

CASE REPORT

Foreign body granuloma: a mimic of breast carcinoma

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Abstract: Foreign body granuloma of the breast may cause diagnostic controversy when they present with neoplasia-like imaging findings. A 70-year-old woman presented with a mass in the lower outer quadrant of the right breast measuring 3x2 cm with a history of breast biopsy from her right breast a year ago. Mammography was performed and the mass was diagnosed as malignant. A wide excision was performed. The mass was diagnosed histologically as a foreign body granuloma. The patient was discharged and her postoperative recovery was uneventful. Clinicians and radiologist should be aware of this type of breast lesion which may be misinterpreted as breast carcinoma (Fig. 2, Ref. 8). Full Text (Free, PDF) www.bmj.sk.

Key words: granuloma, breast carcinoma, neoplasia, mammography.

Various foreign bodies introduced into the human organism during surgery or trauma as well as exposure to some chemical substances may cause a granulomatous reaction. Although rare, foreign body granulomas may cause diagnostic controversy when they present with neoplasia-like imaging findings (1). Breast granulomas (BG) are uncommon breast lesions that generally produce palpable lesions. The various etiologies of BG include idiopathic, tuberculosis, sarcoidosis, Wegener's granulomatosis, immunological defects, and foreign body reactions. A breast mass caused by foreign body type granulomatous reaction to surgical material is a very rare lesion that can mimic carcinoma (2). It has been reported that at mammography, foreign body reaction can appear as calcifications or a mass which simulates malignancy due to its partially circumscribed or ill defined margin (3).

On the other hand, spiculated breast lesion is defined as a mass or an architectural distortion characterized by thin lines radiating from its margins. Spiculated breast lesions may be caused by both benign and malignant processes. It is very rare that mammography reveals a foreign body granuloma as a spiculated mass (3).

In this study, we report a foreign body granuloma which mimics breast cancer radiologically and clinically.

Case report

A 70-year-old woman was admitted to our clinic with a right breast mass and nipple retraction. She had a history of breast biopsy from her right breast a year ago, the pathologic examination revealed fibrocystic changes. She has been complaining of

increasing pain in her right breast. She felt a mass in right breast a month ago. Physical examination showed a lump of about 3 cm in the lower-outer quadrant of the right breast, with ill-defined margins, nipple-retraction and skin edema. No ipsilateral axillary nodes have been detected. Breast ultrasound showed a complex mass of 3x2cm with internal echoes and septa with irregular margins suspicious for malignant mass (Fig. 1). Mammography demonstrated a spiculated mass without microcalcifications (Figs 2 a, b). According to the American College of Radiology Breast Imaging and Reporting Data Systems (BI-RADS), the probability of malignancy was high (category 5). These clinical and radiological data were highly suggestive for breast cancer. A surgical treatment was planned. The patient underwent surgical resection. Macroscopically, tumor presented as a cystic mass of 3 cm in diameter. Histopathological examination of the biopsy specimens showed deposition of amorphous eosinophilic material with surrounding granulomatous inflammation. No glove powder, sponge or suture material was detected on the cut surface or microscopic examination. The final patho-

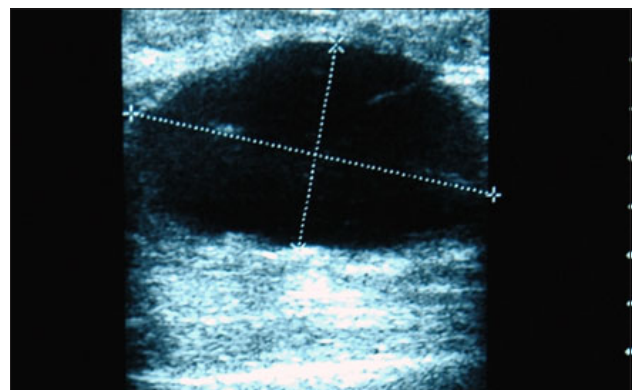


Fig. 1. Sonogram of the right breast shows a complex mass of 3x2cm with internal echoes and septa with irregular margins.

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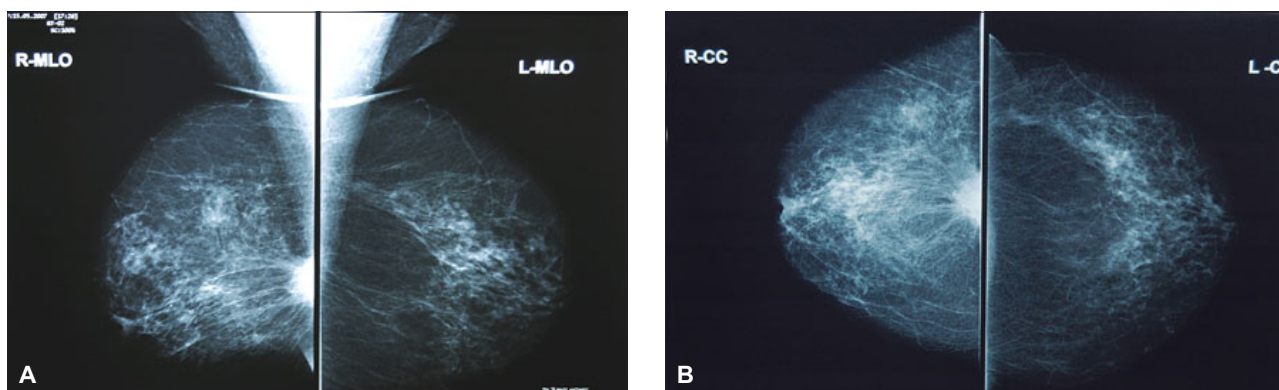


Fig. 2. Bilateral mediolateral oblique (A) and craniocaudal (B) mammograms show spiculated masses in the posterior portion of right breast. Microcalcifications are not seen within the mass.

logical diagnosis was a foreign body granuloma. The post-operative clinical course was uneventful. The patient is still under periodic follow up and no recurrence has been detected up to date.

Discussion

We have described the unusual clinical, mammographic and sonographic findings of foreign body granuloma of the breast arising after the breast biopsy. A breast mass caused by foreign body type granulomatous reaction to surgical material is a very rare. The causative agent in foreign body granulomas of the breast may be suture material, sponge used during surgery silicone, paraffin, and gunpowder or carbon particles (2–6). In our patient, no cause than surgery for the reaction was present. It was thought that the mass might have developed due to a host response related to the local irritant effect of the gauze sponge, suture material or the glove powder but there is no reliable evidence to prove this hypothesis.

On mammography, foreign body reaction can appear as calcification or a mass which simulates malignancy due to its partially circumscribed or ill-defined margins (3). In our case, the mass was spiculated.

A spiculated breast lesion is defined as a mass or an architectural distortion characterized by thin lines radiating from its margins (7). Spiculated breast lesions may be caused by both benign and malignant processes, including sclerosing adenosis, post surgical scar, radial scar, tuberculosis, post traumatic oil cysts, infiltrating ductal carcinoma, ductal carcinoma in situ, infiltrating lobular carcinoma, and tubular carcinoma (7, 8). Mammographically, such lesions are often similar, and only some can be differentiated on the basis of morphologic characteristics. Although microcalcifications are often associated with breast carcinoma, not all spiculated lesions with microcalcifications are malignant. The spicules of benign lesions are often caused by fibrous tissue, lipid-filled spaces surrounded by histiocytes, or sclerotic stroma, whereas the spicules of malignant lesions are due to tumor infiltration, desmoplastic response, or periductal fibrosis (7). Mammography alone is frequently not reliable for making the specific diagnosis. Clinical breast examination, additional mammographic views, and

needle or surgical biopsy are often required. To our knowledge, this is the second published case report in which mammography revealed a foreign body granuloma as a single spiculated mass.

Previously, Han et al reported the unusual radiologic findings in two patients with foreign body granulomas caused by injected foreign materials, mammographic findings were bilateral, spiculated solid masses. Although the imaging findings strongly suggested malignancy, preoperative histologic confirmation by means of large core-needle biopsy helped prevent unnecessary radical mastectomy and led to appropriate treatment (3).

In conclusion, clinicians and radiologist should be aware of this type of breast lesion which may be misinterpreted as breast carcinoma.

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