CASE REPORT

Breast Mass due to Dermatohistiocytoma Protuberans: A Case Report

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Dermatohistiocytoma protuberans (DHCP) is an uncommon, raised, fibrous tumor of the skin, characterized by a great tendency to recur locally, infrequent metastasis, and difficulty in making a histologic diagnosis. It is very important to recognize this tumor because of excellent prognosis after adequate local excision. Many authors suggested that a diagnosis of this tumor must be made on the basis of its gross appearance, clinical behavior, and histologic features. Imaging study with ultrasound has rarely been described. We present a 59-year-old female with DHCP of the breast. She found a small nodule in her left breast during a physical check-up 2 years ago. The lesion enlarged recently but caused no symptoms. Ultrasound (US) examination of the left breast revealed a 1.1-cm heterogeneously echogenic nodule located in the subcutaneous fat of the breast. Color Doppler sonography showed significant color flow signals in this lesion. The possibility of a sarcomatous lesion was therefore suspected. Excisional biopsy was performed and the pathological examination of the representative specimen demonstrated a picture of DHCP. No recurrence was seen in 1 year of follow-up.

Key words: Breast; Breast tumor; Color Doppler; Ultrasound; Dermatohistiocytoma

Dermatohistiocytoma protuberans (DHCP) is primarily a lesion with proliferation of fibroblasts. It is a well-differentiated primary fibrosarcoma of the skin, most frequently occurring on the trunk [1-4]. We recently encountered a patient with a mass in her left breast. Physically, it was quite similar to a fibroadenoma of the breast. However, sonographic findings differed from those of a fibroadenoma. The patient was referred for surgical removal of the tumor. Excisional biopsy was done, and histopathology of the resected tumor confirmed it to be a DHCP.

CASE REPORT

A 59-year-old woman, G7 P5 A2, presented with a chief complaint of a palpable nodule in her left breast for 2 years. It had progressively enlarged in the most recent 2 weeks without significant tenderness. On physical examination, a fixed nodule, measuring about 1 cm in size, was found in the upper quarter portion of her left breast. It was soft and fixed, but there was no nipple discharge.

Ultrasound (US) examination revealed a heterogeneous echogenic nodule in the left breast at 10-o’clock position, 11 cm from the nipple. This nodule was mainly located in the subcutaneous region of the breast with a well-defined boundary. The diameter of this nodule was about 1.1 × 0.7 cm (lateral dimension x anteroposterior dimension) (Fig. 1). Color
Doppler US showed profound color flow signals in this nodule, indicating a hypervascular tumor (Fig. 2a). Spectral Doppler US showed high flow velocity (50 cm/s) in the tumor vessels with a resistance index of 0.76 (Fig. 2b). US features suggested an unusual tumor which could have been a sarcomatous lesion. Excisional biopsy was performed 3 days after US examination. A well-circumscribed, but not well-encapsulated, nodule (1.1 cm) confined to the subcutaneous fat layer of the left breast was excised. Histologic examination revealed a tumor showing a picture of DHCP.

The tumor was characterized by the presence of sheets of spindle cells with clumped nucleoli, and by its microscopic infiltration into the adjacent fat tissue (Fig. 3). The postoperative course was uneventful and the patient was discharged in good condition 2 days after surgery. She had no evidence of local recurrence during regular follow-up for 1 year.

DISCUSSION

DHCP is an uncommon cutaneous-subcutaneous connective tissue neoplasm. DHCP is generally thought to belong to the group of fibrous histiocytomas. It was first described by Darier and Ferrand (1942) [1]. Hoffman (1925) first employed the term dermatohistiocytoma protuberans for this entity [2]. Since then, hundreds of cases have been reported.

Generally DHCP is primarily a proliferation of fibroblasts within the dermis, which is characterized by a high tendency to recur locally and difficulty in making a histologic diagnosis. Most cases occur in adults with a slight predominance in males [3]. They have also been reported to occur in infancy and childhood. Clinically, DHCP is a firm, asymptomatic solitary mass (in 80% of cases) that is found most frequently on the front of the trunk, particularly in the flexure regions, followed by the extremities or the hands. These tumors are slow-growing and often develop as an aggregated “protuberant” tumor within a firm, multinodular plaque and may be associated with ulceration. Most of the lesions begin as a small raised nipple-like projection [3]. A reddish to bluish discoloration of the skin is

![Figure 1. Sonography of the left breast showing a small heterogeneous echogenic nodule in the subcutaneous region (10-o’clock position) (arrowheads). The echogenicity of the tumor is slightly higher than that of subcutaneous fat (arrows) and the breast stroma.](image)

![Figure 2. a. Color Doppler ultrasound demonstrating profound color flow signals distributed diffusely in the nodule (arrowhead). b. Spectral Doppler showing a relatively low resistance index (RI) in the tumor vessels (peak flow = 37.4 cm/s, RI = 0.76).](image)
present in more than one half of patients and occasionally precede the development of a definite tumefaction. DHCP tends to recur after limited resection. Only a few instances of metastases to regional lymph nodes and/or internal organs have been documented [4, 5].

The microscopic picture displays a well-developed cartwheel or storiform (matted) pattern [6-10]. Spindle-shaped tumor cells occur in short fascicles which run in many directions interweaving at different angles [11]. Nuclei are generally fusiform in shape, and mitotic figures are rare. The tumor is poorly demarcated; some may invade the subcutaneous tissue in addition to the dermis. However deeper structures of the tumor exhibit high cellularity, a monomorphic appearance, the absence of or inconspicuous foamy or hemosiderin-laden macrophages and/or multinucleated giant cells, and entrapment of isolated fat cells when the subcutis is infiltrated. Immunohistochemically, these tumors are positive for vimentin, actin (focally and inconstantly), and CD34 [6]. In contrast, they are negative to staining with S-100 protein, HMB-45 keratin, and FXIIIa [12]. Many authors suggested that the diagnosis of this tumor must be made from the gross appearance and clinical behavior, while Taykor and Helwig [3] emphasized the histologic features of this tumor.

Imaging studies of DHCP such as with ultrasound, to the best of our knowledge, have not been reported before. A heterogeneously echogenic well-defined mass with hypervascularity of DHCP on US differs from those of fibroadenomas. Other uncommon benign breast abnormalities show very nonspecific sonographic features. Leiomyomas show homogeneous echogenicity [13]; Mondor’s disease caused by obliterating phlebitis of the thoracoepigastric vein shows a hypoechoic tubular or cord-like structure representing a thrombosed vessel. The echogenicity may be inhomogeneous because of the thrombus [14]; sarcoidosis shows nonspecific features on US; diabetic fibrosis shows as hard, irregular lumps with a diffuse, intense shadow on sonographic examination.

Surgical resection is the treatment of choice for DHCP. Although the incidence of local recurrence is high (more than 33%), the prognosis of DHCP is statistically good according to previous reports. When one encounters a young patient with a slowly growing hypervascular soft tissue mass in subcutaneous tissue of the breast, DHCP should be on the list of the differential diagnosis, although it is relatively rare.

REFERENCES

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表皮組織細胞瘤引起的乳房腫塊：病例報告

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表皮組織細胞瘤乃是一種罕見的凸起性、纖維性的皮質腫瘤。它有易於局部復發但甚少轉移，且難以組織學來診斷的特性。臨床上如果適切局部切除，其預後非常良好，所以確認此腫瘤是非常重要的。有很多學者認為診斷需綜合此腫瘤的外觀、臨床表現，以及組織學上的特性。利用超音波來診斷此腫瘤在文獻上很少被報導。我們報告一個五十九歲女性病案。病人在兩年前的一次健康檢查時，發現左邊乳房一個小腫塊。而這個腫塊於最近有逐漸變大的趨勢，但沒有臨床上的症狀。超音波檢查發現有一個1.1公分大小、音波表現不均勻的腫塊，位於左邊乳房的皮下脂肪層。彩色超音波顯示此腫瘤有明顯的血流，因此高度懷疑是乳房的惡性肉瘤。切片病理檢查發現是表皮組織細胞瘤。

關鍵詞：乳房；乳房腫瘤；彩色超音波；超音波；表皮組織細胞瘤