INTRODUCTION

Congenital triangular alopecia (CTA) is a type of circumscribed, nonprogressive, noncicatricial type of alopecia, which was originally described by Sabouraud in 1905 as “alopecia triangulaire congenitale de la temp.”[1] Most cases arise at ages 2–9 years or the disease may even manifest itself in adulthood.[2] It presents as nonscarring, noninflammatory triangular, oval or lancet-shaped patch of alopecia. It may be misdiagnosed as alopecia areata, traction alopecia, trichotillomania, tinea capitis, and aplasia cutis congenita. Histopathological features and dermoscopic features help in its diagnosis. There is no effective treatment for it and, in most cases, there is no need for therapeutic intervention. Therapeutic modalities include topical minoxidil, surgical excision, and hair transplantation.

CASE REPORT

A 23-year-old male presented to skin outpatient department with complain of nonprogressive patch of hair loss over the right side of scalp since birth. The patient had consulted an ayurvedic practitioner for the same with no improvement by oral medications, hair oil, and shampoo. There was no history of joint pain, bone, or teeth abnormalities. No history of itching, contact with chemicals, or dandruff over scalp. No significant past and family history or any comorbidities present.

Cutaneous examination showed single, well-defined, triangular patch of alopecia measuring approximately 4 cm × 2 cm with sparse hair in between over right side of scalp.
frontotemporal region [Figure 1]. The overlying skin was normal with no inflammation or atrophy.

Dermoscopy done with hand held LED ILLUCO dermoscope IDS-1100 having polarized light illumination having ×10 magnification showed normal follicular openings with vellus hairs surrounded by terminal hairs on the outskirts of the lesion [Figure 2] with the absence of yellow and/or black dots, brittle hair, and “exclamation mark” hairs.

The patient was treated with topical minoxidil (5%) to be applied over the affected area once in a day. New vellus hair [Figure 3a and b] developed after 3 months of treatment.

**DISCUSSION**

CTA also known as temporal triangular alopecia (TTA) or Brauer nevus may present at birth as in our case or may be acquired during the first decade of life. It remains stable throughout the life. It has an incidence of 0.1% with no sex predominance.[1] There are also reports of the disease manifesting in adulthood.[3] TTA affects mainly white patients.[2] It is usually unilateral in 80% and has been more commonly described on the left side and rarely described bilaterally. Our case had the lesion unilaterally but on the right side of frontotemporal area.

It is a developmental defect that was once considered congenital but now many consider it to be acquired due to miniaturization of hair follicles ultimately forming the vellus hairs characteristic of the disease. It is usually sporadic but rarely may occur in families and is considered to be a paradoominant trait.[9] Mosaicism is another proposed mechanism, and it is inherited as a para dominant trait associated with postzygotic loss of the wild type allele in a heterozygote state.

There are reports of variable shapes of alopecia, ranging from triangular, oval, or lancet shaped.[5] The cardinal feature of lancet shaped lesion is few centimeters in width, either unilateral or bilateral with the tip of the “lancet” superiorly and posteriorly. The temporal region of the scalp is the most common area affected; followed by frontotemporal and then the occipital in 2.5% of cases.[6]

It may be misdiagnosed as alopecia areata, traction alopecia, trichotillomania, tinea capitis, and aplasia cutis congenita.[7] Differentiating features of its mimics on the basis of clinical morphology, site, dermatoscopy, and histopathology are summarized in Table 1.

Bilateral frontotemporal recession of the hairline differentiates CTA from androgenetic alopecia. Potassium hydroxide examination will help in differentiating between CTA and tinea capitis. Typical tonsure pattern of alopecia and perifollicular hemorrhage and pigmentation in

![Figure 1: Single, well-defined, triangular patch of alopecia measuring approximately 4 cm × 2 cm with sparse hair in between over the right frontotemporal region](image1)

![Figure 2: Dermoscopy showed normal follicular openings with vellus hairs surrounded by terminal hairs on the outskirts](image2)

![Figure 3: (a and b) Clinical and dermoscopy after 3 months of minoxidil showing newly developed vellus hair](image3)
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Table 1: Differentiating features of mimics of congenital triangular alopecia

| Condition             | Age        | Most common Site        | Dermoscopy                                                                 | Histopathology                                                                 |
|-----------------------|------------|-------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| CTA                   | Most at birth/1st decade | Left temporal region     | Normal follicular openings with vellus hairs covering the area of alopecia and terminal hairs on the outskirts of the lesion | Absence of mature hair follicles and presence of vellus hairs give an appearance of "miniaturized hair follicles," occasional terminal hair in the superficial dermis, without any evidence of inflammation or scarring |
| Androgenetic alopecia | At puberty  | Bilateral frontotemporal | Hair diameter diversity >20%, perifollicular pigmentation/periocular sign and yellow dot | Increased follicular stelae, increased telogen to anagen ratio and a minimal perifollicular lymphohistiocytic infiltrate with or without mild fibrosis around the upper part of follicle |
| Alopecia areata       | 30–59 years | Scalp                   | Yellow dots, black dots, broken hairs, tapering hair "Exclamation mark" and short vellus hairs, caudability of hairs | Peribulbar and intrabulbar lymphocytic inflammatory infiltrate around anagen follicles "swarm of bees," follicular edema, cellular necrosis, microvesiculation, pigment incontinence, trichorrhexis nodosa like fracture |
| Tractional alopecia    | 12–26 years | Frontotemporal margin of scalp | Broken hairs, miniaturized hairs, pin-point white dots, reduced hair density and hair casts | Reduced terminal hair density, perifollicular inflammation or scarring (fibrous tracts), preserved/increased vellus like hairs, follicular dropout, preserved sebaceous glands |
| Tinea capitis         | 3–7 years of age | -                       | Comma hair, multiple spores, loop hair, coiled hair | - |
| Trichotillomania      | Adults     | Fronto-parietal region   | Broken off and fractured hairs with blunt end | Normally growing hairs among empty hair follicles, follicular plugging with keratin debris, strands of basaloid appearing cells in plucked follicles, trichomalacia |
| Aplasia cutis congenita | Birth        | Vertex laterally to midline | Translucent appearance of epidermis, visible hair buds, lack of skin appendages, hair roots in the peripheral area and vessels | Thin layer of dermal collagen without overlying epithelium or adnexal structures |

CTA – Congenital triangular alopecia

dermoscopy helps it to differentiate from trichotillomania while no history of any trauma or absence of skin over the scalp since birth; rules out aplasia cutis. Down syndrome, iris nevus syndrome, phakomatosis, pigmentovascularis, congenital heart disease, bone and tooth abnormalities, mental retardation, and congenital aplasia cutis, has been reported to be associated with CTA.\[8\]

Diagnostic criteria proposed for congenital alopecia include: (1) triangular or spear shaped area of alopecia involving the frontotemporal region of scalp, (2) normal follicular openings with vellus hair surrounded by normal terminal hair on dermoscopy, (3) absence of yellow and black spots, dystrophic hair, or decreased follicular openings on dermoscopy, and (4) persistent without significant hair regrowth for 6 months after clinically or trichoscopically confirming the existence of vellus hairs.\[9\]

The patient fulfilled the criteria with triangular alopecia on the right side of frontotemporal region of scalp since birth, normal follicular opening with vellus hairs surrounded by terminal hair and absence of yellow and black dots. On histopathology, the absence of mature hair follicles and presence of vellus hairs give an appearance of “miniaturized hair follicles” as seen in androgenetic alopecia, normal number of follicles with a predominance of vellus hair, but occasional terminal hair in the superficial dermis, without any evidence of inflammation or scarring.\[2\] Dermoscopic findings include normal follicular openings with vellus hairs covering the area of alopecia and terminal hairs on the outskirts of the lesion.

There is no effective treatment for TTA and, in most cases, there is no need for therapeutic intervention except counseling as enlightening the parents about the benign nature of the dermatosis is essential. Therapeutic modalities include surgical excision, hair transplantation, and topical minoxidil. Minoxidil has been used effectively, with a relapse soon following treatment cessation.\[10\] The patient showed respond with minoxidil in the form of growth of new vellus hair after 3 months, but the patient has to be kept under follow-up to see the response after cessation of treatment. Hair implant and surgical excision of the lesion are the main therapeutic proposals in cases with significant esthetic and emotional injury. Complete excision may be considered for small lesions, while others would require hair restoration surgery.\[11\]

CONCLUSION

This case was reported to diagnose such rare entity with the help of dermatoscope, which can be easily mistaken for alopecia areata and thus undue use of topical and intralesional steroids can be avoided.
Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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