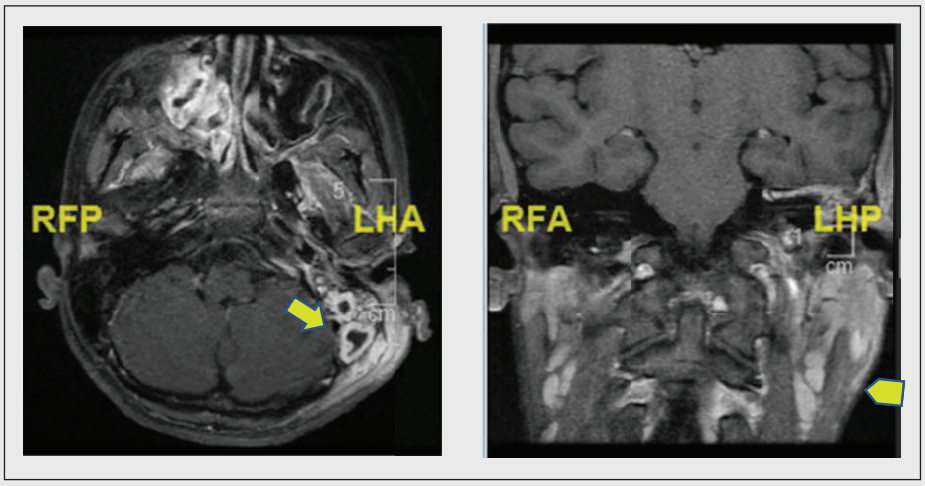

Figure 2 Brain MRI done on myringotomy post-operative day 2 after development of right facial palsy, showing persistent mastoiditis (arrow) and epidural abscess (arrowhead).

Conclusion: Mastoiditis is a complication of otitis media that can lead to potentially life-threatening intracranial complications. Interestingly, the patient developed right-sided facial asymmetry sparing the upper part of the face suggesting a left upper motor neuron facial nerve palsy with involvement of the contralateral face. This finding is unique to our case, and to our knowledge has not been described in literature. A plausible anatomic explanation is the involvement of ipsilateral corticobulbar tract with subsequent interruption of the main input to the lower portion of contralateral facial nerve nucleus which controls the muscles of the lower face [4]. This results in sparing of the upper facial muscles characteristic of upper motor neuron lesion. Appropriate antibiotic treatment with surgical intervention led to complete resolution of symptoms.

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

I. Elmubarak *orcid.org/0000-0002-0578-9456*
Department of Pediatrics, BronxCare Health System, New York, USA

J. Ekezie *orcid.org/0000-0002-6932-7314*
Department of Pediatrics, BronxCare Health System, New York, USA

S. Manwani
Department of Pediatrics, BronxCare Health System, New York, USA

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