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CASE REPORT

Traction Folliculitis: 6 Cases Caused by Different Types of Hairstyles That Pull on the Hair

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Abstract. Excessive hair traction caused by hairstyles that pull the hair too tightly may cause noninfectious mechanical and irritant folliculitis known as traction folliculitis. We present a series of 6 cases of traction folliculitis caused by different hairstyles. All patients were women aged between 12 and 26 years old. Their hairstyles were braids, ponytails, pigtails, cornrows, and hair extensions in 2 patients. The lesions consisted of small, slightly painful, follicular pustules confined to the sites of maximum hair traction and surrounded by erythema. Only in 1 case were the lesions associated with traction alopecia. In 2 cases in which bacterial cultures were done, *Staphylococcus aureus* was isolated. All patients improved after undoing their hairstyle and treatment with oral flucloxacillin. We assume that the role of *S aureus* is secondary and opportunistic, given that only follicles subject to traction and not the adjacent ones were affected. .

Key words: olliculitis, scalp, hair follicle, alopecia, *Staphylococcus aureus*.

FOLICULITIS POR TRACCIÓN: SEIS CASOS PRODUCIDOS POR DIFERENTES TIPOS DE PEINADO TIRANTE

Resumen. La tracción excesiva del cabello producida por peinados tirantes puede originar una foliculitis mecánica e irritativa, no infecciosa, conocida como foliculitis por tracción. Presentamos una serie de 6 casos de foliculitis por tracción producida por diferentes tipos de peinado. Todas las pacientes eran mujeres, con edades entre 12 y 26 años. Sus peinados incluían trencitas, una cola de caballo, coletas en ambos lados de la cabeza, una coleta de macramé y dos pacientes con extensiones de cabello. Las lesiones consistían en diminutas pústulas foliculares levemente dolorosas, rodeadas de eritema, localizadas exclusivamente en áreas de máxima tracción del pelo. Solo en un caso las lesiones se asociaron con alopecia por tracción. En dos casos en que se realizó cultivo bacteriano se aisló *Staphylococcus aureus*. Todas las pacientes mejoraron tras deshacer su peinado y seguir tratamiento con flucloxacilina oral. Presumimos que el papel del *S. aureus* es secundario u oportunista, dado que solo los folículos sometidos a tracción estaban afectados, no así los adyacentes.

Palabras clave: oliculitis, cuero cabelludo, folículo piloso, alopecia, *S. aureus*.

Introduction

The term folliculitis includes a range of distinct disorders characterized by an inflammation of the hair follicles that clinically results in the formation of pustules around individual hairs. Folliculitis may be either infectious or noninfectious in origin. If infectious, the cause is usually bacterial (*Staphylococcus aureus*, *Pseudomonas*, gram-negative bacteria), and, less frequently, fungal (dermatophytes, *Candida albicans*, *Pityrosporum)*. The best known noninfectious causes of folliculitis are either mechanical or occupational; mechanical causes are shaving or depilation (pseudofolliculitis), the use of adhesive tape, and friction with clothing, whereas occupational causes are contact with cutting fluid or tar. Varieties with special characteristics include eosinophilic pustular folliculitis, acne keloidalis nuchae, folliculitis decalvans, and perforating folliculitis.

We describe 6 cases of a different variety of noninfectious folliculitis, caused by excessive hair traction resulting from the use of different hairstyling methods. We were only able to find 1 recent reference in the literature[1] and very

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Table 1. Characteristics of 6 Cases of Traction Folliculitis

Case No.	*Age*	*Sex*	*Pustule Distribution*	*Hairstyle*	*Bacterial Culture*
1	12	F	Around base of braids	Braids	ND
2	14	F	Linear band on the skull	Ponytail	ND
3	13	F	Bilateral parietal	Bilateral ponytails	*Staphylococcus aureus*
4	14	F	Nape	Cornrows	ND
5	24	F	Temporal regions	Hair extensions	ND
6	26	F	Nape	Hair extensions	*Staphylococcus aureus*

Abbreviations: F, female; ND, not done.

Figure 1. Small follicular pustules distributed in maximum braid traction areas. Intervening areas are unaffected.

Figure 2. Linear erythematous band of minute follicular papules-pustules in the area of maximum ponytail traction.

few references in databases and conventional texts that referred to this disorder.

Case reports

The characteristics of the 6 cases are summarized in the Table. All the cases referred to girls or young women, with a mean age of 17 years (range, 12 to 26 years), who consulted for a short history of a painful eruption on the scalp . The lesions appeared after using different types of traction hairstyles, including braids and ponytails (cases numbers 1 to 3); in another case (number 4), the lesions appeared as a consequence of a cornrow hairstyle; and in the remaining cases (numbers 5 and 6), the lesions were associated with the use of hair extensions, with case 5 involving an extension of 33 braids weighing 80 g in total. Examination revealed small painful follicular pustules that were distributed only in the areas of maximum hair traction around the base of the braids (Figure 1), or as a linear band of pustules in the area of greatest ponytail traction (Figure 2). There was no evidence of similar pustular lesions in the rest of the scalp, and there were no similar pustular injuries in other areas of hair growth. Signs of traction alopecia were also evident in 1 patient, in both parietal regions affected by the pustular eruption (Figure 3). In the patients who had hair extensions, the pustules were limited to the area where the extensions were attached (Figures 4 and 5).

S aureus was isolated in both the cases in which a bacterial culture of the pustules was requested.

All the patients improved following treatment with oral flucloxacillin and the indication to undo braids, use less tight ponytails, and remove hair extensions. Patient 4 reported that the lesions resolved spontaneously after the cornrows were undone.

Discussion

The cases we describe referred to girls or young women with lesions that appeared following hairstyling with

Figure 3. Sparse hair in the temporal regions and isolated follicular pustules in the area of ponytail hairstyling on both sides of the head.

Figure 4. Follicular pustules in the nape area, which had previously been styled with cornrows.

high-traction braids, tight ponytails, cornrows, or hair extensions. The lesions were characterized by very small painful follicular papules or pustules located in the areas of maximum hair traction. The lesions improved in response to treatment with oral antibiotics combined with undoing the hairstyle or removing the extensions. In 1 patient, the excessive traction of the ponytails resulted in a small degree of traction alopecia as well as the folliculitis. *S aureus* was isolated in the 2 cases in which bacterial culture of the pustules was requested.

The earliest observations of this process can probably be attributed to Slepyan,[2] who described 24 cases of traction alopecia in girls using ponytail hairstyles; some of these patients presented with secondary staphylococcal folliculitis as a consequence of the follicular irritation produced by the traction. Not long afterwards, Rollins[3] associated both the traction alopecia and folliculitis processes with peripilar hair casts. Such casts are generally idiopathic, but, on occasion, are detected in girls with ponytail hairstyles.[4]

In our opinion, this condition needs to be borne in mind, given the growing fashion among young people of both sexes for hairstyles such as braids, ponytails, pigtails, chignons, Rastafarian braids or dreadlocks, and also the hairstyles of Sikh boys.[5] Possible aggravating factors are the use of hair creams and gels to straighten the hair, and the weight of artificial hair extensions, which are likely to produce more damage than braids made using the patient's own hair.[6] The increased hair traction produces mild follicular inflammation. Over time, this may lead to hair loss, follicular atrophy, and finer, shorter hair. Although the process at the outset may be reversible, it can eventually lead to scarring and permanent alopecia.[7]

A finding of isolated follicular pustules and of painful lesions located only in the areas of maximum hair traction in a patient using any kind of potentially stressful hairstyle should raise a suspicion of this disorder.

Figure 5. Follicular papules-pustules distributed in maximum hair extension traction areas. The adhesive used for the hair extension is visible in the bunched hair of the braid close to the ear.

It can only be assumed that the few cases observed and the lack of publications in the dermatology literature can be explained by the fact that this is a minor disorder that responds spontaneously to the hairstyle being undone and the hair being washed. The role played by bacteria in the pathogenesis of the process is possibly opportunistic, rather than genuinely infectious, given that nearby unstressed hair follicles are not affected.

Conflicts of Interest

The authors declare no conflicts of interest.

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