

Case Report

A Case of Pilomatrixoma Misdiagnosed as Metastatic Carcinoma on Fine Needle Aspiration Cytology

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Abstract

We report a case of pilomatrixoma of the posterior triangle of the neck in a twenty-eight year old gentleman, which was suspected as metastatic carcinoma on fine needle aspiration cytology. The cytomorphological features of pilomatrixoma and major pitfalls in diagnosis are also discussed.

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Key Words : Pilomatrixoma, appendage tumour, cytology.

Introduction

Pilomatrixoma is a benign cutaneous appendage tumour with differentiation towards the matrix and inner sheath of normal hair follicle and cortex. It occurs in hair-bearing areas with predilection for head and neck and upper extremities. Clinically it presents as a solitary slow growing dermal or sub cutaneous nodule mainly in young people. Even though pilomatrixoma has unique morphological appearance in tissue sections; it is often misdiagnosed on cytology smears.

Case Report

A twenty eight year old male presented to the surgical out patient department of Regional Cancer Centre with a swelling in the right side of the neck of three years duration. On examination it was a firm, freely mobile nodule in the posterior triangle of the neck measuring 1 x 1 cm. With the clinical impression of enlarged posterior triangle lymph node, fine needle aspiration (FNAC) was performed using 23 gauge needle. The smears were wet fixed and stained by Papanicolaou stain. On microscopic examination the smears were moderately cellular and showed scattered clusters of atypical cells (Fig. 1a) having scanty cytoplasm and mildly pleomorphic round nuclei with nucleoli in some of them (Fig.1b). Scattered foreign body giant cells and necrotic material were seen in the background. With this cytological appearance the possibility of metastatic poorly differentiated carcinoma was suggested. Subsequently the patient was investigated for a primary tumour elsewhere. On examination all his systems were within normal limits. His hematological parameters, chest radiographs and

ultrasound abdomen were also normal. The nodule in the neck was excised and submitted for histopathological examination. It was 1.5 x 1 x 0.5 cm in size with whitish granular cut surface. Microscopic examination showed an encapsulated neoplasm composed of nests of basaloid cells and islands of ghost cells with many foreign body giant cells and areas of calcification (Fig.2a and 2b) – diagnostic of pilomatrixoma.

Discussion

The cytological diagnosis of pilomatrixoma is based on the presence of a combination of basaloid cells, ghost cells and foreign body giant cells against an inflammatory background. Basaloid cells are small to medium sized cells with indistinct cell margins, scanty cytoplasm, deeply basophilic round or oval mildly pleomorphic nuclei with regular fine to coarse chromatin and distinct small nucleoli. They can be seen as single cells, in clusters, sheets or as bare nuclei in the background. Ghost cells are usually seen in clusters. They are polygonal cells with distinct cell margins, abundant pale cytoplasm and central unstained area. Nucleated squamous cells and calcification are additional features that favour a diagnosis of pilomatrixoma.

But the diagnostic triad of basaloid cells, ghost cells and foreign body giant cells need not necessarily be present in all cases. When the aspirate happens to be from the periphery of the tumour or from an early

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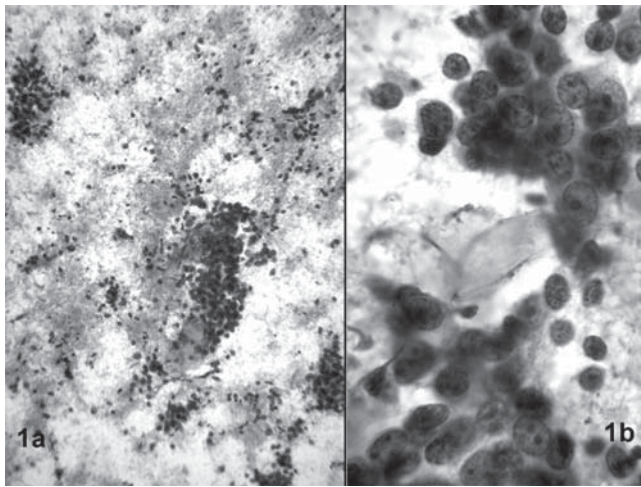


Fig. 1a: Cytology smear showing basaloid cells scattered singly and in clusters (Pap stain, x 200). Fig. 1b: Higher power view of basaloid cells (Pap stain, x 1000).

lesion it will show a marked predominance of basaloid cells at times to the extent of absence of other components. Aspirates from older lesions may even show only ghost cells.

Smears that show mainly basaloid cells can be easily misinterpreted as malignant¹ because of their high nucleus/cytoplasmic ratio, slight nuclear hyperchromasia and presence of nucleoli. Moreover the background with cell debris mimics the necrotic diathesis seen in carcinoma. Another misleading feature is the presence of naked nuclei of basaloid cells with distinct nucleoli. As mentioned in literature such cases on aspiration cytology can be mistaken for squamous cell carcinoma¹⁻³ basal cell carcinoma,¹ appendage tumour,^{1,3,4} or pleomorphic adenoma.⁴ On the other end of the spectrum, when ghost cells and foreign body giant cells predominate the cytological features can even mimic epidermal inclusion cyst^{1,3,4} or giant cell lesions.³

While reporting on aspirates with predominance of basaloid cells with subtle nuclear atypia, one has to consider the possibility of pilomatrixoma also and look for additional features of the same. Even though

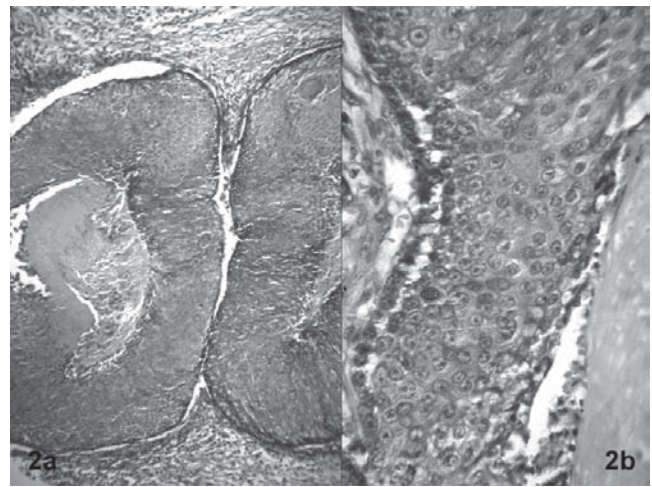


Fig. 2a: Histology sections showing basaloid cells at the periphery and ghost cells towards the center (H&E, x 100). Fig. 2b: Basaloid cells transforming into ghost cells (right) (H&E, x 400).

ghost cells are quite obvious in histology sections, they can easily be overlooked in cytology smears or can even be absent. In suspicious cases a repeat FNAC may unravel the correct diagnosis.² Clinical data is another important factor, which can help the pathologist in avoiding an alarming false positive diagnosis of malignancy. In the case reported, the patient gave a long history of three years - too unlikely for a metastatic carcinoma in lymph node. The young age of the patient is another factor that should have alerted us against giving a diagnosis of metastatic carcinoma in this case.

References

1. Lemos MM, Kindblom LG, Meis – Kindblom JM, Ryd W, Willen H. Fine needle aspiration features of pilomatrixoma. *Cancer Cytopathol* 2001; 93:252 – 6.
2. Ma KF, Tsui MS, Chan SK. Fine needle aspiration diagnosis of pilomatrixoma. *Acta Cytol* 1991; 35:570-4.
3. Kumar N, Verma K. Fine needle aspiration cytology of pilomatrixoma. *Cytopathology* 1996; 7:125 – 31.
4. Domanski HA, Domanski AM. Cytology of pilomatrixoma in fine needle aspirates. *Acta Cytol* 1997; 41:771-7.