

Nasopharyngeal Carcinoma Presenting as Gradenigo's Syndrome

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Abstract:

Title: Nasopharyngeal Carcinoma Presenting as Gradenigo's Syndrome

Purpose: To report a case of nasopharyngeal carcinoma with extension to the cavernous sinus initially presenting as Gradenigo's syndrome.

Design: Observational case report.

Methods: A report of a case from our institution is the basis of this study.

Results: A patient presented with presumed Gradenigo's syndrome with abducens palsy, otitis media, and facial pain. He subsequently developed Horner's syndrome and cranial nerve IV, V, VII, and VIII deficits and was diagnosed with nasopharyngeal carcinoma with extension to the cavernous sinus.

Conclusions: In patients presenting with presumed Gradenigo's syndrome with or without accompanying neurological findings, nasopharyngeal carcinoma should be considered and complete otolaryngological evaluation should be performed.

Introduction:

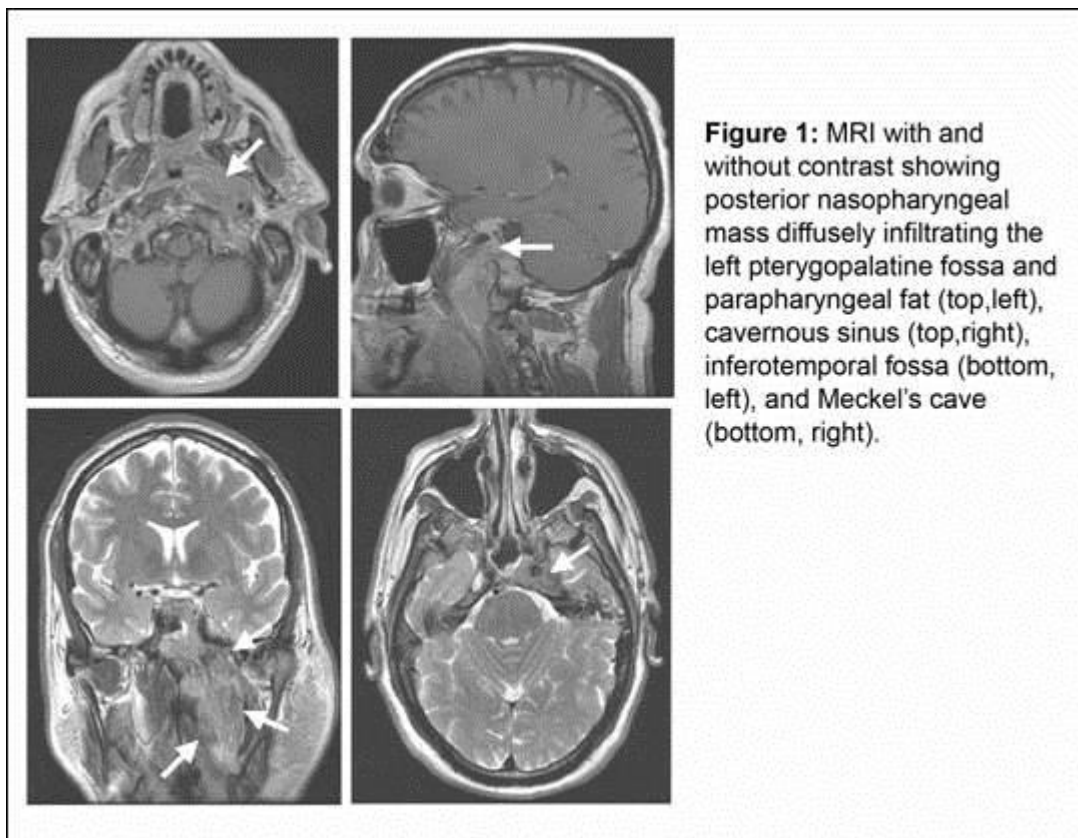
Gradenigo's syndrome is a triad of ipsilateral abducens palsy, severe orbital or facial pain, and otitis¹. Clinical and radiological findings in Gradenigo's syndrome have been reported extensively in the literature². It is almost exclusively secondary to inflammation of the petrous apex of the temporal bone due to otitis media or as a complication of mastoid surgery.

We present a case of infiltrating nasopharyngeal carcinoma presenting as presumed Gradenigo's syndrome with subsequent development of ipsilateral Horner's syndrome and trochlear, trigeminal, facial, and vestibulocochlear nerve deficits.

Case Report:

A 47-year-old male with medical history of tobacco abuse and hepatitis B and C presented with severe left-sided facial pain, diplopia, and ear pain of three weeks duration. The patient reported increased diplopia on left lateral gaze and had a corresponding left abduction deficit on exam. The patient was admitted with diagnosis of presumed left-sided Gradenigo's syndrome. On following days after admission, the patient developed right head tilt, left lid ptosis, left pupillary miosis, and left cheek numbness which were not initially present. MRI of the head with and without contrast showed extensive infiltrating mass versus abscess at the left skull base. The mass infiltrated the cavernous sinus and involved multiple cranial nerves (**Figure 1**). Since Gradenigo's syndrome is infectious in origin and radiologic imaging could not rule an aggressive infectious process, a course of penicillin G, ceftriaxone, and clindamycin was initiated, a tympanostomy tube was placed, and cultures were performed of the obtained

fluid. Evaluation for infection, including bacterial and fungal cultures, was negative. Over the next few days, trochlear nerve deficits resolved but the patient developed left facial nerve palsy despite completion of antibiotic therapy. Further audiological evaluation displayed mild ipsilateral neurological hearing loss. Stereotactically-assisted transphenoidal biopsy was performed which displayed a poorly differentiated nasopharyngeal carcinoma. The lesion was inoperable and chemotherapy with cisplatin and 5-fluorouracil in conjunction with radiation therapy was initiated.



Discussion:

Gradenigo's syndrome was first described in 1907 as apical petrositis secondary to otitis media. Most cases were seen prior to 1945 before the antibiotic era¹. A prior case of presumed Gradenigo's syndrome later correctly

diagnosed as a nasopharyngeal carcinoma³ has been reported. Our case presents a case of Gradenigo's syndrome at presentation with rapid development of multiple other neurologic findings due to nasopharyngeal carcinoma with extensive cavernous sinus infiltration.

Nasopharyngeal carcinoma infiltrating the petrous apex can cause trigeminal, abducens, and facial nerve deficits due to their close proximity to this region¹. With extension to the cavernous sinus, the trochlear and trigeminal nerves (ophthalmic and maxillary portions) as well as oculosympathetics can be involved⁴. Hearing loss is usually secondary to serous otitis, resulting from Eustachian tube obstruction.

Our patient illustrates that patients presenting with Gradenigo's syndrome with or without other neurological findings such as superior oblique palsy, Horner's syndrome, facial numbness and weakness, and hearing loss, nasopharyngeal carcinoma or other skull base malignancy should be considered and complete otolaryngological evaluation should be performed.

References:

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