Mystery Case: Cholesterol granuloma of the petrous apex in Gradenigo syndrome

A 60-year-old woman was admitted to our department after a 2-month history of double vision and periorbital pain. Neurologic examination showed a right abducens nerve palsy and neuralgia in the right V1 trigeminal branch. Brain MRI revealed a hyperintense nonenhancing expansile lesion of the right petrous apex (figure) suggestive of cholesterol granuloma.\textsuperscript{1,2} Gradenigo syndrome is traditionally characterized by the triad of otorrhea, diplopia, and pain in the trigeminal territory due to suppurative otitis media, but it may be associated with other less common etiologies as cholesteatomas, chronic osteomyelitis,

Expansile hyperintense lesion of the right petrous apex in T1-weighted (A) and T2-weighted (B, C) MRI sequences. The lesion also exhibited high signal intensity on FLAIR (fluid attenuation inversion recovery) (D) and T1-weighted fat-saturated (E) images, with no enhancement after contrast administration (F).

From the Neurological Clinic, Department of Experimental and Clinical Medicine, Marche Polytechnic University, Ancona, Italy.

Go to Neurology.org for full disclosures. Funding information and disclosures deemed relevant by the authors, if any, are provided at the end of the article.
intracranial lymphomas, nasopharyngeal carcinoma, and infectious petrositis.³

AUTHOR CONTRIBUTIONS
Simona Lattanzi: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and will give final approval. Claudia Cagnetti: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and will give final approval, acquisition of data. Paolo Di Bella: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and will give final approval, study supervision. Leonardo Provinciali: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and will give final approval.

STUDY FUNDING
No targeted funding reported.

DISCLOSURE
The authors report no disclosures relevant to the manuscript. Go to Neurology.org for full disclosures.

REFERENCES

MYSTERY CASE RESPONSES
The Mystery Case series was initiated by the Neurology® Resident & Fellow Section to develop the clinical reasoning skills of trainees. Residency programs, medical student preceptors, and individuals were invited to use this Mystery Case as an educational tool. Responses were solicited through a group e-mail sent to the American Academy of Neurology Consortium of Neurology Residents and Fellows and through social media.

Twenty-nine percent of respondents identified the main radiographic abnormality—a nonenhancing lesion of the right petrous apex, which is hyperintense on T1- and T2-weighted as well as T1-weighted fat-saturated sequences. None of the respondents identified this as a cholesterol granuloma, although Edward Collins from Portland, ME, correctly pointed out that these imaging findings could be consistent with a cholesteatoma, another lesion with a predilection for the petrous apex. Diffusion-weighted MRI can be helpful in distinguishing between these 2 entities: typically, cholesteatomas will show diffusion restriction while cholesterol granulomas will not.¹

Eighty-six percent of respondents recognized this patient’s constellation of symptoms as Gradenigo syndrome, which is classically described in the context of otitis media but can be associated with other underlying pathologies as described by the authors. This case highlights the utility of rare clinical syndromes such as Gradenigo syndrome in localizing a patient’s neurologic lesion, and the role of adjunctive neuroimaging in characterizing that lesion for subsequent management.

Andrew Schepmyer, MD
University of British Columbia, Vancouver, Canada

REFERENCE
Mystery Case: Cholesterol granuloma of the petrous apex in Gradenigo syndrome
Simona Lattanzi, Claudia Cagnetti, Paolo Di Bella, et al.
Neurology 2015;84:e122-e123
DOI 10.1212/WNL.0000000000001510

This information is current as of April 27, 2015

Updated Information & Services
including high resolution figures, can be found at:
http://n.neurology.org/content/84/17/e122.full

References
This article cites 4 articles, 1 of which you can access for free at:
http://n.neurology.org/content/84/17/e122.full#ref-list-1

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
All Clinical Neurology
http://n.neurology.org/cgi/collection/all_clinical_neurology
All Neurotology
http://n.neurology.org/cgi/collection/all_neurotology
MRI
http://n.neurology.org/cgi/collection/mri

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
http://www.neurology.org/about/about_the_journal#permissions

Reprints
Information about ordering reprints can be found online:
http://n.neurology.org/subscribers/advertise