Linear Patch of Alopecia in a Child: Trichoscopy Reveals the Actual Diagnosis

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Established Facts

- Alopecia areata and linear scleroderma en coup de sabre can both present with a patch of linear alopecia over the frontal scalp.
- Differentiation between the two entities is important for treatment and prognostication.
- There is a diagnostic dilemma in the early stages of morphea when classical binding down and pigmentary changes have not fully evolved.
- Histopathology may be noncontributory in early cases due to subtle findings owing to incomplete histogenesis.

Novel Insights

- Concept of clinicodermoscopic-pathological correlation (CDPC) over the established clinicopathological correlation (CPC).
- Trichoscopy of linear scleroderma en coup de sabre is comprised of white-colored patches and fibrotic beams crossed by a network of branching vessels and loss of follicular ostia.
- Additional features include black dots, broken hairs, pili torti, and scattered brown dots, globules, and clods.
- Pigmentary changes are more appreciable in ethnic skin.

Keywords

Dermoscopy · Trichoscopy · Alopecia areata · Morphea · Pediatric dermatology

Abstract

Linear scleroderma en coup de sabre (LSCS) is a clinical variant of morphea that presents with a linear alopecic patch over the frontal scalp. Linear alopecia areata may present as

a close differential in the incipient stages of LSCS in the pediatric population, especially when the binding down and pigmentary changes characteristic of LSCS have not developed. Histopathology may also be noncontributory in such scenarios. We hereby report a case of linear alopecia in a 5-year-old Indian girl and highlight the role of trichoscopic evaluation in clinching the diagnosis. This emphasizes the importance of clinicodermoscopic-pathological correlation over clinicopathological correlation for cutaneous diagnosis.

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Introduction

Histopathology remains the gold standard of cutaneous diagnosis. Despite its emergence as a viable noninvasive diagnostic tool for various dermatoses [1, 2], the lack of dermatologists' acquaintance with dermoscopy [3] and skin type-dependent differences in dermoscopic features [4] have resulted in a paucity of published data and well-defined dermoscopic criteria for the diagnosis of most skin disorders. Notwithstanding these shortcomings, dermoscopy has been reported to aid diagnosis besides conventional methods in some specific case scenarios [5, 6]. The clinicodermoscopic-pathological correlation (CDPC) may soon supplant the clinicopathological correlation (CPC) for cutaneous diagnosis [1]. We report a case where the diagnosis of a tricky clinical presentation rendered incogitable by the initial histopathological report was revised by examination of a re-sectioned biopsy prompted by the incongruity between the initial clinicopathological diagnosis with dermoscopic features.

Case Report

A 5-year-old girl presented with a 1-year gradually developing faintly hyperpigmented minimally atrophic linear patch of alopecia over the right frontotemporal scalp (Fig. 1). On clinical examination, there was no deep atrophy or bony depression. The superficial atrophy was attributed to a recent application of mometasone lotion that was started following a diagnosis of alopecia areata (AA) made by the previous dermatologist based on his clinical judgement and supportive histopathology report. Before the child was brought to us, the previous dermatologist, unacquainted with dermoscopy, had suggested treatment with multiple intralesional triamcinolone injections.

A 10% KOH smear was negative. Polarized videotrichoscopy (after cleansing of the area with alcohol) revealed white-colored patches and fibrotic beams crossed by a network of short thick linear to curvilinear branching vessels, loss of follicular ostia; black dots, broken hairs, and scattered brown dots, globules and clods

Fig. 1. A faintly hyperpigmented minimally atrophic linear band of alopecia over the right frontotemporal scalp of the child.

(Fig. 2). Excepting black dots and broken hairs, there was no trichoscopic suggestion of active/recovering AA. The clinicodermoscopic suspicion of linear scleroderma en coup de sabre (LSCS) was confirmed on histopathology of re-sectioned specimen obtained from the paraffin block of the previous biopsy that revealed epidermal atrophy, effacement of dermal appendages by thickened collagen, reduction of the total number of follicles, absent terminal follicles with only few vellus follicles in the mid-dermis with minimal perifollicular lymphocytic infiltrate around their bulbs, and several follicular stellae representing former follicular papillae. Additionally, scattered melanophages were visible in the papillary dermis (Fig. 3). We suspect that the initial histopathological diagnosis of AA given by the dermatopathologist from the same specimen was reported erroneously. On rechecking that report, only two of the mentioned features corroborated with the possibility of AA – reduction in terminal hairs and sparse peribulbar lymphocytic infiltrate. It is likely that the lack of horizontal sectioning may have contributed to this error.

Discussion

The reported dermoscopic features of localized morphea include fibrotic beams and small whitish patches crossed by linear branching vessels, which correspond histopathologically to dermal sclerosis [7, 8]. The spreading dermal scarring may lead to pili torti, black dots, and broken hairs followed by lack of follicular ostia.

In pediatric population, linear AA (acute or subacute stage) constitutes a close differential of evolving LSCS owing to the undeveloped or underdeveloped binding down and pigmentary changes in the latter (features that are classically observed in a well-developed lesion of

Fig. 2. Dermoscopy from the patch of alopecia revealing white patches and fibrotic beams crossed by short thick linear to curvilinear branching vessels (black arrows), loss of follicular ostia, black dots (black stars), and broken hairs (black thick circles). Additionally, multiple scattered brown dots, globules and clods are visible (**a, b**) (Escope videodermoscope, $\times 20$, polarized).

Fig. 3. Repeat histopathological evaluation revealed epidermal atrophy, effacement of dermal appendages by thickened collagen, reduction of the total number of follicles, absent terminal follicles, presence of few vellus follicles in mid-dermis with sparse perifollicular lymphocytic infiltrate around their bulbs, and several follicular stellae representing former follicular papillae. Additionally, scattered melanophages were visible in the papillary dermis (hematoxylin and eosin, $\times 400$).

LSCS). Histopathology may be characteristic in early stages of both conditions. In acute and subacute AA, reported features include peribulbar lymphocytes surrounding terminal hairs and miniaturized hairs, and decreased anagen and increased catagen and telogen hairs, respectively [9]. In early LSCS (disease duration of < 3 years), moderate to severe perivascular and/or periappendageal lymphocytic infiltrate and vacuolar changes in follicular epithelium have been reported to be more prominent, whereas evidence of atrophy and scarring was observed less frequently [10].

The dermoscopic features of LSCS have in the past only been described in 2 elderly Caucasian women by Saceda-Corrado and Tosti [8]. The vascular pattern observed by us was also seen by them, who attributed it to the vasculariza-

tion of scalp being more prominent than elsewhere. Additionally, we observed scattered pigmented structures that correlated with the visible faint hyperpigmentation and dermal melanophages on histopathology. Brown discoloration with melanophages on histopathology has been reported in a young Hispanic girl with LSCS [11], possibly suggesting early concomitant and/or postinflammatory hyperpigmentation occurring in patients with darker skin types. We have ourselves reported that unlike white skin, the brown skin displays prominent pigmentary changes on dermoscopic evaluation of various inflammatory dermatoses such as psoriasis, eczemas, pityriasis rosea, discoid lupus erythematosus, and porokeratosis [12].

Conclusion

We highlight the importance of dermoscopy and CDPC over CPC in the diagnosis of elusive cases. Being the first and singular report of dermoscopy of LSCS in a child with skin of color, the prominence of pigmented structures observed in skin of color merits further exploration and confirmation in larger case series and controlled studies. It is time for dermatologists across the globe to get acquainted with dermoscopy, a simple, quick, reliable office tool especially useful for cutaneous diagnosis in children owing to its noninvasive attribute.

Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

The authors have no conflicts of interest to declare. The parents have given their consent to publish details and photos of the case.

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