

# Full-thickness Scalp Injury Due to Hair Braiding and Weave

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**Summary:** Full-thickness scalp necrosis secondary to hair weave placement is a rare but serious complication of a common hairstyle. The defects can be large and may necessitate complex reconstruction with hair-bearing tissue. We report on the case of a young woman with extensive scalp loss following tight spiral braiding. The case description illustrates this relatively unknown complication, its treatment, and possible preventative measures. (*Plast Reconstr Surg Glob Open* 2015;3:e477; doi: 10.1097/GOX.0000000000000456; Published online 10 August 2015.)

Extensive literature has been published regarding the correlation of scalp alopecia with treatments involving traction applied to the scalp, including weaves, extensions, and tight updos.<sup>1-5</sup> Tension on the hair, as seen with tightly braided or wound hairstyles with or without the use of chemical straighteners, may result in years of subclinical perifollicular inflammation, leading to follicular loss around the periphery of the scalp.<sup>5</sup>

Only one recently published correspondence describes a relationship between extensions and a full-thickness scalp wound.<sup>6</sup> We present a case of braiding and weave placement leading to full-thickness scalp necrosis and possible causative factors.

## CASE STUDY

A 22-year-old African-American woman presented to the emergency room 1 month after having a weave placed. Her chief complaint was scalp pain, having started during the placement. One week before presentation, she noted drainage from under her weave. Physical examination showed a 10×5 cm area of full-thickness scalp necrosis at

the vertex of the scalp (Fig. 1). Granulation tissue was present. There was no evidence of cellulitis or subgaleal fluid. Moist gauze dressings were applied daily, and the patient was followed up with weekly outpatient visits.

After 9 weeks, the wound was 1 cm, with stellate surrounding scar. The periphery of the scar showed evidence of sparse hair growth (Fig. 2). Reconstruction of the damaged scalp with serial excision of scar alopecia, local rotational scalp flap, or tissue expander scalp reconstruction was discussed with the patient. The patient determined she was satisfied with her current outcome and would follow up should surgery be desired in the future.

## DISCUSSION

Prior publications have implicated subgaleal hematoma in braiding-related scalp injury and necrosis of the fragile neonatal scalp after subgaleal hemorrhages.<sup>6-8</sup> This remains a possible explanation; however, this patient's lack of notable swelling or remaining significant hematoma at presentation suggests that there may be another etiology.

Scalp inflammation due to follicle traction decreases the barrier function of the skin, which may contribute to but is unlikely to be the primary factor in necrosis.<sup>9,10</sup>

A weave consists of the patient's hair tightly braided close to the scalp, serving as an anchor for hair extensions stitched or glued to the original hair. The hair can be braided either in a zigzag pattern from

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**Fig. 1.** Initial presentation.



**Fig. 2.** Final healing after 9 weeks.



**Fig. 3.** Spiral braiding pattern.

ear to ear or in a circumferential spiral, as our patient had done (Fig. 3).

The concentric nature of the spiral pattern braid decreases blood flow toward the vertex like a series of tourniquets. When tight braids and the weight of the extensions apply traction in a circular distribution, it is conceivable that the vascular supply could be so compromised as to lead to ischemic necrosis.

The patient's circumferential traction ischemia injury would be most akin to neonatal pressure necrosis injury associated with vacuum-assisted births or prolonged or obstructed labor, that except in this case the "pressure" was exerted by the braids tractioning the scalp rather than the pelvic brim.<sup>11,12</sup>

### CONCLUSIONS

This case demonstrates the unrecognized dangers of particular hair styles, specifically that tension on the

scalp from circumferential braiding can lead to significant scalp damage and necrosis. Interestingly, both the patients in the previously published case report and our patient were satisfied with the outcome of conservative management despite significant scar alopecia. This may help to inform surgeons' decisions when managing future incidences of this condition. Traditionally, extensive vertex scarring in a female patient would demand complex reconstructive methods such as serial scar excision or tissue expansion with scalp flaps; however, vertex scarring in this patient population may be more easily managed by styling techniques familiar to many patients of African descent.

The attitude espoused by our patient and her hairstylist, "the more painful the placement, the better the weave," suggests that increasingly tight weaves may have led to more cases of scalp necrosis than has been found in the literature to date. Ultimately, providers, patients, and hairstylists should be made aware of the painful and possibly dangerous sequelae of prolonged and intense traction on the scalp.

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