



The Evolution of Adnexial Tumors with Eccrine Differentiation: In the Review of the Literature

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Objective: We aimed to analyze the patient characteristics, frequency, localization and subtype classification of cutaneous eccrine type adnexal tumors with a large case group to contribute to the literature. Skin appendage neoplasms are rare tumors that differentiate in different directions. There are very few studies that provide information about eccrine type skin adnexal tumors and the number of series is limited. Since they are rarely seen in practice, they can cause difficulties in diagnosis and discrimination.

Materials and Methods: We reviewed 124 patients that diagnosed as adnexal tumors with eccrine differentiation histopathologically in Erzurum region training and research hospital between 2009-2017, retrospectively.

Results: A total of 124 neoplasms of skin appendages with eccrine differentiation were diagnosed during the study period at our department. Patients' mean age was 50.15 years. Tumours were observed more common in males as compared to females. 92.75% of the tumors were benign and most of them were localized to the face and trunk.

Conclusion: New information has been brought to the literature by examining patients with different histological patterns related to adnexal skin tumors.

Key Words: Skin, Patient, Adnexial tumors, Eccrine differentiation, Literature

Ektrin Diferansiyasyonu Olan Adneksiyal Tümörlerin Gelişimi: Literatür Taramasında

Amaç: Geniş bir vaka grubu ile kutanöz ektrin tip adneksiyal tümörlerin hasta özelliklerini, sıklığını, lokalizasyonunu ve alt tip sınıflamasını literatüre katkı sağlamak amacıyla incelemeyi amaçladık. Deri eki neoplazmaları, farklı yönlerde farklılaşan nadir tümörlerdir. Ektrin tip deri-adneksiyal tümörler hakkında bilgi veren çok az çalışma vardır ve seri sayısı sınırlıdır. Pratikte nadiren görüldükleri için tanı ve ayırmda zorluklara neden olabilirler.

Gereç ve Yöntem: Erzurum bölge eğitim ve araştırma hastanesinde 2009-2017 yılları arasında histopatolojik olarak ektrin diferansiyasyonlu adneksiyal tümör tanısı alan 124 hasta retrospektif olarak incelendi.

Bulgular: Bölümümüzde çalışma süresi boyunca ektrin diferansiyasyonlu toplam 124 deri eki neoplazmı teşhis edildi. Hastaların ortalama yaşı 50.15 idi. Erkeklerde tümörler kadınlara göre daha sık gözlemlendi. Tümörlerin %92,75'i iyi huyluydu ve çoğu yüz ve gövdeye lokalizeydi.

Sonuç: Adneksiyal deri tümörleri ile ilgili farklı histolojik paternlere sahip hastalar üzerinde incelemeler yapılarak literatüre yeni bilgiler kazandırılmıştır.

Anahtar Kelimeler: Deri, Hasta, Adneksiyal tümörler, Ektrin farklılaşması, Literatür

Introduction

Skin adnexal neoplasms are rare tumors thought to originate from undifferentiated stem cells rather than mature cells due to their heterogeneous nature (1-4). Because they are rarely seen in practice, they can cause difficulties in diagnosis and distinction (1-6). According to their differentiation, they are classified as hair follicle, sebaceous, eccrine and apocrine tumors (1-11). While benign ones are common, malignant ones are rare (2, 6-8, 10).

Recent morphological parameters, ultrastructural and immunohistochemical data, have been put forward, suggesting that some changes have to be made in older classifications (2, 4, 6, 9, 11, 12). Finally, for this purpose, a new classification considering the embryological development of skin appendages has been proposed and divided into two main groups as skin adnexal tumors, folliculo sebaceous -apocrine units and eccrine tumors (2-10). Lesions usually appear as papules or nodules (1, 2). There are very few studies that provide information about eccrine type skin adnexal tumors and their number of series are limited. In this retrospective study, it was aimed to examine the patient characteristics, frequencies, localizations and subtype classifications of cutaneous eccrine type adnexal tumors in the archive of Erzurum regional training and research hospital Pathology Department in order to contribute to the literature with a large case group.

Table 1. Classification of skin adnexal tumors according to WHO 2010 classification

Lesion Types	Follicular differentiation	Sebaceous differentiation	Apocrin differentiation	Eccrine differentiation
Hiperplasias Hamartomas	Hair follicle nevus, Dilate por Generalize hair follicle hamartoma Basaloid follicular hamartom	Nevus sebaceous Sebaceous hyperplasia	Apocrin nevus	Eccrine nevus
Benign neoplasms	Trichofolliculoma Pilar sheath acanthoma Fibrofolliculoma Trichodiscoma Trichoepithelioma Trichoblastoma Tricoadenoma Pilomatrixoma Tricholemmoma Follicular infundibulum tumor Tricholemmal horn Proliferative tricholemmal cyst	Sebaceous adenoma Sebaceoma	Apocrine hydrocystoma Hydroadenoma papilliferum Syringocystadenoma papilliferum Tubuler apocrine adenoma Erosive adenomatosis of the nipple breast Apocrine silindroma	Eccrin hydrocystoma Syringoma, Eccrin cylindroma Eccrin poroma Eccrinsyringofibroadenom Musinoz syringometaplazi Eccrin spiaradenom Papillary eccrine adenoma Nodular hydradenom Chondroid syringoma
Malignant Neoplasms	Pilomatrix carcinoma Malignant proliferative trichilemmal tumor Trichilemmal carcinoma Trichoblastic carcinoma	Sebaceous carcinoma	Malign apocrin cylindroma	Porocarcinoma Malignant adrenal spiradenoma Malign nodular hydradenoma Malignant chondroid syringoma Adrenal adenocarcinoma Microcystic adnexial carcinoma Aggressive digital papillary adenocarcinoma Adenoid cystic carcinoma Mucinous and syringoid eccrin carcinoma Malignant eccrine cylindroma

Materials and Methods

We reviewed 124 patients that diagnosed as adnexal tumors with eccrine differentiation histopathologically in Erzurum region training and research hospital between 2009- 2017, retrospectively. The data such as patients' characteristics such as age, gender, site of lesions, lesions characteristics, histopathological features and subtypes collected from patients' pathology reports. The results were categorized according to WHO 2010 (Table 1).

Detailed microscopic examination was carried out. Data analysis performed using the SPSS 20.0 program. Descriptive statistics for the evaluation of results have shown in the form of mean, the nominal variables have shown as the number of cases and (%).

Results

A total of 124 neoplasms of skin appendages with eccrine differentiation were diagnosed during the study period at our department. Patients' mean age was 50.15 years (age range: 6–92 years). Tumors were observed more common in males as compared to females with male to female ratio of 71:53 (Table 2 and Table 3).

92.75 % of tumors were benign. Incidence of malignancy was low (7.25 %) (Table 4). The frequency of eccrine tumors and relationship with gender were shown in Table 3. Most of the tumors were localized to face and trunk region (62.9%), followed by extremities and head (37.09 %) (Table 5, Figure 1). Eccrine hydrocystoma were seen in scrotum and conjunctiva, as rare localizations. In only one patient syringoma localized in labia major which is an extremely rare area. The sizes of lesions were ranged of 0.1 cm-12 cm. Eccrine hydrocystomas were usually in milimetric sizes while porocarcinomas were observed in larger measures, such as 2.5cm, 12 cm. The mean age of our malign cases was 57.7 and the female: male rate was 5/4.

Table 2. Gender distribution of ecrine type adnexal tumors

Types of neoplasms	Number of cases (n=123)	Percentage of cases (%)
Male	71	57.25
Female	53	42.75
Total	124	100

Table 3. Distribution of tumour type in relation to sex

Tumour type	Male	Female	Total	Percentage of Cases (%)
Benign				
Nodular hidradenoma	23	11	34	27.5
Eccrine poroma	13	11	24	19.4
Eccrine hidrocystoma	13	6	19	15.3
Eccrine spiradenoma	6	8	14	11.3
Eccrine syringoma	2	7	9	7.2
Chondroid syringoma	8	1	9	7.2
Eccrine cylindroma	1	3	4	3.2
Eccrine syringofibroadenoma	1	1	2	1.7
Malignant				
Eccrine porocarcinoma	2	3	5	4.0
Adenoid cystic carcinoma	2	2	4	3.2
Toplam	71	53	124	100

Table 4. Distribution of tumors according to their behavior

Types of neoplasms	Number of cases (n=123)	Percentage of cases (%)
Benign	115	92.75
Malignant	9	7.25
Total	124	100

Table 5. Characterization of tumour with according to anatomical site

Tumour type	Head	Face	Trunk	Extremities	Total	Percentage of cases (%)
Benign						
Nodular hidradenoma	0	6	13	15	34	27.5
Eccrine poroma	3	2	8	11	24	19.4
Eccrine hidrocystoma	1	17	1	0	19	15.3
Eccrine spiradenoma	4	3	5	2	14	11.3
Eccrine syringoma	0	4	5	0	9	7.2
Chondroid syringoma	1	7	0	1	9	7.2
Eccrine cylindroma	2	0	2	0	4	3.2
Eccrine syringofibroadenoma	0	1	0	1	2	1.7
Malign						
Eccrine porocarcinoma	0	0	2	3	5	4.0
Adenoid cystic carcinoma	1	2	0	1	4	3.2
Toplam	12	42	36	34	124	100

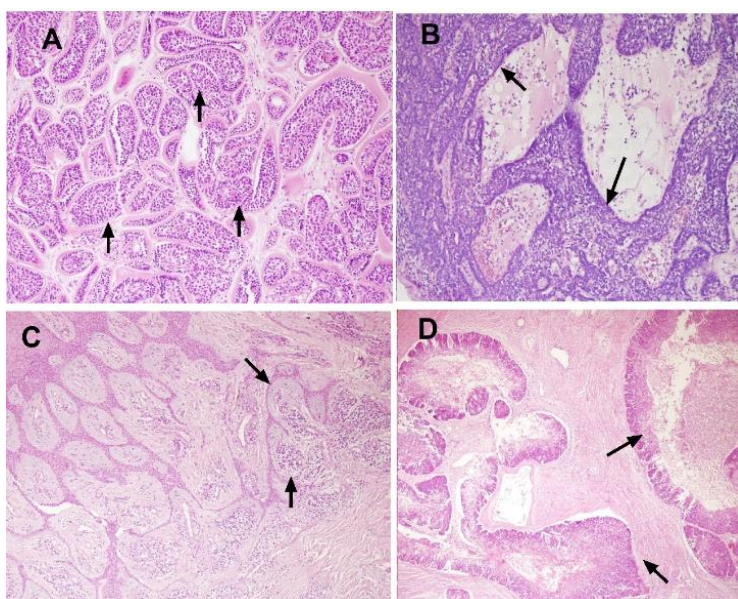


Figure 1. Histopathology was seen showing lobules of epithelial cells arranged in a puzzle or mosaic pattern. The distinctive red basement membrane-like structure surrounds the tumor lobules. Each lobule shows a peripheral lining by dark basaloid cells and a larger and paler area of cells suggesting the dermal cylinder in the case of cylindroma (Figure 1A). The case of nodular hidradenoma had histopathology showing a well-encapsulated mass with large cystic spaces inside. Note the granular and slightly eosinophilic cytoplasm surrounding a dark nucleus. Ductal luminal structures can be appreciated (Figure 1B). In the case of eccrine syringofibroadenoma, thin anastomotic reticulated cords extending from the basal layer of the epidermis to the dermis and basaloid monomorphic cuboidal cell lines were observed. Tumor cells are slightly smaller than neighboring keratinocytes (Figure 1C). High-grade tumors (porocarcinoma) may show areas of cystic degeneration with focal necrosis as shown above. Viable mitotic activity is associated with a worse prognosis (Figure 1D).

Discussion

Cutaneous adnexal tumors were first recognised in the later part of nineteenth century. They are relatively uncommon and are thought to have a genetic basis. Diagnosis is essentially based on histopathological examination because clinical features are not very distinctive. They may sometimes display more than one histological differentiation resembling other wide variety of tumors. The frequency of skin eccrine type adnexal tumors in the literature are variable (1-8). For example, in a work done in India, it was found that there was 18/40 (45%) eccrine differentiation skin adnexal tumor and in another study in India, 35/70 (50%) eccrine type skin adnexal tumors were found (1, 2). In other studies, skin adnexal tumors with eccrine differentiation frequency was found as 20/39 (51.2%), 161/1016 (15.8%), 19/36 (52.7%), 33/52 (63.4%), 8/21(38.09 %) (4, 6-8, 10). In the study of literature, nodular hidradenomas were the most common eccrine tumors (2, 4, 6-8). In our study, 124 eccrine type skin adnexal tumors were found in 320,000 pathology samples (Table 3). Amongst the eccrine types, nodular hidradenoma was the most common neoplasm similar to literature. While 34 out of 124 (27.4%) cases were diagnosed as nodular hidradenoma, eccrine syringofibroadenoma was rare. (Fig. 1B,1C). In some studies, sebaceous type skin adnexal tumors, eccrine hydrocystomas and eccrine spiradenomas were frequent (1, 11, 12).

The mean age of eccrine type skin adnexal tumors in the literature was 62, 29, 34.5, 33 and 35.5 (4-6,8,10). In our study, patients' mean age was 50.15 years (age range: 6–92 years) and this is higher than some studies. In the literature, female: male ratios for these tumors were variable (1, 2, 4-6,8-10,12). Differently in our study there was a male predominance with the male: female ratio 71:53 (Table 2). The most common localizations in the studies were head, neck, face and body (1-12). In our study extremity, neck, back and head areas were more frequent, respectively (Table 5). In the literature, the sizes of eccrine type skin adnexal tumors are also variable. In a study it has been reported

between 1.1 cm and 2 cm. In a different study 5 cm sizes were reported but most of the lesions are smaller than 3 cm (4,10). In our study the size of eccrine type skin adnexal tumors were between 0,1 cm and 12 cm and especially in porocarcinoma the sizes was much larger (2.5 and 12 cm). In literature, the incidence of eccrine type malignant skin adnexal tumors ranged from 4.2% to 25% (1, 2, 4, 6-9, 11-13). In our study, it was 7.25% (Fig. 1D) (Table 4). In some studies, sebaceous type skin adnexal tumors, eccrine hydrocystomas and eccrine spiradenomas were frequent (1, 11, 12).

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As a result, adnexal skin tumors have distinct histological patterns which differentiates them from other cutaneous tumors. The commonest variants are those of eccrine sweat gland origin. In our study eccrine tumors were most common in males. The frequent localizations were face and trunk. Malignant eccrine tumors were very rare. In our study, malignant tumors' diameters are larger than the tumor diameters in the literature.

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