Localized, Alopecic Myxedema of the Scalp

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DEPARTMENT OF DERMATOLOGY

Mohammad Saffari Doost, BA[a], Nick R. Love, MD, PhD[a], Maxwell A. Fung, MD[a], Danielle M. Tartar, MD, PhD[a]

[a] Department of Dermatology, University of California Davis School of Medicine

Introduction

- Localized myxedema is a rare complication of autoimmune thyroid diseases including the Hashimoto thyroiditis and Graves' disease.
- Localized myxedema results from the accumulation of glycosaminoglycans in the dermis and subcutaneous layer of the skin.
- Fibroblast-produced hyaluronic acid is the main glycosaminoglycan in localized myxedema
- Localized myxedema presents bilaterally with a "boggy" thickening of the skin. Lesions classically have "waxy" swelling and induration.
- Myxedematous lesions of the skin most often appear on the anterior aspects of the legs and dorsum of the feet.
- They are often asymptomatic.
- Targeted treatment to cutaneous lesions is usually reserved for symptomatic cases.

Case Description

- A 66-year-old woman presented with one-year history of localized scalp pruritus associated with progressive hair loss. Physical exam revealed two boggy, alopecic plaques with overlying lichenification on the anterior scalp **(Figure 1A)**.
- Past medical history of Graves' disease 12 years ago managed which was managed with methimazole.
- Past medical history Hashimoto thyroiditis which has been managed with levothyroxine 88mcg each morning.
- Punch biopsy of the anterior scalp plaque was performed which showed increased interstitial mucin in the reticular dermis **(Figure 1B)**.
- At her follow-up visit, the plaques were injected with intralesional triamcinolone (1 cc of 40mg/mL) following monthly injections.
- Treatments significantly decreased bogginess, edema, and scalp pruritus and increased hair regrowth.

Discussion

- Localized myxedema most often appears in the pretibial area and dorsum of the feet.
- localized myxedema of the scalp is less common and has been only reported in two patients (**Table 1**).
- The two previously reported patients were found to have scalp thickening for years as well as scalp tenderness with no alopecia.
- In contrast, our patient developed alopecic and pruritic plaques on the scalp associated with scalp myxedema highlighting the unique features of our case.
- The histopathological findings in our patient (increased interstitial mucin in the reticular dermis) were consistent with localized myxedema and similar to two previously reported cases.

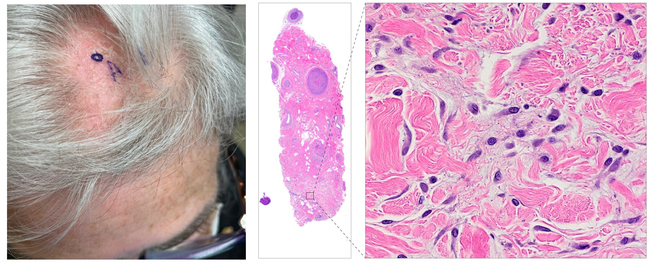

Figure 1. Clinical and histopathological findings. **A.** Anterior scalp with boggy, alopecic plaque with overlying lichenification. **B.** Close-up of highlighted area shown, which highlights reticular dermis with increased interstitial mucin, (image taken at x200, H&E stain).

	Patient 1 (Reference 7)	Patient 2 (Reference 8)	Our Patient
Demographics			
Age	59	51	66
Gender	Female	Female	Female
Race	Hispanic	Not reported	White
Past Medical History			
Thyroid disease	None identified	Graves' disease	Graves' disease, Hashimoto thyroiditis
Duration of thyroid disease	None identified	Not reported	12 years
Present Illness			
Symptoms	Scalp thickening since childhood. Scalp tenderness for 4 years. PE: enlarged and multinodular thyroid gland.	Scalp thickening for years. Sudden onset pain and swelling in scalp.	Localized scalp pruritus, progressive hair loss.
Duration of alopecia	No alopecia	No alopecia	One year
Location of alopecia	None	None	Scalp
Pathology	Increased fibroblasts. New collagen formation. Increased separation of collagen fibers.	Interstitial mucin deposition in the dermis and superficial subcutaneous layer. Clear spaces surrounding the collagen bundles in the dermis.	Increased interstitial mucin in the reticular dermis.
Lab studies	Negative for thyroid-disease related auto-antibodies.	Normal TSH levels. Elevated titers of anti-TSH receptor, antithyroperoxidase and antithyroglobulin autoantibodies.	Most recent TSH was within normal range while patient was on 88 mcg of levothyroxine daily.
Imaging	X-rays: Scalp thickening	Ultrasound and MRI: increased thickness of scalp cutaneous and subcutaneous tissue.	None
Treatment	Desiccated thyroid	hyaluronidase injection	Intralesional triamcinolone
Response to treatment	Protein-bound iodine of 7µg/100 cc maintained after 1 year.	Decreased dermal-epidermal thickness and decreased scalp pain.	A decrease in bogginess, edema, and scalp pruritus. Increased hair regrowth.
Complications	Not reported	None	None

Table 1. Characteristics of previous patients with myxedema of the scalp

Conclusion

- This case is a rare occurrence of localized, pruritic myxedema on the scalp in a patient with a history of both Graves' disease and Hashimoto thyroiditis.
- This case contributes to the diversity of the cutaneous manifestations of autoimmune thyroid diseases.

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