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Gradenigo's Syndrome Without Facial Nerve Involvement in a Fourteen-Month-Old Girl

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Introduction: Gradenigo's syndrome consists of ophthalmoplegia, facial palsy, and facial pain due to involvement of abducens and facial nerves as well as the trigeminal ganglion. This involvement is due to infections of ipsilateral middle ear and mastoid bone.
Case Presentation: A 14-month-old girl was referred to a private clinic with chief complaint of acute and sudden-onset right ophthalmoplegia. There was a history of upper respiratory tract infection and subsequent otitis media one week ago. Right mastoiditis was seen in brain MRI.
Conclusions: The presence of facial palsy and facial pain is usual in Gradenigo's syndrome; however, in this case, the only sign was abducens nerve palsy and subsequent ophthalmoplegia, which is very rare and unusual presentation of this syndrome.

*Keywords:*Gradenigo's Syndrome; Atypical; Facial Palsy

1. Introduction

In 1907, Guisseppe Gradenigo described a syndrome of suppurative otitis media (OM), pain in the distribution of the trigeminal nerve, and abducens nerve palsy (1). Since the advent of antibiotics, the incidence of this potentially fatal condition has diminished; however, occasional cases still occur. Nowadays Gradenigo's syndrome is a rare complication of OM in children. Treating the underlying infection is the cornerstone of treatment to prevent intracranial complications and permanent abducens nerve palsy. Surgical exploration was the mainstay of treatment previously; however, the condition is now mostly treated conservatively with antibiotics, reserving surgical exploration for nonresponsive cases only (2, 3).

2. Case Presentation

A 14-month-old girl was referred to a private clinic with chief complaint of acute and sudden-onset right ophthalmoplegia. Her general condition was good. There was a history of common cold and subsequent OM one week ago. On presentation, she was not febrile and developed squint on right gaze due to right lateral rectus palsy (Figure 1). On examination with otoscope, right tympanic membrane was intact but dull. Rest of her examination yielded insignificant results. The results of her complete blood count and erythrocytes sedimentation rate were normal. Other parts of neurologic examination were unremarkable. An interesting and unusual note in the patient was absence of complaint from ipsilateral deep facial pain and facial palsy. Magnetic resonance imaging showed abnormal enhancement in right mastoid air cells with petrous apicitis (Figure 2). A diagnosis of Gradenigo's syndrome was made and intravenous ceftriaxone for five days was started and followed by oral cefixime for 14 days. After eight-week follow-up, she had no symptoms.

Figure 1. Right Esotropia Due to Abducens Nerve Paresis

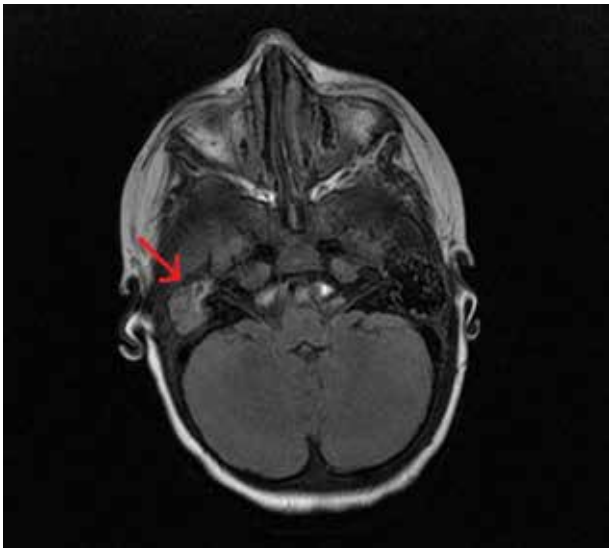

Figure 2. Brain MRI of the Patient. There is Abnormal Signal Intensity of the Right Mastoid Air Cells Following Injecting Contrast Media, Suggestive of Acute Mastoiditis.

3. Discussion

Gradenigo's syndrome is a rare complication of OM in which infection spreads from the middle ear to the petrous apex. It results in damage to abducens and trigeminal nerves. The spread of infection occurs through pneumatization, vascular channel, or bone erosion (2, 4). In addition, Gradenigo's syndrome consists of facial palsy and facial pain due to involvement of facial nerve and the trigeminal ganglion (1). It can be seen as a complication of acute or chronic OM.

In the presented case, history and clinical findings were more consistent with silent OM as there was no ear discharge and tympanic membrane was intact. The only complaint of this patient was right eye squint and she did not complain of facial pain and facial nerve palsy.

In imaging modalities, the CT scan of temporal bone has shown good results as it can give details of petrous apex; moreover, bone windows are more appropriate for bony erosion. However, MRI is better than CT scan in providing details of soft tissue and can identify any mass lesion and abscess formation (5, 6). On T1-weighted images, inflammation of the petrous apex with peripheral enhancement of gadolinium is evident whereas T2-weighted images reveal high-signal intensity (7).

Generally this condition is treated with prolonged antibiotic therapy (four weeks to six months) with surgery reserved for nonresponsive cases (3). As mentioned above, intravenous ceftriaxone was administered for five days and followed by oral cefixime for 14 days. After eight-week follow-up, she had no symptoms.

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