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# Infiltrating Ductal Carcinoma of Breast Presenting as Areolar Dermal Lesion

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## ABSTRACT

Infiltrating ductal carcinoma is the most common form of invasive breast cancer. It accounts for 80% of all types of breast cancer. We report an unusual presentation of histologically proven case of infiltrating ductal carcinoma of breast presented clinically as a small palpable areolar dermal lesion. Well defined hypoechoic cystic lesion in areolar dermis was present on ultrasound with a negative mammogram.

**Key words:** Breast. Infiltrating ductal carcinoma. Areolar dermal lesion.

## INTRODUCTION

Breast parenchyma comprises of glandular element and stroma (connective tissue) separated anteriorly by anterior layer of superficial pectoral fascia from subcutaneous tissue and skin. This extraparenchymal subcutaneous area contains fat, blood vessels and anterior suspensory ligaments. Posteriorly, pectoral fascia separates the breast parenchyma from chest wall. The area posterior to the posterior pectoral fascia and chest wall contains fat and suspensory ligaments.

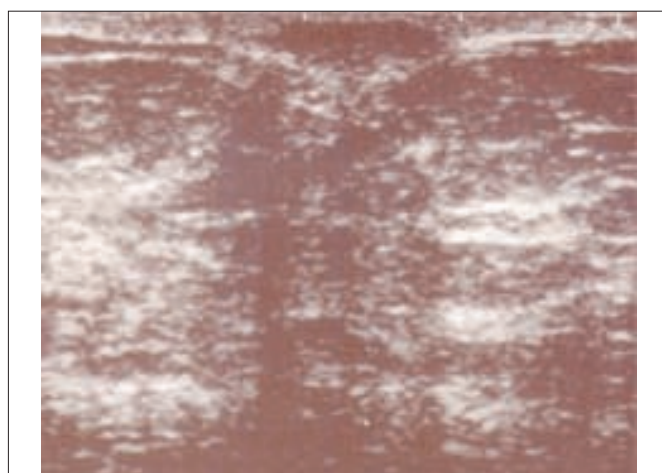
Dermal lesions are not uncommon in breast. Dermal lesions are extraparenchymal in location lying anterior to the anterior layer of superficial pectoral fascia in subcutaneous fat and in the echogenic layer of deep dermis on ultrasound. Most common dermal pathologies are benign and not specific to the breast. These include epidermal inclusion cyst, sebaceous cyst, vascular tumours, lipoma, infections, postsurgical scar and fat necrosis.<sup>1</sup> Histologically, the nipple areola complex is different than the rest of the breast parenchyma. The areolar dermis contains lactiferous ducts extending from more deeply placed mammary glands. These lactiferous ducts which are associated with modified sebaceous glands are present throughout the areola upto the periphery.<sup>2-4</sup> So the lesions in this area are not extraparenchymal in location and can be subjected to the development of all types of breast abnormalities of ductal origin including carcinoma.<sup>2,4</sup>

## CASE REPORT

A 70 years old lady presented with complaint of a small palpable nodule on left areolar region for the last 6

months. No appreciable change in size was noticed since then. This was her first mammogram in study center. Mammogram was reported by senior radiologist. Right breast was categorized as BIRAD-11 because of few specks of calcification and left breast as BIRAD-0 requiring additional investigation. Palpable nodule on left areola was not visualized on mammogram and she was advised for targeted ultrasound of left areolar region for further evaluation. Her targeted ultrasound (GE LOGIC-500) revealed well circumscribed anechoic lesion with imperceptible walls and internal echoes. The lesion was located between the echogenic lines of deep dermis beneath the site of palpable nodule. It was measuring 9.1 x 3.0 x 2.8 mm (Figure 1). No underlying mass or communication with the deeper breast tissue was noted. No abnormal vascularity was identified on Doppler imaging. Findings were concluded as areolar sebaceous cyst.

Based on the clinical findings, local excision of left areolar lesion was done. Microscopic examination revealed infiltrating ductal carcinoma Grade-1, with tumour cells arranged in tubules of various sizes and shapes (Figure 2). Fused tubules were also seen. Cells



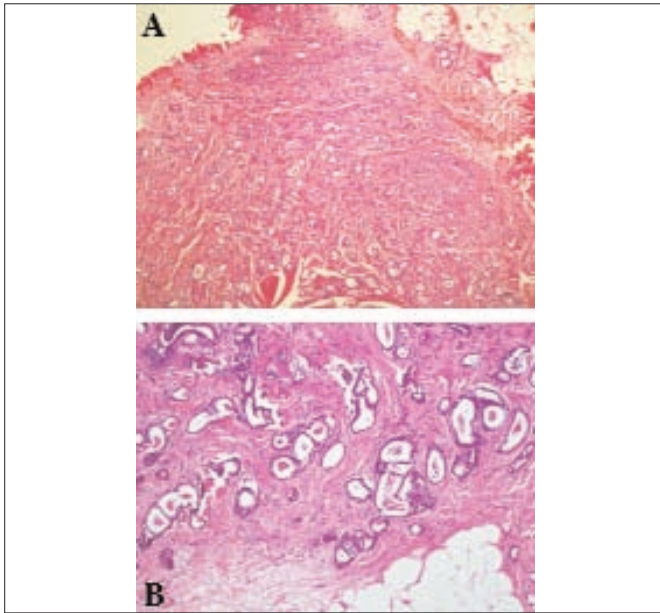
**Figure 1:** Ultrasound of the left breast areolar region showing anechoic lesion with internal echoes in areolar dermis.

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**Figure 2:** Photomicrograph of histopathology specimen A and B showing infiltrating ductal carcinoma Grade 1. Tumour cells arranged in tubules of various sizes and shapes. Cells show moderately pleomorphic hyperchromatic nuclei with mitotic figures.

showed moderately pleomorphic hyperchromatic nuclei. Mitotic figures were also noted (7/10 HPF).

As the lesion was central, her mastectomy was done. No other focus was noted in rest of the left breast parenchyma on histopathology.

### DISCUSSION

The nipple areola complex anatomy is unique and different than the rest of the breast parenchyma. Histologically, immediately beneath the areolar skin, apocrine sweat glands, modified sebaceous glands, and rudimentary mammary glands are present.<sup>5,6</sup> On the surface of areola there are certain protuberances which are basically combined orifices for the modified sebaceous glands and mammary lactiferous ducts as described by Montgomery (Montgomery tubercles).<sup>5</sup> Smith *et al.* confirmed the findings that modified sebaceous glands are associated with lactiferous ducts that extend from more deeply placed lactiferous glands.<sup>5</sup> According to Schinitte *et al.* ducts in the dermis of areola are similar to extra lobular ducts in breast parenchyma.<sup>6</sup>

Common areolar dermal lesions mostly include sebaceous cyst originating from modified sebaceous glands, infective processes and epithelial cyst. As lesions are superficial, mammogram is usually negative.<sup>7,8</sup> Ultrasound provide mainstay for the evaluation of these lesion. In case of cystic lesions, ultrasound shows status of wall thickness, internal echoes, and neoangiogenesis.<sup>9,10</sup> Infected sebaceous cyst and abscesses have the same sonographic features while epithelial cyst mostly has a tract

extending from the mass into the dermis. These lesions are also cystic and give through transmission. Malignant transformation of epithelial cyst is a rare complication.<sup>8</sup>

Katrina *et al.* found that all areolar dermal lesions are not benign. They mentioned two rare cases of areolar dermal lesion that turned out to be carcinoma.<sup>2</sup> Similarly, in this case the small palpable areolar lesion appeared as a benign cyst on ultrasound, while on histology the lesion was proven to be infiltrating ductal carcinoma.

Since, malignant masses are indistinguishable from abscesses at imaging, careful attention should be given to the clinical history. If there are no obvious signs of infection, biopsy should be performed to determine the origin of the mass.<sup>10</sup>

Review of literature does not reveal any definite statistic regarding the malignancy among areolar dermal lesion. However, as ducts are present in the areolar dermis, deeper malignant processes may follow the ducts and extend to the areola without involving the nipple. So areolar lesion must be dealt cautiously and biopsied irrespective of radiological findings.

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