

Traction Folliculitis: An Underreported Entity

Gary N. Fox, MD; Julie M. Stausmire, MSN, CNS; Darius R. Mehregan, MD

Traction folliculitis is a component of traction alopecia syndrome and has received minimal attention in primary source medical literature. The popularity of hairstyles that produce hair traction and the knowledge that early intervention improves prognosis amplify the importance of recognizing this entity. Traction folliculitis presents as perifollicular erythema and pustules on the scalp in areas where hairstyles produce traction on the hair shaft. In addition to the traction, concurrent hair care practices may play a facilitatory role in the development of traction folliculitis. Treatment involves immediate removal of traction on hair and temporary alteration of the facilitatory hair care practices. In more severe cases, topical or systemic antibacterial therapy and, occasionally, topical corticosteroid therapy may be necessary. Failure to discontinue traction-producing hairstyles can lead to traction alopecia and irreversible hair loss. Cultural considerations often are paramount in hairstyle choices and hair care practices that cause predisposition to traction disorders. Thus, culturally competent counseling requires understanding the significance of the hairstyle and hair care practices to the patient (or caregivers), discussing the recommendations in a culturally sensitive manner, and negotiating mutually acceptable alternative practices.

Cutis. 2007;79:26-30.

Accepted for publication April 4, 2006.

Dr. Fox is from the Medical University of Ohio, Toledo. Ms. Stausmire is from Mercy Health Partners Family Practice Residency Program, Toledo. Dr. Mehregan is from Wayne State University, Detroit, Michigan, and the Medical University of Ohio.

The authors report no conflict of interest.

Reprints: Gary N. Fox, MD, Charter One Bank Bldg, 3130 Executive Pkwy, 5th Floor, Toledo, OH 43606 (e-mail: foxgary@yahoo.com).

Hair and scalp diseases induced by traumatic hairstyling techniques, including the use of chemical relaxers and permanent solutions, hot combs, braids, hair extensions, and pomades, tend to be underappreciated.¹⁻⁴ The practice of these techniques and their sequelae are most common in black individuals.¹ We present an illustrative scenario of trauma caused by hairstyling techniques in an infant and review the literature on traction folliculitis. We found no prior reports of traction folliculitis in infants and no prior images of traction folliculitis in the primary source medical literature.

Case Report

An 8-month-old black infant was brought in by his mother for evaluation of “pus bumps” on the scalp of several weeks’ duration. The infant was otherwise healthy with an unremarkable past medical history. On examination, the infant’s vital signs, growth, and development were appropriate for his age; the infant was playful and healthy in appearance; and skin examination was unremarkable, except for the scalp and scalp margins. The infant had a geometric hairstyle with the hair sectioned into squares. The hair in each square was pulled tightly to the center and then secured with a hair band. This hairstyle produced maximum traction around the outer edges of the square with less traction centrally. It produced a latticework of sharply defined parts on the scalp between the squares. Follicle-based papules and pustules were evident within these parts (Figure, A–C) and along the frontotemporal margins (Figure, A). When the hair bands were released, the scalp in the central area within each square, which had experienced less tension, was unaffected (Figure, C). Hair loss was evident in a typical traction alopecia distribution, especially along the frontal scalp margin (Figure, A). The patient did not exhibit notable peripilar hair casts. The hair and scalp appeared greasy from application of pomade.



Frontotemporal area illustrating degree of tension produced by the hairstyle, traction alopecia, and traction folliculitis along the frontotemporal margins and hair parts (A). Parietal area illustrating extent of traction folliculitis in the hair parts (B). Lower tension in central areas of the hairstyle; no folliculitis present (C). (The sheen observed is from the use of direct flash.)

Treatment of this patient's traction folliculitis included a discussion with caregivers about the condition and its etiology. Elements of the patient's care, worked out collaboratively with the patient's caregivers included elimination of traction on the hair, temporary institution of a topical antibacterial shampoo, and temporary avoidance of pomade. Additionally, cephalexin 500 mg/kg per day in 4 divided doses for 10 days was prescribed. At a visit 17 days later, the scalp had completely cleared.

Comment

Although the pathogenesis of many conditions is multifactorial, we believe our patient exhibited traction-induced folliculitis. The distribution of the folliculitis was localized exclusively to the areas of maximal traction; there was no evidence of bacterial infection elsewhere; and there were no other signs of pomade-induced dermatitis, such as on the face.

Traction folliculitis rarely is reported in the primary source medical literature. A search of the PubMed database (US National Library of Medicine) for "traction folliculitis" in humans

yielded only 2 citations^{2,5} dating back to 1961 and 1983, though others can be located by cross-referencing citations.⁶ Commonly used general dermatology textbooks neither list traction folliculitis in their indexes nor specifically refer to traction folliculitis when discussing traction alopecia.^{7,8} In fact, both of these texts devote only 2 sentences each to traction alopecia^{9,10} despite the near epidemic frequency of the latter in black women.^{11,12} Moreover, some textbooks devoted entirely to hair and scalp disorders failed to index, discuss, or display images of traction folliculitis,¹³ while others indexed the disorder but devoted only a few sentences to it.¹⁴ Although traction folliculitis is mentioned in reviews of hair disorders, especially reviews specific to these disorders in black individuals, most discussions are limited to 1 or 2 sentences^{3,15,16} or a mention in a table.^{4,15} An Internet search for "traction folliculitis" produced some additional links relevant to the topic, including references containing continuing medical education course descriptions mentioning traction folliculitis,¹⁷ US Food and Drug Administration committee hearings,¹⁸ and information for healthcare professionals.¹¹

A search of dermatology photographic resources on the Internet showed a few patients with traction folliculitis not reported in the traditional literature.¹⁹⁻²¹ A review of all sources suggests that traction folliculitis is more common than its minimal representation in the indexed primary source medical literature would suggest.

We believe that our 8-month-old patient is the youngest reported patient with traction folliculitis. Slepyan⁶ reported 24 patients with traction syndromes (not all patients had folliculitis) but did not specify their ages; none appeared to be infants. Rollins⁵ reported 3 girls, aged 9, 10, and 16 years, with traction folliculitis. The patients reported in Internet sources were aged 2 years (1 patient)¹⁹ and 4 years (2 patients).^{20,21} Therefore, the youngest prior patient we were able to locate was 2 years old.¹⁹ We also did not locate case reports or photographs of traction folliculitis in black patients in the primary source medical literature, though a review article of cosmetics did include one photograph of traction folliculitis in a black patient.¹⁵

The origin of the current concepts regarding traction folliculitis can be traced to Slepyan.⁶ In 1958, he reported “alopecia of the scalp occurring in young girls wearing the pony tail.” He noted that “the earliest manifestation is a mild erythema about the follicles receiving the greatest amount of traction. Occasionally some scaling is noted and not infrequently the patient was seen because of ‘localized dandruff’ with itching. In some, minute folliculopustules were evident in these erythematous areas.” Slepyan⁶ suggested the term *traction alopecia* because girls with bangs did not have marginal hair loss from traction along the frontal hairline but rather loss at the site of traction posterior to the bangs. He noted that traction as a cause of marginal alopecia had been reported in 1941,²² and, in 1937,²³ “tightly drawn braids as a causative factor of traumatic folliculitis” and “staphylococcal folliculitis following trauma” to the scalp had been reported.⁶

In 1961, Rollins⁵ added an association with hair casts, reporting 3 girls who had papules, pustules, and hair casts on examination. Hair casts encircle the hair shaft, are yellowish-white, and are freely mobile, though they have been mistaken for the immobile firmly fastened nits of pediculosis capitis (pseudonits).^{5,16,24} Microscopic examination also can help differentiate nits and hair casts.²⁵⁻²⁷

The concept of traction folliculitis and alopecia outlined by Slepyan⁶—continuous traction on the hair followed by erythema, perifollicular pustules, and alopecia—has not changed substantially. Continuous traction causes a mechanical loosening of hair from the follicles, resulting in irritation of the

follicles, which causes folliculitis and may create visible perifollicular erythema (perifolliculitis).^{16,28,29} Mild erythema on the scalp in individuals of color may escape detection³⁰; therefore, papulopustular folliculitis may be the first observed manifestation.^{1,4} If the traction continues, chronic inflammation ensues, which may lead to follicular atrophy with thinner shorter hair; then reversible traction alopecia; followed by follicular destruction, scarring, and permanent alopecia.^{1,16,29} Other clinical manifestations of traction folliculitis may include a seborrhealike hyperkeratosis and posterior cervical lymphadenopathy from the inflammation.²⁸

Sustained traction, probably through injury of the hair follicle, seems to predispose patients to secondary staphylococcal infection of the scalp, leading to the development of purulent pustule formation as a component of traction-induced disease.^{1,6,16,28,29} It has been suggested that these patients also are at increased risk for fungal scalp infection.¹⁹

Pomades commonly are used to condition, lubricate, and aid in manageability of thick spiraling hair frequently found in black children. These preparations often contain mineral oil, petroleum, and paraffin, which can occlude hair follicles and predispose to or exacerbate folliculitis induced by traction or superinfection.^{4,15,28}

Specific hairstyles that can lead to traction syndromes include braids, ponytails,^{5,6} hair twists worn by Sikh boys,³¹ chignons,²⁹ and hair weaving and hair extensions.¹⁵ These hairstyles often have cultural significance.³ Cornrows, tight braids woven against the scalp popular in black individuals, can be traced back thousands of years to Nigeria.³² Braided hairstyles also may be used because they require low maintenance; they may be left in place for up to 3 months.^{1,15}

Evaluation and Differential Diagnosis—The differential diagnosis of alopecia is extensive.¹⁶ The history and clinical pattern of traction alopecia usually are sufficiently characteristic that ancillary testing is not required for diagnosis.²⁹

The major differential diagnostic considerations for traction folliculitis include other major follicle-centered infections and inflammatory disorders.³³ These disorders, such as tinea capitis, pseudofolliculitis, and folliculitis keloidalis nuchae, usually are clinically distinguishable from traction folliculitis. Superficial perifolliculitis, also known as follicular or Bockhart impetigo, may occur in the scalp and in children.^{25,33} If associated with hair traction and occurring in a hair traction pattern, we suggest that reference to the traction pattern provides more diagnostic specificity because superficial perifolliculitis can occur anywhere there are hair follicles

and does not imply a traction pattern. Pomade acne results from the use of greasy hair products that occlude hair follicles. It usually is most prominent on the face around the facial hair margins, specifically on the forehead and temples. Histologically indistinguishable from acne vulgaris, the history and characteristic distribution of pomade acne are diagnostic.^{4,15,28} Traction folliculitis is differentiated by its characteristic distribution of pustules in areas of tension. If the diagnosis is not clear or the patient does not respond to treatment as expected, microscopy, Wood lamp examination, bacterial and fungal cultures, or scalp biopsy may be helpful.^{19,25,26}

Management of Traction Folliculitis—Recognition of hairstyles associated with traction syndromes affords physicians the opportunity for early intervention when most cases of traction-induced hair loss can be reversed within a few months.^{1,16,28} Treatment of traction-induced syndromes requires immediate discontinuation of hairstyles that exert tension on the hair. Assessing the cultural significance of the patient's hairstyle and the patient's willingness to use alternative hairstyles is vital because patients may continue these styles if they feel advice reflects cultural bias.³ Alternatives that may be acceptable include the use of hair accessories that loosely hold hair, loose braids that are frequently replaced in varying patterns, and braiding the hair only when dry.^{3,15} Combing and grooming hair usually is easier when it is wet, but, as the hair dries, it shortens, increasing stress on the follicle.³

Because the hair of black individuals generally is drier and more brittle than other hair types, less frequent shampooing is likely as well as the use of pomades.^{2,4} Therefore, the rationale for temporary institution of a regimen of shampooing and avoiding pomade until resolution of the traction folliculitis should be explained. Acknowledging the difficulties that the changes in hair care practices can cause may encourage compliance.

Although relief of tension and alteration of hair care practices may result in resolution of traction folliculitis, systemic or topical antistaphylococcal antibiotics may be needed.²⁸ Use of topical corticosteroids may be another reasonable therapeutic option for severe inflammation.^{1,16}

Acknowledgment—The authors are grateful to the St. Vincent Mercy Medical Center library staff for their expertise and first-class assistance.

REFERENCES

1. Callender VD, McMichael AJ, Cohen GF. Medical and surgical therapies for alopecias in black women. *Dermatol Ther.* 2004;17:164-176.
2. Halder RM. Hair and scalp disorders in blacks. *Cutis.* 1983;32:378-380.
3. Joyner M. Hair care in the black patient. *J Pediatr Health Care.* 1988;2:281-287.
4. Dinulos JG, Graham EA. Influence of culture and pigment on skin conditions in children. *Pediatr Rev.* 1998;19:268-275.
5. Rollins TG. Traction folliculitis with hair casts and alopecia. *Am J Dis Child.* 1961;101:639-640.
6. Slepyan AH. Traction alopecia. *AMA Arch Dermatol.* 1958;78:395-398.
7. Freedberg IM, Eisen AZ, Wolf K, et al, eds. *Fitzpatrick's Dermatology in General Medicine.* 6th ed. New York, NY: McGraw-Hill Medical Publishing Division; 2003.
8. Habif TP. *Clinical Dermatology: A Color Guide to Diagnosis and Therapy.* 4th ed. St. Louis, Mo: Mosby; 2004.
9. Olsen EA. Disorders of epidermal appendages and related disorders. In: Freedberg IM, Eisen AZ, Wolf K, et al, eds. *Fitzpatrick's Dermatology in General Medicine.* 6th ed. New York, NY: McGraw-Hill Medical Publishing Division; 2003:633-655.
10. Habif TP. Hair diseases. In: *Clinical Dermatology: A Color Guide to Diagnosis and Therapy.* 4th ed. St. Louis, Mo: Mosby; 2004:834-863.
11. Guttman C. Prevent permanent hair loss. scarring alopecia among African-American women underdiagnosed. *Dermatology Times* [serial online]. February 1, 2004. Available at: <http://www.dermatologytimes.com/dermatologytimes/article/articleDetail.jsp?id=85331>. Accessed August 4, 2005.
12. Lohr E. Alopecia nearly epidemic among black women. *Clinical Psychiatry News.* 2004;32:96.
13. Dawber R, Van Neste D. Hair loss/hair dysplasias. In: Dawber PR, Van Neste D, Martinez FC, eds. *Hair and Scalp Disorders.* 2nd ed. London, United Kingdom: Martin Dunitz; 2004:51-154.
14. Wilborn WS. Disorders of hair growth in African Americans. In: Olsen EA, ed. *Disorders of Hair Growth: Diagnosis and Treatment.* 2nd ed. New York, NY: McGraw-Hill Medical Publishing Division; 2003:497-518.
15. Grimes PE, Davis LT. Cosmetics in blacks. *Dermatol Clin.* 1991;9:53-68.
16. Hantash BM, Schwartz RA. Traction alopecia in children. *Cutis.* 2003;71:18-20.
17. American Academy of Pediatrics. Dermatoses in children of color. Available at: <http://www.aap.org/prof/04supermcme.pdf>. Accessed August 4, 2005.
18. Fallon-Friedlander S. Clinical presentations of tinea capitis. Dermatologic and Ophthalmic Drugs Advisory Committee Meeting No. 50. October 22, 1998. Available at: <http://www.fda.gov/ohrms/dockets/ac/98/transcript/3468t2.rtf>. Accessed August 4, 2005.
19. Sorey W. Impetigo of Bockhart/alopecia, traumatic, traction [DermAtlas Web site]. May 2, 2003. Available at: <http://dermatlas.med.jhmi.edu/derm/indexdisplay.cfm?ImageID=1051907659>. Accessed August 4, 2005.

20. Cohen B. Folliculitis/folliculitis, bacterial impetigo of Bockhart/staphylococcal infection [*DermAtlas* Web site]. May 11, 2004. Available at: <http://dermatlas.med.jhmi.edu/derm/indexdisplay.cfm?ImageID=1083812199>. Accessed August 4, 2005.
21. Cohen B. Folliculitis/impetigo of Bockhart [*DermAtlas* Web site]. May 27, 2002. Available at: <http://dermatlas.med.jhmi.edu/derm>. Accessed August 4, 2005.
22. Spencer GA. Alopecia liminaris frontalis: comment on causation and report of four cases. *Arch Dermatol Syph*. 1941;44:1082-1085.
23. Ribeiro H. Alopecia marginal traumatica por traccao dos cabelos. *Brasil-med*. 1937;52:1267-1271.
24. Lam M, Crutchfield CE 3rd, Lewis EJ. Hair casts: a case of pseudonits. *Cutis*. 1997;60:251-252.
25. Scott MJ Jr, Scott MJ Sr. Nits or not? pseudonits—simple office diagnosis. *JAMA*. 1980;243:2325-2326.
26. Kligman AM. Hair casts: parakeratotic comedones of the scalp. *AMA Arch Dermatol*. 1957;75:509-511.
27. Kohn SR. Hair casts or pseudonits. *JAMA*. 1977;238:2058-2059.
28. Laude TA. Approach to dermatologic disorders in black children. *Semin Dermatol*. 1995;14:15-20.
29. Trueb RM. “Chignon alopecia”: a distinctive type of nonmarginal traction alopecia. *Cutis*. 1995;55:178-179.
30. Irwin MJ. Assessing color changes for dark skinned patients. *Adv Clin Care*. 1991;6:8-10.
31. Singh G. Letter: traction alopecia in Sikh boys. *Br J Dermatol*. 1975;92:232-233.
32. Peters JC. Braids, cornrows, dreadlocks, and hair wraps: an African continuum [Ohio State University Advanced Computing Center for the Arts and Design Web site]. 1992. Available at: http://accad.osu.edu/~dkrug/367/online/ethnicarts4/r_resources/reading/Peters.asp. Accessed August 4, 2005.
33. Lee PK, Zipoli MT, Weinberg AN, et al. Pyodermas: *Staphylococcus aureus*, streptococcus, and other gram positive bacteria. In: Freedberg IM, Eisen AZ, Wolf K, et al, eds. *Fitzpatrick's Dermatology in General Medicine*. 6th ed. New York, NY: McGraw-Hill Medical Publishing Division; 2003:1856-1878.