

Cutaneous Adenosquamous Carcinoma: A Rare Neoplasm With Biphasic Differentiation

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Practice Points

- Cutaneous adenosquamous carcinoma (cASC) is an extremely rare malignant neoplasm with histologic similarities to both squamous cell carcinoma and adenocarcinoma.
- Mohs micrographic surgery for excision is recommended; however, adjuvant external beam radiation therapy and epidermal growth factor receptor inhibitors also have been used to treat locally recurrent cASCs.

Cutaneous adenosquamous carcinoma (cASC) is an extremely rare malignant neoplasm. Due to its disputed pathophysiology, ambiguity of presentation, and lack of definitive clinical research, cASC is a commonly misdiagnosed skin lesion. Although it is not commonly encountered in clinical practice, it is essential for clinicians to correctly recognize and treat cASC because of its malignant and recurrent nature. The images provided in this case report depict classic and complete presentation of cASC. A review of the literature also was conducted to provide insight into this rare atypical lesion.

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Case Report

An 85-year-old woman presented with a painless red plaque on the right bicep of 5 years' duration. The patient had not seen a physician in the last 63 years

and had unsuccessfully attempted to treat the plaque by occlusion with an adhesive bandage. A review of systems was negative for pain, pruritus, bleeding, fever, unexplained weight loss, and night sweats. Physical examination revealed a raised, 2×4×1-cm, red, nontender, ulcerated plaque with slight exudate and gelatinous texture on the right bicep (Figure 1). Full-body skin examination revealed erythema and swelling of the right wrist and forearm consistent with cellulitis as well as tinea pedis and onychomycosis of the toenails of both feet.



Figure 1. A raised, red, nontender, ulcerated plaque with slight exudate and gelatinous texture on the right bicep.

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Hematoxylin and eosin as well as mucicarmine staining of a shave biopsy from the lesion demonstrated an invasive epithelial neoplasm comprised of squamoid and gland-forming cells broadly attached to the epidermis, which suggested a primary cutaneous origin (Figures 2 and 3). The tumor cells were arranged in infiltrating cords and nests; they exhibited crowding, pleomorphism, enlarged hyperchromatic nuclei, and mitotic division figures. Epithelial mucin (sialomucin) within the glandular component was highlighted on mucicarmine staining. The gland-forming segment of the tumor was strongly positive for cytokeratin (CK) 7. Gastrointestinal

tumors were excluded on negative CDX2 and CK20 staining, pulmonary and thyroid tumors were excluded on negative thyroid transcription factor 1 staining, and endometrial and ovarian tumors were excluded with negative estrogen receptor staining. On physical examination the breasts were soft, non-tender, and without deformity. A chest radiograph demonstrated normal heart size and pulmonary vasculature with mild bibasilar atelectasis and no areas of consolidation. Given these clinical findings along with a negative history of cancer and negative estrogen receptor staining, breast cancer was excluded from the differential diagnosis, and the diagnosis of cASC was made. The tumor was excised using Mohs micrographic surgery and was free of recurrence at 6- and 12-month follow-up.

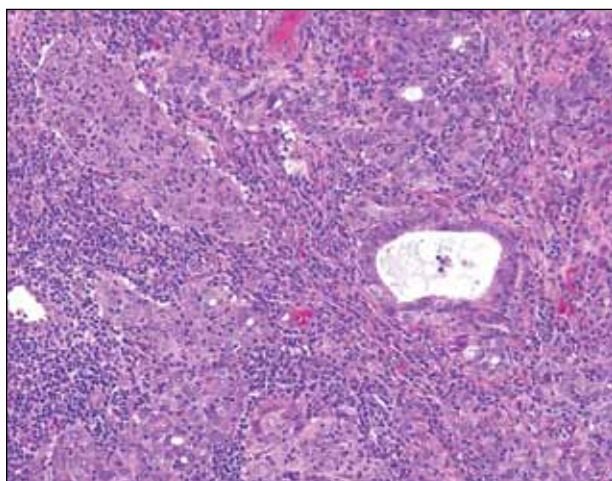


Figure 2. The tumor was comprised of gland-forming cells and exhibited crowding, pleomorphism, enlarged hyperchromatic nuclei, and mitotic division figures (H&E, original magnification $\times 100$).

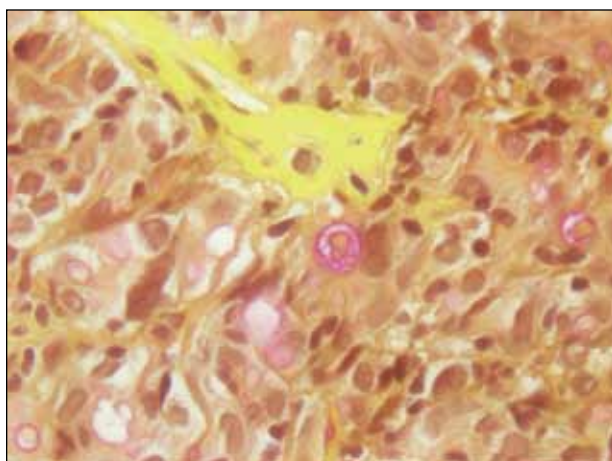


Figure 3. Mucicarmine staining highlighted sialomucin within the glandular component (original magnification $\times 400$).

Comment

Primary cutaneous adenosquamous carcinoma (cASC) is an aggressive subtype of squamous cell carcinoma that was first described in 1985.¹ It typically presents as an erythematous, indurated, keratotic papule or plaque with a predilection for the face, scalp, and upper extremities of immunocompromised individuals and elderly men.^{2,3} Biopsies generally demonstrate a malignant epithelial neoplasm arising from the epidermis and exhibiting squamous and glandular differentiation. The glandular segment usually is indistinguishable from adenocarcinoma and can be highlighted on CK7, carcinoembryonic antigen, mucicarmine, and periodic acid–Schiff staining. The squamous segment typically is indistinguishable from squamous cell carcinoma and shows aberrant keratinization and intercellular bridges. Tumors often are deeply invasive, poorly differentiated, and associated with a desmoplastic stromal reaction. Local recurrence rates are between 22% and 26%,⁴ but metastasis is rare. Surgical excision is the mainstay of therapy. When clear margins cannot be obtained using Mohs micrographic surgery, adjuvant external beam radiation therapy and epidermal growth factor receptor inhibitors can be used to treat locally recurrent cASCs.²

The differential diagnosis for cASC includes cutaneous mucoepidermoid carcinoma, cutaneous acantholytic squamous cell carcinoma, and cutaneous manifestations of metastatic visceral adenosquamous carcinoma. Mucoepidermoid carcinoma sometimes is used interchangeably with cASC in the literature, but it is a different cutaneous neoplasm that forms goblet cells, intermediate cells, and squamous cells. It is considered the cutaneous analogue of salivary gland mucoepidermoid carcinoma and does not exhibit the anaplasia, stromal desmoplasia, and aggressive course of cASC.⁵ The acantholytic subtype of squamous

cell carcinoma forms glandlike spaces due to poor adhesion between keratinocytes, but the glandlike spaces do not form mucin or stain positive for CK7 or carcinoembryonic antigen. Adenosquamous carcinomas are well recognized in the lungs, breasts, genitourinary tract, pancreas, and gastroenteric system. Visceral tumor metastasis to the skin should be excluded by appropriate screening.

Conclusion

Although cASCs are not commonly encountered in clinical practice, accurate diagnosis of these lesions is important due to their potentially aggressive behavior. Misdiagnosis and improper treatment could be attributed to lack of awareness of this type of lesion.

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