

Polypoid Clear Cell Acanthoma of the Scalp

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Clear cell acanthoma (CCA) is a rare, benign epithelial tumor most frequently found on the lower extremities. Its clinical appearance may vary considerably, and cases of multiple lesions have been reported. The diagnosis is made by viewing the characteristic histologic features. This case describes an unusual scalp lesion that clinically and histologically shows unique polypoid features.

First described by Degos et al¹ as a rare and solitary benign epithelial tumor of the lower extremities, the clear cell acanthoma (CCA) has since shown a variety of clinical presentations and body site locations. It is difficult to distinguish these tumors from other benign or malignant lesions by physical examination alone. Therefore, a biopsy must be performed to differentiate a CCA from other malignant tumors.

Case Report

A 75-year-old white female was referred to the dermatology clinic for evaluation of a scalp nodule. The patient was unsure of the lesion's duration and complained of episodic bloody oozing. Physical examination revealed a 1-cm glistening, exophytic, erythematous nodule that was friable on palpation (Figures 1 and 2). Diagnostic considerations included squamous cell carcinoma, granuloma pyogenicum, metastatic carcinoma, and amelanotic melanoma. A deep shave biopsy was performed. Significant bleeding occurred, requiring hemostasis



Figure 1. Erythematous scalp nodule.

with electrofulguration, INSTANT synthetic collagen, and a pressure dressing.

Histopathologic sections demonstrated a polypoid epithelial proliferation with erosion and crusting of the surface (Figure 3). The proliferation was composed of pale-staining keratinocytes that were sharply demarcated from the normal epidermis (Figure 4). The basal cell layer was spared. The pale keratinocytes stained strongly with periodic acid-Schiff (PAS) (Figure 5), and this reaction was abolished when predigested with diastase. Foci of necrotic keratinocytes were observed, and neutrophils traversed the epithelial proliferation.

Comment

Fine and colleagues² described the classic clinical appearance of CCA as having the “stuck-on” appearance of a seborrheic keratosis, the vascular similarity of a pyogenic granuloma, the peripheral scale of an eczematous process, and the advancing rounded border of an epithelioma. In addition, lesions frequently present with a moist surface and numerous punctate blood vessels that blanch with diascopy.^{3,4} Generally, most CCAs appear as solitary asymptomatic lesions on the lower extremities.^{4,7} The tumor is described in

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Figure 2. Exophytic nodule displaying pinpoint bleeding.

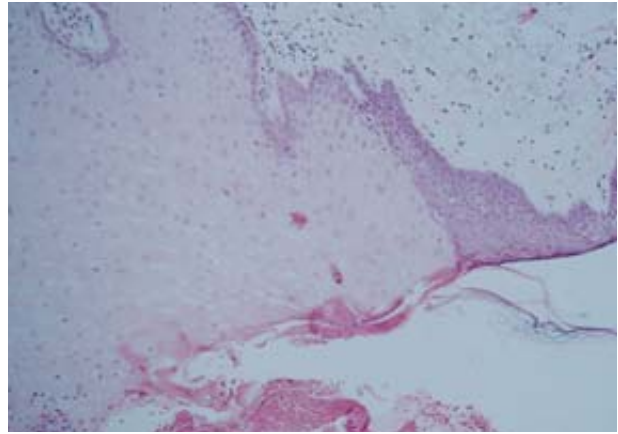


Figure 4. Abrupt transition to pale-staining keratinocytes (H&E, original magnification $\times 20$).

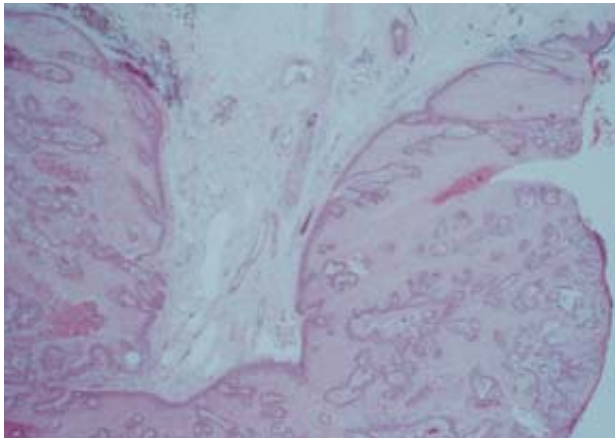


Figure 3. Polypoid lesion with scale crust formation on the surface (H&E, original magnification $\times 10$).

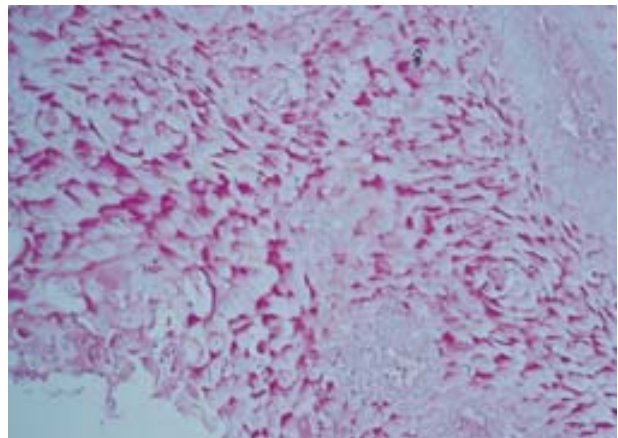


Figure 5. Pale keratinocytes displaying strong staining (PAS, original magnification $\times 20$).

size from the usual 10 to 15 mm in diameter^{4,7} to the rare giant variety that can measure up to 45 mm in diameter.^{6,8} Unusual clinical variants have been reported, including pigmented keratotic papules,⁹ polypoid lesions,¹⁰ and erythematous plaques.⁸ Rare cases of multiple lesions (up to 400 in one instance) have been described.^{3,11-13} However, head and neck lesions have rarely been reported and include the face,^{4,6,14} ear,¹⁵ and vermilion border of the lower lip.¹⁶ Single lesions also have been reported in the inguinal fold, mons pubis, and scrotum.^{6,17} To our knowledge, this is the first report of CCA occurring on the scalp.

Histopathologic findings of CCA are as variable as the clinical appearance, but the classic features are diagnostic in most patients. Typical cases demonstrate an abrupt epidermal hyperplasia, with overlying parakeratotic scale and an absent granular cell layer. Adnexal structures are spared. The involved malpighian cells are large and pale, with normal-appearing nuclei. Significant cytoplasmic, as well as intercellular edema, can be appreciated. Pale-staining

keratinocytes seen on standard hematoxylin and eosin (H&E) preparations contain large amounts of cytoplasmic glycogen as demonstrated by a positive reaction to a PAS stain, which can be removed with diastase digestion. Most lesions show a diffuse neutrophilic epidermal infiltrate that may coalesce into microabscesses of 5 to 6 cells.⁴ Langer et al⁹ described a series of 5 cases demonstrating dendritic melanocytes containing large numbers of melanin granules interspersed among the pale-staining keratinocytes. Other reports describe marked nuclear pleomorphism¹⁴ and a cystic morphology.¹⁸ Our case showed histologic changes similar to a unique polypoid variant described by Petzelbauer et al.¹⁰ However, both of their cases described lower extremity tumors.

The etiology of CCAs is not well understood. Immunoperoxidase and immunohistochemical staining suggest that CCAs may represent a benign epithelial neoplasm originating from the follicular outer root sheath or interfollicular epidermis.^{19,20} Other authors feel that the immunohistochemical

keratin staining profile of CCA characterizes it as a localized inflammatory dermatosis.²¹

Treatment options include surgical excision with narrow margins, shave biopsy followed by electrofulguration, or cryosurgery.²² A single case of recurrence after excision has been reported,¹⁹ but most cases resolve after treatment and do not recur. As with our patient, some difficulty in achieving hemostasis may occur because of tumor vascularity and friability. In spite of that, this case resolved completely after deep shave biopsy and electrofulguration, without evidence of recurrence one year postprocedure.

REFERENCES

1. Degos R, Delort J, Civatte J, et al. Tumeur épidermique d'aspect particulier: acanthome à cellules claires. *Ann Dermatol Syph.* 1962;89:361-371.
2. Fine RM, Chernosky ME. Clinical recognition of clear-cell acanthoma (Degos'). *Arch Dermatol.* 1969;100:559-562.
3. Innocenzi D, Barduagni F, Cerio R, et al. Disseminated eruptive clear cell acanthoma—case report with review of the literature. *Clin Exp Dermatol.* 1994;19:249-253.
4. Brownstein M, Fernando S, Shapiro L. Clear cell acanthoma: clinicopathologic analysis of 37 new cases. *Am J Clin Pathol.* 1973;59:306-311.
5. Zak DG, Martinez M, Statsinger AL. Pale cell acanthoma. *Arch Dermatol.* 1966;93:674-678.
6. Degos R, Civatte J. Clear-cell acanthoma. Experience of 8 years. *Br J Dermatol.* 1970;83:248-254.
7. Wilson Jones E, Wells GC. Degos' acanthoma (acanthome à cellules claires): a clinical and histological report of nine cases. *Arch Dermatol.* 1966;94:286-294.
8. Langtry AA, Torras H, Palou J, et al. Giant clear cell acanthoma in an atypical location. *J Am Acad Dermatol.* 1989;21:313-315.
9. Langer K, Wiketich S, Konrad K. Pigmented clear cell acanthoma. *Am J Dermatopathol.* 1994;16:134-139.
10. Petzelbauer P, Konrad K. Polypous clear cell acanthoma. *Am J Dermatopathol.* 1990;12:393-395.
11. Baden TJ, Woodley DT, Wheeler CE. Multiple clear cell acanthomas. *J Am Acad Dermatol.* 1987;16:1075-1078.
12. Trau H, Fisher BK, Schewach-Millet M. Multiple clear cell acanthomas. *Arch Dermatol.* 1980;116:433-434.
13. Goette DK, Diakon NC. Multiple clear cell acanthomas. *Arch Dermatol.* 1983;119:359-361.
14. Grunewald MH, Rothem A, Halevy S. Atypical clear cell acanthoma. *Int J Dermatol.* 1991;30:848-850.
15. Weitzner S, Harville DD. Clear cell acanthoma of ear. Report of a case. *Southwest Med.* 1969;50:96-97.
16. Weitzner S. Clear-cell acanthoma of vermilion mucosa of lower lip. *Oral Surg Oral Med Oral Pathol.* 1974;37:911-914.
17. Parhizgar B, Wood MG. Pale cell acanthoma of the scrotum. *Cutis.* 1982;30:231-233.
18. Hamaguchi T, Penneys N. Cystic clear cell acanthoma. *J Cutan Pathol.* 1995;22:188-190.
19. Hashimoto T, Inamoto N, Nakamura K. Two cases of clear cell acanthoma: an immunohistochemical study. *J Cutan Pathol.* 1988;15:27-30.
20. Akiyama M, Hayakawa K, Watanabe Y, et al. Lectin-binding sites in clear cell acanthoma. *J Cutan Pathol.* 1990;17:197-201.
21. Ohnishi T, Watanabe S. Immunohistochemical characterization of keratin expression in clear cell acanthoma. *Br J Dermatol.* 1995;133:186-193.
22. Betti R, Brusca C, Inselvini E, et al. Successful cryotherapeutic treatment and overview of multiple clear cell acanthomas. *Dermatol Surg.* 1995;21:342-344.