Am J Otolaryngol 40 (2019) 453–455

Contents lists available at ScienceDirect

Am J Otolaryngol

journal homepage: www.elsevier.com/locate/amjoto

Angiolymphoid hyperplasia with eosinophilia of the external ear

Brian C. Deutsch[a,*], Zachary G. Schwam[b,c], Vivian Z. Kaul[b,c], George B. Wanna[b,c,d,e]

[a] Icahn School of Medicine at Mount Sinai, USA
[b] Icahn School of Medicine at Mount Sinai, Department of Otolaryngology-Head and Neck Surgery, USA
[c] New York Eye and Ear Infirmary of Mount Sinai, Department of Otolaryngology, USA
[d] Audiology, Hearing, and Balance Center, Mount Sinai Health System, USA
[e] Ear Institute, Mount Sinai Health System, USA

ABSTRACT

Herein we present the rare case of angiolymphoid hyperplasia with eosinophilia of the external ear treated by surgical resection and full-thickness skin graft. Current diagnosis and management options are reviewed.

1. Introduction

Angiolymphoid hyperplasia with eosinophilia (ALHE) was first described by Wells and Whimster as a benign-appearing, nodular, unencapsulated mass with distinct histological features [1]. ALHE most commonly presents as a cluster of cutaneous lesions on the head and neck with classic red-brown nodules. Similar lesions may also appear on the trunk, extremities, and genitalia [2–4]. While these lesions are benign, they may bleed (25%) in addition to causing pruritis (37%) or pain (20%). Peripheral eosinophilia has been reported in up to 20% of ALHE cases [5,6].

These lesions often present as diagnostic and management challenges given their scarcity. Because of this, what is known is primarily from case reports and anecdotal evidence.

2. Case report

We report the case of a 47-year-old woman who presented for what was labeled a chronic left otitis externa with clear drainage and hearing loss over five years. The patient was noted to have several reddish-brown lesions on the external ear, most notably in the conchal bowl extending to the external ear canal (EAC) and postauricular sulcus (Fig. 1). The patient reported a concomitant hearing loss, and the audiogram confirmed a mild conductive loss on the ipsilateral side with normal contralateral hearing. The decision was made to resect the postauricular and conchal bowl masses for diagnostic and cosmetic purposes and to reconstruct it with a full-thickness skin graft from the postauricular area.

An elliptical full-thickness skin graft was harvested from the postauricular area and the conchal lesions excised down to cartilage (Fig. 2). The postauricular lesion excision site was closed primarily. Pathologic examination revealed perivascular dermal inflammatory infiltration with marked reactive endothelial hyperplasia strongly suggestive of ALHE. At the patient's three-month postoperative there were no signs of recurrence in the resection bed. However, new skin changes near the external auditory canal are concerning for metachronous lesions (Fig. 3). No further surgical procedures are planned at this time; a consultation with dermatology for adjunctive therapy is planned.

3. Discussion

A paucity of information regarding ALHE and the absence of rigorous trials make it difficult to clearly delineate disease pathogenesis or optimize treatment. Because of the various hypotheses surrounding its etiology, which include immune-mediated eosinophilia, infection, excess estrogen, atopy, lymphoproliferation, and neoplasia [2,7–9], treatment regimens have largely been a cycle of trial-and-error.

The question of whether ALHE should be classified as its own disease entity or as a reactive pathologic process is an active one. Two recently-described cases of ALHE presented with a concomitant membranous nephropathy [9,10]. Ito et al. postulated that these two pathologies were intertwined via Th2 helper cell-mediated damage [9]. Matsumoto et al. explained that THSD7A, a protein known to be targeted in membranous nephropathy, is being upregulated by eosinophils with increased VEGF-A expression and likely provides an extra-renal immunological antigen to Th2 cells [9]. Taken together, this suggests that ALHE contributes to the causative process of nephropathy, but still leaves questions about its own pathogenesis.

Other researchers have hypothesized about the potential tumorigenicity of ALHE. Huang et al. defined ALHE as an Epithelioid

* Corresponding author at: Icahn School of Medicine at Mount Sinai, 50 East, 98th Street, Room 11G-3, New York, NY 10029, USA.
E-mail address: brian.deutsch@icahn.mssm.edu (B.C. Deutsch).

https://doi.org/10.1016/j.amjoto.2019.03.007
Received 5 March 2019

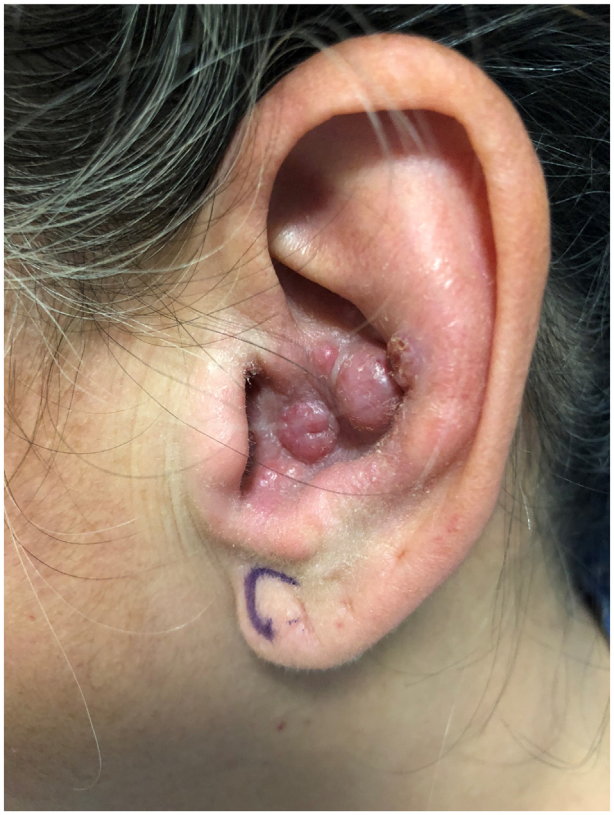

Fig. 1. Red-brown lesions of the patient's left conchal bowl extending into the external acoustic canal. Similar, smaller lesions were present in the post-auricular sulcus. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

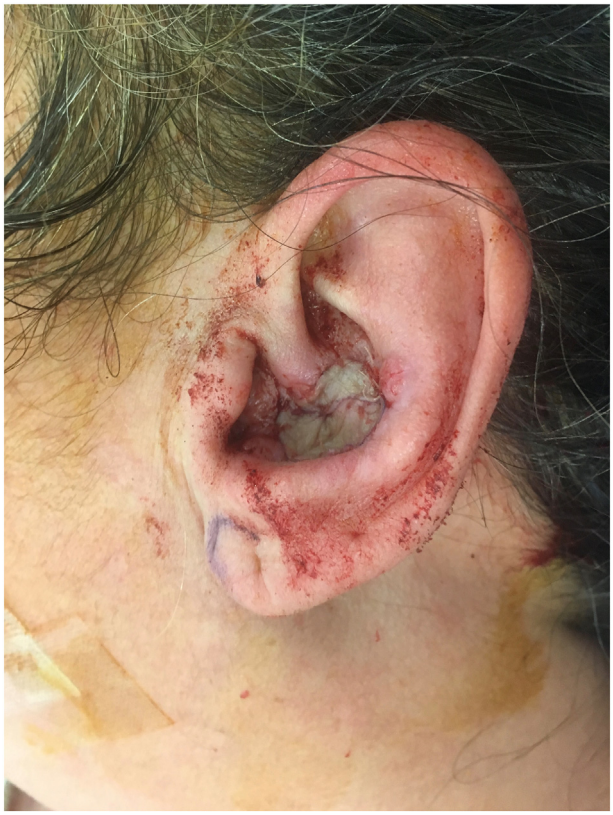

Fig. 2. Intraoperative photograph after resection and reconstruction with full-thickness skin graft.

Hemangioma (EH) with a vascular blow-out pattern and associated inflammation; they proceeded to investigate the presence of FOS gene rearrangement prevalence in EH in 58 distinct cases. Their results suggest this rearrangement plays a role in cellular EH lesion tumorigenesis, but found that all 12/58 ALHE lesions lacked rearrangement, suggesting an alternative molecular etiology [10]. Alternatively, polymerase chain reaction and immunohistochemical analysis of inflammatory infiltrate in seven samples of ALHE revealed five with T-cell clonal proliferation. This suggests that ALHE may arise as a CD4+ lymphoproliferative disorder rather than a purely vascular lesion for at least a small cohort of patients [7]. Other sources have explored the relation to hematologic malignancy due to the tendency for these diseases to evoke eosinophilic dermatoses. While torn on causality, the diversity of concomitant disease processes led the authors to believe that ALHE is more likely a reactive phenomenon and not a true neoplasm [11]. The isolated lesion we describe appears to be a classical, local invasion without concomitant disease processes involving other organ systems.

The lack of a clear etiology coupled with recurrence rates above 40% [2] has made management of ALHE particularly difficult. The largest systemic review of ALHE notes a general trend toward pursuing complete surgical resection; however, recurrence rates for resection have been reported to be 40.8% [2]. Other treatment modalities and their recurrence rates include pulsed dye laser (50.0%), carbon dioxide laser (54.6%), argon laser (66.7%), intralesional corticosteroids (79.1%), cryotherapy (80.5%), systemic corticosteroids (87.8%) and topical corticosteroids (98.2%) [2]. There are also successful reports of using the immunomodulatory agent tacrolimus, either alone or in combination with surgery and intralesional corticosteroids [12,13]. One case reported treatment with oral prednisolone, oral indomethacin, topical steroids, and multiple surgical resections, ultimately requiring

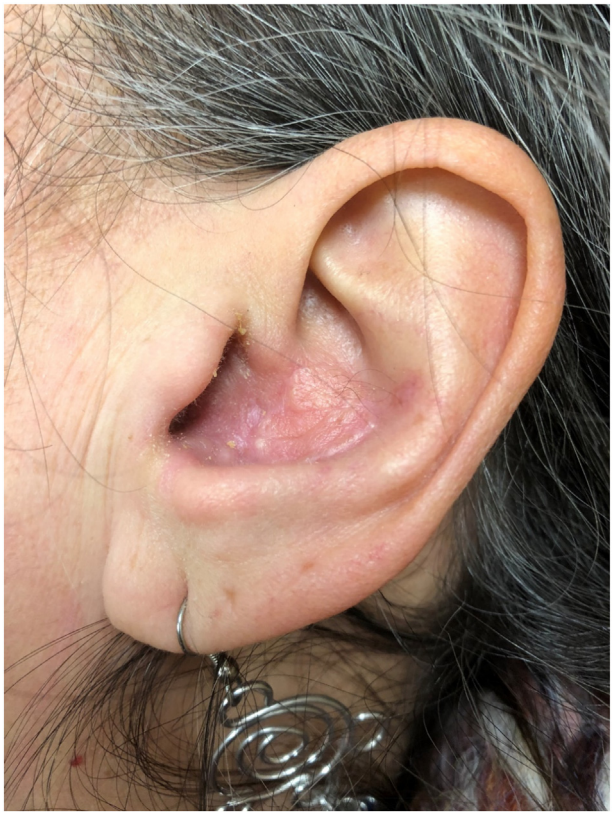

Fig. 3. At the patient's three-month follow-up visit, the resection bed is signs of recurrence. However, there are skin changes near the external auditory canal that are concerning for metachronous lesions.

intralesional steroids with topical tacrolimus [13]. The lack of standardized guidelines often makes the treatment of these lesions a mix-and-match game to isolate the best therapeutic response. Given our patient's well-circumscribed lesions in an anatomically accessible region, the decision was made to pursue surgical resection with excisional biopsy in hopes of minimizing recurrence. While we believe that gross total resection was achieved, close follow-up with adjunctive treatments will be necessary given the patient's new findings.

4. Conclusion

This case represents a rare pathological process that commonly affects the head and neck, making it an inevitable otolaryngologic problem. Understanding the common disease histopathology and being aware of the therapeutic arsenal to combat ALHE is essential to treat these patients. Further research on the etiology of this disease is needed to develop treatment concordant with its physiology.

Financial disclosure

The authors have no disclosures. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of interest

The authors declare no conflicts of interest.

References

[1] Wells GC, Whimster IW. Subcutaneous angiolymphoid hyperplasia with eosinophilia. Br J Dermatol 1969;81:1–14.
[2] Adler BL, Krausz AE, Minuti A, Silverberg JI, Lev-Tov H. Epidemiology and treatment of angiolymphoid hyperplasia with eosinophilia (ALHE): a systematic review. J Am Acad Dermatol 2016;74:506–12.
[3] Park JF, Lee MJ. A case of angiolymphoid hyperplasia with eosinophilia (ALHE) in the genital area accompanied by varicocele. Int J Dermatol 2009;48:1264–6.
[4] Busquets AC, Sanchez JL. Angiolymphoid hyperplasia with eosinophilia induced by trauma. Int J Dermatol 2006;45:1211–4.
[5] Kuo TT, Fau SL, Chan HL, Chan HL. Kimura's disease. Involvement of regional lymph nodes and distinction from angiolymphoid hyperplasia with eosinophilia. Am J Surg Pathol 1988;12:843–54.
[6] Olsen TF, Helwig EB. Angiolymphoid hyperplasia with eosinophilia. A clinicopathologic study of 116 patients. J Am Acad Dermatol 1985;12:781–96.
[7] Kempf W, Fau HA, Zepter K, et al. Angiolymphoid hyperplasia with eosinophilia: evidence for a T-cell lymphoproliferative origin. Hum Pathol 2002;33:1023–9.
[8] Ito S, Fau OT, Matsuo A, et al. Observation of angiolymphoid hyperplasia with eosinophilia (ALHE) at three arterial sites and its association with membranous nephropathy. Intern Med 2015;54:1933–9.
[9] Matsumoto A, Matsui I, Namba T, et al. VEGF-A links angiolymphoid hyperplasia with eosinophilia (ALHE) to THSD7A membranous nephropathy: a report of 2 cases. Am J Kidney Dis 2018;S0272-6386:31090–4.
[10] Huang SC, Fau ZL, Sung Y-S, et al. Frequent FOS gene rearrangements in epithelioid hemangioma: a molecular study of 58 cases with morphologic reappraisal. Am J Surg Pathol 2015;39:1313–21.
[11] Fernandez-Flores A, Cassarino DS. Three unusual histopathological presentations of angiolymphoid hyperplasia with eosinophilia. J Cutan Pathol 2017;44:300–6.
[12] Nouchi A, Hickman G, Battistella M, et al. Treatment of angiolymphoid hyperplasia with eosinophilia (ALHE) using topical tacrolimus: two cases. Ann Dermatol Venereol 2015;142:360–6.
[13] Youssef A, Hasan AR, Youssef Y, Al-Soufi L, Elshimali Y, Alshehabi Z. Angiolymphoid hyperplasia with eosinophilia: a case report. J Med Case Reports 2018;12:89.