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Case Report

Hidradenocarcinoma Mimicking Epidermal Inclusion Cyst of the Palm

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Hidradenocarcinoma is a rare malignant tumor of sweat glands of the skin that has been reported several times in the hand. We report a case of hidradenocarcinoma of the palm in a 55-year-old woman that presented as a painless volar hand mass. A staged rotational forearm flap was used after resection.

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Hidradenocarcinoma is a rare malignant tumor of sweat glands of the skin that has been reported several times in the hand.^{1–5} Typically found in the head and neck, the 5-year disease-free survival rate is less than 30%.⁵ Wide local excision has been recommended to decrease recurrence with chemotherapy typically reserved for metastatic or nonresectable lesions.^{1,5} Differential diagnosis of hidradenocarcinoma can include hemangiomas, lipomas, lymphangiomas, and other eccrine tumors. Specifically, in the hand, it may appear as a mimicker of giant cell tumors of the tendon sheath, epidermal inclusion cysts, and lipomas. We report a case of hidradenocarcinoma presenting as an epidermal inclusion cyst of the palm.

Statement of Informed Consent

Written consent to present this case was obtained from the patient.

Case Report

A 55-year-old woman presented with a painless volar hand mass along the palm for approximately 5 months with 1-year history of avid rowing. On examination, the mass was soft, superficial, and without overlying skin changes. Radiographs did not demonstrate any acute osseous abnormalities (Fig. 1). Magnetic resonance imaging demonstrated a 15-mm mass with heterogenous lobular T1

signal hyperintensity, hypointense T2 signal, and minimal peripheral contrast enhancement (Fig. 2). Given the superficial location and suggested benign appearance, marginal excision was performed through a longitudinal incision with a presumptive diagnosis of an epidermal inclusion cyst. The surgical specimen demonstrated atypical eccrine neoplasm with squamoid cells (Fig. 3). It was determined to be high-grade carcinoma identified as hidradenocarcinoma. Staging studies, including positron emission tomography, suggested local disease, and a sentinel lymph node biopsy was performed with no evidence of lymphatic spread (Fig. 4). The patient underwent tumor bed re-excision of the tumor with the placement of a wound vacuum. A Doppler Allen test was performed before surgery, and intact perfusion of the superficial arch was noted with a patent ulnar artery alone. A staged rotational radial forearm flap was performed 11 days after the re-excision of the tumor bed with confirmation of negative margins. A perforator from the radial artery was identified in the volar forearm. The size of the defect was measured, and a skin flap was prepared. The proximal radial artery was temporarily clamped to verify the maintained perfusion of the flap. The skin flap was rotated distally to cover the defect and secured in place. A full-thickness skin graft was harvested from the proximal arm and placed over the radial forearm donor site (Fig. 5). The patient subsequently underwent 50.4 Gy external beam irradiation to the tumor bed.

The patient's recovery was initially complicated by radiation dermatitis at the flap–wound interface that resolved with local wound care on the third postsurgical week. At 11 weeks, the patient was noted to have a positron emission tomography avid lymph node in the axilla that was found to be reactive on core needle biopsy and is currently disease-free 1 year since her resection and has returned to rowing.

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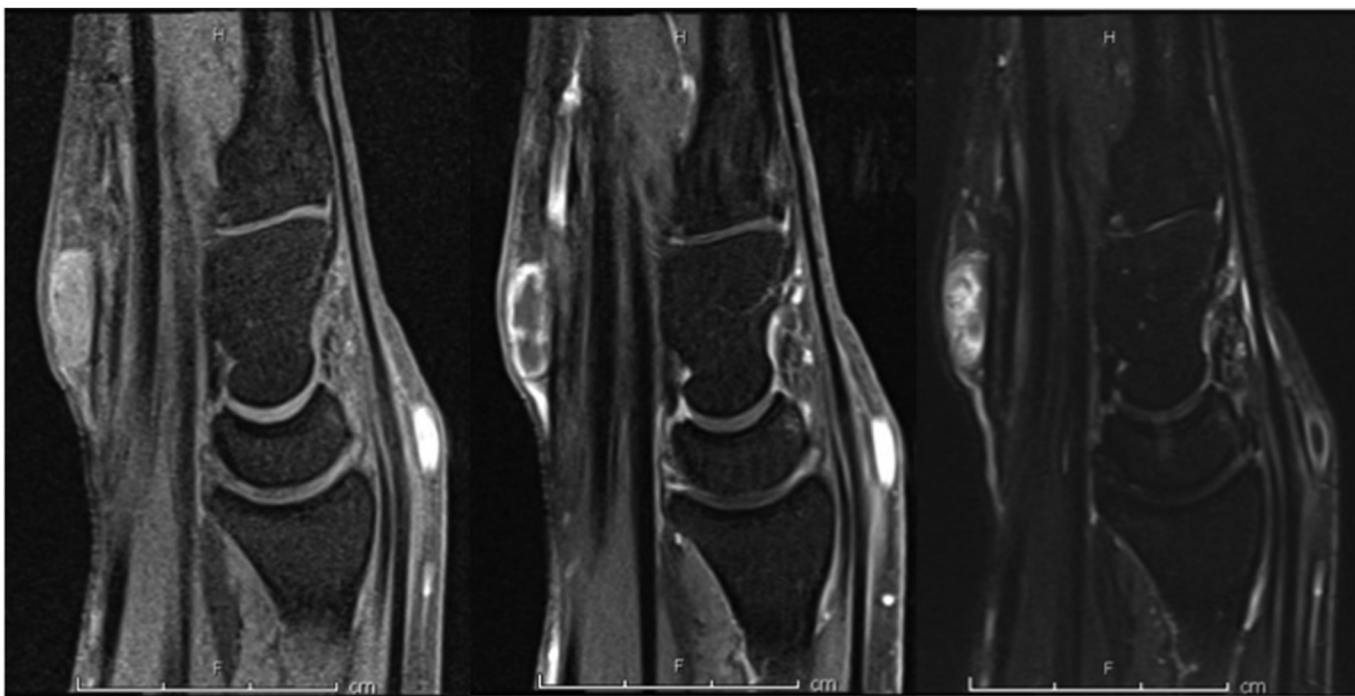
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Figure 1. Radiographs of the wrist. Radiographs of the right wrist are displayed above with no acute soft tissue or osseous findings.



Figures 2. Magnetic resonance imaging of the wrist. Sag T1 precontrast, Sag T1 postcontrast, and Sag T2 fat sat are displayed above. Magnetic resonance imaging demonstrated a 15-mm mass with heterogenous lobular T1 signal hyperintensity, hypointense T2 signal, and minimal peripheral contrast enhancement.

Discussion

Hidradenocarcinoma originates from eccrine sweat glands and is extremely rare with an incidence of 0.005%.¹ Hidradenocarcinomas are a malignant form of hidradenoma. Hidradenocarcinoma is diagnosed by histopathologic specimens. There are two

cell types that include fusiform cells with atypical eosinophilic cytoplasm and larger cells with atypical mitotic features.⁷ It may be difficult to differentiate hidradenoma from hidradenocarcinoma. Hidradenocarcinoma is diagnosed with at least three of the following: loss of circumscription, infiltrative growth pattern, perineural invasion, vascular invasion, nuclear pleomorphism,

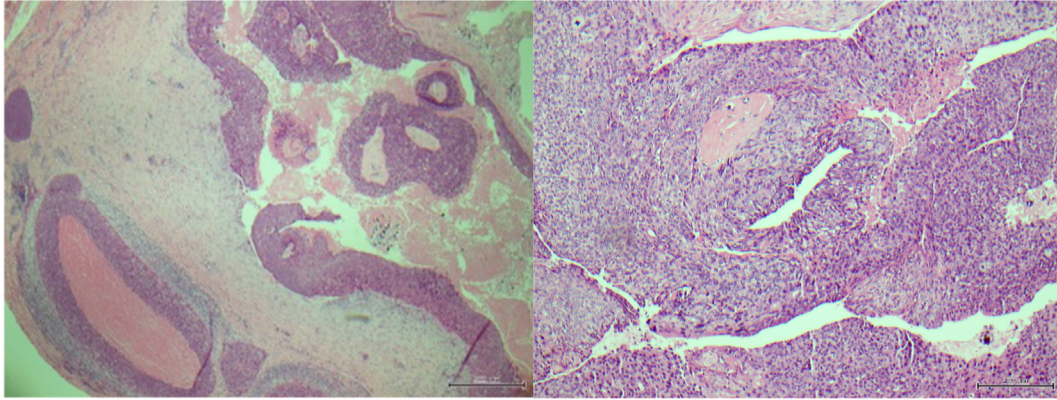


Figure 3. Histology of the wrist mass. Histologic slides demonstrate atypical eccrine neoplasm with squamoid cells that was classified as high-grade hidradenocarcinoma.



Figure 4. Positron emission tomography-computed tomography (PET-CT). PET-CT uptake of the right wrist and axilla exists. No other areas of concern for distant disease exist.

and 4 or greater mitoses per 10 high-powered fields.⁸ Invasion of peripheral structures may be the only identifying characteristic of a malignant specimen.

Tumors may be slow-growing and metastasis to local lymph nodes. The recurrence rate of isolated hidradenocarcinoma is observed from 10% to 50%.⁴ No strong recommendations exist for the management of hidradenocarcinoma. Previous studies recommend surgical excision with negative margins, sentinel lymph node biopsy, and long-term surveillance.^{1,4,5} Survival rates are 5–24 months if regional lymph nodes are involved. Radiation can be used for cases of positive margins, complete resection of large tumors, recurrent tumors, and positive lymph nodes when additional surgery is not possible.^{1,9} Chemotherapy is recommended for cases of metastasis. In addition, 5 fluorouracil, doxorubicin, and cisplatin have been used to manage metastatic hidradenocarcinoma.¹

In the current report, an initial resection was performed with positive margins. A tumor bed re-excision was performed with negative margins. After confirmation of negative margins, a radial forearm rotational flap was used for skin coverage of the palm. McMains et al¹⁰ described the use of a hemi-soleus rotational flap to cover a lower extremity defect after resection of a hidradenocarcinoma. The use of a rotational flap for upper extremity reconstruction after a hidradenocarcinoma resection has not been described. Incidental resection of a hidradenocarcinoma can occur in the upper extremity. Wide excision with sentinel lymph node biopsy should be performed for cases of incidental resection of hidradenocarcinoma. Staged rotational radial forearm flaps can be performed to reconstruct soft tissue defects of the palm after resection with negative margins.

Hidradenocarcinoma is an extremely rare malignant tumor that can arise within the upper extremity. Wide excision and adjuvant therapy with radiation have been recommended to minimize local recurrence and require careful consideration of skin coverage due to the high dose required. A staged rotational forearm flap can also be successfully used for volar hand defects after malignant tumor resection. Standard evaluation, resection, and radiation therapy should be performed when the excision of a hand mass results in an incidental malignancy.

Acknowledgments

The views expressed in this publication are those of the authors and do not necessarily reflect the official policy of the Department



Figure 5. Intraoperative images of the radial forearm rotational flap. Intraoperative images are displayed above of the radial forearm rotational flap to cover the palmar skin defect.

of Defense, Department of Army, US Army Medical Department, or the US Government.

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