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Scalp Biopsy Specimens: Transverse vs Vertical Sections

Evaluation of hair loss continues to be a challenge for dermatologists and pathologists. Current trend favors the examination of both vertical and transverse sections of scalp biopsy specimens, although it is not clear if this is owing to opinion or evidence. Proponents of transverse sections claim that this approach is better because one can (1) examine more follicles at various levels; (2) determine the total number of terminal follicles; and (3) better appreciate infiltrates. In contrast, those who prefer vertical sections indicate that (1) any structure of the follicle examined with transverse sections can be seen with vertical sections; (2) very few follicles are needed to make the correct diagnosis; (3) the total number of terminal follicles is the least important criterion; and (4) infiltrates can be adequately assessed by pattern recognition.

To gather our own experience we performed a prospective study of 276 Mexican patients whose main complaint was hair loss. Institutional review board approval was obtained. There were 107 male and 169 female subjects ranging in age from 10 to 85 years. Each patient had

two 4-mm punch biopsy specimens taken: one for vertical and the other for transverse sectioning under hematoxylin-eosin microscopy. The final diagnoses are summarized in the **Table**. After analysis, our results can be summarized as follows:

1. Both vertical and transverse sections were adequate to assess infiltrates and structure of follicles at various levels and to detect clues for diagnosis;
2. Transverse sections showed more follicles;
3. Vertical sections were adequate for both scarring and nonscarring alopecias; and
4. Both vertical and transverse sections rendered a concordant diagnosis in 100% of cases.

In conclusion, we found both vertical and transverse sections adequate for diagnosis of scarring and nonscarring alopecias. Each technique offered some advantages, but neither was superior to the other. The examination of both transverse and vertical sections is beneficial but not essential, and this minimal benefit must be balanced against added costs and/or inconvenience for patients.

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COMMENTS AND OPINIONS

Rebound Vasodilation From Long-term Topical Corticosteroid Use

The Cutting Edge article "Successful Treatment of Severe Atopic Dermatitis in a Child and an Adult With the T-Cell Modulator Efalizumab"¹ in the May 2006 issue of the ARCHIVES discusses another medication for this disease with both short- and long-term potential for toxic effects added to the panoply of similar medications, including azathioprine, mycophenolate, cyclosporine, and other immunomodulators. As yet unknown adverse effects of efalizumab might preclude its long-term use. I suggest another approach to the "problem" of atopy before instituting treatments with new medications.

In the case report by Weinberg and Siegfried,¹ a diffuse erythema coupled with the typical eczematous patches in the popliteal area is seen in patient 1. I believe that this diffuse erythema represents corticosteroid addiction with rebound vasodilatation, not worsening eczema.²⁻⁵ Patient 2 demonstrates "spongiotic dermatitis" on the skin biopsy specimen. All of the biopsy specimens from my patients who were addicted to steroids have revealed this same pathologic characteristic. This is not the typical pathologic presentation of atopic dermatitis.

In the past 25 years, I have treated over 1500 patients with these problems (red skin syndrome, red scrotum syndrome, generalized severe atopy, chronic actinic derma-

Table. Biopsy Results

Finding	Cases, No.
Normal	10
Nonscarring Alopecias	
Androgenetic alopecia	49
Seborrheic dermatitis	36
Telogen effluvium	30
Perivascular superficial dermatitis	30
Chronic perifolliculitis	29
Psoriasis	14
Trichotillomania	7
Alopecia areata	7
Scarring Alopecias	
Acute suppurative folliculitis	13
Dissecting cellulitis	12
Lichen planus pilaris	8
Lupus erythematosus	8
Folliculitis keloidalis	6
Central cicatricial centrifugal alopecia	3
Pseudopelade of Brocq	3
Miscellaneous	11
Total	276

titis, and postlaser peel syndrome).⁶ They were significantly improved after all treatments with topical and systemic corticosteroids were stopped. No other immunosuppressive drugs were used, although many patients had used them in the past while undergoing treatment with corticosteroids. Many patients had also been prescribed immunosuppressive drugs. In many patients, several flares and rebounds occurred during the withdrawal phase, which lasted from 1 to 2 years. All patients needed no further treatment, and there was no recurring rash. Lifestyle returned to the preaddiction level. Among my patients, only a few exhibited the underlying eczema again, usually years later, as only isolated patches during winter. Lubrication and UV light irradiation were used without corticosteroids, and resolution quickly occurred.

I believe that the mechanism of erythema that looks like eczema is actually overproduction of nitric oxide causing the recurring vasodilatation. This chemical is suppressed by overuse of corticosteroids and then is released over a long period into the skin vasculature. Withdrawal is complicated by repeated flares of redness, edema, and severe burning sensations interspersed with relatively symptom-free periods.

Before another immunomodulating, immunocompromising, or antimitotic drug is introduced into the care of these patients with atopy, consideration for a cure with total cessation of corticosteroids should first be considered.

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VIGNETTES

Calciphylaxis Responding to Sodium Thiosulfate Therapy

Calciphylaxis is an uncommon and extremely painful calcifying panniculitis, most often seen in patients with end-stage renal disease. The prognosis is poor, with a 6-month mortality rate ranging from 33% to 80%.¹ Dermatologists are often called on to diagnose the condition, but unfortunately, successful treatments have not been available. We describe a case that responded to treatment with sodium thiosulfate.

Report of a Case. A 68-year-old obese African American woman with a medical history of type 2 diabetes mellitus, hypercholesterolemia, hypertension, coronary artery disease, and congestive heart failure presented with a 1-month history of extremely painful, indurated, depressed plaques with necrotic ulceration and eschar on her outer thighs bilaterally (**Figure 1**). At that time, her home medications included pioglitazone, aspirin, furosemide, metolazone, amitriptyline, insulin, ranitidine, fosinopril, levothyroxine, atorvastatin, clopidogrel, and carvedilol. Analysis of an incisional biopsy specimen showed areas of fat necrosis and calcification in the walls of a few arterioles in the subcutis (**Figure 2**).

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Abnormal laboratory levels at the time of presentation included hemoglobin, 7.5 g/dL; blood urea nitrogen 24 mg/dL (8.6 mmol/L); creatinine, 1.4 mg/dL (123.8 μmol/L), total protein, 5.9 g/dL; and albumin, 3.0 g/dL. Her anemia was attributed to a recent upper gastrointestinal bleeding episode and has since resolved. Estimated glomerular filtration rate over the following weeks was consistently greater than 60 mL/min but less than 89 mL/min. This falls into the category of stage 2 (mild) chronic kidney disease.² Serum calcium, phosphorus, vitamin D, and parathyroid hormone levels were within normal limits.



Figure 1. Indurated, depressed plaque with necrotic ulceration and eschar on the patient's left lateral thigh.

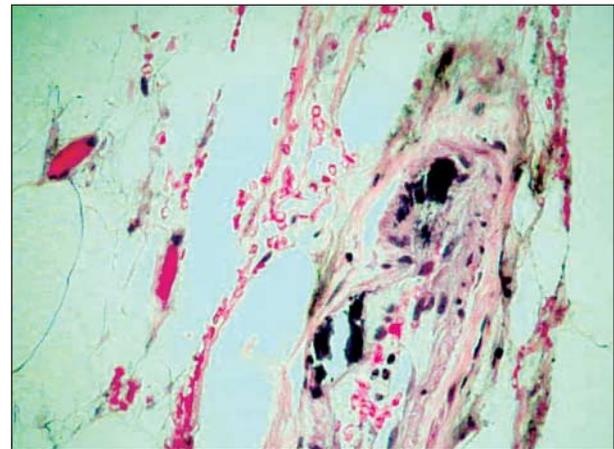


Figure 2. Photomicrograph of lesion biopsy specimen from left lateral thigh.