RARE MASTOID PATHOLOGY PRESENTING AS OTALGIA

Daniel C. Chelius, Jr., MD1; Robert A. Williamson, MD1; Suzanne Powell, MD2; Jeffrey T. Vrabec, MD1

1Bobby R. Alford Department of Otolaryngology-Head and Neck Surgery, Baylor College of Medicine, Houston, TX
2Department of Pathology, Weill Medical College – The Methodist Hospital, Houston, TX

INTRODUCTION

Otalgia is a very common complaint in primary care and a frequent diagnostic challenge for the otolaryngologist. Otolgia (shortened to otalgia) is classified as primary (idiopathic) or secondary (referred). The differential diagnosis includes otitis media, quinsy, various forms of otitis media (acute, serous, chronic tympanosclerosis, meatal stenosis, Gusher syndrome, etc.), neoplasms (benign or malignant), parotid disease, salivary gland calculi, submasseteric abscesses, TM perforation, petrous apicitis, malignant otitis externa, otalgia granulomatosa, Paget’s disease, Pseudofolliculitis barbae syndrome, otitis necroticans, otitis dissecans, herpes zoster ophthalmicus, HTLV-I, Rosai-Dorfman disease, Erdheim-Chester disease, Langerhans cell histiocytosis, foreign body reaction, bone wax granuloma, or mastoiditis resulting from a cerebellopontine angle tumor. The differential diagnosis may be further influenced by the presence of fever, chills, malaise, hearing loss, vertigo, tinnitus, anemia, leukocytosis, eosinophilia, or any combination of these symptoms.

METHODS

Retrospective review of cases of rare mastoid pathology presenting as otalgia in a tertiary hospital setting. Otalgic patients were identified by examining electronic medical records. History, physical exam, laboratory studies, imaging, and surgical interventions, pathology, imaging, and outcomes were recorded. The medical literature relevant to each etiology was reviewed and summarized.

RESULTS

Rarity of these four cases of rare mastoid pathology presenting as otalgia were identified: Langerhans cell histiocytosis, bone wax granuloma, tophaceous gout, and Langerhans cell histiocytosis.

PATIENT #1: GOUT

A 54 year old man presented with one week of severe progressive left otalgia and otorrhea. He had no history of diabetes mellitus, atherosclerosis, or systemic inflammatory diseases. He was diagnosed with gout based on a monoclonal plasma cell infiltrate and positive cultures for acid-fast bacilli. Intraoperative histopathology revealed multiple birefringent needle shaped crystals consistent with acute gout. The patient's uric acid level was 7.1. Narcotics were replaced with indomethacin, and the patient had complete resolution of otalgia.

PATIENT #2: BONE WAX GRANULOMA

A 52 year old woman was evaluated for left otalgia and otorrhea. She had undergone transmastoid excision of a cerebellopontine angle tumor 2 years prior with left “milky, occasionally bloody” otorrhea developing shortly thereafter. There was no improvement after multiple rounds of oral and topical antibiotics. On physical exam, there was extensive granulation tissue in the left external auditory canal and mastoid cavity. CT temporal bone showed a well defined, homogenous, isodense to slightly hyperdense mass with acute and chronic inflammation. MRI of the brain and temporal bone characterized the lesion as isointense on T1, heterogeneous on T2, and strongly enhancing with gadolinium. The differential diagnosis included otitis externa, malignant mastoiditis, and neoplasm. Final pathology revealed acute inflammation surrounding extensive negatively birefringent needle shaped crystals consistent with acute gout. The patient’s uric acid level was 7.1. Narcotics were replaced with indomethacin, and the patient had complete resolution of otalgia.

PATIENT #3: LANCERHANS CELL HISTIOCYTOSIS

A 50 year old woman with a history of right retrosigmoid resection of an acoustic neuroma at age 32 presented with two years of intermittent otalgia. The lesion was confirmed on multiple studies, he underwent mastoidectomy. There was extensive granulation tissue filling the mastoid antrum and, to a lesser degree, the mastoid cavity. No purulence was encountered. Final pathology revealed acute inflammation surrounding extensive negatively birefringent needle shaped crystals consistent with acute gout. Her serum uric acid level was 3.3. The patient underwent mastoidectomy and had complete resolution of otalgia.

PATIENT #4: LANCERHANS CELL HISTIOCYTOSIS

A 34 year old woman complained of 6 months of intermittent left otalgia and left hearing loss. She had been diagnosed locally with acne cysts, scurvy, and recurrent otalgia. Previous imaging showed stippled ossification of the right temporal bone. She underwent right mastoidectomy with anomalous tissue. The lesion was confirmed on multiple studies, she underwent mastoidectomy. Final pathology revealed extensive granulation tissue containing a core of encapsulated bone wax which rendered the patient pain-free.

CONCLUSION

Difficult cases of otalgia or presumed otalgia unresponsive to first line treatments may be diagnostic challenges that require further investigation. Diagnosis of some rare ear pathologies is essential and can facilitate efficient diagnosis and treatment. To our knowledge this is the first report of acute inflammatory gout of the mastoid and second report of mastoiditis secondary to bone wax granuloma.

REFERENCES


CONTACT

Daniel C. Chelius, Jr., MD
Department of Otolaryngology-Head & Neck Surgery
Baylor College of Medicine
1555 Holcombe Blvd, Suite W2.164
Phone: (713) 798-7217
Website: bmc.bcm.edu/oto