

Series Editor: Camila K. Janniger, MD

Traction Alopecia in Children

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Traction alopecia is traumatic hair loss secondary to the application of tensile forces to scalp hair. This condition can be classified as marginal or nonmarginal. In either case, the induced trauma, often the result of cultural, social, and cosmetic practices, is unintentional. Initially, hair loss is reversible; however, permanent alopecia may result from chronic traction.

Hair traction is one of the most common causes of alopecia in children and young adults.^{1,2} The first case of traction alopecia was reported in 1907 and termed *alopecia groenlandica*, referring to the ponytail commonly worn by girls and women in Greenland.³ A traditional Japanese hairstyle later was reported to result in the same type of alopecia. “Chignon alopecia,” a distinct type of nonmarginal traction alopecia caused by wearing hair in a knot (chignon) at the back of the head, was first described by Sabouraud⁴ in 1931. In the United States, traction alopecia is pervasive among African Americans because of the common practice of styling hair in tight braids or cornrows.^{5,6} Traction alopecia also has been reported in nurses who fix caps to their scalps with bobby pins.⁷ Today, the once common problem of traction alopecia has become less so with the decreased popularity of wearing a chignon. Historically, traction alopecia is more common among women, but the number of cases has been increasing among men (eg, among practicing Sikh men, who tightly knot their scalp and beard hair,^{8,9} and among men with male pattern baldness, which is commonly treated with hair extension¹⁰).

Clinical Description

Traction alopecia usually follows a predictable progression of clinical manifestations. Early developments are perifollicular erythema, pustules, scaling, and an abundance of broken hairs.^{3,11} With prolonged traction, follicular scarring and permanent alopecia occur. In some instances, peripilar casts (fine yellowish white keratin cylinders) form.^{12,13} These casts are freely movable; range from 3 to 7 mm in diameter; and encircle the hair shaft, mimicking the nits of pediculosis capitis.¹⁴⁻¹⁶ Peripilar casts may occur in isolation, but they also have been associated with hyperkeratotic scalp disorders.¹⁷ Location of hair loss depends on hairstyle (eg, ponytail, chignon, braids), grooming accessories (eg, tight curlers, nylon brushes), and use of hair extension.¹⁸⁻²² Using loose rather than tight braiding techniques may minimize hair loss. Traction alopecia is either marginal or nonmarginal.

Marginal alopecia (also known as alopecia marginalis or alopecia liminaris frontalis) is seen most commonly in African Americans who use tight curlers, rollers, or straighteners.²³ Use of these grooming accessories leads to a characteristic pattern of hair loss in the temporal area of the scalp—loss that begins just in front of the ears, within the hair margin, and extends forward in a patch approximately 1 to 3 cm in width (Figure).²⁴ The shorter vellus hairs on the periphery often are spared, although most if not all terminal hairs are not. This condition manifests in the peripheral margin but can occur anywhere on the scalp.²⁴ Some patients complain of worsening alopecia in adulthood in the absence of a recent history of harsh styling.²³ In these cases, a history of tight braiding during childhood is usually elicited. An otherwise normal-appearing scalp surface is seen on closer inspection. Laboratory tests are not required.

Chignon alopecia is characterized by patchy hair loss at the lambdoid suture, where the chignon rests.⁴ The typical patient is a 40-year-old woman

Accepted for publication March 13, 2002.

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Frontal alopecia caused by the wearing of tight braids.

who has worn a chignon for a long time and whose initial complaint is localized dandruff with itching.^{3,4,7,11,13} On physical examination, perifollicular erythema is visible, with occasional peripilar casts surrounding the superficial scalp hairs.¹³ In chignon alopecia, the skin remains soft and pliable, which is not the case with other forms of cicatricial alopecia.²⁵ The natural history of chignon alopecia is similar to that of marginal alopecia, with evolution to folliculitis and eventual formation of pustules. Sustained traction gradually leads to irreversible hair loss. The alopecia is nonmarginal and usually localized to the occipital area of the scalp. However, the roots of the longest hairs originate in the frontomarginal area of the scalp and sometimes may be pulled into the chignon.²⁶ Thus, when a patient has both nonmarginal occipital alopecia and nonmarginal frontomarginal alopecia, chignon alopecia should be suspected. This diagnosis, which can be made from a thorough history and clinical findings, is further supported by histopathologic examination results showing a decrease in hair follicle density and perifollicular fibrosis that extends into the subcutaneous fat layer along the traction line and forms vertical bands of follicular scarring. Use of a hot comb may be linked to an alopecia that is at least in part due to traction (follicular degeneration syndrome).^{27,28} A detailed history of hair care habits is important in diagnosing this syndrome; the histologic marker is premature desquamation of the inner root sheath.

Differential Diagnosis

Traction alopecia should be distinguished from other forms of hair loss. The most common misdiagnosis is alopecia areata.²³ Other diagnoses that must be considered include alopecia syphilitica, anagen effluvium, aplasia cutis congenita, circumscribed scleroderma, congenital vertical alopecia, familial focal aplasia, occipital pressure alopecia, senescent alopecia, telogen effluvium, tinea capitis, trichotillomania, and scarring alopecias such as discoid lupus erythematosus.²³ Androgenic alopecia should not be overlooked, as patients with this condition are particularly prone to developing traction alopecia,²⁴ and treatment options for patients with isolated traction alopecia differ from those for patients with both conditions. Despite prudent history taking and meticulous physical examination, these 2 clinical entities sometimes remain indistinguishable. In these cases, laboratory testing and histologic examination may be used to secure the appropriate diagnosis.

Treatment

Diagnosing traction alopecia early in its natural history is important in preventing permanent hair loss.²⁴ After the condition is recognized, grooming practices that exert traction on the hair must be discontinued. In early-stage alopecia, a course of oral or topical antibiotics may be used to treat folliculitis (ie, reduce inflammation and superinfection).²⁴ Early diagnosis and treatment can lead to complete

reversal of hair loss and regrowth within several months. Late-stage alopecia may be permanent, despite discontinuation of traction,²⁹ but surgical hair transplantation procedures (eg, punch grafting, flap rotation) can still produce cosmetically acceptable results.³⁰ Use of topical steroids and minoxidil may be reasonable therapeutic options, especially when traction alopecia and follicular degeneration syndrome co-occur.

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