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Abstract

A rare case of bilateral fat necrosis of the breast is reported. The patient was a 50-year-old unmarried woman having no history of trauma, disease or surgery of the breast. In the bilateral breasts, ill-defined, firm masses with skin retraction were noted. Bilateral breast cancer was diagnosed clinically. However, both lesions showed histologically chronic granulomatous inflammation with foci of fatty necrosis, infiltration of lymphocytes, plasma cells, lipid containing foamy cells, foreign body giant cells engurfing choresterol-crystals, and calcification. "Paraffinoma" was thus suspected, but there was no history of cosmetic mammoplasty and histochemical studies failed to demonstrate saturated lipid indicating paraffin or other mineral oils

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BILATERAL FAT NECROSIS OF THE BREAST: REPORT OF A CASE

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Abstract. A rare case of bilateral fat necrosis of the breast is reported. The patient was a 50-year-old unmarried woman having no history of trauma, disease or surgery of the breast. In the bilateral breasts, ill-defined, firm masses with skin retraction were noted. Bilateral breast cancer was diagnosed clinically. However, both lesions showed histologically chronic granulomatous inflammation with foci of fatty necrosis, infiltration of lymphocytes, plasma cells, lipid containing foamy cells, foreign body giant cells engurfing choresterol-crystals, and calcification. "Paraffinoma" was thus suspected, but there was no history of cosmetic mammoplasty and histochemical studies failed to demonstrate saturated lipid indicating paraffin or other mineral oils.

Key words: breast, fat necrosis, bilateral fat necrosis.

Unilateral fat necrosis of the breast is much more than bilateral (1, 2). It is often difficult to differentiate fat necrosis of the breast from cancer because of their similar clinical pictures (4–6). We report a case of bilateral necrosis of the breast clinically thought to be breast cancer.

CASE REPORT

The patient was a 50-year-old unmarried female, public officer. The family history was not remarkable. She suffered from pulmonary tuberculosis at the age of 20, and had operations for acute appendicitis and uterine leiomyoma at the ages of 30 and 41, respectively. She denied any history of trauma, inflammation or surgical procedure such as biopsy and mammoplasty of the breast.

In October 1973 the patient visited the Clinic of the Internal Medicine, Okayama Red-Cross Hospital, with headache, loss of appetite and dullness. Firm masses in both breasts were discovered, but biopsy was refused.

In July 1978 the patient again presented because of gradual increase in

hardness of the breast masses. She was not obese but moderately nourished. In the upper inner quadrant of each breast, a firm and somewhat ill-defined mass measuring about four cm in diameter with skin adhesion and retraction was observed (Fig. 1). Bilateral breast cancer was thus diagnosed. The both nipples, however, were intact and both axillary lymph nodes were not palpable.

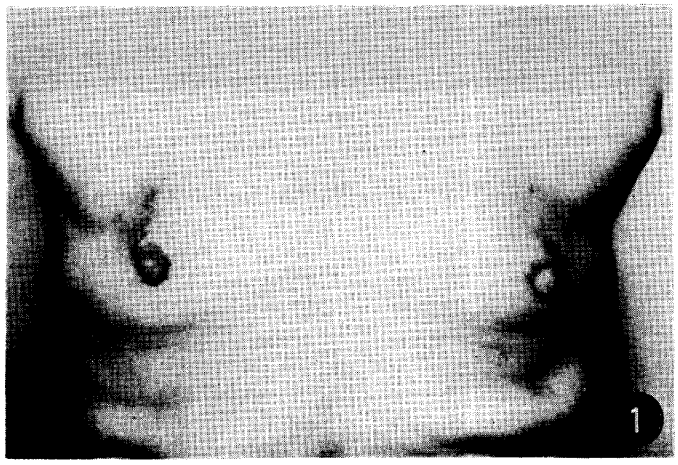

Fig. 1. The bilateral lesions with skin retraction.

Laboratory data including urinalysis, blood picture and blood chemistry were not contributory. ESR was 41 mm/1h and 51 mm/2h, CRP (+), and IgG 1760 mg/dl.

Needle biopsy of the left lesion revealed fat necrosis with lymphocytic infiltration (Fig. 2a). The right lesion showed non-specific granulomatous inflammation with hyalinization (Fig. 2b). Both masses showed essentially the same histological findings: The granulomatous inflammation was composed of scattered foci of fat necrosis with variable-sized spaces or clefts and focal or diffuse infiltration of lymphocytes, plasma cells, foamy cells and foreign body giant cells (Fig. 3a). In some parts hyalinization and calcification were also present (Fig. 3b). No dilated duct, angiitis, hemorrhage or hemosiderosis was found. Intracytoplasmic vaculoles in foamy and giant cells, and spaces or clefts were stained positive with Sudan III. The lipid was also positive with bromine silver and osmic acid stainings indicating unsaturated lipid.

DISCUSSION

Fat necrosis of the breast with a mass and retraction is often difficult to differentiate from inflammatory lesions including mammary duct ectasia, plasma cell mastitis, Weber-Christian disease and carcinoma (3–8). Mammary duct

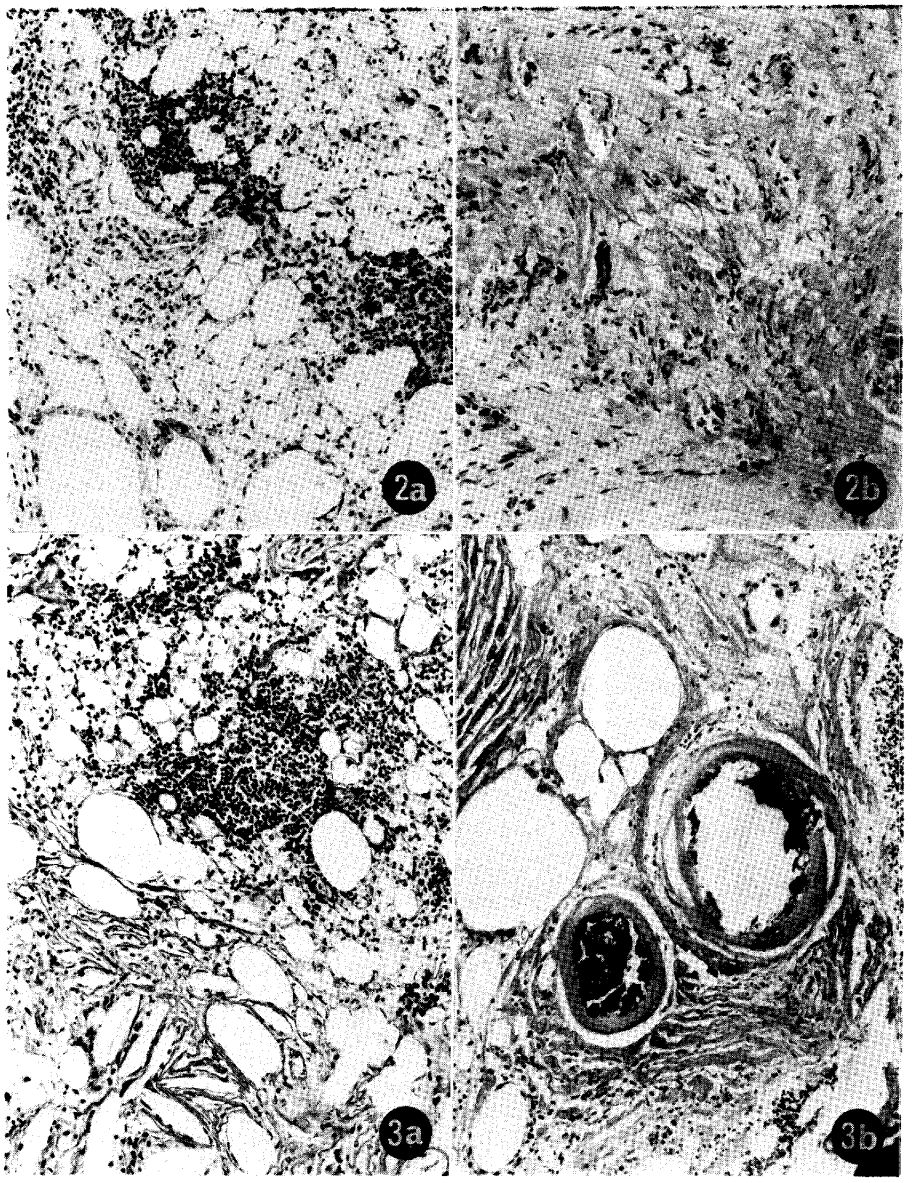

Fig. 2a. Biopsied material from the left breast, showing fat necrosis with lymphocytic infiltration. H-E. ×100.

Fig. 2b. Biopsied material from the right breast, showing non-specific granulomatous inflammation with hyalinization. H-E. ×100.

Fig. 3a. Surgical material, showing fat necrosis, round cell infiltration and foreign body type of granulation with cholesterol-crystals. H-E. ×100.

Fig. 3b. Surgical material, showing hyalinization and calcification. H-E. ×100.

ectasia and plasma cell mastitis usually show a history of nipple discharge, signs of nipple retraction and histology of ductal dilatation, crystalloid body and intense infiltration of plasma cells. Weber-Christian disease is characterized by fever, erythema, painful subcutaneous induration and angiitis. In our case, masses with skin retraction were symmetrically present but were somewhat apart from the nipple. Histologically neither lesion showed any of the findings of these inflammatory diseases but corresponded to those of late stage of fat necrosis (5).

Fat necrosis in soft tissue occurs in the face, trunk, extremity and scrotum as well as the breast (11). In a newborn baby, multiple or symmetrical lesions occur in the subcutaneous tissues of the trunk and extremities. Asphyxia, hypothermia or trauma during delivery have been suggested as the cause of the lesions (9). Symmetrical fat necrosis has also developed in the scrotum of a boy and in the cheek of an infant (11, 12). These lesions were thought to be caused by cold injury, because the former had history of swimming in cold water and the latter had exposure of the face to severe coldness.

Fat necrosis of the breast develops secondarily to inflammation, tumor, trauma, biopsy or injection of some agents (5, 9). Irrauma is most important cause, although over half of patients have no obvious history of trauma. The patients are often obese with pedunculated breasts, and in such cases minor trauma may pass unnoticed (5). In lesions of many patients with or without a history of trauma, ecchymosis, hemorrhage or deposition of hemosiderin pigments are observed. These findings suggest a traumatic etiology (5, 10).

Fat necrosis of the breast is not an uncommon condition, but the bilateral affection is extremely rare. Zeitlhofer (1) in 1953 described a 66-year-old female with bilateral fatty necrosis of the breast. She was obese but had no obvious history of trauma to the breast. Baber and Libshitz (2) in 1977 reported a case of bilateral lesions in a 27-year-old female, who had mammoplasties for reduction two years before the diagnosis. Our patient was not obese and had no history of trauma. Moreover, there was no evidence of trauma such as ecchymosis or hemosiderin deposition.

With introduction of nonirritating plastics and silicones for mammoplasty, cases of paraffinoma have decreased in number. Many cases had been reported previously because of the use of paraffin and other mineral oils composed of saturated carbon linkages. Histochemical methods using bromine-silver and osmic acid are of value in detecting unsaturated carbon linkages (13). Paraf- and other mineral oils are negative with these methods. In our case, "paraffinoma" was suspected because of the bilaterality and histology of the lesion (14). The patient, however, denied history of cosmetic mammoplasty. Lipid in the granulomatous lesions was, moreover, positive with bromine silver and

osmic acid stains. This suggests that the lesions were not induced by the saturated lipid such as paraffin or other mineral oils but by unsaturated lipid.

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