

# Clinic Pathological Study of an Eccrine Spiradenoma

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## Abstract

Eccrine spiradenoma (ES) is an exceedingly rare sweat-gland tumor, it usually presents as a solitary lesion and painful nodule. ES is a kind of neoplasm with distinct histological characteristics and nonspecific clinical manifestations. Most ES cases have a benign course; however, malignant transformation would occur after a long period of latency. The diagnosis mostly depends on the clinic symptom, histological features and immunohistochemistry. Here, we report a case of ES and literature review. The aim of this study is to understand clinic and histological features for ES.

## Keywords

Eccrine Spiradenoma, Clinical, Pathology, Immunohistochemistry, Diagnosis

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## 1. Introduction

Eccrine spiradenoma (ES) is a rare, benign tumor of eccrine gland and has characteristic clinical and histomorphological features. ES was first reported by Kersting and Helwig in 1956 [1]. It may occur in patients of any age, although they are most frequently seen in the 2<sup>nd</sup> and 4<sup>th</sup> decades of life as a painful solitary well-circumscribed dermal nodule with pink or blue hue. They do not have sex predominance [2]. The common sites for ES are head, neck, trunk and extremities. There are only a few reports describing the clinic and pathological features of ES. Here, one case of ES of upper jaw was reported at Department of Pathology in Chongqing Medical University and discusses the clinical and pathological features of ES with combined review of cases in the literatures.

## 2. Materials and Methods

1) MATERIALS: One case of ES was diagnosed at Department of Pathology in

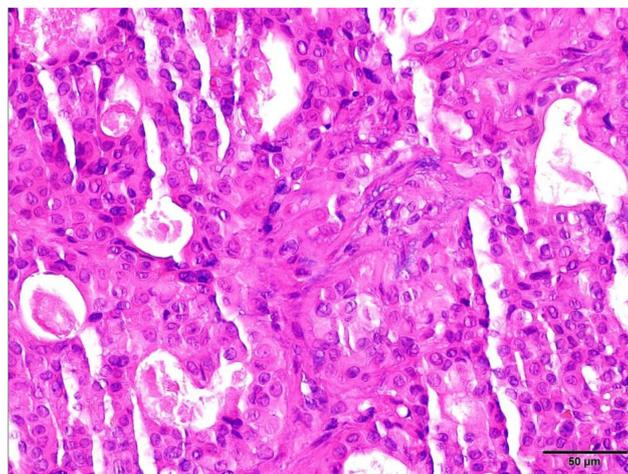
Chongqing Medical University.

2) METHODS: The formalin-fixed, paraffin-embedded tissue was sectioned at 5  $\mu\text{m}$  thickness for standard immunohistochemical staining. Slides in absolute ethanol, 2 min in 95% ethanol, 2 min in 80% ethanol, and 5 min in distilled water, then rehydrated into distilled  $\text{H}_2\text{O}_2$  through graded ethanol. Antigen retrieval was used to enhance CKpan, EMA, P63, P40, S100, CK20, CK5/6, CEA, GCDFP-15 and KI67 immunohistochemic by high press in citrate buffer (PH 6.0) for 3 min. Then the sections were washed and incubated those with 1 hour at room temperature. Slides were washed in phosphate-buffered saline, and then incubated with secondary antibody for 20 min at room temperature. After washed, slides were stained with DAB until desired stain intensity developed and mounted before observation by light microscopy.

### 3. Results

1) Clinical Findings: A 54-year-old woman was referred to our department for the evaluation of a tumor on the upper jaw. The tumor had developed 1 year with paroxysmal pain. Physical examination revealed a soft, well circumscribed mass on the upper jaw,  $1.5 \times 1.5$  cm in size. The mass was subject to excision biopsy.

2) Pathologic Findings: At low-power magnification, ES appears well-demarcated multiple basophilic tumor nodules. Multiple well-circumscribed dermal nodules comprising basophilic cells separated by fibrous strands were seen. The stroma surrounding these nodules was hyalinised. Lymphocyte infiltration and significant vascular proliferation can be observed. At a high-power magnification, two types of distinctive cells were observed in the nodule. Small, dark and basaloid cells with hyper chromatic nuclei were located in the periphery. White cells with large nucleus and pale cytoplasm were located in the center [Figure 1]. Immunohistochemistry: Tumor cells were positive for CKpan, EMA, S100 and

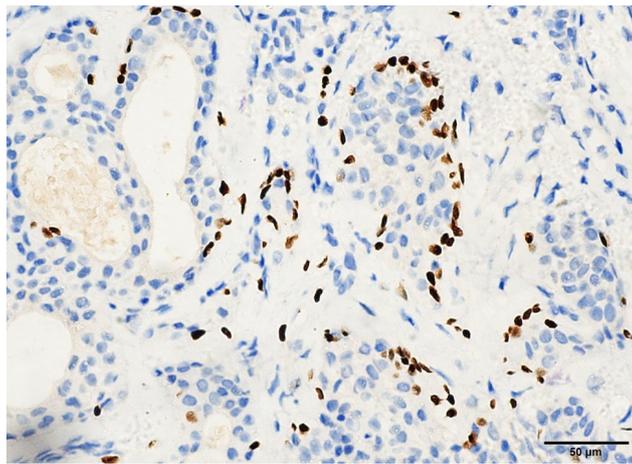


**Figure 1.** Two populations of cells were observed: small cells with darkly staining nuclei surrounding larger cells with pale cytoplasm (HE  $\times 400$ ).

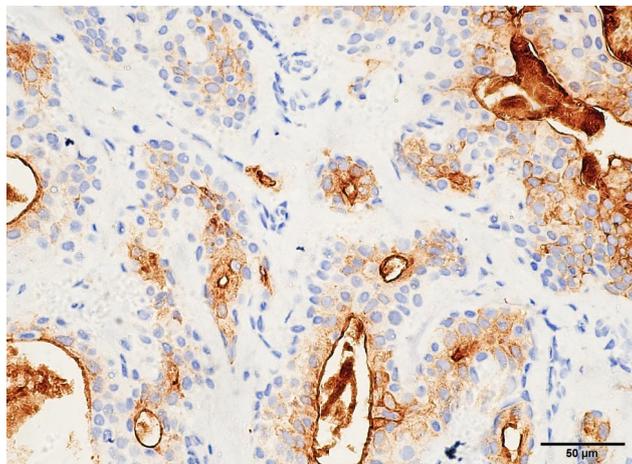
GCDFP-15. While, P63, p40 [Figure 2], CK5/6 and CEA [Figure 3] were positive for the partially cells in this case. The positive percentage of KI67 < 5% was presented in this case [Figure 4]. Negative expression of CK20 was observed in this case.

3) Discussion: ES are rare benign tumors originating from the sweat glands, which are present throughout the body, but the common sites are head, neck, trunk and extremities. Most of lesions are single, occasionally are multiple [3]. They can range in size from 0.3 - 10.0 cm and associated with pain and tenderness [4]. They usually occur in the 2<sup>nd</sup>-4<sup>th</sup> decade of life. They do not have sex predominance [5]. The pathogenesis of ES is unknown. Some scholars believed that the pain due to ES is related to the presence of small unmyelinated axons in the context of the connective tissue around the tumor, or to the expansion of the cysts. Multiple ES has a family history and is autosomal dominant inheritance.

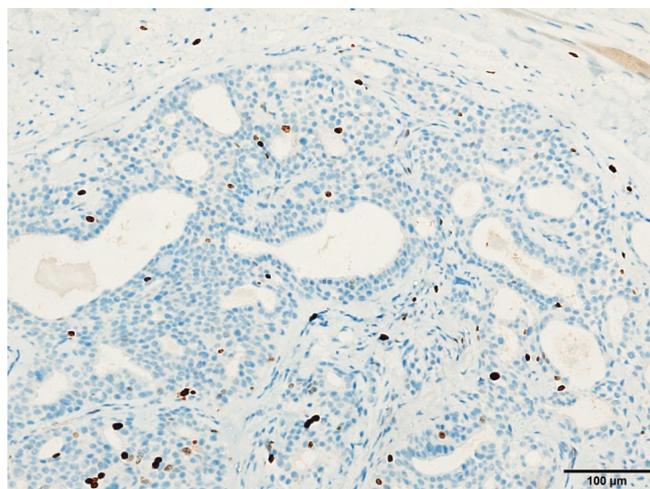
4) Histologically: There are single or multiple nodules which are wrapped by fibrous tissue. Tumor situated in the reticular dermis, will be extending into the



**Figure 2.** The positive staining of p40 in small cells with darkly staining nuclei (×400).



**Figure 3.** The positive staining of CEA in larger cells with pale cytoplasm (×400).



**Figure 4.** The positive staining of KI67 in the tumor ( $\times 200$ ).

subcutaneous fat. The eccrine secretory unit comprises a tubular epithelium lining the secretory coils. The common feature of Eccrine spiradenoma is that two types of cells presented in the tumor, small cells with darkly staining nuclei surrounding larger cells with pale cytoplasm. Additionally, the tumor was composed of dense cellular portion and less cellular portion. Multiple vascular channels and cyst were observed in dense cellular portions, and edematous stroma was seen in less cellular portions. Moreover, a large number of lymphocyte cells are scattered in the tumor nodules. The presence of scattered naked nuclei, spindle-shaped myoepithelial cells and the lymphocytic infiltrate distinguishes ES from other eccrine tumors. Most of the tumor cells expressed CKpan, EMA, GCDFP-15. The small cells with darkly staining nuclei expressed P63, P40, CK5/6, which prompt myoepithelial differentiation; the larger cells with pale cytoplasm expressed CEA which prompt glandular epithelium differentiation, the positive percentage of KI67 can be used as an indicator of malignant transformation.

5) Diagnosis: The accurate diagnosis of ES must correlate clinical and histopathological examinations along with immunohistochemistry.

6) Differential distinguish: a) Angiosarcoma: Angiosarcoma will express endothelial markers such as CD31, CD34, and chronic expansive hematoma which filled with blood and neovasculature but duct. b) Adenoid cystadenocarcinoma of the skin: The tumor cells of adenoid cystadenocarcinoma composed of epithelial cells and myoepithelial cells, which are characterized by the formation of pseudo-denabular ducts or small sacs. There are tubular or sieve-like structures in the tumor with invasive growth and nerve infiltration. c) Dermal cylindroma: The commonest site of dermal cylindroma occurrence is scalp. "jigsaw puzzle" pattern of tumor cells with prominent hyaline matrix is the characteristic change on histology.

7) Prognosis and treatment: ES has good prognosis. Malignant transformation of ES is an extremely rare event; the first case of malignant transformation was

reported in 1972 by Dabska [6]. Malignant degeneration of ES usually appears in long-standing tumors which are clinically revealed by a rapidly enlarging mass. All of the malignant lesions reported in the literatures had evolved from benign lesions. A complete wide excision is the best treatment of choice for single benign Eccrine Spiradenoma. For patient with multiple lesions, there was a report of radiotherapy and laser treatment [7].

In conclusion, ES is a benign tumor which rarely shows malignant transformation. So, early and correct diagnosis of ES is critical, especially occurrence at rare sites. The accurate diagnosis of ES must correlate clinical and histopathological examinations. For the patients with skin lesion increased rapidly, color changed, and pain increased, which were suspected of malignant transformation, should be undergoing surgical resection as soon as possible.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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