

Unexpected facial reactions to hirudotherapy: Angiolymphoid hyperplasia with eosinophilia and pseudolymphoma in two patients

Dear Editor,

Hirudotherapy (leech therapy) is an alternative treatment used for various medical conditions, but its dermatological complications are underreported. It has been associated with immune-mediated skin reactions, including lymphoproliferative and vasoproliferative disorders.¹ Angiolymphoid hyperplasia with eosinophilia (ALHE) is a benign vascular condition with capillary proliferation and eosinophilic infiltration, while pseudolymphoma is a reactive lymphoproliferative disorder that mimics cutaneous lymphoma without monoclonality.^{2,3} Facial pseudolymphoma related to hirudotherapy has been reported only once, and ALHE has not been previously documented.⁴ Here, we present two cases of facial pseudolymphoma and ALHE induced by hirudotherapy, emphasising the risks of unregulated alternative treatments.

A 24-year-old woman presented with persistent redness at the left temporal region, which developed following leech therapy applied to the area 1 year back for migraine. Dermatological examination revealed 4-5 erythematous, infiltrated papulonodular lesions on the left temple [Figure 1a]. Punch biopsy showed dermal and subcutaneous lymphoid follicle formation with histiocytes, eosinophils, and perivascular infiltration [Figures 1b and c]. Immunohistochemistry revealed cluster of differentiation (CD) 3-positive T lymphocytes and focal CD20 positivity without monoclonality, consistent with cutaneous pseudolymphoma. She was treated with topical hydrocortisone 1% cream twice daily for 3 months, along with two monthly sessions of intralesional triamcinolone acetonide (10 mg/mL), leading to complete resolution and no recurrence at the 3-month follow-up.

A 52-year-old woman presented with 7-8 erythematous, papulonodular lesions located along the retroauricular region and the tragus [Figure 2a]. She had received localised hirudotherapy in the same area by a non-medical practitioner for tinnitus 3 months earlier, with lesions appearing 1 month

later. Punch biopsy showed a dermal lymphoid infiltrate with a Grenz zone, mixed T- and B-cell populations, eosinophils, and vascular proliferation [Figure 2b and c]. Immunohistochemistry revealed T-cell predominance (CD3, CD5), reactive germinal centres (CD20, PAX5), scattered CD30-positive cells, high Ki67 and Bcl-6 activity, and Bcl-2 negativity. HHV-8 was negative. Findings were consistent with ALHE. Routine laboratory tests and HIV serology were normal. Initial treatment with topical fluticasone propionate (0.05%) cream twice daily for 2 months showed a limited response, necessitating four sessions of intralesional triamcinolone acetonide (10 mg/mL) combined with cryotherapy.

Hirudotherapy has been linked to various cutaneous complications, including pruritus, erythema, bleeding, infections, allergic reactions, and scarring.¹ These effects are attributed to bioactive components in the leech saliva such as hirudin, destabilase, hyaluronidase, and eglins, which have anticoagulant, vasodilatory, and immunomodulatory properties.³ In susceptible individuals, these substances may trigger inflammatory responses, leading to lymphoproliferative or vasoproliferative skin reactions. ALHE and pseudolymphoma are reactive conditions linked to chronic antigenic stimulation and immune dysregulation.²

In our first case, histopathology confirmed pseudolymphoma with T-cell predominance. Cutaneous pseudolymphoma has been reported following infections, insect bites, tattoos, and alternative therapies, including hirudotherapy.³ However, facial involvement is extremely rare, with only one prior case from China describing eyelid pseudolymphoma after leech therapy.⁴ To our knowledge, this is the second reported case of facial pseudolymphoma induced by hirudotherapy.

In our second case, eosinophils and vascular proliferation suggested ALHE rather than pseudolymphoma. While ALHE has been associated with trauma and chronic inflammation, to our knowledge, no documented cases of ALHE induced by hirudotherapy have been reported in the literature. We

How to cite this article: Bayramgurler D, Sikar Akturk A, Diremsizoglu E, Alakbarov C, Ozbek B, Vural C, *et al.* Unexpected facial reactions to hirudotherapy: Angiolymphoid hyperplasia with eosinophilia and pseudolymphoma in two patients. *Indian J Dermatol Venereol Leprol.* doi: 10.25259/IJDVL_724_2025

Received: April, 2025 **Accepted:** September, 2025 **Epub Ahead of Print:** November, 2025

DOI: 10.25259/IJDVL_724_2025

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, transform, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

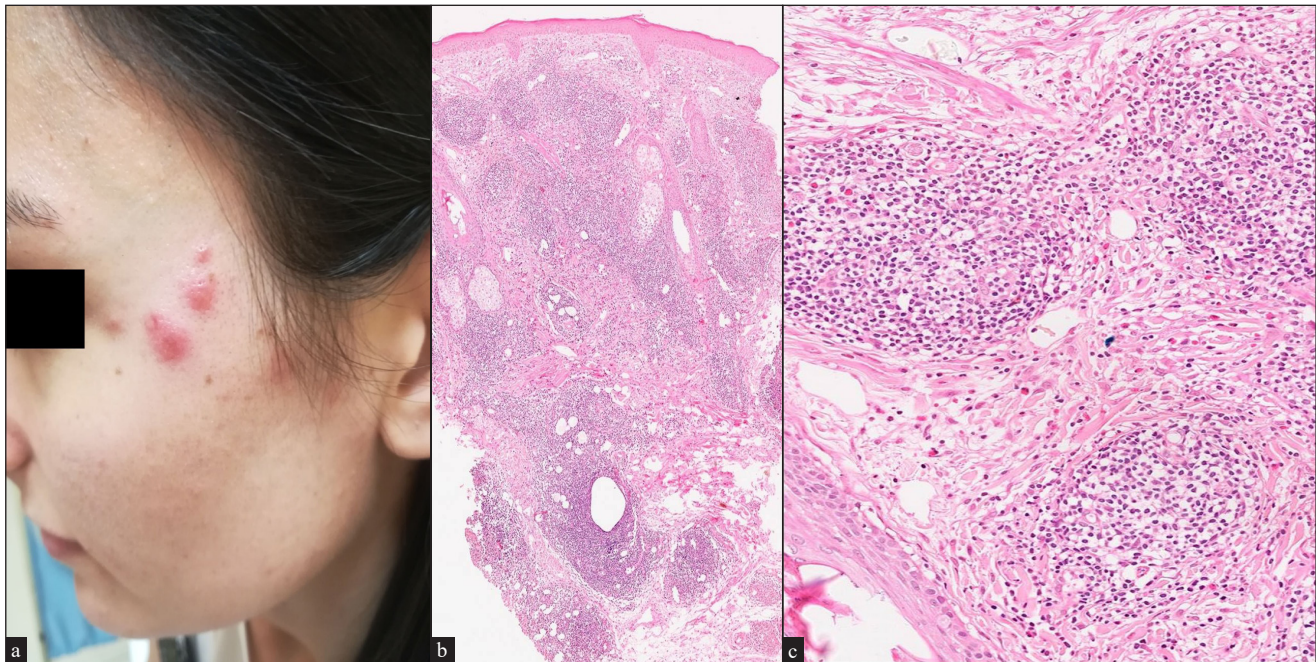


Figure 1a-c: Erythematous plaques localised at the left temple, corresponding to the site of hirudotherapy performed for migraine treatment. Diffuse and nodular dermal–subcutaneous lymphoid infiltrate with perivascular and periadnexal involvement, rich in lymphocytes, histiocytes, and eosinophils. b) Haematoxylin and eosin, 40×; c) Haematoxylin and eosin, 100×

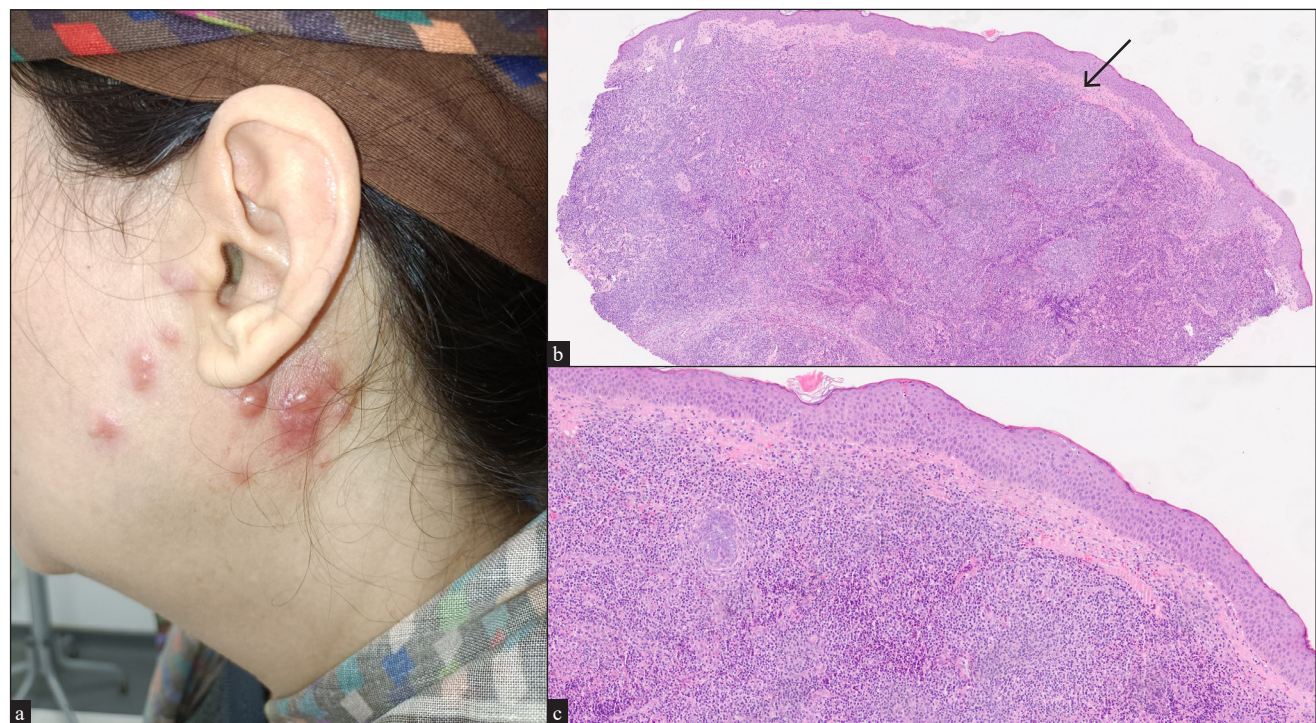


Figure 2a-c: Multiple erythematous, shiny papules extending from the retroauricular region to the tragus, observed following hirudotherapy for tinnitus. Dermal band-like lymphoid infiltrate with a prominent Grenz zone (black arrow), reactive germinal centers, mixed T- and B-lymphocyte populations, proliferating capillaries, and increased eosinophils. b) Haematoxylin and eosin, 40×; c) Haematoxylin and eosin, 100×

propose that inflammatory mediators in leech saliva triggered endothelial proliferation and eosinophilic recruitment.

The facial region may be particularly susceptible to such exaggerated immune responses due to its thin dermis, dense vascular network, and high density of immune-reactive

cells, facilitating deeper antigen penetration and robust local inflammation. This may explain why both of our patients developed reactions specifically in the head and neck region.

In differentiating pseudolymphoma from cutaneous lymphoma, several key histopathological features were

critical.² The presence of reactive germinal centres, absence of cytologic atypia, mixed T- and B-cell infiltrates, and lack of monoclonality on immunohistochemistry helped exclude a diagnosis of cutaneous lymphoma in our first case.

Treatment responses differ between the two conditions. Asymptomatic pseudolymphoma may regress spontaneously, while symptomatic cases typically respond to corticosteroids, cryotherapy, or surgical modalities.³ In contrast, ALHE has a relapsing course with a recurrence rate over 50%, often requiring more intensive treatments such as excision, laser therapy, or systemic agents.⁵ In our cases, pseudolymphoma resolved within 1 month of corticosteroid therapy, whereas ALHE required prolonged treatment with topical and intralesional corticosteroids in combination with cryotherapy.

Given the rising use of hirudotherapy, clinicians should be aware of its potential cutaneous complications, particularly when performed without medical supervision. We highlight that pseudolymphoma and ALHE should be considered in persistent inflammatory lesions following hirudotherapy, and histopathological evaluation is crucial for accurately diagnosing rare complications of hirudotherapy.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship: Nil.

Conflicts of interest: There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation: The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

Dilek Bayramgurler¹, Aysun Sikar Akturk¹, Esin Diremsizoglu¹, Cansu Alakbarov², Busra Ozbek³, Cigdem Vural³, Evren Odyakmaz Demirsoy¹

¹Department of Dermatology, Kocaeli University Faculty of Medicine, Kocaeli University Hospital, Kocaeli, Izmit, ²Department of Dermatology, Private Clinic, İzmir, ³Department of Pathology, Kocaeli University Faculty of Medicine, Kocaeli University Hospital, Kocaeli, Izmit, Turkey

Corresponding author:

Dr. Esin Diremsizoglu,
Department of Dermatology,
Kocaeli University Faculty of Medicine,
Kocaeli University Hospital,
Kocaeli, Turkey.
mdesinarslan@gmail.com

References

1. Wollina U, Heinig B, Nowak A. Medical leech therapy (Hirudotherapy). *Our Dermatol Onl* 2016;7:91-6.
2. Mitteldorf C, Kempf W. Cutaneous pseudolymphoma. *Surg Pathol Clin* 2017;10:455-76.
3. Sepaskhah M, Yazdanpanah N, Sari Aslani F, Akbarzadeh Jahromi M. Cutaneous pseudolymphoma as a rare adverse effect of medicinal leech therapy: A case report and review of the literature. *Cureus* 2020;12:e7517.
4. Choi Y, Kim SC. Cutaneous pseudolymphoma induced by Hirudo medicinalis therapy. *J Dermatol* 2012;39:195-7.
5. 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.