Patient Characteristics, Locations and Histopathological Features of Pilomatrixomas in Erzurum/Turkey

Şenay Erdoğan Durmuş, İlkınur Çalık, Ali Kurt, Hilal Balta, Sevilay Akalp Özmen

Erzurum Region Training and Research Hospital, Pathology Department

Abstract

Introduction: The aim of this study is to examine the patient characteristics, locations, presentations and histopathological features of pilomatrixomas in a group of patients.

Methods: We analyzed 41 patients that histopathologically diagnosed as pilomatrixoma in Erzurum Regional Training and Research Hospital between 2009 and 2014, retrospectively.

Results: Patient’s mean age was 30 years (age range: 3–78 years), with a female to male ratio of 26:15. There were 12 patients in the pediatric age group (<16 years). The average diameter of the lesion at presentation was 18.5 mm (range: 2–55 mm). A total of 36 out of 41 (87.8%) patients presented with solitary lesion, while 5 patients (12.2%) had two lesions. The most common location in our patient group was head and neck region and second most common location was limbs. The most common clinical presentation was a painless solitary skin lesion which was noticed incidentally. All cases more or less shared the same microscopic features of pilomatrixoma such as basophilic cells, eosinophilic shadow cells, calcification and foreign body type giant cells.

Conclusion: Pilomatrixoma is not an uncommon benign lesion. It is more common in female gender, adult age group and at the head and neck region.

Keywords: pilomatrixoma, histopathology, epithelioma of Malherbe

Introduction

Pilomatrixoma (pilomatricoma, calcifying epithelioma of Malherbe), which accounts for almost 20% of pilar tumors, is a benign lesion with differentiation toward the matrix of the hair follicle (1). It is found particularly on the head and neck and upper extremities (1,2). It was first described in 1880, by Malherbe and Chenantais (3). It was believed to be a rare tumor, but increasing reports in the literature show that it is not uncommon (4).

Etiology has been linked to mutations such as β-catenin and bcl-2 (5–7). Epidemiology shows bimodal peaks in presentation, with up to 60 percent of cases occurring in the first two decades and a secondary peak in the sixth decade (3,5). Most cases are occurred as single nodules, but multiple occurrences have been reported (3,5,8). There is a slight female predominance in reported cases (2,4).

The aim of this study is to examine the patient characteristics, locations, presentations and histopathological features of pilomatrixomas in Erzurum/Turkey with a group of patients.

Materials and methods

We analyzed 41 patients that histopathologically diagnosed as pilomatrixoma in Erzurum Region Training and Research Hospital between 2009 and 2014, retrospectively. The data such as patients’ characteristics, site of lesions, lesions characteristics, histopathological features collected from patients’ pathology reports. 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

Patients’ mean age was 30 years (age range: 3–78 years). There were 12 patients in the pediatric age group (<16 years) and 29 in the adult age group. There was slight female predominance, with a female to male ratio of 26:15.

The average diameter of the lesion at presentation was 18.5 mm (range: 2–55 mm), although 15 cases (35.7%) were less than or equal to 10 mm in size. A total of 36 out of 41 (87.8%) patients presented with solitary lesion, while 5 patient (12.2%) had multiple lesions.
Most common location in our patient group was head and neck region such as scalp, cervical, pre-auricular or face areas. 21 out of 41 cases’ lesions was occurred in head and neck region (51.22%), and it was more common in face than others. Second most common location was limbs. In 36.58 % of cases lesions was localized in limbs and in 12,20 % of them localized in trunk (Table 1).

**Table 1.** Locations of cases.

| Location             | Number of cases | Percentage |
|----------------------|-----------------|------------|
| Head and neck region | 21              | 51,22 %    |
| -Preauricular        | 3               | 7,31 %     |
| -Scalp               | 5               | 12,20 %    |
| -Cervical            | 5               | 12,20 %    |
| -Face                | 8               | 19,51 %    |
| Limbs                | 15              | 36,58 %    |
| -Upper extremity     | 12              | 29,26 %    |
| -Lower extremity     | 3               | 7,32 %     |
| Trunk                | 5               | 12,20 %    |

The most common clinical presentation was a painless solitary skin lesion which was noticed incidentally. The mass was almost always well-circumscribed and had a hard structure.

Histologically, all cases had almost the same microscopic features of pilomatrixoma such as basophilic cells, eosinophilic shadow cells, calcification, fibrosis and foreign body type giant cells (Figure 1,2).

**Discussion**

Pilomatrixoma is slightly more common in females (2,4). Similarly, 26 of 41 our patients were female. It is more common in childhood, but it can occur at any age (2,3,9). 29 of 41 our patients were adults which is different than literature.

They were most commonly seen in the head and maxillofacial location (2,4). Analogously, 52% of our patients had lesions in the head and neck region.

Pilomatrixomas are usually solitary nodules, but multiple lesions have been seen in 4% of cases (3). In a study performed on 205 cases of pilomatrixoma multiple presentations were seen in 2,43% of cases (2). In our study12.2 % of cases had multiple lesions.

Pilomatrixomas that diameters ranging between 0.5-3 cm are solid nodules (1,10). Also, large or giant cases (>5.5 cm) were reported (10-12). Gongidi et al. reported a case of pilomatrixoma measuring 24 cm arising from the posterior thorax (12). In our cases mean of lesions size was 18.5 mm. Only in one patient’s lesions size was 5.5 cm.

Histologically, pilomatrixoma is a deep, subcutaneous tumor occurring between the dermis and hypodermis, with medial displacement of pilosebaceous glands and follicles. The tumor is separated from the epidermis by a layer of fibrous tissue (3).

There are two basic cell types in pilomatrixomas, basophilic cells and eosinophilic shadow cells. The basophilic cells tend to be at the periphery of the cell islands and have little cytoplasm, indistinct cell borders, hyperchromatic nuclei and mitotic figures. The eosinophilic shadow cells in the usual form are found toward the central areas of the cell masses and they are enucleated. They have more cytoplasm and distinct cell borders (1).

Malignant change of pilomatrixoma is rare. The principal indicators of malignancy are cellularity pleomorphism, frequent abnormal mitotic figures or atypia, central
necrosis, and infiltration of the soft tissues, skin and lymphatic or vascular elements (1,4,13).

Histopathologic differential diagnosis include calcified trichilemmal cyst and malignant pilomatrixoma (matrical carcinoma). In calcified trichilemmal cyst, cyst lined by epithelial cells abundant eosinophilic cytoplasm and there is no shadow or ghost cells. In malignant pilomatrixoma infiltrative growth pattern, marked nuclear atypia, frequent abnormal mitosis and areas of necrosis is seen, which specified in the previous paragraph (14).

Surgical excision is the usual method of treatment because of spontaneous regression is never observed. Most tumors, even if inadequately excised, will not recur. However, local recurrence and aggressive forms have been documented (1,3,4). After an average follow-up of 26.65 months we didn’t observe any recurrence in our cases.

Conclusion: Pilomatrixoma is a benign lesion which is not rare. In Erzurum/Turkey, it is more common in female gender and the head and neck region similar to literature on the other hand it is more common in adult age group which is different than literature.

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