Breast imaging

Subcutaneous fat necrosis of the breast


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Abstract. Our objective was to report the mammographic and sonographic appearance of four patients with superficial subcutaneous fat necrosis of the breast. This type of fat necrosis of the breast is poorly known. We retrospectively reviewed all of the clinical and pathological information, as well as the radiological studies, on four cases of subcutaneous fat necrosis of the breast. Mammograms and sonograms were available for review in all cases. Diagnosis was made by excisional biopsy in three patients and fine-needle aspiration in the other. The lesions were apparent clinically as a palpable mass, and were not seen at mammography. At high-frequency US each lesion was identified as an ill-defined area of increased echogenicity of the subcutaneous fat. The authors believe the sonographic appearance to be suggestive of subcutaneous fat necrosis of the breast.

Key words: Breast – US – Fat necrosis – Subcutaneous lesions – Hyperechoic anomalies

Introduction

Different types of fat necrosis of the breast have been described, revealing a wide range of clinical and mammographic findings [1–10]. The authors present four patients with necrosis limited to the subcutaneous fat of the breast. This type of fat necrosis of the breast is poorly known by clinicians, radiologists and pathologists. The appearance at clinical examination, mammography, sonography, excisional biopsy and fine-needle aspiration is presented.

Materials and methods

Between January 1, 1991 and September 1, 1992 subcutaneous fat necrosis of the breast was diagnosed by excisional biopsy or fine-needle aspiration in four women. All patients underwent mammography and US before excision (three cases) or aspiration (one case). The ages of the patients varied from 54 to 64 years with a mean of 58 years. All of them had a single, localised, painless, soft, palpable breast mass, without skin retraction. There was no history of previous trauma or surgery of the breast. In all cases the reported duration of the lesion did not exceed 1 month. There were no palpable masses in the subcutaneous fat of trunk and limbs. Mammography and US were performed on the same day by the same radiologist within 1 week of the clinical examination. All patients underwent mammography prior to US. The sonograms were interpreted with knowledge of the mammographic findings. A conventional screen-film contact mammography unit with a stationary molybdenum anode and a 0.3-mm focal spot was used (Senographe 600T or DMR, General Electric CGR). High-resolution real-time US was performed with a 7-MHz linear-array transducer (Acuson 128, Mountain View, Calif.). The patients were examined in the supine position after adequate lubrication of skin with US gel. The probe was placed on top of the palpable mass. Local excision of the lesion was performed in three cases within 1 week of the examination at the department of radiology. In the other case aspiration of the palpable lesion was performed by the radiologist using a single-hand aspiration pistol (Cameco), a 10-ml syringe and a 19-G needle immediately after the imaging examinations. Fine-needle aspirates and paraffin sections were reviewed in all cases. Clinical, mammographic and sonographic examination was repeated after 1 year in all patients.

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Fig. 1a-c. Images of a 57-year-old woman with histopathological diagnosis of subcutaneous fat necrosis of the right breast. 

- **1a**: Lateral mammogram shows the breast to be replaced entirely by fat.
- **1b**: US examination identifies the subcutaneous fat necrosis as an area (1.7 cm) of increased echogenicity (markers).
- **1c**: Paraffin section showing a small lipophagic granuloma with multinucleated giant cells surrounding fat globules.

Fig. 2a-e. Images of a 57-year-old woman with cytological diagnosis of subcutaneous fat necrosis of the left breast. Mammography did not depict the palpable lesion. One year later the lesion was still palpable, and its size remained unchanged at US.

- **2a**: High-Resolution (7 MHz) US shows the area of increased echogenicity of the subcutaneous fat measuring 1.3 cm (arrows).
- **2b**: May-Grünwald-Giemsa (MGG)-stained smear showing enhanced staining of subcutaneous fat cells (original magnification x 250).
- **2c**: MGG-stained smear showing multinucleated giant cells containing small fatty vacuoles adjacent to free-lying fat globules (original magnification x 400).