Asian Pac. J. Health Sci., 2014; 1(4): 502-506 e-ISSN: 2349-0659, p-ISSN: 2350-0964

Cellular variant of benign fibrous histiocytoma: A case report

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ABSTRACT

Benign fibrous histiocytoma or dermatofibroma is one of the most common types of benign, cutaneous, soft tissue tumors, most often found in the middle-aged adults. The diagnosis of dermatofibroma/benign fibrous histiocytoma is usually straightforward if the typical morphological features are present. However, some diagnostic difficulties may arise when one is dealing with some unusual morphological variants. Among these variants, cellular fibrous histiocytoma (CFH) may represent a diagnostic challenge because there is a risk of it being confused with other benign or malignant dermal tumours. Careful histopathological examination with the clear knowledge of this variant is important to avoid a misdiagnosis of a possibly more aggressive tumor. We are hereby briefly highlighting the intriguing nature of cellular benign fibrous histiocytoma with which we have encountered.

Key words: Benign fibrous histiocytomas, Dermatofibroma, Variant.

Introduction

Benign fibrous histiocytoma is a fibro-histiocytic tumour commonly occurring in the dermis and superficial subcutis [1], characterized by tumoural differentiations of fibroblasts and histiocytes with an unknown aetiology[2]. Cellular fibrous histiocytoma (CFH), first described by Calonje et al. as a distinct variant of fibrous histiocytoma, accounts to approximately 5% of cutaneous benign fibrous histiocytomas (dermatofibromas) [3]. In spite of the fact that dermatofibroma is usually not difficult to diagnose, the deceptive cellular polymorphism and varying architectural pattern can sometimes be quite perplexing [4].

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Case report

A 46 years old man presented with a nodular swelling on the right arm. According to him it was present since 15 years and was gradually increasing in its size. Recent accidental trauma to it had produced an ulcer over the swelling which made him to visit the clinician. Physical examination revealed a palpable mass on the outer aspect of right arm measuring around 5x5cm in size with central ulcer of around 1x1cm, covered by slough. The mass was skin colored, mobile, associated with mild tenderness and the skin over the mass was not pinchable. There was no other lesion with similar features anywhere else in his body. Fine needle aspiration cytological examination showed bland spindle cells in clusters, admixed with fibrocollagenous stromal fragments [Fig1], which rendered the impression of benign spindle cell lesion possibly a dermatofibroma. Mass was excised under local anaesthesia and the specimen was sent in 10% formalin for histopathological evaluation. Patient sustained the procedure well and the postoperative course was uneventful.

Grossly the mass was globular, well circumscribed,

grey white in color, measuring 5.5x5x4cm, attached to the skin. External surface of the skin was showing an ulcer (measuring 1x1cm) covered by slough. Cut surface was showing a well circumscribed, unencapsulated, grey white mass with trabeculated appearance, abutting to the skin [Fig2,3].

Formalin fixed paraffin embedded routine hematoxylin and eosin sections revealed an acanthothic stratified squamous epithelium and a tumor in the upper dermis composed of spindle cells arranged in storiform pattern, whorls and in short fascicles. The cells were plump to spindle shaped with vesicular ovoid to elongated nuclei with finely granular chromatin. Tumour was pierced by many small blood vessels lined by flat endothelium and sprinkled by lymphocytes. Focal collection of foamy histiocytes were seen [Fig4,5]. Lesion showed occasional mitosis but no evidence of pleomorphism or necrosis. Masson trichrome stain showed tumor as a fibroblastic origin and alcian blue stain highlighted focal mucin collection. Based on these microscopic findings, final hitopathological impression of cellular variant of benign fibrous histiocytoma was imparted.

Discussion

Benign fibrous histiocytoma generally arises as a solitary, slow growing, painless mass that protrudes from the skin in only 10% of cases [5]. There is a predilection for dermatofibroma to develop on the extremities, and particularly on the lower extremities of young adults [6]. Although CFH has the tendency to develop in the same anatomic sites to those for conventional fibrous histiocytoma, it may occur at unusual sites such as the face, ears, hands and feet [1]. Generally it presents in young to middle aged adults as a slowly growing, solitary nodule, ranging in size from 0.5 cm to 2.5 cm, with a slight male predominance [3].

The diagnosis of dermatofibroma/fibrous histiocytoma is usually straightforward if the typical morphological features are present. However, some diagnostic difficulties may arise when one is dealing with some unusual morphological variants. Among these variants, cellular fibrous histiocytoma (CFH) may represent a diagnostic challenge because there is the risk of it being confused with other benign or malignant dermal tumours [1].

Fibrocollagenous dermatofibroma (40.1%), histiocytic (13.1%), cellular (11.5%), aneurysmal (7.4%), angiomatous (6.5%), sclerotic (6.5%), monster (4.9%), palisading (1.6%) and keloidal dermatofibroma (0.8%), are different microscopic varients of dematofibroma in decreasing frequency as encountered in a study conducted by TY Han, et al [7]. The cases with a prominent storiform pattern are referred to as cellular dermatofibroma [8]. The histiocytic variant has nests and sheets of histiocytes in a poorly cellular collagenous stroma [9]. In our case predominant pattern was storiform and short fascicles with focal collection of foamy macrophages.

Unlike conventional fibrous histiocytomas, characteristic morphological features of CFH are (i) higher cellularity, (ii) higher mitotic activity (iii) a more fascicular growth pattern, (iv) a deeper (subcutaneous) tumour extension, (v) a higher tendency to exhibit an epithelioid cell component, (vi) the possibility of undergoing central necrosis (10%–20% of cases), (vii) occasional epidermal ulceration [1]. Most of these findings are seen in our case and these microscopic findings are thought to be imperative, to make a conclusive diagnosis in the present case. Dermatofibromas, including the variants, may be associated with acanthosis or hyperplasia of the overlying epidermis, which is also seen in our case [10].

BFH constitutes a diagnostic dilemma for both clinicians and pathologists, because the lesions share common clinical symptoms and histological features with many lesions such as; nonossifying fibromas, fibrous dysplasia, eosinophilic granulomas, chondrosarcomas, rhabdomyosarcomas, desmoid tumours and malignant fibrous histiocytomas[11].

Cellular benign fibrous histiocytoma (CBFH) represents a morphologic variant of cutaneous fibrous histiocytoma (FH) [12], which should be distinguished from dermatofibrosarcoma protuberans and leiomyosarcoma, with which many of these cases were initially confused [3]. Because of its relative monomorphism and frequent fascicularity, CBFH can easily be mistaken for a malignancy. In fact, CD34, often used to distinguish CBFH from dermatofibrosarcoma protuberans (DFSP), can also be positive [12]. There has been increasing evidence that CBFH undergoes local recurrence more than the usual fibrous histiocytomas (rates of 25%) especially after incomplete surgical excision [1].

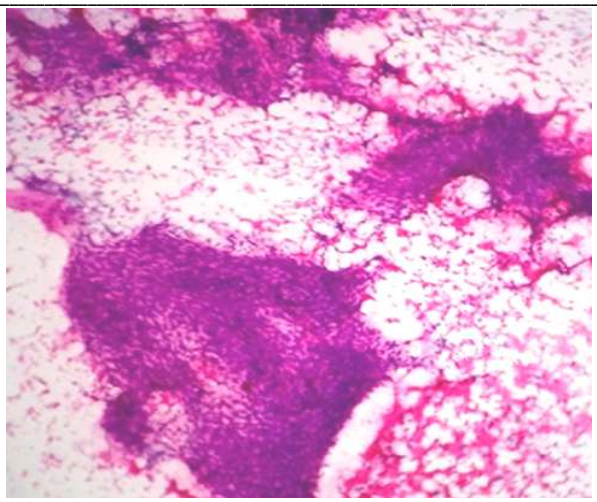

Fig1: FNAC showing bland spindle cells in clusters with fibrocollagenous stromal fragments (H&E stain, lower magnification)

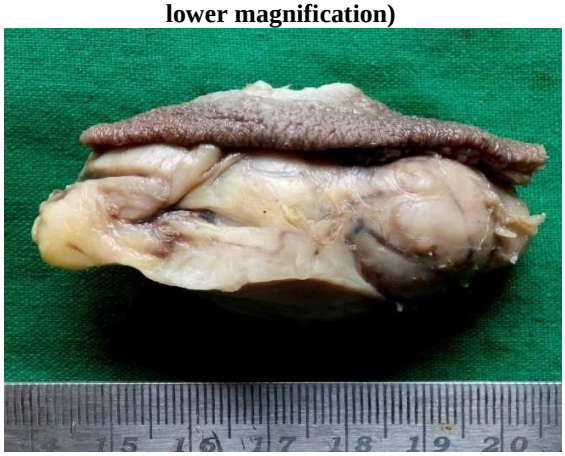

Fig 2: Nodular grey white mass, measuring 6x4x4cm, attached to the skin

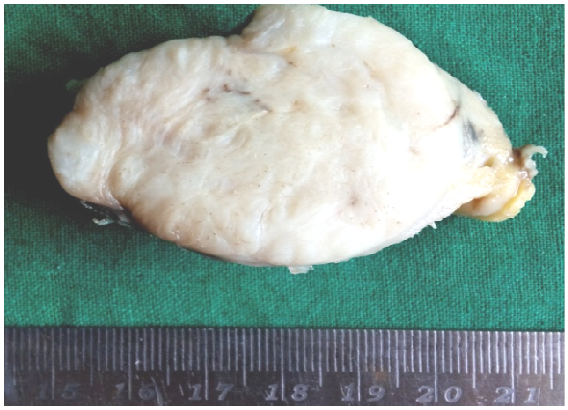

Fig 3: Cut section was showing a well circumscribed, unencapsulated, grey white lesion with trabeculated appearance

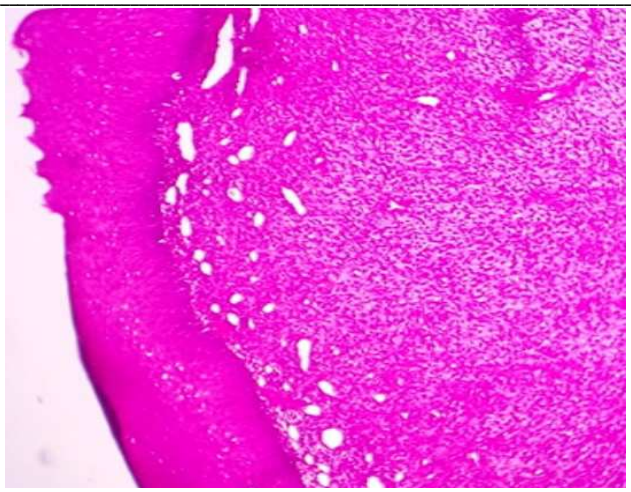

Fig 4: Acanthothic stratified squamous epithelium with a tumor in upper dermis composed of spindle cells arranged in storiform pattern and pierced by few blood vessels (H&E stain, lower magnification)

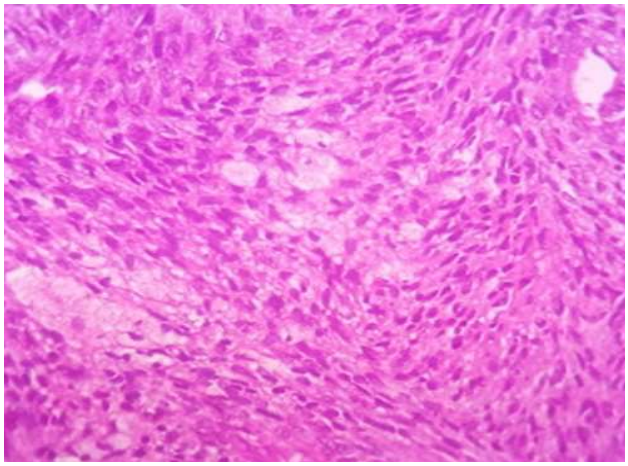

Fig 5: The cellular type of BFH-showing high cellularity with short fascicular and storiform growth pattern with few dispersed histiocytes (H&E stain, higher magnification)

Conclusion

Since the CBFH share common clinical symptoms and histological features with many varied entities it constitutes a diagnostic dilemma for both clinicians and pathologists. Being aware of this variant of BFHs is important to avoid misdiagnosis to adopt the proper line of treatment.

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Source of Support: NIL
Conflict of Interest: None