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Cutaneous benign fibrous histiocytoma - A post insect bite occurance

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Abstract

Background: Benign fibrous histiocytoma(BFH) is a rare clinical possibility considered in a post insect bite tender soft tissue swelling.

Case Characteristics: We report a case of BFH due to its rarity of age, location and association with insect bite which was diagnosed with FNAC and confirmed with histopathology and immunohistochemistry.

Intervention/Outcome: The child is disease free for 3 years after surgical excision of swelling. Message: Though rare, neoplastic lesions can arise in sites of insect bite and trauma.

Keywords: Benign fibrous histiocytoma, BFH, Cutaneous lesion, Paediatric soft tissue lesion, Post insect bite lesions

Introduction

Benign fibrous histiocytoma is a neoplastic or quasi – neoplastic lesion of mesenchymal origin. The tumor most commonly occurs as a cutaneous lesion in adult females (20 -50 years) with predilection for extremities. A subset of cutaneous fibrous histicytoma occurs following minor trauma, insect bites or vaccination. The tumor is usually pauci symptomatic, but some cases may cause localized pain and itching and ulceration. Most cases have a favorable prognosis, but certain types have a tendency for recurrence or metastasis in the lungs, lymph nodes, soft tissues or liver.[1,2] We report a new case of cutaneous fibrous histiocytoma, in pediatric age group on anterior abdominal wall who had a history of insect bite prior development of the lesion

Case Report

A six year old girl presented with a swelling on anterior abdominal wall (Fig. 1) of three weeks duration. History of an insect bite about one month back at that site was given and patient had mild pain over the swelling. The tumor was mobile, not fixed skin or underlying tissue, covered by mildly reddish skin. Her general condition was good and the rest of systemic examination was normal. With the clinical diagnosis of chronic inflammation the patient was initially evaluated with routine blood and urine examinations which were within normal limits. An initial course of antibiotics was tried. But the swelling gradually increased in size and patient was referred to cytology department for FNAC. Papanicolou stained smears of aspirated material (Fig. 2, 3) from the swelling showed high cellularity with multiple clusters of tightly packed cells. Majority were population of plump spindle cells with vesicular nuclei and small inconspicuous nucleoli. Interspersed with the spindle cells were seen macrophages, few scattered giant cells and lymphocytes. With the cytologic diagnosis of a benign fibrohistiocytic lesion, an excision biopsy of the lesion was done followed by a histopathologic examination. Macroscopic examination showed a fairly circumscribed lesion in the subcutaneous plane measuring 1.5x2x2 cm(Fig. 4). On cut section, the mass was solid and grey areas. No necrosis or cysts were seen. H & E stained paraffin sections (Fig. 5, 6) showed a fairly circumscribed lesion separated from the epidermis, composed of mixture of spindle and plump oval cells arranged in ill-defined fascicles forming a criss-cross pattern. Few foamy histiocytic cells seen amidst the spindle cells. No atypia/mitosis/necrosis noted. The tumor cells were positive for factor XIII a (Fig. 7) and the diagnosis of Benign Fibrous Histiocytoma was made in the case. Postoperative course was uneventful and the patient was discharged on third post operative day. At 3 years follow-up she was asymptomatic, with no tumor relapse.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Discussion

Fibrous histiocytoma is lesion composed of a mixture of fibroblastic and histiocytic cells and accompanied by varying numbers of inflammatory cells, foam cells, and siderophages. Fibrous histiocytoma is also referred to as dermatofibroma when located in skin, and the synonyms- histiocytoma cutis, nodular subepidermal fibrosis, and sclerosing hemangiomas are now archaic.[1,2] Reid et al, 1986 and Cerio et al, 1990 suggest that these tumors arise from dermal dendrocytes expressing factor XIIIa and tinascin positivity. Whether benign fibrous histiocytomas are reactive or neoplastic is still debated. The arguments in favor of a reactive condition include the association with minor trauma, insect bite, vaccination and the accompanying inflammatory component.[3] $FXIIIa^+$ dendritic cells are derived from monocytes, and modulate fibroblast responses to inflammation and wound healing. Factor XIIIa polymerizes fibrin monomers in inflammatory reactions, and dendrocytes derived neoplasms can be associated in chronic inflammatory lesions.[4] Neoplastic origin is favoured by Clonality, documented in 30–100% of cases[5] and rare cases of recurrences and metastasis.

Regarding the site of occurance of beningn fibrous histiocytoma, most common location is extremities(58%) followed by the head and neck(22%), trunk(11%) and deep soft tissue of the retroperitoneum, mediastinum, or pelvis (9%).[3,4] Cutaneous fibrous histiocytomas are very rare pediatric tumors.[6] They present as elevated or pedunculated lesions measuring from a few millimeters to a few centimeters in diameter and rarely grows beyond 3 cm in diameter.[1,2,5] The reddish to red-brown to blue-black color of the overlying skin (due to lesional expression of stem cell factor and an increase in tyrosinase-positive melanocytes); can cause clinical confusion with malignant melanoma,[7] and slow growing tumors may also get falsely diagnosed clinically as sarcomas.

The pathologic diagnosis of benign fibrous histocytoma in aspirates and histopathologic sections is by the identification of a lesion composed of spindle shaped and plump fibrohistiocytes which lack the nuclear atypia of a malignant lesion. The histologic variants of this lesion include cellular, epitheliod, aneursmal, clear cell, lipidized fibrous histiocytoma which can cause diagnostic difficulty with other benign, borderline and malignant lesions like dermatofibrosarcoma protuberans, leiomyosarcoma, melanocytic or vascular tumors, angiomatoid malignant fibrous histiocytoma, Spitz nevus, xanthoma or atrophic fibrous histiocytoma. Immunohistochemistry is often used in cases of diagnostic difficulty and majority of fibrous histiocytomas display immunostaining for factor XIIIa in a significant population of cells. CD34 negativity is used to distinguish from dermatofibrosarcoma protuberans which show positivity for this marker. The tumor may show variable positivity for vimentin, tenascin, calponin, actin, desmin, myosin etc.[2,3]

Fewer than 5% of cutaneous fibrous histiocytomas recur following local excision and increased recurrence rate is seen in deep lesions due to larger size and incompleteness of the surgical excision. Greater lipid component in tumor cells leads to a smaller recurrence rate. The tumor rarely leads to metastases.[9] Aneurysmal and atypical variants with abnormalities of chromosome 7, 8q and Xq more likely to metastasize.[9] If only subcutaneous tissue is involved, benign fibrous histiocytoma has potential for fast evolution, metastasis and re-apparition and should be excised in all cases. In unfavorable evolution, cryotherapy reduces subsequent recurrences to 3-5%. Some cases may require en bloc resection.[5]

To conclude the occurance of benign fibrous histiocytoma should be kept as a differential diagnosis in unresponsive cases of insect bite reactions. FNAC is a very effective diagnostic modality in identifying and categorising the soft tissue lesions as neoplastic or inflammatory, though the confirmation and typing requires histopathologic examination.

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