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FNAC an Important Diagnostic Tool in a case of Pilomatrixoma

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ABSTRACT

Background: Pilomatrixoma (pilomatricoma), formerly known as calcified epithelioma of Malherbe, is a nodular, subepidermal benign tumor arising from the hair matrix. Only few cases with preoperative aspiration cytology have been reported in the literature. **Case Report:** An Eighteen-year-old female patient presented to the dermatology outpatient department with history of gradually increasing swelling over the right cheek for the last 2-3 months. FNA (Fine Needle Aspiration) was performed from swelling and after cytologic impression excision of lesion was carried out.FNA smears revealed aggregates of anucleated squamous cells (shadow cells) along with basoloid cells with few giant cells. This diagnosis was confirmed on histopathology. **Conclusion**: FNA Cytology is a very important tool for diagnosis of Pilomatrixoma.

Keywords: Pilomatrixoma, FNAC (Fine Needle Aspiration Cytology).

Introduction

Pilomatricoma (pilomatrixoma), or calcifying epithelioma of Malherbe, is a tumor with differentiation toward hair cells, particularly hair cortex cells [1].

Though histological diagnosis of pilomatrixoma, even in unusual locations, is straightforward, the same is not true for aspiration cytology. There have been quite a few reports of misdiagnosis of pilomatrixoma on aspiration smears, as other benign as well malignant lesions.

Thapiyal N. *et al* has reported one case of pilomatrixoma of the arm was diagnosed as round cell tumor on cytology. The final diagnosis was rendered on histopathology of the resected mass [2].

An accurate diagnosis of this benign lesion on cytology is imperative, considering that excision is curative. Here we describe clinical, cytologic and histological features of Pilomatrixoma on cheek of female patient.

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Case Report

An Eighteen year-old female patient presented to the dermatology outpatient department with history of gradually increasing swelling in the right cheek for the last 2-3 months. There was no associated pain or history of trauma prior to the appearance of the swelling. Local examination showed a firm subcutaneous swelling, 1.5×0.8 cm in size on right cheek, firm to hard in consistency. The swelling was nontender with no fixity to the overlying skin or underlying structures. The overlying skin appeared normal. With a clinical diagnosis of a soft tissue lesion, fine needle aspiration (FNA) was performed from the swelling.

Cytologic Features: FNA was performed using 22G needle and 10mL syringe. The smears were air dried and stained with MGG (May-Grunwald Giemsa) stain. FNA smears revealed aggregates of anucleated squamous cells (shadow cells) along with aggregates of basoloid cells having scant to moderate amount of pale blue cytoplasm, vesicular nuclei with occasional cell showing prominent nucleolus with few giant cells.

Mitotic activity or necrosis was not identified in the smears examined [Figures 1(a) and 1(b)]. A cytologic diagnosis of pilomatrixoma was rendered and excision biopsy advised.

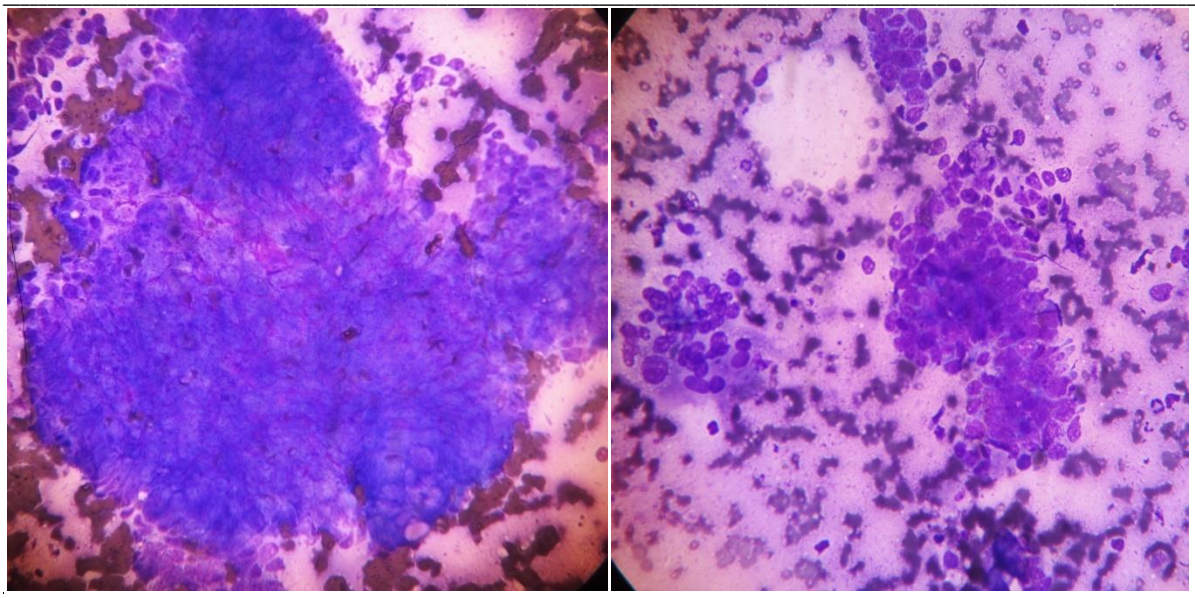

Fig 1(a) and 1(b):Smears showing absence of mitotic activity

Histopathologic features: We received a nodular soft tissue measuring 1×0.7×0.4 cm with attached skin 0.6×0.4 cm. Cut section showed a circumscribed grey-white lesion 0.4 cm in diameter. Sections from the lesion showed features of pilomatrixoma with shadow cells, basaloid cells, and multinucleated giant cells [Figures 2(a) and 2(b)].

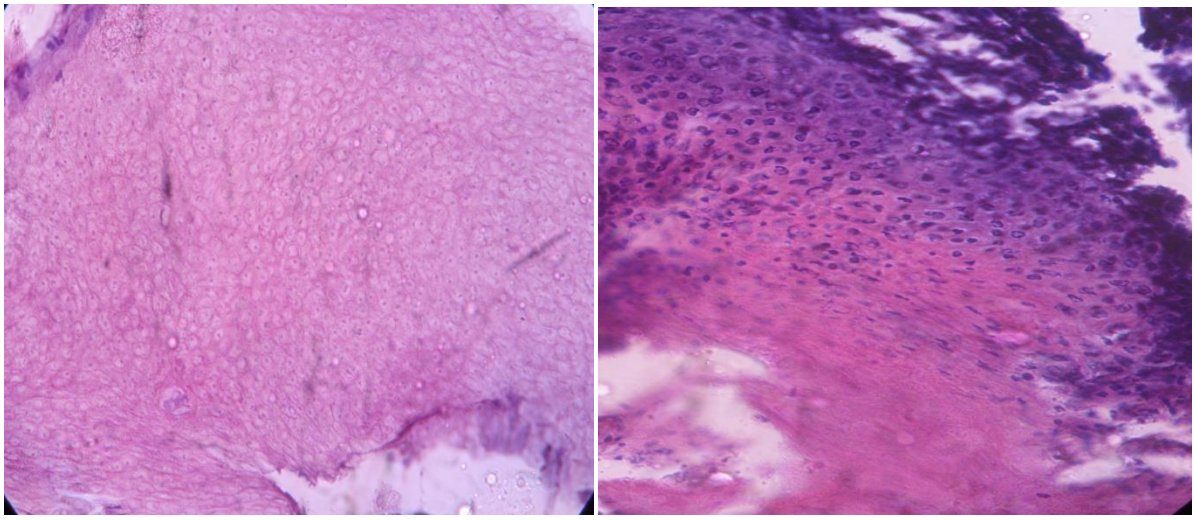

Fig 2(a) and 2(b): Sections from the lesion showing features of pilomatrixoma with shadow cells, basaloid cells, and multinucleated giant cells

Discussion

Pilomatrixoma (calcifying epithelioma of Malherbe) is a benign skin appendageal tumor with differentiation toward hair follicle matrix cells. This lesion occurs over a wide age range with two peaks: less than 20 years and over 50 years [2]. Although the etiopathogenesis of pilomatrixoma is unknown, the gene for myotonic dystrophy and polyoma virus has been implicated as possible factors. Several investigations have demonstrated that pilomatrixoma is frequently associated with β-catenin mutations. There are also indications that pilomatrixoma tends to occur with other genetic disorders, such as Myotonic dystrophy, Gardner syndrome, Xeroderma pigmentosum, and Basal Cell Nevus syndrome [3]. Pilomatrixoma is typically found in head and neck region,

though it has been reported in upper extremities and other sites. In a large series of 346 pilomatrixomas, about 15.3% were seen in upper extremities [3]. Clinically, pilomatrixoma presents as solitary painless and well circumscribed dermal or subcutaneous mass upto 3 cm in diameter [2]. Multiple tumors may be found in association with Gardner's syndrome, Myotonic muscular dystrophy, and Turner's syndrome. Pilomatrixomas grow slowly and typically attain their full size over 6 to 12 months. They are usually asymptomatic [4].The differential diagnosis for pilomatrixoma is varied. Pilomatrixomas may be mistaken for epidermoid or dermoid cysts, calcified lymph nodes, calcified hematomas, hemangiomas, or parotid gland tumors. Pilomatrixomas can be distinguished from epidermoid and dermoid cysts by the presence of irregular nodules, which slide freely under the overlying skin [3]. Epidermoid cysts are firm, round, and mobile, with normal overlying skin. In addition, epidermoid cysts often present among older patients (both adolescents and adults) [3, 5]. Our patient, an eighteen year female, had a solitary firm lesion on the right cheek with no changes in the overlying skin. Fine needle aspiration cytology (FNAC), the most favored diagnostic tool in superficial masses, usually shows characteristic features of pilomatrixoma. These include basaloid cell clusters, shadow (ghost) cells, calcification, and few nucleated squamous cells. Giant cells may be seen in response to keratin. Despite these features, pilomatrixoma may be mistaken for other skin lesions. A previously reported case of pilomatrixoma of the arm was diagnosed cytologically as blue round cell tumor due to the presence of round to ovoid cells with occasional rosette-like appearance [2]. Histopathology in this case showed features of pilomatrixoma. The authors suggested that early rapidly growing lesions, composed predominantly of basaloid cells, may lead to over diagnosis of malignancy [2]. Pilomatrixoma is sharply demarcated and contains basaloid cells and eosinophilic keratinized (shadow) cells. The proportions of these cellular components vary but the basaloid cells generally constitute the smaller component; in some cases, no basophilic cells are noted. These basaloid cells are fairly uniform in size, with rounded nuclei, small nucleoli, fine granular/vesicular chromatin, and delicate nuclear membranes. The keratinized eosinophilic shadow cells are located toward the center of the tumor and form masses, whorls, or stacks. The shadow cells have distinctive cell borders and contain central unstained areas corresponding to the lost nuclei that are characteristic of pilomatrixomas [6, 7]. Calcium deposits are less definitive according to Wang *et al* [8]. as they were present in only 55% of the cases in their study. As spontaneous regression of pilomatrixoma has never been observed and malignant degeneration is rare [9].

Conclusion

We report this case in benefit of cytologist & surgeons as this case highlights the FNAC as cheaper & important diagnostic tool preoperatively& excision of this lesion was possible at the earliest.

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Conflict of Interest: None

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