



TRACTON ALOPECIA: AN UNDER REPORTED COMMON CAUSE OF HAIR LOSS IN CHILDREN.

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ABSTRACT

Traction alopecia is a type of hair loss caused due to mechanical trauma to the hair by traumatic hairstyling with continued long term traction. This can be secondary to social, cultural, religious or occupational practices. The hair loss depends on the extent, force and the duration of the traction. This non-scarring form of hair loss if not addressed early can lead to permanent scarring alopecia. In most of the patients, this is an accidental diagnosis especially in school going girls in India where they need to tie tight braids as a part of their curriculum. In this article, we report a case series of traction alopecia with emphasis on its early diagnosis, clinical features and management.

KEYWORDS : Traction alopecia, hairstyling, braids, dreadlocks

INTRODUCTION:

Traction alopecia is a type of hair loss caused due to mechanical trauma to the hair by traumatic hairstyling with continued long-term traction. This can be secondary to social, cultural, religious or occupational practices.

The hair loss depends on the extent, force and the duration of the traction.⁽¹⁾ This was first described in 1904 and its incidence has been increasing since then due to the advent of newer hairstyles. All these are aided by concomitant use of hair relaxers. The lye-relaxers have sodium hydroxide and the non-lye relaxers have guanidine hydroxide which cleave the disulfide bonds in the hair thereby making them weaker & susceptible to breakage.

Table 1: Showing the clinical details of patients with traction alopecia

S.no	Age (years)	Sex	Chief complaint	Traction practice	Duration	Site of scalp	Awareness about traction alopecia	Hair procedures/thermal relaxers
1.	10	F	Hair loss	Tight braids	3 months	Frontoparietal region	No	Nil
2.	13	F	Hair loss	Tight side pony tails	6 months	Pediculosis	No	Nil
3.	16	F	Hair loss	Tight braids	2 months	Frontoparietal region of scalp	No	Nil
4.	8	F	Hair loss	Tight hair clips	1 month	Frontoparietal region (figure 2)	No	Nil
5.	5	F	Pityriasis alba	Tight side pony tails	2 months	Frontal and frontoparietal region (figure 3)	No	Nil

6.	7	F	Pediculosis	Tight braids	3 months	Frontoparietal region	No	Nil
7.	10	F	Tinea corporis	Tight braids	5 months	Frontoparietal region	No	Nil

Case Series:

This is a case series of 7 patients with traction alopecia. All the patients were school going. All of them were accompanied by their mother and the grooming was chiefly done by the mother. None of them were aware of the traction being the cause of alopecia. 4 out of 7 patients came for a different complaint and traction alopecia was diagnosed accidentally. They continued the practice of traction even after the onset of alopecia due to lack of awareness. The other reason for this being the rules of the school that strictly follows girl students to tie tight braids. These patients continue to have the same hairstyle throughout the day and night leading to a constant pull. None of the patients had a history of hair procedures. The details of the patients are given in table 1. All the patients were counselled regarding the nature of the hair loss and advised to avoid traction & leave the hair loose whenever possible and also regarding the permanent scarring alopecia in case of negligence.



Figure 1: Showing traction alopecia over the parting line with follicular prominence and loss of follicle



Figure 2: Shows traction alopecia over the left frontotemporal region due to hair clips. In spite of evident hair loss, patient still continued to use hair clips due to lack of awareness.



Figure 3: Showing loss of hair over the frontal and frontotemporal region with positive "fringe sign" due to tight pony tails

DISCUSSION:

Traction alopecia is most commonly reported in African population due to the following reasons^{[2][3][4]}:

1. Due to curly and difficult to manage hair.
2. Obsession with hair styling techniques like braids & dreadlocks.
3. Geometric make up of hair as given below :
 - a. Elliptical hair shaft in transverse section as compared to Asians and Caucasians which is round.
 - b. Hair shaft is asymmetrical.
 - c. Multiple curvatures (concave and convex) in hair shaft contributing to geometric weak points. The follicular bulb is curved giving it a "golf club appearance" and it has a retro curvature as it exits the dermis. (as shown in figure 4)

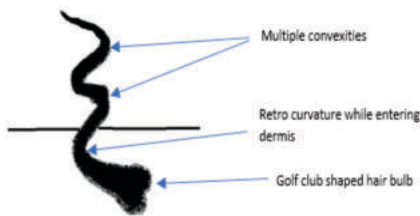


Figure 4: Showing the multiple curvatures in African hair contributing to areas of geometric weakness and easy breakage

Risk factors for developing traction alopecia include hair cosmetic procedures like hair straightening, styling techniques producing continued traction like use tight braids, dreadlocks, cornrows, pony tails, wearing tight clips, weavers or hair extensions.^[5] The pattern of traction alopecia associated with various hair styling patterns is shown in table 2

Table 2: Shows the patterns of traction alopecia associated with various hair styles

Site/pattern of hair loss	Commonly associated hair styling pattern	Commonly associated patient population
Ophiasiform	<ul style="list-style-type: none"> • Tight pony tails • Tight and long braids • Tight buns 	<ul style="list-style-type: none"> • School going girls • Athletes • Ballerinas • Sumo wrestlers
Frontal region	<ul style="list-style-type: none"> • Tight layer of turbans wrapped around the scalp (first layer is tightly secured over the frontal region of scalp and the second layer is wrapped on top of first layer. 	<ul style="list-style-type: none"> • Islamic women

Crown	<ul style="list-style-type: none"> • Hair wefts (weavers) – commonly horseshoe shaped or semicircle pattern • Tight hair clips • Cornrows 	<ul style="list-style-type: none"> • Common with people of African descent
Over the parting line	<ul style="list-style-type: none"> • Tight plaiting of hair • Rapunzel alopecia (non-marginal form of traction alopecia that is caused due to the weight of very long hair) • Cornrows 	<ul style="list-style-type: none"> • People with long hair
Frontoparietal region	<ul style="list-style-type: none"> • Hair is tightly pulled, twisted and tied over the frontal region of scalp. 	<ul style="list-style-type: none"> • Sikh men
Frontal region	<ul style="list-style-type: none"> • Due to hair rollers 	<ul style="list-style-type: none"> • Repeated hair styling
Occipital region	<ul style="list-style-type: none"> • Due to tight chignons 	<ul style="list-style-type: none"> • Ballerinas

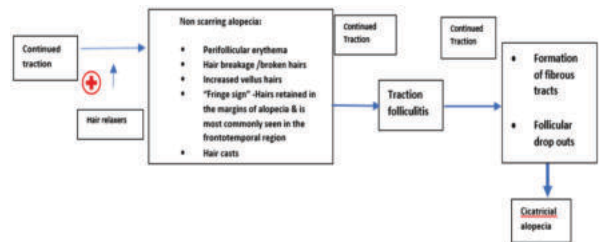


Figure 5: Continued traction produces both scarring and non-scarring alopecia depending upon the duration and force of traction. In early stages, there is inflammation leading to perifollicular erythema, broken hairs, increased vellus hairs and hair casts & with further continued traction there is traction folliculitis and eventually ending up with fibrosis & scarring alopecia in late stages.

Trichoscopic evaluation reveals greater density of vellus hairs than terminal hairs, peri-follicular erythema, hair casts, broken hairs, white dots representing loss of follicular ostia (later stages).^[6]

Histopathology in early stages shows increased ratio of vellus to terminal hair, preserved sebaceous glands and minimal inflammation. In the later stages, there is decrease in the follicles and fibrous tract formation (follicular drop out)

Differential diagnosis of traction alopecia includes trichotillomania, alopecia areata, Frontal fibrosing alopecia & Central centrifugal alopecia Traction alopecia can be reversed if the intervention is carried out in an early stage by avoiding chemical hair treatments, damaging hair styles producing mechanical traction & leaving hair loose. Anti-inflammatory preparations like antibiotics or topical steroids can be used for traction folliculitis.

Minoxidil can be used to stimulate hair growth. Alpha-1 adrenergic receptor agonists like topical phenylephrine induces contraction of the arrector pili muscle (piloerection) thereby increasing the threshold required for epilation of the hair. In a study done by Andy Goren et al, 80% of the patients experienced reduced shedding from hair styling following

after 10% phenylephrine solution application.^[7] In later stages, when cicatrization sets in, it is very difficult to manage. In such cases, hair transplantation can be tried. However, this is also challenging in people from African descent as the curved follicles are most likely to get sliced during the FUE (Follicular unit extraction). Camouflage techniques like wigs, pigment concealing hair fiber powders can be tried.^[8]

Hair grooming & styling is important nowadays but not at the cost of the hair itself hence let it loose often.

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