

A Case of Abducens Nerve Palsy: Gradenigo's Syndrome

Rajneesh Thakur*

Department of Medicine, AFMC, Pune, Maharashtra, India

*Corresponding author: Rajneesh Thakur, Department of Medicine, AFMC, Pune, Maharashtra, India, Tel: 8554828920; E-mail: rajneesh2207@gmail.com

Received date: September 27, 2018; Accepted date: November 02, 2018; Published date: November 08, 2018

Copyright: ©2018 Thakur R, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

A 51-year-old male presented with history of long standing on and off discharge from his left ear with increasing purulent discharge from the left ear since 30 days and double vision since last 7 days. He also had pain in left fronto-temporal area. Clinical examination revealed left abducens nerve palsy and perforation in left tympanic membrane. CT head showed left apical petrositis. He was diagnosed as a case of Gradenigo's syndrome.

Keywords: Gradenigo's syndrome; Petrositis; Lateral rectus palsy; Tympanic membrane

Case Summary

A 51-year-old male presented to the outpatient department (OPD) of a tertiary care hospital with increasing purulent discharge from the left ear since 30 days and double vision since last 7 days. The discharge was yellowish and foul smelled. This was associated with left sided headache, severe in intensity which was maximal in the left fronto-temporal region and deep retro-orbital region. Lately, he developed double vision, maximal in horizontal gaze when looking towards the left side disappearing on closing either of his eyes. There was no history of head injury, fever, abnormal behavior and altered bowel and bladder habits. There was a significant past history of on and off discharge from his left ear since the age of 25 years; however he did not take any treatment for it.

Clinical examination revealed stable vitals. Neurological examination showed left lateral rectus palsy and diminished touch, pain and temperature sensation in the ophthalmic division of left fifth nerve with absent ipsilateral corneal reflex (Figure 1). ENT evaluation revealed tenderness over left mastoid and a congested and perforated left tympanic membrane (Figure 2). There was no neck stiffness and meningeal signs were absent. Rest of neurological and systemic examination was normal.

His hematological and biochemical parameters were normal. Non contrast CT head and temporal bone revealed left mastoiditis with apical petrositis (Figure 3). He was started on injection amoxicillin-clavulanate. He showed good response to therapy with decreasing pain and no further ear discharge. ENT consult was sought and he has been planned for left mastoidectomy and petrous exploration. However the patient was lost to follow up and did not report back.

Discussion

Gradenigo's syndrome was described in 1904 by Giuseppe Gradenigo as a symptom complex of suppurative otitis media, pain in the distribution of the trigeminal nerve, and abducens nerve palsy [1]. Gradenigo's syndrome is an uncommon but life-threatening complication of otitis media. Deep facial or retro-orbital pain occurs because of stretching of the meningeal covering of the trigeminal

ganglia and abducens nerve palsy occurs because of the inflammatory reaction in the Dorell's canal through which abducens nerve passes.



Figure 1: Left lateral rectus palsy.

In addition to the triad symptoms of Gradenigo's syndrome, petrous apicitis may have other manifestations like involvement of ipsilateral 7th cranial nerve causing facial paralysis, deficits in the distribution of other cranial nerves like 8th, 9th and 10th, causing vertigo and sensorineural hearing loss [2]. Our patient did not have any involvement of facial nerve but there was sensory loss in ophthalmic division of fifth nerve. With improved health care only a minority of patients exhibits the full triad of Gradenigo's syndrome [3]. The basic pathophysiology lies in the involvement of petrous apex by an inflammatory reaction. Petrous apicitis is an extension of infection from the mastoid air cells into a pneumatized petrous apex [4]. Most of the Gradenigo's syndrome cases are caused by pyogenic bacteria but nontuberculous mycobacteria (NTM) has also been implicated [5]. However, no organism could be grown in this case. Majority of the patients are seen by ENT specialist as they have a history of otalgia or otorrhea. This case has presented to general medicine outpatient department with diploopia and was found to have left abducens nerve

palsy. Further evaluation revealed chronic suppurative otitis media and had apical petrositis on NCCT temporal bone. Gradenigo's syndrome remains a clinical diagnosis, however imaging like MRI and CT can help in planning a surgical approach. It has traditionally been treated surgically, but with better imaging and improved antibiotic treatment, many cases can be managed non-surgically [6].

Conclusion

This case reinforces the fact that meticulous ENT examination should be done in patients presenting with cranial nerve palsies and a clinical diagnosis can be made without any investigations. With better imaging and antibiotics more and more number of cases can be treated conservatively rather than employing upfront surgical approach.

References

1. Gradenigo G (1907) Ueber die paralysie des Nervus abducens bei Otitis. Arch Ohrenheilkunde 774: 149-87.
2. Lutter SA, Kerschner JE, Chusid MJ (2005) Gradenigo syndrome: A rare but serious complication of otitis media. Pediatr Emerg Care. 21: 384-386.
3. Flint PW, Lund VJ, Niparko JK, Richardson MA, Robbins KT, et al. (2015) Cummings otolaryngology-head & neck surgery. Fifth edition Philadelphia: Mosby Elsevier 3: 2963.
4. Choi KY, Park SK (2014) Petrositis with bilateral abducens nerve palsies complicated by acute otitis media. Clin Exp Otorhinolaryngol. 7: 59-62.
5. Chen PY, Wu CC, Yang TL, Hsu CJ, Lin YT, et al. (2014) Gradenigo syndrome caused by nontuberculous mycobacteria. Audiol Neurootol 19: 275-82.
6. Tornabene S, Vilke GM (2010) Gradenigo's syndrome J Emerg Med. 38: 449-451.



Figure 2: Left tympanic membrane showing congestion (black arrow) and perforation (white arrow).



Figure 3: NCCT head showing left apical petrositis (red arrow) and a normal aerated right mastoid cavity (yellow arrow).