

# When staying cool gives you a headache

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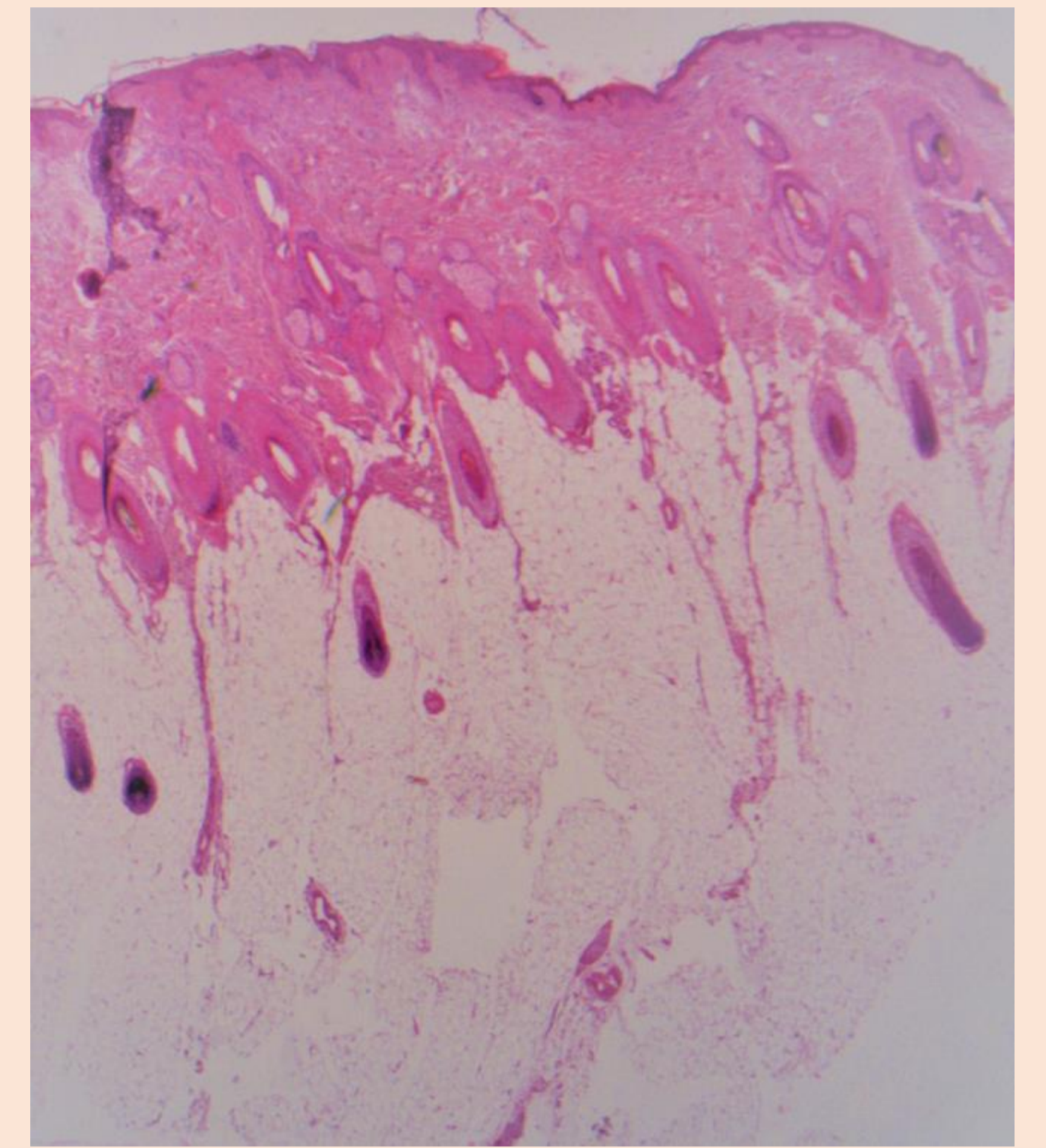
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## Introduction

Lipedematous scalp (LS) is rare with less than 100 cases reported in the literature. The exact etiology of LS remains unclear. Due to female predominance, hormonal factors are suggested to play a role in the pathogenesis. In the literature, although inconsistent, some associated systemic diseases such as diabetes and hyperlipidemia have been described.

## Case presentation

A 69 year old woman consulted because of a swelling of the skin of the scalp and pain in the same area. The pain was strikingly intensified when exposed to cold and for that reason mainly present during wintertime. On clinical examination, a soft subcutaneous mass could be palpated from the vertex towards the occiput, without epidermal changes nor any signs of alopecia. An MRI examination of the mass showed a clear thickening of the subcutaneous fat (11.34 mm; normal range: 5-8 mm), compared to the other regions. An incisional biopsy of this region and the non-involved skin confirmed an increased subcutaneous layer of fat without histological abnormalities. The clinical signs, the MRI and the histology led to the diagnosis of LS. Differential diagnoses included cutis verticis gyrata and angioliopoma.



## Discussion

LS can be associated with dysesthesias, burning, itching and pain. Several case reports mention headaches as the presenting symptom. The exact mechanism of causality between LS and headaches is unknown and to our knowledge, a clear association with exposure to cold -as in our case- has not been reported yet.

### Hypotheses for the pathophysiology of pain in LS

#### NOCICEPTIVE PAIN

Increased adipogenesis leads to hypoxia and secondary to inflammation of the locoregional sensory nerves, in analogy with lipedema of the legs.



Nonsteroidal anti-inflammatory drugs.

#### NEUROPATHIC PAIN

- On one hand due to mechanic compression on dermal nerves.
- On the other hand nerve injury and inflammation can lead to cold hypersensitivity due to upregulation of TRPM8-channels. TRPM8 are receptors involved in pain perception and specifically sense cold.



Cryolipolysis: freezing temperatures cause adipocyte apoptosis with further destruction due to ischemic-reperfusion injury. Subsequently thinning of the subcutaneous fat layer may reduce mechanic compression on dermal nerves. (Practical: application of a coldpack for 30 minutes followed by massage for 2 minutes)



Topical menthol 1% emulsion twice daily for 6 weeks: menthol is a selective activator or TRPM8-channels and acts as counter-irritant, initially stimulating nociceptors and then desensitizing them.

Unfortunately our patient refused any of these treatments because of their experimental character.

## Conclusion

We report a unique case of LS with associated headache after cold exposure. The exact etiology of LS remains unclear and an effective treatment is still missing. Based on the pathogenesis, we suggest some possible therapies for LS such as topical menthol, cryolipolysis and NSAIDs. Further investigations are needed to assess effectiveness of these treatment options.

## References

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