Malignant fibrous histiocytoma arising in a paraffinoma of the breast

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Breast augmentation by means of paraffin injection was not an uncommon practice, particularly in the Far East, in the 1950s and 1960s. Tracking of the injected material into surrounding tissues gives rise to an irregular appearance and the formation of tumours called paraffinomas. In the present report, a case of malignant fibrous histiocytoma arising in a breast paraffinoma 50 years after the original paraffin injection is described.

Key Words: Breast; Malignant fibrous histiocytoma; Paraffinoma

Histiocytome fibreux humain résultant d'un paraffinome du sein

RÉSUMÉ: L'augmentation mammaire au moyen d'injections de paraffine a été une pratique relativement répandue, particulièrement en Extrême-Orient au cours des années 1950 et 1960. Si l'on retrace le matériau injecté dans les tissus avoisinants, on note un aspect irrégulier et la formation de tumeurs appelées paraffinomes. Le présent rapport décrit un cas d'histiocytome fibreux malin s'étant manifesté dans un paraffinome du sein, 50 ans après l'injection originale de paraffine.

CASE PRESENTATION

A 78-year-old woman presented with a right breast mass that had been present for approximately one year. Of note, she gave a history of previous breast augmentation by paraffin injections in the 1950s, and since that time, she had extensive masses in the breast, abdomen and flank areas, secondary to subcutaneous tracking of the paraffin.

On examination, she was found to be cachectic. A hard, 6 cm, immobile mass was palpable in the right breast, with adherent, shiny overlying skin. There was associated supraclavicular and axillary adenopathy (Figure 1).

Biopsy of the lump in the right breast revealed spindle cells with pleomorphic nuclei and variable amounts of attenuated eosinophilic cytoplasm. Both normal and abnormal mitoses were common. The diagnosis was of a grade III pleomorphic malignant fibrous histiocytoma with areas of chronic inflammation and remnants of exogenous lipid. Computed tomography and magnetic resonance imaging (MRI) showed the lesion to be adherent to three adjacent ribs, with no mediastinal involvement.

In view of the extensive surgical resection required and the patient's general condition, she was managed with non-

Figure 1) Bilateral breast paraffinomas with neoplastic change on the right side

operative palliative care and subsequently died from her disease.

DISCUSSION

Gersuny (1) is credited with the first use of hydrocarbons for tissue augmentation in 1900 when he injected paraffin to correct a saddle nose deformity. The practice of injecting beeswax or liquefied paraffin for breast reconstruction was not uncommon in Japan and China, particularly Hong Kong, 40 to 50 years ago (2,3). The procedure involved the injection of up to 300 mL of paraffin either as a single supra-areolar injection or as a series of four quadrant injections (2). Although now obsolete, the serious and debilitating long term complications of the procedure are still presenting to surgeons worldwide.

The injection of paraffin into tissues causes a characteristic foreign body granulomatous reaction that gives rise to lesions commonly known as paraffinomas (4). Histologically, the oil spaces appear to be surrounded by giant cells, with a round cell inflammatory infiltrate and marked fibrosis. Clinically, the lesions can be well circumscribed in some patients, or more diffuse in others. Numerous complications have been reported following

paraffin injection (3-6), ranging from early hypersensitivity and erythema to long term complications such as pain and ulceration. Interestingly, not all patients develop complications, which probably led to the continued practice of injection.

Patients with paraffinomas often present with hard, lumpy breasts and associated axillary adenopathy, thus mimicking advanced breast carcinoma (7,8). Mammography, sonography and MRI all show characteristic findings of paraffinoma, but the former two modalities are unreliable in assessing the remaining breast tissue. Therefore, MRI is the radiological investigation of choice for the detection of malignancy in these patients (9), with histological examination through breast biopsy to confirm diagnosis. The treatment of the paraffinoma usually requires subcutaneous mastectomy, with or without breast augmentation; however, other reconstructive procedures may be required if there is extensive skin or extramammary involvement (8).

Although cases of carcinomas have been reported in patients with breast paraffinomas, the carcinogenicity of the implanted material is controversial. It is unclear exactly how many patients were ever injected with paraffin oil, and the reported incidence of breast carcinoma in paraffinoma patients is no higher than the incidence that is expected in the general female population who never had injections (8,10,11).

Malignant fibrous histiocytoma (MFH) of the breast is a very rare tumour, with just over 20 cases having been described previously (12). Some of these cases arose in patients who had been treated with radiotherapy for earlier breast carcinomas, and MFH is a common type of tumour arising after radiotherapy (13). Although MFH is thought to arise from chronic inflammation, scarring or as a foreign body reaction in some circumstances, we are not aware of this having been reported as a possible consequence of paraffinoma. The treatment of this condition is made difficult by the lack of clinical experience, the poor response to chemotherapy and radiotherapy, and the tendency toward local recurrence and metastases.

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