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CASE REPORT / OLGU SUNUMU

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From Benign to Malignant: A Rare Case Report on the Journey of Misdiagnosis to Porocarcinoma

Benignden Maligne: Yanlış Tanının Porokarsinomaya Yolculuğuna İlişkin Nadir Bir Olgu Raporu

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Abstract

Eccrine porocarcinoma is a rare epithelial cutaneous tumor that includes a wide range of entities in the differential diagnosis. It is observed in older people and is most commonly observed in the lower extremities. Due to its various pathological features, it is often confused with other malignant cutaneous tumors. We presented a case of a very rare skin appendage tumor with deceptive features on incisional biopsy. A 62-year-old male patient presented to the hospital due to a mass on his back that had been present for a long-time but has recently shown rapid growth. The initial diagnosis of the lesion from the incisional biopsy indicated clonal seborrheic keratosis; however, subsequent analysis of the excisional biopsy revealed the presence of eccrine porocarcinoma. Eccrine porocarcinoma is a rare malignant skin appendage tumor. Due to its rarity, its risk factors and pathogenesis have not been fully elucidated. Differential diagnosis is challenging because the clinical characteristics of this tumor are similar to those of other tumors. Incisional biopsies of the mass can result in false-negative results due to heterogeneous histomorphology. Clinicopathological correlation is of vital importance for the patient to reach the correct treatment in such cases.

Keywords: Porocarcinoma, eccrine poroma, seborrheic keratosis, rare cutaneous tumor

Öz

Ekrin porokarsinom nadir bir epitelyal kutanöz tümör olup ayırıcı tanıda çok çeşitli antiteler yer almaktadır. İleri yaşta ve sıklıkla alt ekstremitelerde görülürler. Çeşitli patolojik özellikleri nedeniyle sıklıkla diğer malign kutanöz tümörlerle karıştırılır. İnsizyonel biyopside yanıltıcı görünüme sahip olan oldukça nadir görülen bir deri eki tümör olgusu sunduk. Altmış iki yaşında erkek hasta sırtında uzun süredir var olan ancak son zamanlarda hızlı büyüme gösteren kitle nedeni ile hastaneye başvurdu. Biyopsiden alınan insizyonel biyopsi klonal seboreik keratozis lehine yorumlandı ancak gönderilen eksizyonel biyopsi sonucu ekrin porokarsinom olarak sonuçlandı. Ekrin porokarsinom oldukça nadir görülen malign deri eki tümörüdür. Nadir görülmesi nedeniyle tümörün patogenezisi ve risk faktörleri henüz net olarak ortaya konulamamıştır. Klinik görüntüsü diğer tümörlere benzediği için ayırıcı tanısı zorlayıcıdır. Heterojen histomorfolojisinden dolayı kitleden alınan insizyonel biyopsilerde yanlış negatif sonuçlar ortaya çıkabilmektedir. Bu tip olgularda klinikopatolojik korelasyon doğru tanı ve tedavi için hayati önem taşımaktadır.

Anahtar Kelimeler: Porokarsinoma, ekrin poroma, seboreik keratozis, nadir kutanöz tümör

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Introduction

Eccrine porocarcinoma (EPC) is the malignant form of eccrine poroma and is frequently observed in the lower extremities of older people[1]. The prevalence of this condition is less than 0.01% of all epithelial cutaneous tumors. Although cases can be observed in all age groups, they are most commonly diagnosed in the 6th and 7th decades[2,3]. There is no significant difference in the incidence rate between both genders[4,5]. Long-term exposure to sunlight, radiation, advanced age, immunosuppression, and history of dermatological neoplasia are the known risk factors[2-4]. They are most frequently located in the head and neck region (39.9%), lower extremities (33.9%), upper extremities (8.8%), and trunk (9.7%)[2]. Although EPC can be seen *de novo*, they may also result from malignant transformation of a benign poroma, which has existed for a long-time [5,9]. Although the pathogenesis of porocarcinoma has not been fully elucidated, signaling pathways and cell cycle irregularities are involved in porocarcinoma formation[2]. Molecular analyses performed in recent years have revealed that the *YAP1* and *WWTR1* fusion genes play a role in the tumorigenic transformation of poromas. In this publication, we present a case of invasive EPC based on intraepidermal eccrine poroma.

Case Report

A 62-year-old male patient with a known diagnosis of hypertension and diabetes mellitus was admitted to the hospital because of a mass lesion on the right upper skin of his back. In the anamnesis, it was learned that the lesion had existed for 3-4 years but had grew rapidly in the last 2-3 months. In cases in which incisional biopsy was performed with preliminary diagnoses of squamous cell carcinoma, basal cell carcinoma, and malignant melanoma, the pathological diagnosis was evaluated in favor of clonal seborrheic keratosis (Figure 1). Then, total excision of the lesion was completely excised. On the material brought to the pathology laboratory, there was a mass of 4.8x4.6x1.1 cm in size, with an irregular appearance and occasionally ulcerated and nodular areas. Microscopically, on the samples taken from the flat areas of the lesion, intraepidermal sharply demarcated nodular cellular communities similar to the previous biopsy were observed. However, on the samples taken from the ulcerated and nodular area in the center, there was tumoral infiltration extending from the epidermis to the dermis, bridging each other, and cystic spaces were observed in focal areas (Figure 2). Neoplastic cells have a monotonous appearance without atypia in most areas. However, atypical cell populations with stromal infiltrative extension into the dermis were also noted in some areas of the lesion. An increase in mitosis occurs in these areas (Figure 3). Immunohistochemically, xytokeratin 7, CK5/6, p40, and GATA-3 neoplastic cells were diffusely positive, and focal ductular staining was detected with carcinoembryonic antigen and epithelial membrane antigen (Figure 4). Although Ki-67 was low in the intraepidermal

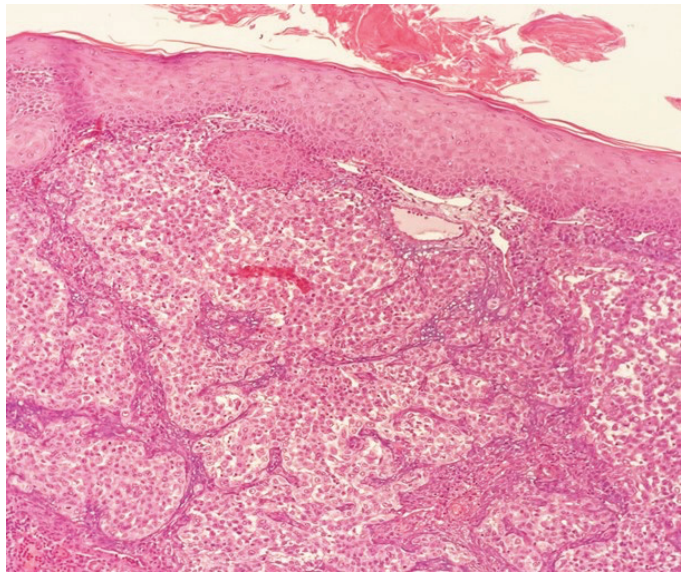

Figure 1. Anastomosis of tumor islands showing continuity with the epidermis, (H&E, X200)

H&E: Hematoxylin and eosin

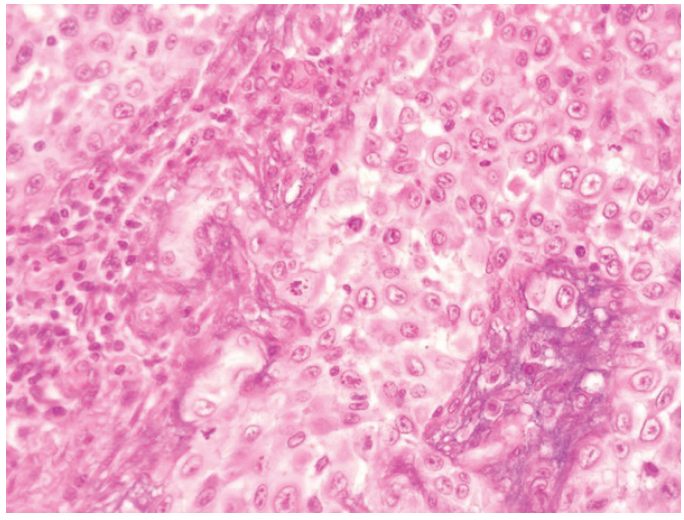

Figure 2. Tumor cells showing cytological atypia, mitosis,necrosis, and pleomorphism, (H&E, X400)

H&E: Hematoxylin and eosin

benign component, it was around 40% on average in areas showing malignant transformation. Periodic acid-Schiff was performed histochemically, and luminal positivity was observed in duct-like areas. Cells, though resembling eosinophilic keratinocytes with large cytoplasm, had more monotonous nuclei and were strictly separated from epidermocytes,compared to keratinocytes. When the immunohistochemical and histopathological findings were evaluated together, the patient was diagnosed with EPC based on hydroacanthoma simplex. Lymphovascular and perineural invasion was not detected. No additional surgical procedures or medical treatment was provided to patients whose surgical margins were determined to be intact.

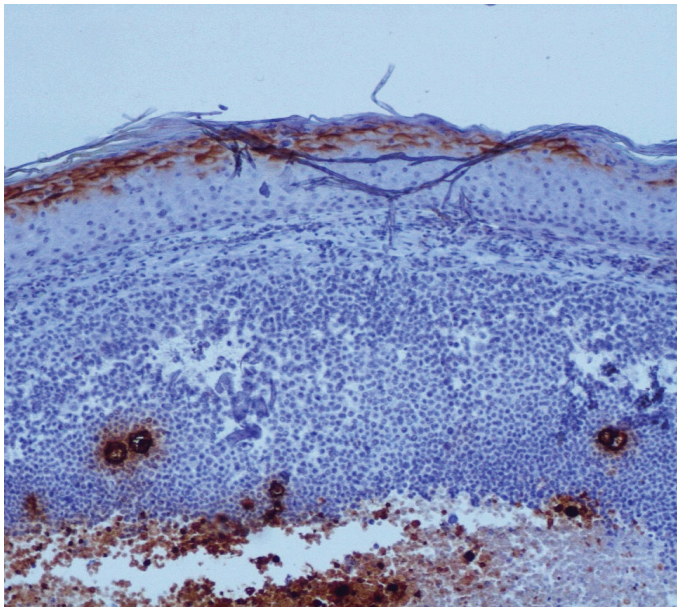

Figure 3. Positive staining with CEA in ductal-differentiation cells (immunohistochemistry, X200)

CEA: Carcinoembryonic antigen

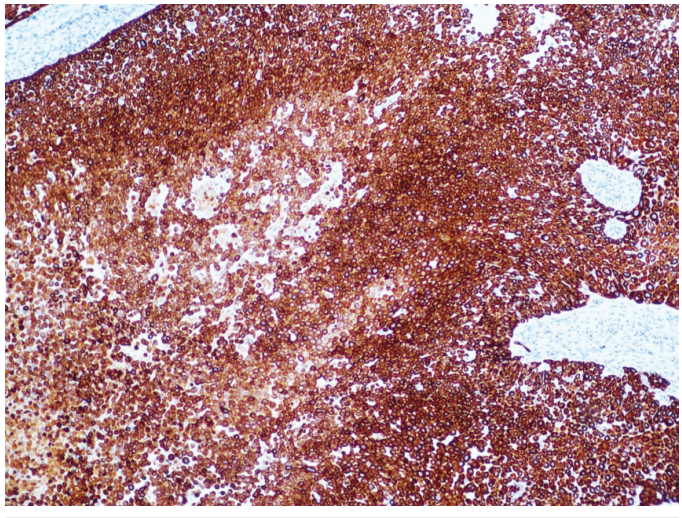

Figure 4. Positive staining with CK7 in tumor cells with CK7 (immunohistochemistry, X200)

CK7: Cytokeratin 7

Discussion

EPC, first described in 1963, is a rare malignant skin appendage tumor. Due to its rarity, risk factors and pathogenesis have not been fully elucidated[5]. Although the cases range from 6 months to 97 years of age, the incidence increases in the advancing decades. It is commonly seen in the head, the neck and the extremities; However, breast and penis skin cases were also reported in the literature. Tumor; varying from 1 to 10 cm, and they may be red and brown in color and may be nodular, infiltrative, ulcerated, and polypoid in appearance[1,2]. It has an aggressive behavior, and lymphovascular invasion, local recurrence, and distant metastases are very common[1,5]. Multinodularity, ulceration, and rapid growth; it may indicate local recurrence or distant metastasis[4].

Porocarcinoma is a dermal-based malignant tumor characterized by ill-defined margins and a tendency to connect with the epidermis at multiple points. It is often accompanied by ulceration. The tumor may exhibit either pushing or diffuse infiltrative growth patterns and can extend into subcutaneous tissue and deeper layers. In approximately 11% of cases, it arises from a preexisting benign poroma. Histologically, it consists of irregularly shaped, interconnected strands and clusters of polygonal epithelioid cells, showing varying levels of nuclear pleomorphism and cytological atypia. Ductal differentiation is essential for diagnosis. Additional features may include necrosis, invasion of lymphovascular structures, and perineural spread. Rarely, a tumor may display squamous or clear cell changes, as well as sarcomatoid transformation[6]. Porocarcinoma is frequently mistaken for squamous cell carcinoma. Due to its rarity, unclear etiology, and limited amount of research available, there are no established protocols for its diagnosis or treatment. Most of the information on this tumor is from individual case reports and a small number of case series. According to Belin et al.[7], 37% of cases of EPC were initially misidentified as SCC. One study noted a benign component in almost 43.2% of PC cases, with poroma being the most frequently identified. This finding supports the hypothesis that some PCs develop from pre-existing poroma[8].

Approximately 20% of patients have regional lymph node metastases. The most common sites of distant metastasis are the lungs, liver, and brain[4,9]. Although excision is the first and most effective treatment option, chemotherapeutic agents and radiotherapy are also used in metastatic cases[2-4].

Differential diagnosis is challenging because its clinical appearance is similar to that of other tumors, and it is extremely rare. Entities include a wide range of tumors, including seborrheic keratosis, nevus, pyogenic granuloma, squamous cell carcinoma, basal cell carcinoma, malignant melanoma, and metastatic carcinoma. Definitive diagnosis is made by tissue diagnosis[1].

As in our case, incisional biopsy may have led to incorrect results. The biopsy area, which represents the specifically ulcerated or nodular area, may be helpful in obtaining a correct diagnosis. In our case, the biggest reason for the incorrect diagnosis from the incisional biopsy was that the biopsy location was chosen from a flatter area at the nodule's periphery rather than the nodular and hemorrhagic area at the center where the lesion was showing rapid growth. However, given the clinician's preliminary diagnosis of malignancy, even though the incisional biopsy pointed toward a benign lesion, the present findings could belong to an area that does not represent the lesion. In cases with high clinical suspicion of malignancy, total lesion removal was recommended.

In cases of rapid growth of the lesion that has existed for a long-time, the presence of ulceration, bleeding, irregular borders, and a nodular appearance should be considered as indicators of malignant transformation[10]. Due to its rarity, data are limited for accurate diagnosis, treatment method, and prognosis, but surgical excision with intact surgical margins is the first treatment option due to its aggressive course[5]. Additionally, cases should be closely followed with the possibility of metastasis.

Ethics

Informed Consent: Informed consent was obtained.

Footnotes

Authorship Contributions

Concept: E.Y., H.T., E.Y., Design: E.Y., H.T., E.Y., Data Collection or Processing: E.Y., H.T., Analysis or Interpretation: E.Y., H.T., Literature Search: E.Y., H.T., Writing: E.Y., H.T.

Conflict of Interest: No conflict of interest was declared by the authors.

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