Pilomaticoma of the Arm: Unusual Location-diagnosed by Fine-needle Aspiration Cytology

Sir,

Pilomatrixoma is a benign skin appendage tumor seen predominantly in head and neck regions. Its synonyms include pilomatricaloma and calcifying epidermoid of Malherbe. It may be located in any part of the body, except the palms and soles. There is a predilection for the head and neck region, followed by the upper extremities, the trunk and the lower extremities. Location of pilomatrixoma in the arm is quite unusual with few reported cases in English literature. Pilomatrixoma is a benign slow-growing neoplasm. It takes origin from pluripotent cells of the outer sheath cell of the hair follicle root. It is commonly seen in the first two decades of life. It commonly presents as a small, solitary, asymptomatic, firm, and subcutaneous nodule. Sometimes, the overlying intact skin may exhibit bluish discoloration. There is low clinical diagnostic accuracy for pilomatrixoma. Fine-needle aspiration cytology (FNAC) can help in preoperative diagnosis though diagnosis is difficult by FNAC and at times may lead to misdiagnosis.

Hereby, we present a case of pilomatrixoma located on the arm of a young female which was diagnosed by FNAC and subsequently was established by histopathological examination.

A 25-year-old female patient presented with firm swelling in the left arm measuring 1.5 cm × 1 cm for the past 5 months. She did not have any other complaint apart from the swelling. Clinically, the possibilities considered were calcified dermatofibroma and calcified cyst. She underwent FNAC. The smears were moderately cellular and revealed basaloid cells, shadow cells, foreign body type of giant cells in an inflammatory background [Figure 1] also seen were few calcium granules. This case was cytologically diagnosed as pilomatrixoma. Subsequently, she underwent an excisional biopsy. The histopathology showed characteristic features of pilomatrixoma like the presence of shadow cells, basaloid cells, multinucleated giant cells, and calcification [Figure 2].

Although pilomatrixoma may be seen in any age, it is more common in children and young females. It is a benign skin appendageal tumor of hair matrix origin. The complete spectrum cytological characteristics of pilomatrixoma include basaloid cells, calcium deposits, naked nuclei, shadow (“ghost”) cells, foreign body giant cells, and inflammatory background. The diagnostic triad of basaloid cells, ghost cells, and foreign body giant cells are not present in all the cases. Basaloid cells predominate if the aspirate is from the periphery or from an early lesion, whereas only ghost cells may be seen in aspirates from older lesions. In about 40% of cases, characteristic cytological findings of pilomatrixoma are absent. The rate of correct identification of pilomatrixoma by FNAC is 44%. The cytological differential diagnosis includes epidermal inclusion cysts or giant cell lesions. The difficulty arises when pilomatrixoma is misdiagnosed as primary malignant or metastatic cutaneous lesions. The basaloid cells present in pilomatrixoma may be confused as that seen in basal cell carcinoma, rhabdomyosarcoma, Merkel cell

Figure 1: Spectrum of cytological features in pilomatrixoma (a) basaloid cells (Giemsa ×100), (b) shadow cells (Giemsa ×400), (c) multinucleated giant cells and inflammatory background (H and E ×100), (d) multinucleated giant cells (H and E ×400)

Figure 2: Histopathology of pilomatrixoma showing (a) skin and pilomatrixoma shadow cells (H and E ×100), (b) shadow cells and multinucleated giant cells (arrow) (H and E ×100), (c) shadow cells (arrow) and multinucleated giant cells (H and E ×200), (d) areas of calcification (arrow), (H and E ×100)
neuroendocrine skin carcinoma and small cell lung metastatic carcinoma. Misdiagnosis is often attributed to the scarcity of the FNAC material.[2]

In conclusion, pilomatricoma should be considered as the differential diagnosis in firm swellings of head and neck and upper extremity, especially in young individuals. Preoperative cytology can help in diagnosis in view of the presence of characteristic cytology.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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