Severe recalcitrant otic lichen planus treated with mycophenolate mofetil

Lisa N. Guo, BS,[a,b] Jennifer J. Shin, MD, SM,[a,c] Stephanie Schulte, MD,[a,d] and Joseph F. Merola, MD, MMSc[a,b]
Boston, Massachusetts

Key words: lichen planus; mycophenolate mofetil; otitis externa; otitis media.

INTRODUCTION

Lichen planus (LP) is a chronic, T-cell–mediated autoinflammatory disease that can affect the skin, nails, hair, and mucosa, particularly the mouth and genitals.[1] Involvement of the external auditory canals and tympanic membranes has been reported previously but is extremely rare. Here, we describe a case of otic LP that was recurrent and recalcitrant despite multiple therapies and bilateral canaloplasty and tympanoplasty, which was ultimately treated with mycophenolate mofetil.

Abbreviations used:

LP: lichen planus
MMF: mycophenolate mofetil

CASE REPORT

A 73-year-old woman with a 20-year history of biopsy-proven LP involving the scalp, body, mouth, and genitals presented for ongoing management of LP. The mucocutaneous and genital symptoms were generally well controlled with hydroxychloroquine 400 mg daily, doxycycline 20 mg twice a day, fluocinolone gel to the gingiva, and clobetasol 0.05% ointment to the body. Patch testing was negative for contact dermatitis as a contributor to symptom persistence. Dermatologic examination revealed focal areas of scarring alopecia without active inflammation and white reticulations on the bilateral buccal mucosa consistent with Wickham striae. Prior genital examinations were notable for a decrease in the labia minor with ulceration suggestive of lichen sclerosus and LP.

The patient also carried a diagnosis of granular myringitis and stenosing external otitis that was followed closely by otolaryngology. This presented many years prior with left-sided external auditory canal impaction and hearing symptoms and subsequently progressed to bilateral otorrhea and worsening hearing loss. She also had multiple episodes of acute myringitis, otitis media, and otitis externa. The symptoms were refractory and recurrent despite treatment with the range of pre-existing steroid and antibiotic otic drops as well as dilute acetic acid solution. An audiogram demonstrated mixed hearing loss; more specifically, she had down-sloping bilateral high-frequency sensorineural hearing loss and superimposed conductive loss. It was postulated that the otic symptoms represented LP. However, there was reluctance to initiate additional systemic treatment without a definitive diagnosis, and biopsy was initially deferred due to concern for further scarring.

Because of progressive left external auditory canal stenosis and hearing loss, she underwent canaloplasty and tympanoplasty of the left ear. Pathology of the ear canal contents were nonspecific. Surgery was uncomplicated, with initial improvement of hearing and otorrhea on the operated side. However, signs of inflammation redeveloped on the left, and symptoms continued to worsen on the right, nonoperated side. Otoscopic examinations were notable for ongoing inflammation and moistness of the auditory canals bilaterally and stenosis of the right external auditory canal. She had limited improvement with topical clobetasol, applied at intervals via binocular microscopy. Topical tacrolimus 0.03% ointment was also trialed with some improvement but was subsequently complicated by severe otitis externa bilaterally with resultant scarring requiring lysis. Considering improvement after

From the Harvard Medical School, Boston[a]; and Department of Dermatology,[b] Division of Otolaryngology–Head and Neck Surgery,[c] and Department of Pathology, Brigham and Women's Hospital, Boston.[d]

Funding sources: None.
IRB approval status: Not applicable.

Correspondence to: Joseph F. Merola, MD, MMSc, 221 Longwood Avenue, Boston, MA 02115. E-mail: jfmerola@bwh.harvard.edu.

JAAD Case Reports 2021;8:1-3.
2352-5126

https://doi.org/10.1016/j.jdcr.2020.11.023

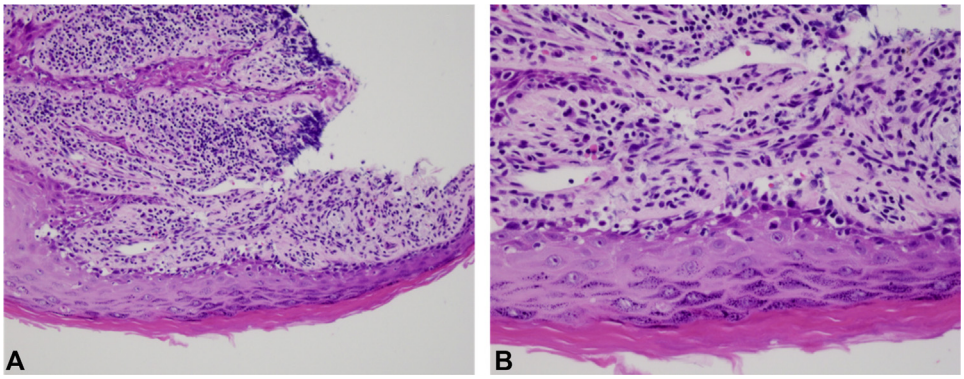

Fig 1. Lichen planus. Hematoxylin-eosin staining of right external auditory canal biopsy (original magnification: **A**, ×20; **B**, ×40.) Histology demonstrates bandlike, predominantly lymphocytic infiltrate at the dermoepidermal junction, hyperkeratosis without parakeratosis, and wedge-shaped hypergranulosis of the epidermis, consistent with lichen planus.

surgery on the left, she elected to undergo a similar procedure on the right 2 years after her first procedure. Biopsy performed at the time of surgery revealed lichenoid interface dermatitis, consistent with LP (Fig 1). After an initial period of improvement, inflammatory findings again recurred bilaterally.

Given her recurrent, refractory symptoms and now biopsy-proven otic LP, she was started on mycophenolate mofetil (MMF) 1000 mg twice daily in addition to her continued stable doses of hydroxychloroquine and doxycycline. After 6 months of treatment with MMF, she had substantial decreases in bilateral ear inflammation and otorrhea. Occasional applications of clobetasol and intralesional injections of triamcinolone (Kenalog) were performed, but overall she had marked improvement.

DISCUSSION

Although it typically affects the skin and mucous membranes, LP of the tympanic membranes was first reported by Warin et al in 1948.[2] Since then, there have been several reports of LP involving the external auditory canals and/or tympanic membranes, but overall otic LP is rare. In a 10-year review of 19 cases of otic LP, Sartori-Valinotti et al found that patients commonly presented with hearing loss and/or otorrhea accompanied by extraotic LP findings.[3] This is consistent with our patient's presentation. Although most cases in the literature were diagnosed based on clinical presentation in the context of extraotic LP rather than pathology findings, this patient did have histopathologic confirmation of otic LP.

Given the rarity of otic LP, no consensus exists regarding treatment. Sartori-Valinotti et al proposed topical tacrolimus as first-line primary treatment.[3] This was trialed for this patient with initial benefit, but it was ultimately complicated by infections. The otic symptoms were not controlled until MMF was added to her treatment regimen of hydroxychloroquine and doxycycline. Although Sartori-Valinotti et al have reported that systemic treatment is not required to control otic LP,[3] our case suggests that systemic immunosuppressants may be required for severe and refractory cases.

To our knowledge, this is the first report of the use of MMF to control biopsy-confirmed otic LP, and as demonstrated by the patient's favorable response, this treatment may be particularly effective for recalcitrant disease. MMF is an antimetabolite that selectively targets T-cells, which underlie the pathophysiology of LP.[4] MMF has also been used to successfully treat severe, widely extensive or erosive LP, with a favorable and well-tolerated side effect profile.[4-6]

Chronic inflammation may result in progressive external auditory canal stenosis and conductive hearing loss, the 2 most common complications of otic LP.[3] Secondary infection of damaged epithelium may also accelerate fibrosis.[7] Both LP-related inflammation and recurrent infection likely played a role in this patient's ear canal stenosis, which ultimately required bilateral surgical intervention. Surgical revision of otic LP-induced stenosis has been reported in a few cases.[8,9] Recurrence of inflammation post surgery in this case suggests that structural correction may require concomitant control of the underlying inflammatory process through systemic and/or topical medical treatment. The risk of recurrence as well as the potential for koebnerization should be considered prior to any surgical intervention.[10]

This case represents a novel use of MMF as an effective treatment for recalcitrant, biopsy-proven otic LP. Otic LP should be suspected in patients with known LP and recurrent ear inflammation, and early recognition and management are crucial to prevent progressive and permanent hearing loss. Collaborative, multidisciplinary management by dermatology and otolaryngology should be considered for patients with both mucocutaneous and otic involvement. If the disease is severe, systemic therapy as well as surgical intervention may be required. The addition of MMF may be particularly beneficial for severe cases refractory to topical and other systemic treatments.

Conflicts of interest

Dr Shin receives book royalties from Evidence-Based Otolaryngology (Shin JJ, Randolph GW, editors; New York: Springer, 2008); and Otolaryngology Prep and Practice (Shin JJ, Cunningham MJ, editors; Plural Publishing, 2013). Dr Shin is also a recipient of funding from the American Academy of the Otolaryngology—Head and Neck Surgery Foundation, the Brigham Care Redesign Program Award, and the Schlager Family Innovations Fund Award. Author Guo and Drs Schulte and Merola have no conflicts of interest to declare.

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