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CASE REPORT

Eccrine porocarcinoma in the tempus of an elderly woman: A case report

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Abstract

BACKGROUND

Eccrine porocarcinoma (EPC) is a rare skin tumor that mainly affects the elderly population. Tumors often present with slow growth and a good prognosis. EPCs are usually distinguished from other skin tumors using histopathology and immunohistochemistry. However, surgical management alone may be inadequate if the tumor has metastasized. However, currently, surgical resection is the most commonly used treatment modality.

CASE SUMMARY

A seventy-four-year-old woman presented with a slow-growing nodule in her left temporal area, with no obvious itching or pain, for more than four months. Histopathological examination showed small columnar and short spindle-shaped cells; thus, basal cell carcinoma was suspected. However, immunohistochemical analysis revealed the expression of cytokeratin 5/6, p63 protein, p16 protein, and Ki-67 antigen (40%), and EPC was taken into consideration. The skin biopsy was repeated, and hematoxylin and eosin staining revealed ductal differentiation in some cells. Finally, the patient was diagnosed with EPC, and Mohs micrographic surgery was performed. We adapted follow-up visits in a year and not found any recurrence of nodules.

CONCLUSION

This case report emphasizes the diagnosis and differentiation of EPC.

Key Words: Eccrine porocarcinoma; Sweat gland carcinoma; Histopathology; Immunohistochemistry; Prognosis; Case report

Core Tip: Eccrine porocarcinomas (EPCs) are rare skin tumors that grow slowly with no obvious discomfort. They are difficult to distinguish from basal cell carcinomas, particularly those that occur on the face. Histopathological examination and immunohistochemistry are necessary to diagnose atypical lesions, their importance is demonstrated in our case. Multiple biopsies at different times are necessary to visualize ductal differentiation in cells. Our case reported a brief period of EPC in the temporal region of an elderly woman. We hope that our case findings will help in better understanding of EPCs.

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INTRODUCTION

The skin is the largest organ in the human body, and its tissue structure is complex. Skin tumors can be identified through the actions of various pathogenic factors. The diversity of skin tumors makes their diagnoses difficult. Here, we report a case of eccrine porocarcinoma (EPC) of the tempus in an elderly woman. EPC is a rare skin tumor which originates from sweat glands. It has the high misdiagnosis rate due to the rarity of the disease and the atypicality of the site of occurrence[1,2]. Our case described the diagnostic methods of EPC from the histopathological examination and immunohistochemistry, and detailed explanation of the current treatment methods for EPC.

CASE PRESENTATION

Chief complaints

A nodule on the left tempus, which was growing for more than four months.

History of present illness

A soybean-sized papule had developed on the left tempus of a seventy-four-year-old woman, four months prior to presentation. The nodule developed slowly with the accumulation of adherent greyish brown oily scales on the surface; the patient experienced slight itching without pain. Because the number of nodules affected her facial appearance, she sought help from a local hospital. Based on clinical manifestations, basal cell carcinoma was the primary diagnosis. A biopsy and histopathological examination were performed as additional diagnostic evaluations.

History of past illness

The patient had no history of tumor and immune disease.

Personal and family history

Similar symptoms were not reported in her family.

Physical examination

An approximately 1.5 cm × 2 cm nodule was observed on the left tempus of the patient's face. The nodule had a rough surface and an irregular boundary (Figure 1). A black suture line was present at the center of the lesion. No intumescent lymph nodes were palpable in the neck.

Laboratory examinations

Skin biopsy was performed. The first histopathological examination revealed small columnar and short spindle-shaped cells (Figure 2A). The later one revealed part of the cells appearing to be ductally differentiated. It can be seen many pore structures (Figure 2B). Some tumor cells have large and hyperchromatic nuclei, and it can be seen lots of apoptotic bodies (Figure 2C). Immunohistochemistry revealed the expression of cytokeratin (CK) 5/6, p63 protein (p63), p16 protein (p16), and Ki-67 antigen (40%) (Figure 3). Blood biochemistry showed no significant abnormalities.

Imaging examinations

The computed tomography of the skull, and ultrasound of superficial lymph glands showed no remarkable findings.

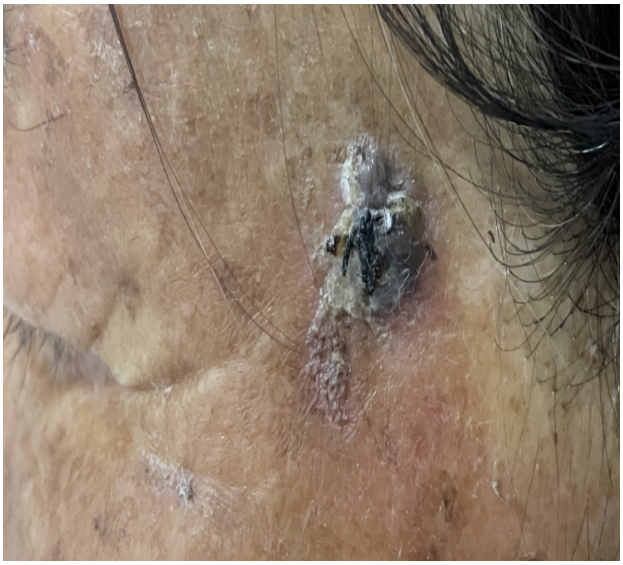

Figure 1 The clinical features of the patient: The broad bean-sized greyish nodule with a greasy crust.

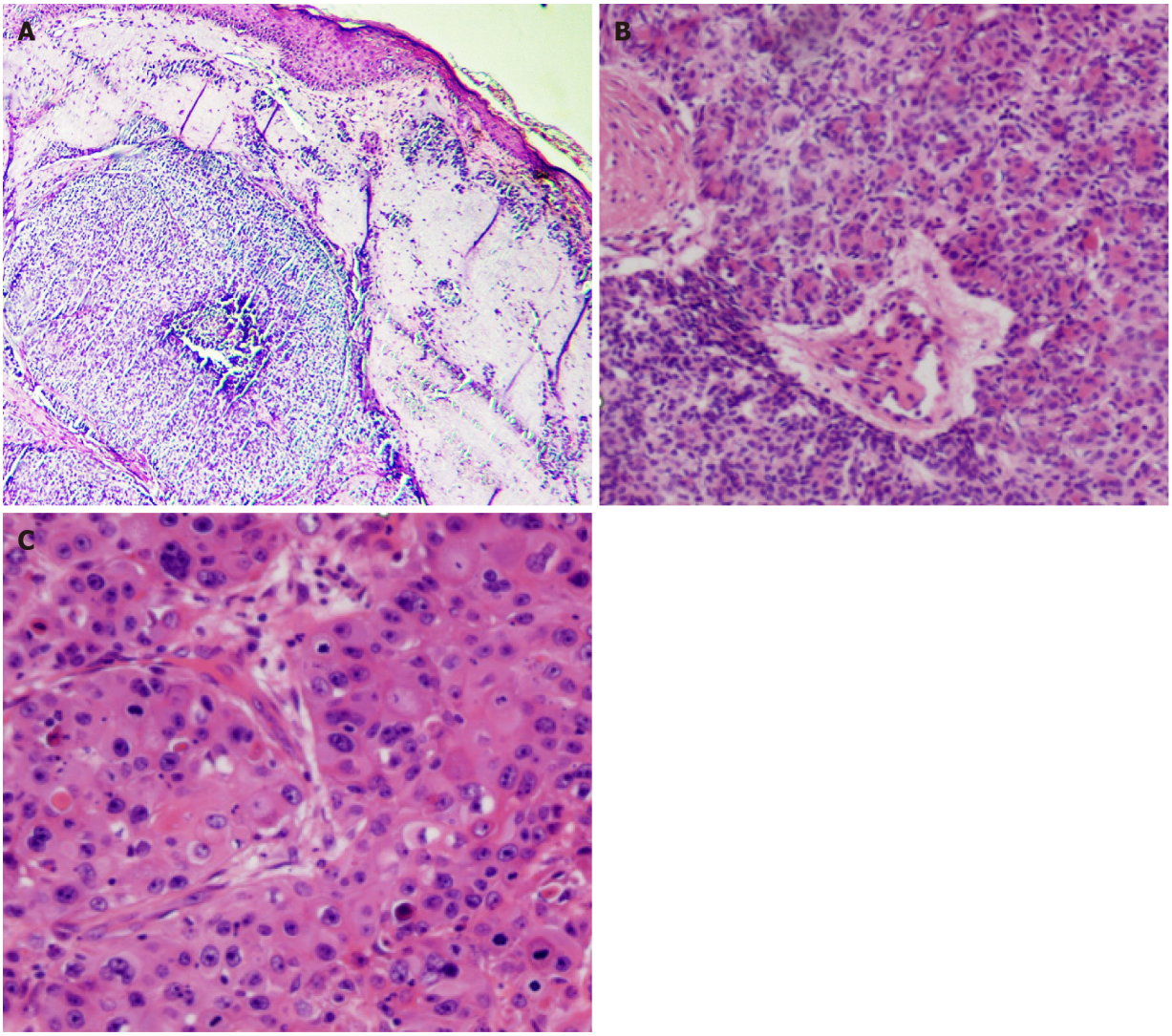

Figure 2 Pathological examination. A: Hematoxylin and eosin (HE) (× 100); B: HE (× 100); C: HE (× 200).

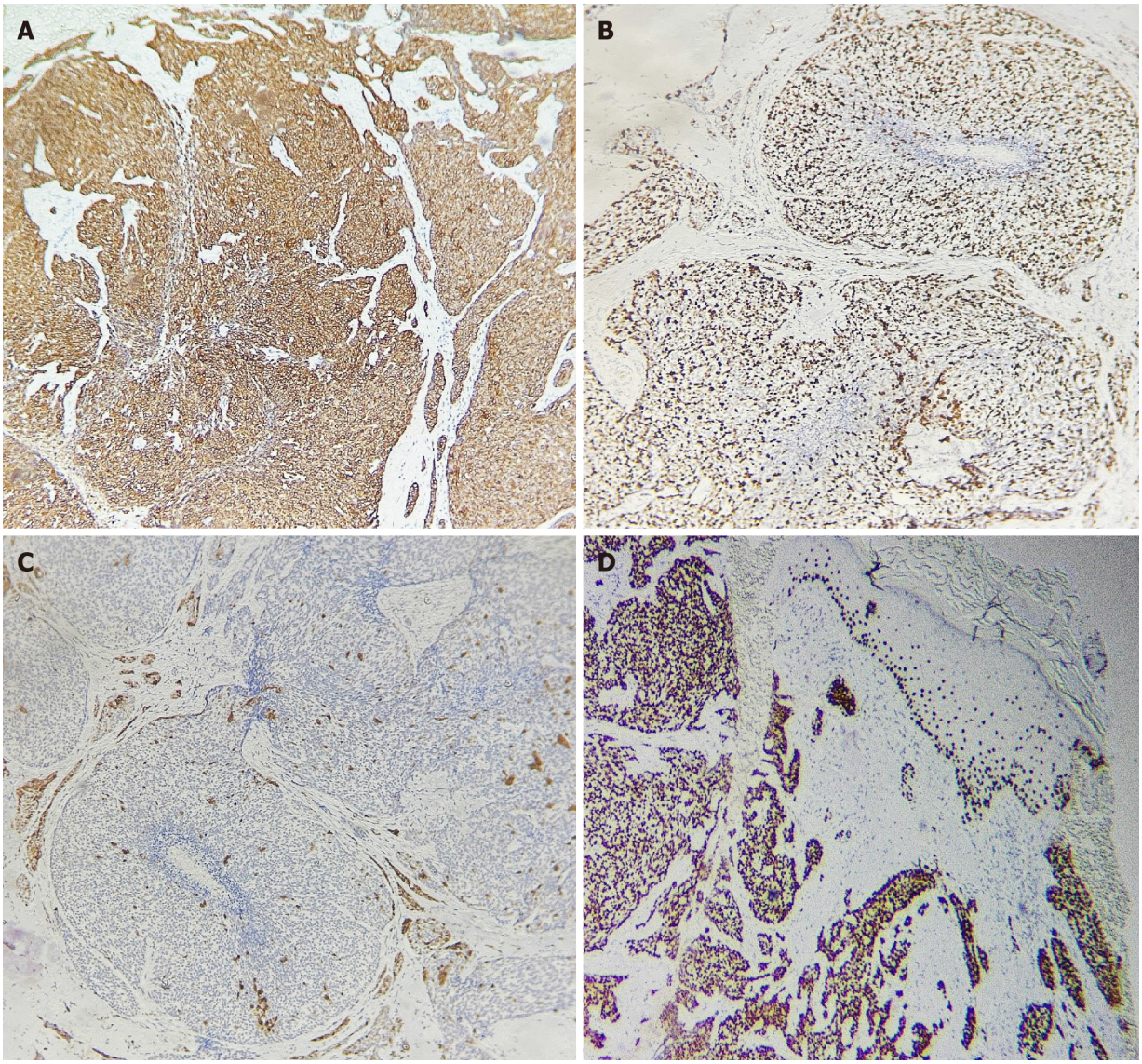

Figure 3 Immunohistochemical examination. A: Cytokeratin5/6: (+); B: Ki-67 antigen: (40%+); C: P16 protein: (+); D: P63 Protein: (+).

FINAL DIAGNOSIS

The presence of ductal differentiation in cells ruled out basal cell carcinoma. The small cell size, ductal differentiation, and lumen formation excluded squamous cell carcinoma (SCC). Combined with clinical manifestations and pathological findings, EPC was diagnosed.

TREATMENT

After obtaining informed consent from the patient, Mohs micrographic surgery was performed (Figure 4).

OUTCOME AND FOLLOW-UP

No recurrence of nodules was noted during the follow-up visits in the next year.

DISCUSSION

EPC is a rare pernicious tumor originating from the sweat glands of the skin. It was first reported by Pinkus and Mehregan[3]. Studies have shown that from 2000 to 2018, the incidence of EPC in the United States was 0.045 per 100000

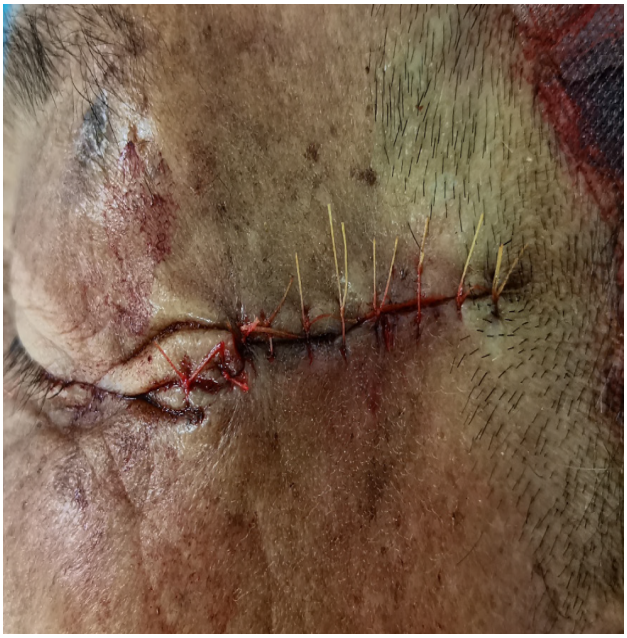

Figure 4 The clinical features of the patient: The incision after the resection of the lesion.

individuals[4]; with the improvement of diagnostic technology, the diagnostic rate of EPC has also increased annually. Furthermore, the elderly population is at a higher risk of EPCs. However, there have been reports of young women with EPC whose conditions progressed significantly during pregnancy[5]. No significant sex differences have been noted for this disease[6]. The most common location of presentation is the head and neck (39.9%), followed by the lower extremities (33.9%)[6]. Similar to our case, EPC has been reported in the left temporal area, with the appearance of a verrucous lesion [7]. However, the tumors had a longer growth time (one year to twenty years)[7] than that in our case (four months). What makes it special is that the EPC in our case seemed growing more quickly than the reported ones[7], which needs more study to clarify it. EPCs usually appear as hard, purple or red nodular plaques with smooth warty or ulcerated surfaces[8,9], and are often associated with a malignant transformation that occurs over a previous poroma originating from the intraepidermal components of the sweat glands[10]. The pathogenesis of EPC is complex and varied, and includes benign tumor transformation, sun exposure, and immunosuppression[11]. In the present case, the patient was an elderly woman living in a rural area, who was exposed to ultraviolet radiation.

Currently, surgical resection is the most commonly accepted treatment option for EPC especially the Mohs micrographic surgery. Mohs micrographic surgery is widely used in melanoma and some infrequent skin tumors, it has the high cure rate and low recurrence rate in EPC patients with Mohs micrographic surgery[12,13]. Upon assessing the metastasis of EPC, radiotherapy, chemotherapy and targeted therapy are considered to have an adjuvant effect on EPC. The treatment of paclitaxel pus cetuximab was reported to have an almost complete response for EPC[14]. EPCs are divided into "pushing" and "infiltrating" with predictable propulsion margins; the latter have a greater risk of local metastasis. The rate of mitosis, lymphovascular invasion, and tumor invasion depth (> 7 mm) can increase the risk of metastasis[10]. The most common metastatic organs for EPC are the nearby lymph nodes (57.7%), followed by the lungs (12.8%) and the liver and brain (both 9%)[6].

Currently, there is no clear diagnostic protocol for EPCs. Hematoxylin and eosin (HE) staining and immunohistochemistry have a high diagnostic value for EPCs. HE staining of EPC tissue sections reveals irregular tumors consisting of characteristic porous basal-like cells, with part of the cells appearing to be ductally differentiated at the least, in addition to the characteristics of typical tumor cells. The presence of a tumor duct is necessary for the diagnosis of EPC[9,10]. Additionally, immunochemical markers play a significant role in the diagnosis. One study investigated whether the immunohistochemical expression of p53 protein, retinoblastoma protein, and p16 could differentiate EPCs from poromas and found that six EPC cases (43%) showed an abnormal expression of p16[15]. The strong expression of p63 and CK5/6 were detected in EPCs and p63 could distinguish EPCs from metastatic adenocarcinomas[16,17]. EPCs often need to be distinguished from basal cell carcinomas, which consist of morphologically basaloid cells with scant cytoplasm, elongated hyperchromatic nuclei, intercellular bridges, and peripheral cells that are not fence-like[18]. Compared to SCCs, EPCs have a small cell size, ductal differentiation, and lumen formation. The expression of engrailed homeobox 1 and CK19 were found to be able to improve the accuracy of histologic diagnosis of EPC, and these two markers are independent that distinguish EPCs from SCCs[2]. Furthermore, the express of mast/stem cell growth factor receptor also become a more and more crucial role to make a distinction between EPCs and SCCs[19]. EPC is also often misdiagnosed as amelanotic melanoma, granuloma, telangiectasia, or fibroma[20]. Additionally, we need to summarize more EPC cases in this area of skin to summarize the clinical characteristics of the disease better. We also need to follow up for a longer time period to evaluate the recurrence.

CONCLUSION

EPC is a rare skin tumor that grows slowly and is heterogeneous and nonspecific. EPCs in the temporal area are even rarer. Owing to its similar clinical presentation with those of SCC and basal cell carcinoma, its differential diagnosis is warranted. Diagnosis is often made through histopathological examination and immunohistochemistry, and specific immunochemical markers still need to be studied to help distinguish EPCs from other skin tumors. Surgical resection is currently the most commonly used mode of treatment, especially Mohs micrographic surgery. We hope that this report will provide a better understanding of EPCs.

FOOTNOTES

Author contributions: Li LN and You C conceptualized the design; Wu ZW, Zhu WJ, Huang S, and Tan Q conducted an investigation; You C, Wu ZW and Li LN perform software operations; Li LN, You C, and Hu DG to supervise; Li LN and Zhu WJ do the writing; Li LN conducts resource collection, writing and editing.

Informed consent statement: Informed written consent was obtained from the patient and her families for publication of this report and any accompanying images.

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