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An unusual case of eccrine porocarcinoma on the axilla with nodal involvement: A case report

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Abstract

Ecrrine porocarcinoma, a rare aggressive skin tumor, develops from sweat glands located in lower limbs, followed by the head and neck, trunk, and upper limbs. The incidence represents only about 0.005% of all cutaneous malignant tumors. The most common site is the lower extremities in elderly patients. As it has a high chance of metastases and recurrence after surgery, mainstay of treatment modality is wide local excision or Mohs (micrographically oriented histographic surgery) micrographic surgery. Mohs micrographic surgery (MMS) is a more effective treatment modality for tumors located in cosmetically and functionally important areas of the head and neck. We present a 56-years-old male patient with a large fungating eccrine tumor on the left axilla with ipsilateral nodal involvement on histomorphological grounds supported with immunohistochemical studies.

Keywords

Adnexa, histopathology, porocarcinoma

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Introduction

Eccrine porocarcinoma (EPC), a malignant sweat gland tumor, represents only about 0.005% of epithelial cutaneous neoplasms and arises from cutaneous intraepidermal ducts of the sweat glands.[1] The first reported case was in 1963 attributed to Pinkus and Mehregan, who named it "epidermotropic eccrine carcinoma or more precisely malignant eccrine poroma."[2] In 1969, Mishima and Morioka introduced the term "eccrine porocarcinoma."[3] This tumor may arise from a preexisting benign poroma or may also develop as a verrucous or nodular, ulcerative growth. The most common sites are the lower extremities (50%), trunk (24%), head and neck (18%), upper extremities (2%), and hands (3%).[4] Microscopically, the tumor frequently presents with both intraepidermal growth and dermal invasion. It is capable of forming satellite lesions and lymphatic involvement. Porocarcinoma may present as a dome-shaped papule, plaque, or nodule growing over weeks to months. The exact incidence of porocarcinoma is unknown but appears to be rising. Management involves the removal of the tumor, usually using wide local excision or MMS. Prognosis is poor in EPC with a recurrence rate of 20% after surgery which can be both local recurrences as well as regional lymph node metastases. Distant metastasis occurs in 12% of cases. The sites for distant and visceral metastases are the lung, retroperitoneum, femur, breast, liver, mediastinum, urinary bladder, peritoneum, and ovary in that order. The mortality rate is >65% when regional nodes are involved.[5]

Case report

A 56-year-old man was initially admitted to the General Surgery Department of the hospital for the evaluation of a left axillary mass for 15 months. A general examination showed no abnormal findings in the respiratory, cardiac, and neurological systems, and no abnormal findings were found

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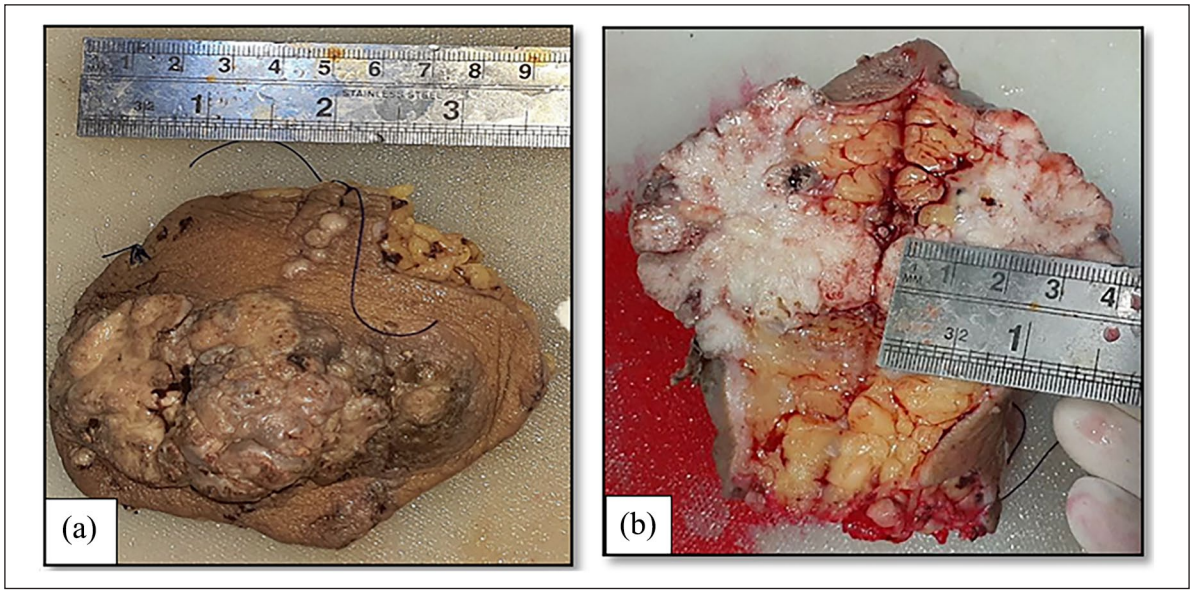

Figure 1. Macroscopic findings (a) Fungating outer surface involving the skin. (b) Heterogeneous cut surface.

in the abdomen. A well-oriented mass ($10 \times 8.5 \times 4$ cm) and lymph node biopsy (1×1 cm) following wide local excision from the left axilla were received in the Department of Pathology. The outer surface was irregular with a fungating mass ($8 \times 4.5 \times 4$ cm) infiltrating the underlying soft tissue (Figure 1(a)). The cut surface was solid, heterogeneous with firm white as well as soft, necrotic, and hemorrhagic areas (Figure 1(b)). It showed infiltrating irregular margins. A single lymph node (1×1 cm) was also received.

Histopathological examination shows broad, anastomosing cords, solid columns, and nests of polygonal basaloid cells with hyperchromatic nuclei, prominent nucleoli, and mitotic figures, with spread from the epidermis into the papillary and reticular dermis (Figure 2(a)–(c)). These changes were accompanied by dermal ductal structures. Lymphovascular invasion was also noted (Figure 2(d)). The lymph node was positive for tumor cells (Figure 2(e)).

Discussion

EPC is an extremely rare but potentially lethal neoplasm.[6] Some known etiological factors for EPC are radiotherapy, ultraviolet radiation, and immunosuppression with unknown pathogenesis.[4] None of these risk factors were present in our case. It is postulated that the upper portion of the dermal eccrine duct could have a role in the oncogenesis. p53 gene involved in tumor-suppressing could be involved in EPC carcinogenesis.[1]

The clinical differential diagnoses include cutaneous lymphoma, extramammary Paget's disease, Bowen's disease, cutaneous metastasis, amelanotic melanoma, or other primary skin appendageal tumors, and apocrine adenocarcinoma (based on body site).[6,7] Due to its rarity, EPC can have variable clinical presentations and be misdiagnosed as benign poroma, or more common non-melanoma skin cancers like cutaneous squamous cell carcinoma (SCC), pyogenic granuloma, angiomas, seborrheic keratosis, dermatofibromas, nevi, basal cell carcinomas, and amelanotic melanomas.[5,8] Our case had similar clinical and histological features to cutaneous SCC, which was differentiated by the presence of cuticles with positivity for EMA in those cuticles (Figure 2(f)). The immunohistochemical staining for carcinoembryonic antigen (CEA) and EMA has been widely utilized to identify ductal formations. In recognizing porocarcinoma tumor cells, EMA appears to be more sensitive than CEA.[9]

Mature duct formation, identified as the presence of ducts lined by cuboidal epithelial cells commonly with an eosinophilic cuticle, was found in 62%~ and 68% of previous studies.[10]

Histopathologically, factors associated with worse prognosis are mitotic index >14/high power field (hpf), lymphovascular invasion, and tumor depth ⩾7 mm. Clinically, a few factors that yield poor prognosis are associated with local recurrences, regional lymph nodes, and distant metastases.[11]

Our case had ~20 mitosis/hpf and showed lymphovascular invasion with ipsilateral axillary nodal metastasis and a tumor depth of 4 cm all of which fares a poorer prognosis.

The histopathology and immunohistochemistry findings were consistent with a diagnosis of EPC of axilla with nodal metastases (Figure 2(a)–(f)). The patient has been on 6 monthly follow-ups for 1.5 years and hasn't yet reported any tumor recurrences.

Conclusion

Histopathological examination is the gold standard for diagnosing EPC, assisted by immunohistochemical studies to rule out the differential diagnosis, and some histomorphological

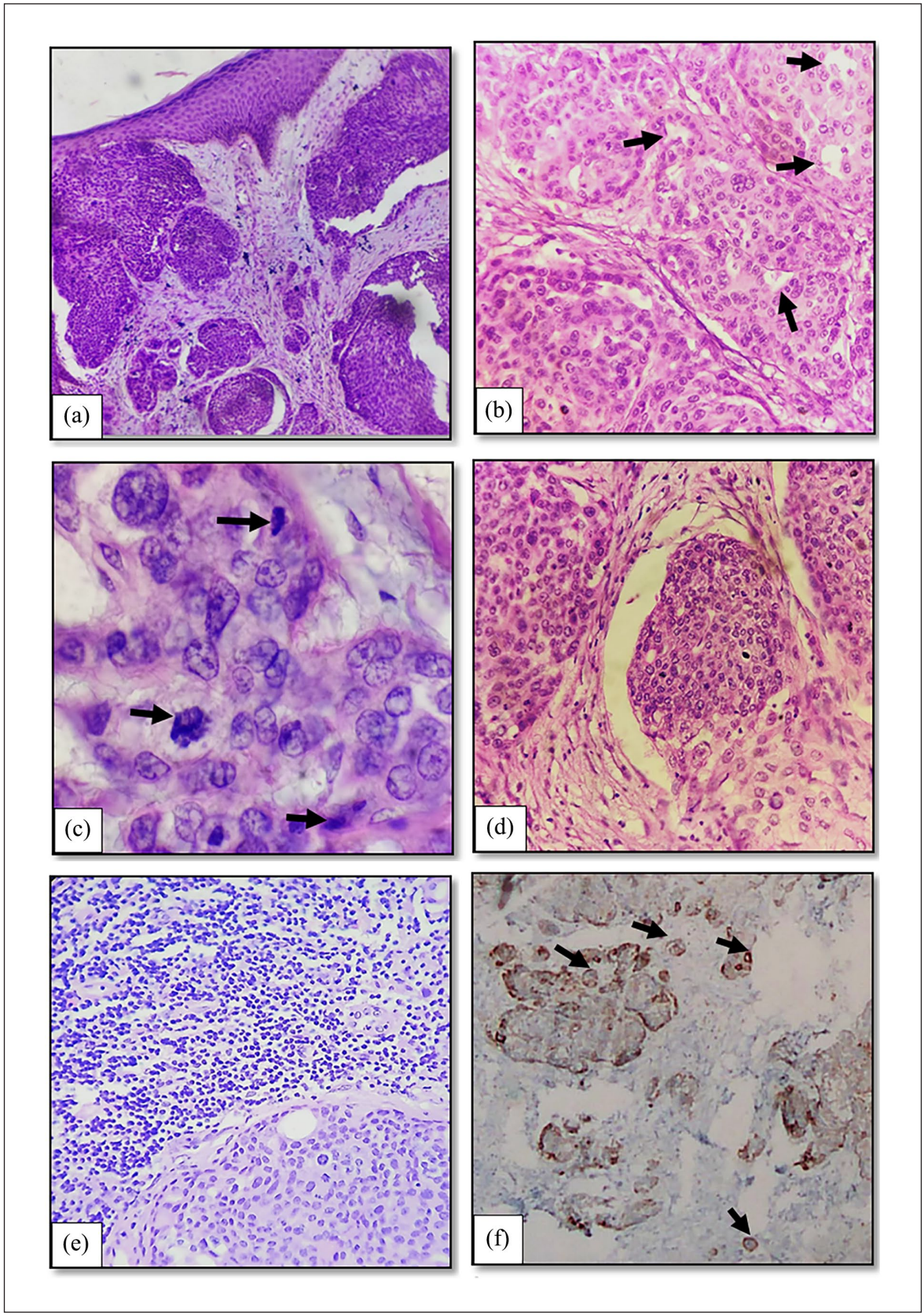

Figure 2. Histology sections using hematoxylin and eosin staining. (a) Tumor cells interconnecting to epidermis. (b) Luminal spaces and cuticles (black arrow). (c) Brisk mitotic figures (black arrow). (d) Lymphatic invasion. (e) Positive lymph node. (f) Epithelial membrane antigen (EMA) positivity in rim of ductules (black arrow).

parameters also help in prognosticating the tumor. The trunk presentation of EPC with nodal metastases is unique. Diagnosing EPC can be challenging, but early detection and resection of EPC can greatly reduce the mortality rate.

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Data availability statement

All data underlying the results are available as part of the article and no additional source data are required.

Declaration of conflicting interests

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Ethics approval

Ethical approval to report this case was obtained from the Institutional Review Committee (IRC) of Nobel Medical College and Teaching Hospital Pvt. Ltd.

Informed consent

Written informed consent was obtained from the patient for his anonymized information to be published in this article.

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