Asian Journal of Surgery (2017) 40, 243–247

Available online at www.sciencedirect.com

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CASE REPORT

A case of rare primary cystic-type squamous cell carcinoma of the breast that could be preoperatively diagnosed

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Received 26 July 2013; received in revised form 27 March 2014; accepted 9 January 2015
Available online 13 March 2015

KEYWORDS
core needle biopsy;
cyst;
fine-needle aspiration;
squamous cell carcinoma of the breast

Summary Primary squamous cell carcinoma of the breast (SCCB) is a rare disease, with a worldwide incidence <0.1%. In many cases, it is clinically characterized by rapid growth. Cyst formation due to central necrosis of the tumor accompanies its growth of the tumor in approximately 60–80% of all cases. Furthermore, it is considered difficult to diagnose SCCB solely on the basis of findings from diagnostic imaging. For large intracystic tumors, mammotome biopsy or core needle biopsy (CNB) is rarely performed. Instead, fine-needle aspiration (FNA) targeted at the tumor inside the cyst is often performed. The accurate diagnosis rate of SCCB using FNA is lower than that for ordinary-type breast cancer. If the cyst is large, the solid tumor shadow outside the cyst behind or around the cyst may be masked or hidden by the large cyst, which can sometimes yield an unclear view of the tumor shadow or make it impossible to visualize the shadow. In the present case, the contents within the cyst were completely aspirated and collected during the first step (FNA), thereby yielding a clearer, complete view of the solid tumor located outside the cyst. Thus, the subsequent step (CNB) was able to be performed in a more accurate and reliable manner. The combined use of FNA and CNB proved to be useful in making a preoperative diagnosis of SSCB accompanying a cyst.

Conflicts of interest: The authors declare that they have no conflict of interest.

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http://dx.doi.org/10.1016/j.asjsur.2015.01.009

1. Introduction

Squamous cell carcinoma of the breast (SCCB) is a rare disease, with a worldwide incidence <0.1%.[1–5] In many cases, SCCB is clinically characterized by rapid growth, and cyst formation due to central necrosis of the tumor accompanies this growth in approximately 60–80% of all cases.[6] Accordingly, because of the presence of these cysts, mammotome and core needle biopsy (CNB) are rarely performed on large intracystic tumors, and fine-needle aspiration (FNA) is often performed instead.[7] However, FNA has a relatively poor sensitivity for SCCB, making its diagnosis difficult when using this technique.[8–10] This report describes a case in which the combined use of FNA and CNB proved to be useful in making a preoperative diagnosis of SSCB accompanying a cyst.

2. Case report

A 47-year-old woman noticed a lump extending from the upper inner quadrant to the upper outer quadrant of her left breast 2 months earlier and visited the Takahashi Breast and Gastroenterology Clinic, Osaka, Japan. She had no appreciable medical history, but a review of her family history revealed that her mother had had breast cancer.

At presentation, a solid elastic tumor mass, approximately 4 cm in size, with a slightly unclear boundary and poor mobility, was palpable in the upper inner quadrant to the upper outer quadrant of the left breast. There was no continuity with the skin, fixation of the pectoral muscle, or abnormal secretion from the papilla, and no lymph nodes were palpable in the axillae.

Mammography revealed a 3.8-cm mass shadow with an unclear boundary and irregular margin occupying a portion of both the upper inner quadrant and the upper outer quadrant. The presence of microcalcification led to the mass being classified as Category 4 (Fig. 1A and B).

Subsequent breast ultrasonography showed part of a solid crescent-shaped tumor mass at the 12 o'clock to 3 o'clock position of the margin of the cyst shadow. This mass was 3.08 cm in size and was shown to be located in both the upper inner quadrant and the upper outer quadrant of the left breast, with bilateral shadows and enhanced posterior echoes (Fig. 2A). The cyst shadow alone was also visualized without the solid tumor when the direction and location of the beam were changed (Fig. 2B). Fig. 2C shows the FNA needle inserted in the cyst, and Fig. 2D is an image taken immediately after cyst aspiration, revealing a 2-cm shadow of the solid tumor, the overall image of which became clear at this point. In Fig. 2D, the line-shaped shadow running across from the right side to the front of the tumor is a CNB needle. The needle penetrated the solid component of the squamous cell carcinoma (SSC) more securely and accurately and was not blocked by the cyst (Fig. 2E).

For pathological analysis of the FNA specimen, the cytoplasm was stained with orange G. Spindle-shaped nuclei and increased chromatin content were observed (Fig. 3A). On analysis of the CNB specimen, components of moderately differentiated SSC forming a cancer pearl were observed in the background of the interstitium, fibrosis in which resulted in ground glass opacity. There was no sign of glandular cavity formation (Fig. 3B).

On the basis of the preoperative diagnosis of SCCB, the patient was referred to another medical institution for surgery. Systemic examination was conducted, but no other signs of disease were found. The patient underwent partial mastectomy and sentinel lymph node biopsy, and the pathological findings of the resected specimen were of SSC, infiltration diameter 34 mm × 26 mm, f, ly2, vo (high-grade nuclear atypia: 3, high-grade mitosis: 3), pN0: 0/1, ER: 1–5%, PgR: 0%, and HER2 score 1+.

3. Discussion

SCCB was first described by Troell in 1908.[1,11,12] It is a very rare disease, with a worldwide incidence <0.1%,[1–5] and the mean age of onset is reported to be 54 years.[1] The General Rules for Clinical and Pathological Recording of Breast Cancer classifies SCCB as a special type of invasive cancer, defined histologically as "a cancer accompanying squamous metaplasia where cancer lesion is not only stratified but also cornified or has intercellular bridge". In this patient, the tumor had no continuity with the skin and no abnormality was noted on systemic examination, leading to a diagnosis of primary SCCB. Although the precise histogenesis of primary SCCB remains unknown, it is thought to arise from the

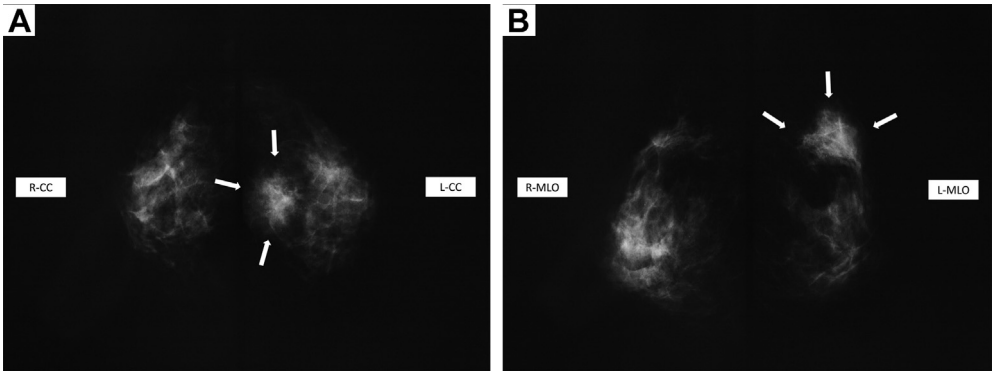

Figure 1 Mammography. (A, B) Mammography reveals a 3.8-cm mass shadow with an unclear boundary and irregular margin occupying a portion of both the upper inner quadrant and the upper outer quadrant. The presence of microcalcification led to the mass being classified as category 4.