INTRODUCTION

Eccrine porocarcinoma is a malignant skin adnexal tumor of intraepidermal ductal portion of the sweat gland. This uncommon tumor was first described by Pinkus and Mehrgan in 1963. Eccrine porocarcinomas account for 0.005% of all cutaneous tumors. Approximately 609 cases of porocarcinoma cases have been enlisted during the period of 1963–2012. This rare tumor is also termed as malignant hidroacanthoma simplex, malignant intraepithelial eccrine porocarcinoma, eccrine poroepithelioma, malignant syringoacanthoma, dysplastic poroma, and sweat gland carcinoma in many of the previous literature. Eccrine porocarcinoma may be de novo or may arise as a result of malignant transformation of a long-standing eccrine poroma. It commonly involves lower extremities and trunk. Scalp is an uncommon location of eccrine porocarcinoma. Local recurrence and lymph nodal metastasis (20%) may occur in eccrine porocarcinoma. Here, we report a case of eccrine porocarcinoma of the scalp, diagnosed on fine needle aspiration cytology (FNAC) and subsequently confirmed by histopathology.

CASE REPORT

A 58-year-old male patient presented with a gradually increasing painless mass at scalp over the parietal region for 3 months. On clinical examination, the lesion was 5 cm × 4 cm × 3 cm bosselated reddish-yellow mass, fixed to skin. The patient had no anorexia and weight loss and the examination did not reveal any cervical lymphadenopathy. Computed tomography scan brain did not show any intracranial extension or bone involvement by the tumor. Fine needle aspiration was performed with 24G needle attached with a 10 cc syringe and smears were stained by Leishman–Giemsa and Papanicolaou stain. Cytology showed hypercellular smears comprised cohesive sheets and clusters of oval cells as well as scattered single cells in a background of necrotic debris. The tumor cells had moderate amount pale basophilic cytoplasm, hyperchromatic nuclei with irregular nuclear contour, and prominent nuclei [Figure 1a and b]. Multiple atypical mitosis and few squamous cells are seen in the smears. Cytology was reported as malignant adnexal tumor, possibly eccrine porocarcinoma. Wide local excision was carried out and specimen was sent for histopathology. On gross...
examination, it was an irregular friable soft to firm mass 4 cm × 3 cm with whitish cut surface. On H and E-stained sections, the tumor comprised polyhedral cells arranged in solid cord, sheets, and lobules [Figure 2a and b]. Few lobules showed central necrosis. The tumor cells had abundant pale eosinophilic cytoplasm and enlarged round nuclei. The nuclei show mild pleomorphism, hyperchromatia, prominent nucleoli, and frequent mitosis. Epidermotropism and areas of squamous differentiation were also seen in the sections [Figure 2b]. Dermal infiltration was deep to reticular dermis. No intercellular bridges and keratohyaline granules were noted and surgical margins were free from tumor tissue. Histopathological diagnosis was done as eccrine porocarcinoma of the scalp. He was referred for postoperative chemotherapy. He is followed up for 1 year but did not have any local recurrence and lymph nodal metastasis.

DISCUSSION

Sweat gland carcinomas are rare adnexal tumors, and eccrine porocarcinoma is the most common among them. Common sites of eccrine porocarcinomas are lower limbs (44%), trunk (24%), and head-neck region (24%). The tumors commonly affect aged patients of 60–80 years, but cases also have been reported in younger patients too. Eccrine porocarcinomas are considered as primary malignant adnexal tumor which arises from intraepidermal portion of the eccrine sweat ducts or acrosyringium. It may arise as primary lesion or secondary to any preexisting lesions such as eccrine poroma, nevus sebaceous, chronic lymphocytic leukemia, or actinic keratosis. Clinically, it presents with solitary nodular polypoid or plaque, pale yellowish or reddish mass with or without superficial ulceration. Eccrine porocarcinoma of the scalp mimics poroma, cylindroma, sebaceous adenoma, sebaceous carcinoma, pillar tumor, and metastatic carcinoma.

Till date, very few cases of cytology of eccrine porocarcinoma have been described. In the present case, cytology revealed discohesive clusters of neoplastic cells as well as singly. The cells have moderate amount cytoplasm, high nuclear-cytoplasmic ratio, round to oval large nuclei with moderate pleomorphism, and prominent nucleoli. Areas of necrosis and mitotic figures are also seen in the smears. Cytology of the present case correlates well with other workers – Bonadio et al., Yu et al., and Kalogeraki et al. Cytology of eccrine porocarcinoma should be differentiated from nonkeratinizing squamous cell carcinoma, basal cell carcinoma, metastatic adenocarcinoma, and malignant melanoma. In nonkeratinizing squamous cell carcinoma, the neoplastic cells have well-defined cell border and refractile cytoplasm, hyperchromatic nuclei with coarse chromatin, and prominent nucleoli. Basal cell carcinoma is distinguished from eccrine porocarcinoma by the presence of tight clusters of basal cells with peripheral palisading, minimal cytoplasm, oval to spindle nuclei, and inconspicuous nucleoli. In metastatic adenocarcinomas, the neoplastic cells are arranged in acinar pattern or in tight clusters. The tumor cells have abundant foamy or vacuolated cytoplasm, pleomorphic nuclei with prominent nucleoli. Cytology of malignant melanoma reveals various types of neoplastic cells of epithelioid, plasmacytoid, or spindle shape. Intracellular melanin pigment, prominent macronucleoli, multinucleation, tumor giant cells, mitosis are frequent in melanoma. All the above possible differential diagnoses should be considered when
dealing with a cytological smear suggestive of eccrine porocarcinoma.[1]

However, final diagnosis always depends on histopathological examination of the tumor. Robson et al. discussed two types of eccrine porocarcinoma considering the observation of Abenoza and Ackerman et al., Roaf et al., and Shaw et al.: (1) cytologically malignant cellular morphology and necrosis and (2) infiltrating tumor margin irrespective of the degree of cytological atypia.[3,8] Sometimes, the neoplastic cells of poroma may reveal low-grade cytological atypia which may be misinterpreted as porocarcinoma in cytology smears.[2,8] However, in histology, eccrine poromas lack infiltrative growth pattern, tumor necrosis, or vascular invasion.[2] In our case, the tumor invasion was obvious and mitotic rate was high.

Eccrine porocarcinomas are slow-growing tumor, and wide local excision may be curative. Chance of local recurrence in 20% and lymph node metastasis may also occur in 20% of the cases, which are the determinant of poor prognosis.[1,8] Distant metastasis is uncommon but documented in previous cases.[3,6] Poor prognosis of eccrine porocarcinoma is indicated by the presence of lymphovascular invasion, positive margin status after resection, mitotic count (>14/HPF), and depth of invasion (>7 mm).[8]

CONCLUSION

Exact cytological diagnosis is often difficult and may not be possible without correlating with history and clinical findings. However, FNAC may provide a diagnosis of malignant adnexal tumor which can give sufficient guideline for the treatment protocol.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Bonadio J, Armstrong W, Gu M. Eccrine porocarcinoma: Report of a case with fine needle aspiration cytology, histopathology and immunohistochemistry. Acta Cytol 2006;50:476-80.
2. Yu L, Olsen S, Lowe L, Michael C, Jing X. Fine-needle aspiration cytology of metastatic eccrine porocarcinoma. Diagn Cytopathol 2009;37:755-8.
3. Robson A, Greene J, Ansari N, Kim B, Seed PT, McKee PH, et al. Eccrine porocarcinoma (malignant eccrine poroma): A clinicopathologic study of 69 cases. Am J Surg Pathol 2001;25:710-20.
4. Urso C. Porocarcinoma: An exceedingly rare tumor or a tumor eclipse phenomenon? Hum Pathol 2013;44:448-9.
5. Vandeweyer E, Renorte C, Musette S, Gilles A. Eccrine porocarcinoma: A case report. Acta Chir Belg 2006;106:121-3.
6. Ritter AM, Graham RS, Amaker B, Broadus WC, Young HF. Intracranial extension of an eccrine porocarcinoma. Case report and review of the literature. J Neurosurg 1999;90:138-40.
7. Marone U, Caracò C, Annciello AM, Di Monta G, Chiofalo MG, Di Cecilia ML, et al. Metastatic eccrine porocarcinoma: Report of a case and review of the literature. World J Surg Oncol 2011;9:32.
8. Kalogeraki A, Tamiolakis D, Tsagatakis T, Geronatsiou K, Hanioti V, Kafoussi M. Eccrine porocarcinoma: Cytologic diagnosis by fine needle aspiration biopsy (FNAB). Acta Med Port 2013;26:467-70.
9. Chang Q, Elnawawi A, Rimpel B, Asarian A and Chaudhry N. Eccrine porocarcinoma of the lower extremity: A case report and review of literature. World J Surg Oncol 2011;9:94.