

DERMATOPATHOLOGY UNIT

UPP | Department of Dermatology

UPMC Dermatopathology "Case of the Month" Presentations

UPP - Department of Dermatology, Dermatopathology Unit

5230 Centre Avenue (412) 623-2614

Pittsburgh, PA 15232 (412) 682-6450 FAX

Case Authors: Peggy Lin MD, Michael Y. Zhang MD PhD, Drazen Jukic MD PhD

MAY 2004 CASE OF THE MONTH

CLINICAL FINDINGS

CLINICAL HISTORY:

An outside dermatologist sent a skin specimen to the UPMC Department of Dermatopathology for a second opinion/consultation. The specimen was removed from the left forehead of an 88-year-old male and a request was made to rule out squamous cell carcinoma. Although no clinical history was submitted with the case, the gross specimen contained an approximately 2.1 cm by 1.6 cm well-demarcated, ulcerated lesion.

Hematoxylin-eosin (H&E) Staining:

H&E sections reveal a poorly demarcated invasive tumor extending from the epidermis to deep dermis. The surface is ulcerated (Figure A). The tumor shows marked acantholysis with cells arranged predominantly in glandular pattern (Fig B-D). There is moderate lymphoplasmacytic infiltrate within the tumor. Most of the tumor cells are cuboidal in shape with significant nuclear pleomorphism. Mitoses are frequent. In one of multiple tissue sections, there is one area that exhibits distinct features of typical squamous cell carcinoma (Figure E).

Immunohistochemistry:

The following immunostains were performed:

Immunohistochemistry studies demonstrate that the tumor cells are positive for pancytokeratin (Figure F) and high molecular weight cytokeratin (CK903, Figure G), but negative for CEA (Figure H). The histological features and special studies confirmed the diagnosis of squamous cell carcinoma, acantholytic type. .

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Figures & Images

1. *Click on the Figure number you wish to review.*
2. *Click on the image to enlarge*

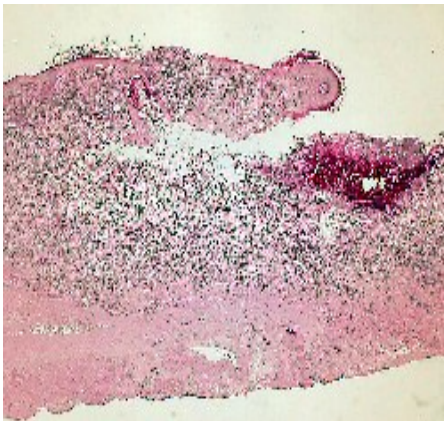


Figure A

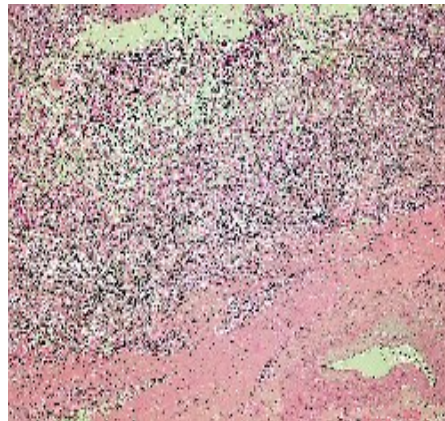


Figure B

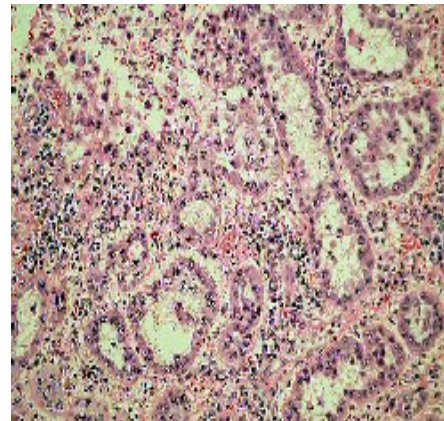


Figure C

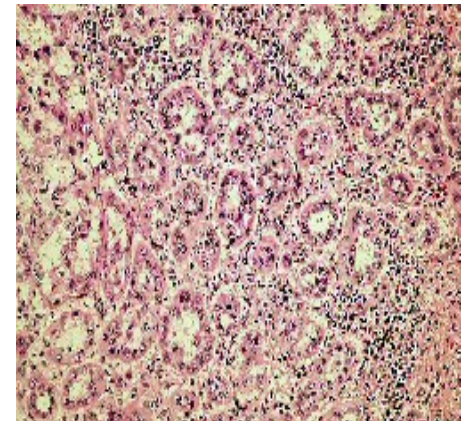


Figure D

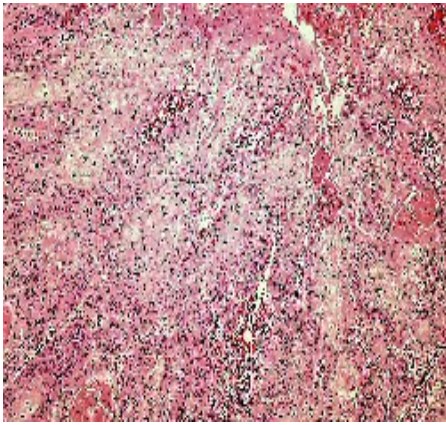


Figure E

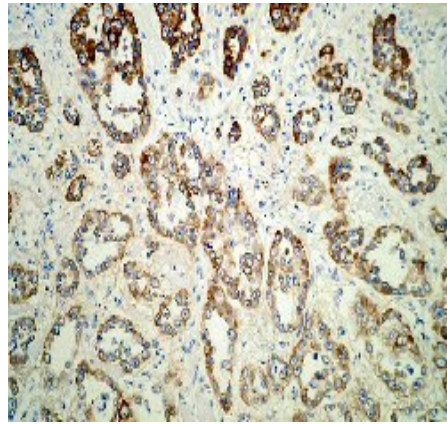


Figure F

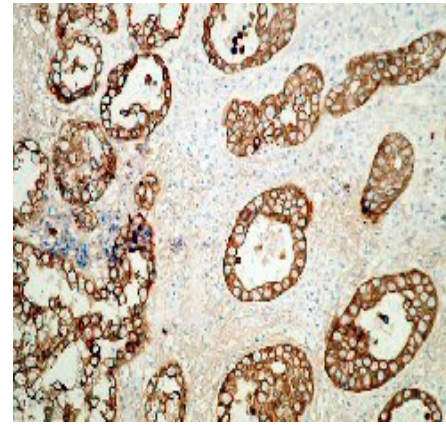


Figure G

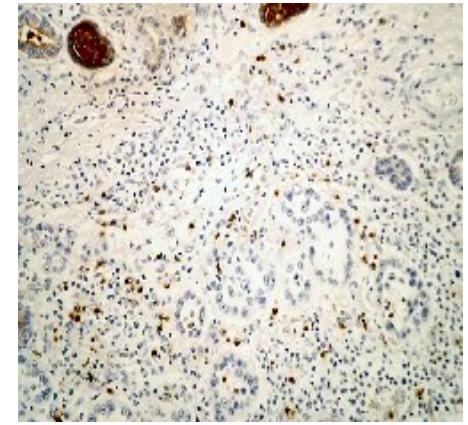


Figure H

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Legend:

Figure A: Low magnification view of the tumor with ulceration and adjacent solar lentigo (4x, H&E).

Figure B: Lower portion of the tumor (10x, H&E).

Figure C-D: Different areas of the tumor demonstrating the glandular-type arrangement and associated lymphoplasmacytic infiltrate.

There are prominent nuclear pleomorphism and frequent mitoses (20x, H&E).

Figure E: Area of the tumor exhibiting typical features of squamous differentiation (10x, H&E)

Figure F: Pancytokeratin stain (AE1/AE3, immunoperoxidase).

Figure G: High molecular weight cytokeratin stain (CK903, immunoperoxidase).

Figure H: CEA stain (Immunoperoxidase). Note the adjacent eccrine glands are positive.

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DISCUSSION & DIAGNOSIS

DIAGNOSIS

Final Diagnosis: Acantholytic squamous cell carcinoma

DISCUSSION

Epidemiology: Lesions of acantholytic (adenoid) squamous cell carcinoma (ASCC) usually occur on sun-exposed skin, especially on face and ears. Often macroscopically, they appear as nodular, scaled, crusted, and ulcerated lesions. Since this description also fits non-acantholytic SCCs, definite diagnosis is determined with dermatopathology. Although most ASCCs occur on sun exposed skin, they have been reported to occur in non-sun exposed areas, such as the breast 1 and oral mucosa 2. Most patients have been reported to be between 50 to 70 years of age³, with males being affected more than women.

Histology: Tumors are composed of dyskeratotic squamous cells that exhibit acantholysis in lobular formation. Tumor cells are polygonal, with glassy eosinophilic cytoplasm, and focal squamous pearl formation^{6,7}. Cells arrange in invasive, tubular, pseudoglandular, and even pseudovascular configurations. Adenoid structures are usually one cell thick. Dyskeratotic and acantholytic cells arrange singly or as groups within the lumen⁷.

Differential diagnosis: Includes sweat gland carcinomas^{5,6}, in which true glandular cells (not keratin producing squamous cells) compose the single row of cuboidal cells lining the lumina. Sweat gland

carcinomas usually stain for CEA, S-100 protein, and amylase. Sweat glands also produce sialomucin⁵, in contrast to the hyaluronic acid (mucin) produced by ASCCs. Adenoid basal cell carcinoma is also on the differential, but usually these tumors show more of a fibromyxoid stroma than ASCC. ASCCs may be confused with vascular tumors (angiosarcomas) ^{6,8}. Therefore, indicators of endothelial differentiation may be used in conjunction with cytokeratin stains to decipher between these two etiologies. Endothelial markers include factor VIII-related antigen, blood group antigen, and Ulex europaeus.

Treatment: The treatment for ASCC is surgical excision. This patient also received a split thickness skin graft.

Prognosis: This tumor is reported to be more aggressive than the non-acantholytic counterpart³. In one case series⁴, it recurred in 7 of 10 patients. Rates of metastasis range from 2%⁵ to 19%⁶. Poor prognosis was associated with tumors over 1.5 cm in size ⁶ and in one series, 10 of 49 patients developed subsequent visceral malignancies⁶.

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