

BREAST DISEASES OF THE LACTATING WOMEN; A RADIOLOGICAL-PATHOLOGICAL CORRELATION

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ABSTRACT

Aims and objectives: To recognize, describe the radiological manifestations and correlate pathologically the breast disorders related to lactation. To ascertain the value of the different radiological modalities in such disorders

Materials and Methods: This is an observational prospective study of 50 lactating women who presented with breast complaints. They were subjected to X-ray mammography, sonomammography and MR mammography with contrast if needed. All reports were histologically verified and correlated

Results: Of the 50 women evaluated, the following diseases were diagnosed: Puerperal mastitis (n= 18, 36%); Breast abscess (n=6, 12%); Granulomatous mastitis (n=4, 8%); Galactocele (n=10, 20%); Lactating adenoma (n=2, 4%); Fibroadenoma (n=8, 16%); Pregnancy associated breast cancer (n=2, 4%). Of the 50 women evaluated, sonomammography upstaged the X-ray mammography BIRADS category for 8 women which also corresponded with the HPE findings, X-ray mammography did not upstage the sonomammography BIRADS category for any woman, X-ray mammography and sonomammography showed similar findings in 42 women and MRI was used in indecisive cases, in 9 women, where the findings correctly predicted the HPE outcome.

Conclusion: Familiarity with the imaging spectrum of breast disorders during lactation is essential in today's scenario. It would be a better practice to always perform USG evaluation in lactating women referred to X-ray mammography for breast complaints and to use MR mammography for indecisive cases.

Keywords: Breast diseases, BIRADS, X-ray mammography, Sonomammography, MR mammography, HPE.

INTRODUCTION

The presentation of a lactating woman with breast complaints is a scenario commonly encountered.

The unique changes of physiology occurring within the breast secondary to the hormonal alterations of pregnancy and lactation cause increased breast volume, increased water content, associated palpable nodularity, increased parenchymal density and firmness. These changes result in difficult clinical and radiologic evaluations of the breast.⁽¹⁾

During lactation, most breast parenchyma appears echogenic, resulting from the combination of glandular enlargement and engorgement of breast tissue with milk rich in fat. In pregnancy and lactation, hypervascularity of the breast tissue is observed.

More than seventy five percent of patients presenting with breast complaints during lactation will have findings of benign disease.⁽²⁾ Malignant disease though rare can occur in lactating women. Successful management of the lactating women with breast disorders requires an understanding of normal and pathological clinical and imaging findings associated with breast in lactation.

AIMS & OBJECTIVES

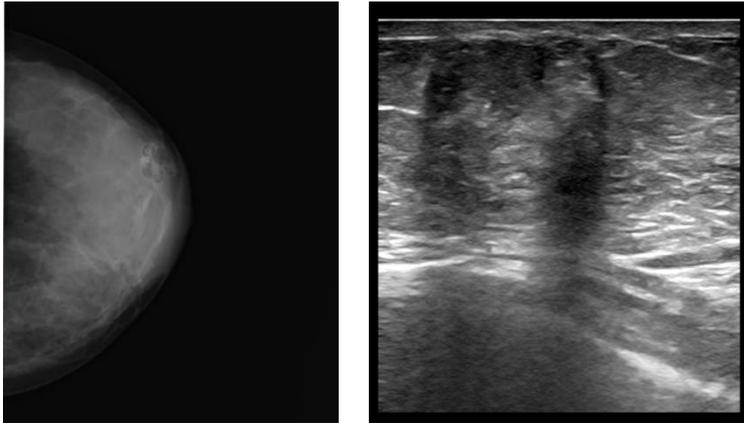
- To recognize the breast disorders related to lactation
- To describe the most common radiological manifestations of each disorder and the value of different diagnostic procedures.
- To discuss the pathological correlation of the imaging findings in these disorders

MATERIALS AND METHODS

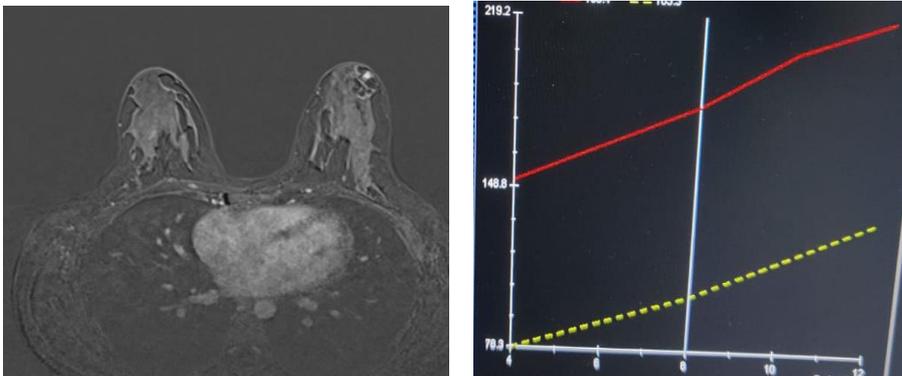
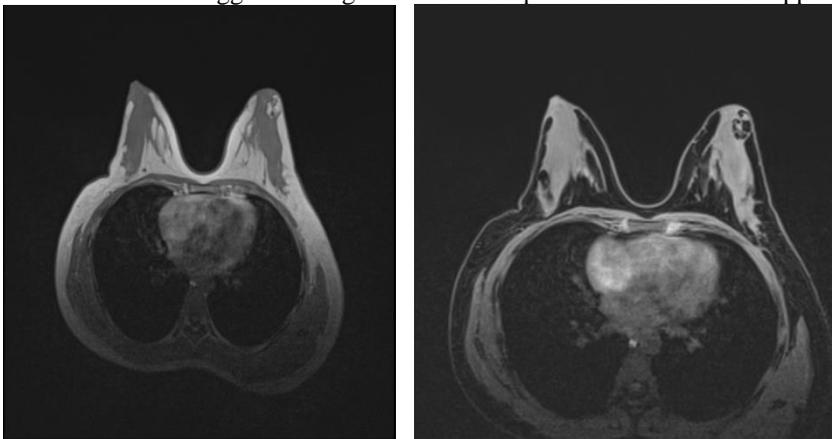
In this study, 50 lactating women who presented with breast complaints to a South Indian tertiary care Govt hospital were evaluated with X-ray mammography, sonomammography and MR mammography with contrast if needed.

All cases were histologically verified; their findings were reviewed and compared to radiological findings.

Case 1, 23 year old lactating woman, left breast:

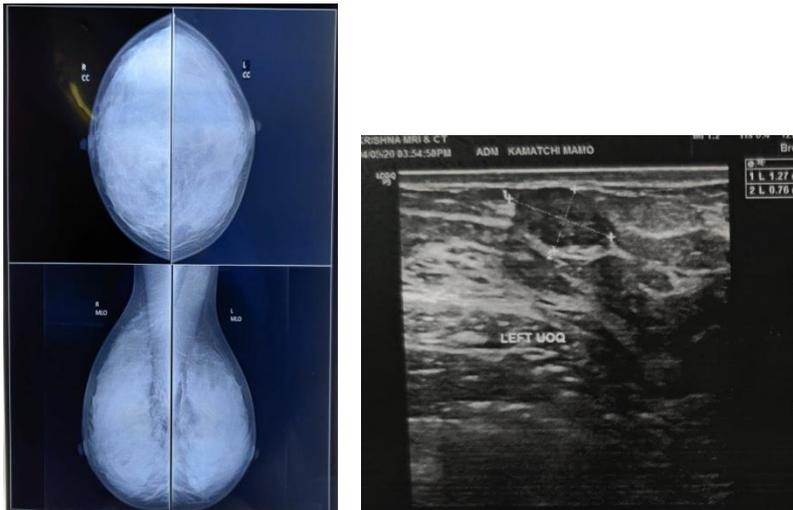


- USG shows a heteroechoic lesion with macrocalcifications, minimal posterior acoustic shadowing and minimal peripheral vascularity, in 4'o clock position – BIRADS 2.
- X-ray mammo shows an ill defined soft tissue opacity mass with areas of fat and macrocalcification within it in retroareolar region – BIRADS 2.
- Features suggestive of galactocele with pseudohamartomatous appearance/hamartoma

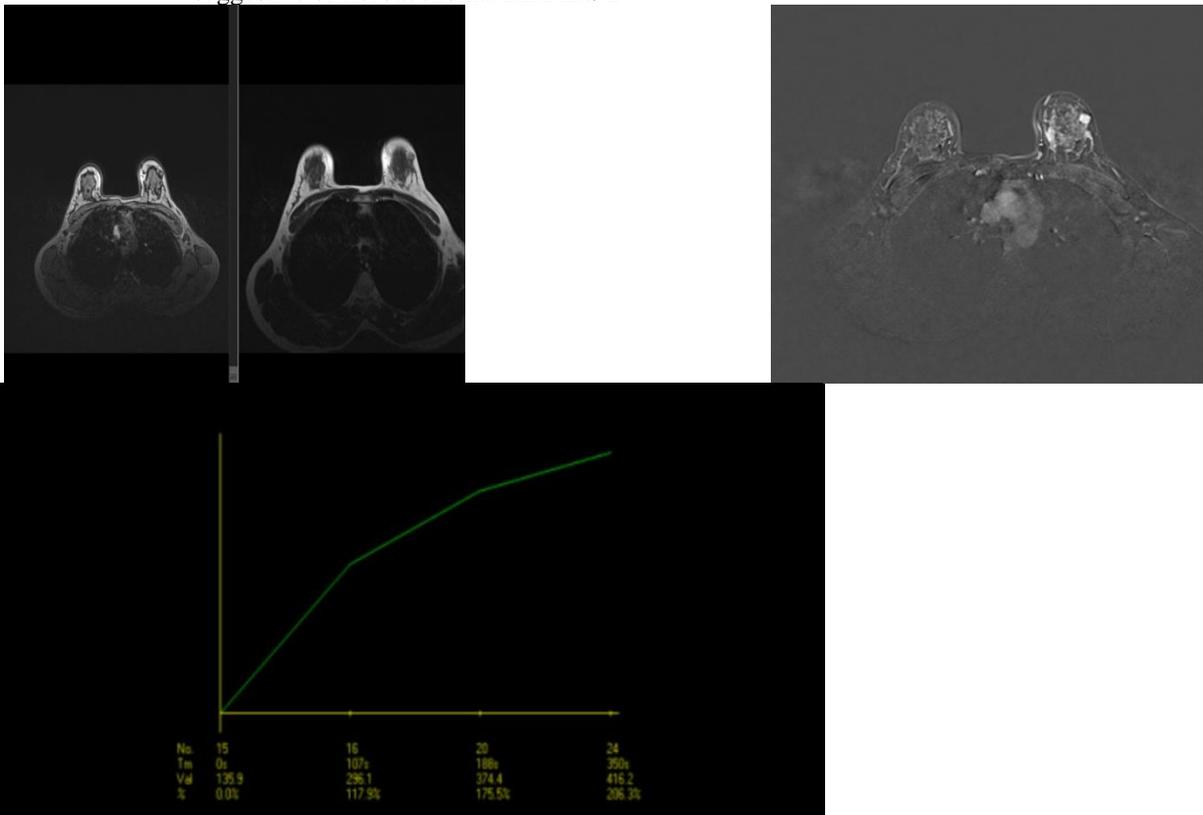


- MR shows well defined oval shaped heterointense lesion noted in lower outer quadrant of left breast just below the nipple areolar complex.
- The lesion shows fat suppression with hypointense areas suggestive of calcification.
- The lesion shows septal and rim enhancement on contrast.
- Type I kinetic curve was observed
- Features suggestive of BIRADS 2 lesion, possibly chronic infected galactocele mimicking features of pseudohamartoma
- HPE- Galactocele

Case 2, 22 years old lactating woman:

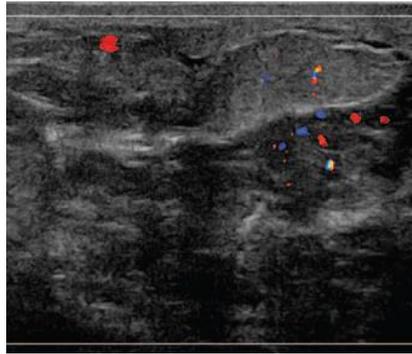
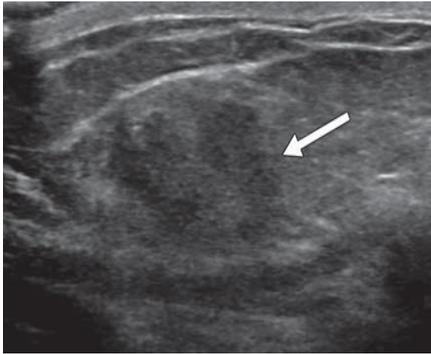
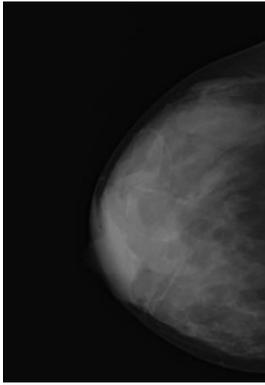


- X ray mammo
 - Bilateral dense breasts, no obvious mass lesion. BIRADS 1
- USG mammo
 - Hypoechoic subcentimetric lesions with well defined margins noted in bilateral breasts, suggestive of fibroadenoma. BIRADS 2



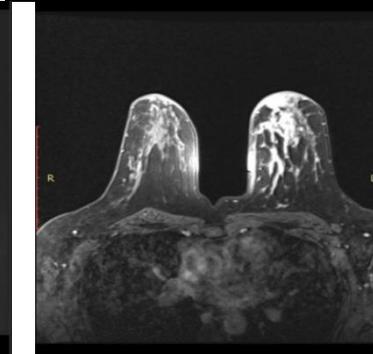
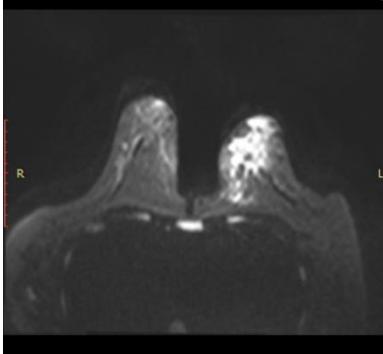
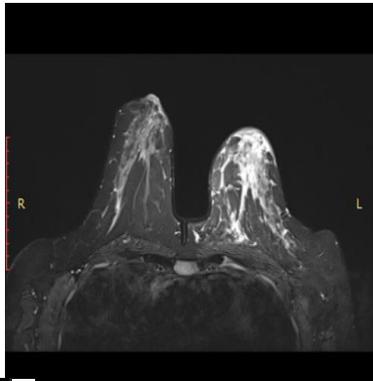
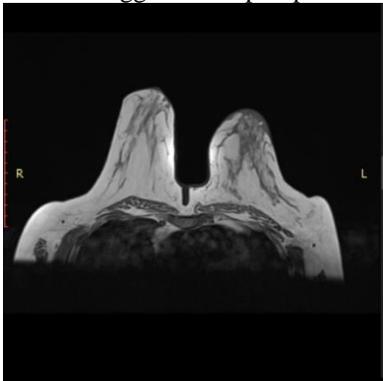
- MR shows:-
- Prominent fibroglandular tissue seen in both breasts
- Two subcentimetric T1 hypo and T2 isointense lesions seen, one in upper outer quadrant of left breast and the other in lower inner quadrant of right breast, which show homogeneous enhancement on contrast with Type I kinetic curve
- Features suggestive of bilateral fibroadenoma, BIRADS 2
- HPE- Multiple fibroadenomas

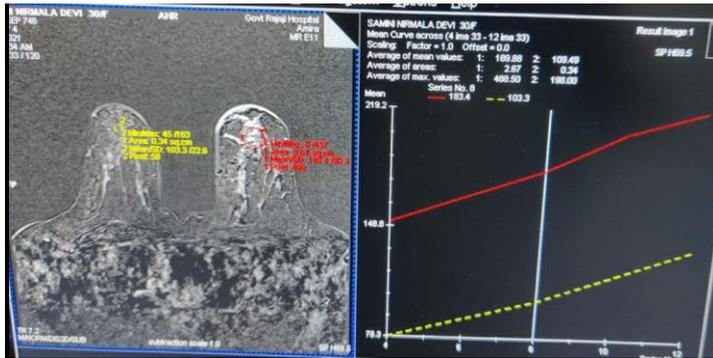
Case 3, 26 years old lactating woman, left breast:



- X-ray mammo shows dense breast with ill defined patchy radiodensities in retroareolar region. – BIRADS 2.
- USG mammo shows ill defined hypoechoic areas in all quadrants with prominent ducts and increased vascularity predominantly close to the areola. Subcutaneous edema noted in retroareolar region. – BIRADS 2

Features suggestive of puerperal mastitis





- MR shows in left breast:-
- Parenchymal thickening with duct dilatation noted in upper inner quadrant.
- Thin rim of subareolar fluid noted.
- On contrast benign pattern of abnormal enhancement noted showing Type I kinetic curve.
- Features more in favor of puerperal mastitis on left

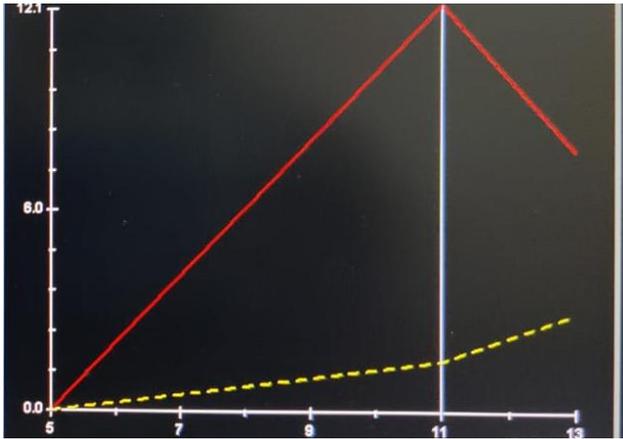
Follow up: Patient recovered with antibiotics

Case 4, 32 years old lactating woman:



- X ray mammo
 - Ill defined dense mass noted in the upper outer quadrant of right breast with irregular spotty microcalcification and architectural distortion, likely to be malignant. BIRADS 4
- USG mammo
 - Ill defined hypoechoic lesion with irregular margins, posterior acoustic shadowing and increased vascularity is seen
 - Enlarged axillary lymph nodes noted with loss of fatty hilum
 - Suggestive of malignancy. BIRADS 5





- MR shows:-
- A lobulated lesion noted in upper outer quadrant of right breast showing internal cystic areas causing focal architectural distortion
- Lesion shows heterogeneous enhancement on contrast
- Kinetic type III curve noted
- Axillary nodes noted which show homogeneous enhancement with loss of fatty hilum

BIRADS 5, suggestive of malignancy

- HPE – invasive ductal carcinoma

RESULTS

Of the 50 women evaluated, the following diseases were diagnosed

- Puerperal mastitis (n= 18, 36%)
- Breast abscess (n=6, 12%)
- Granulomatous mastitis (n=4, 8%)
- Galactocele (n=10, 20%)
- Lactating adenoma (n=2, 4%)
- Fibroadenoma (n=8, 16%)
- Pregnancy associated breast cancer (n=2, 4%)

Of the 50 women evaluated,

- Sonomammography upstaged the X-ray mammography BIRADS category for 8 women which also corresponded with the HPE findings
- Xray mammography did not upstage the sonomammography BIRADS category for any woman
- Xray mammography and sonomammography showed similar findings in 42 women
- MRI was used in indecisive cases, in 9 women, where the findings correctly predicted the HPE outcome

DISCUSSION

This study has described the radiological findings of the common disorders encountered during lactation. Sonomammography scored over Xray mammography in accurately predicting the HPE outcome in 16% of the lactating women. MR can be used for indecisive cases which has a high sensitivity and specificity.

A **galactocele** is the most common benign breast mass in the lactating patient.⁽⁵⁾ Galactoceles are usually well circumscribed and round or oval; may be anechoic, hypoechoic, or hyperechoic; and show wall thickening in cases of chronic inflammation.⁽⁶⁾ Galactoceles show increasing internal echogenicity as the lesion ages, and a fat-fluid level is occasionally observed.

The most common benign tumor identified during lactation is a **fibroadenoma**, a well circumscribed oval or round mass with a wider than tall orientation, and with or without a few macro lobulations.⁽³⁾ Infarcted fibroadenomas may show internal cystic areas and a more irregular border than non-infarcted typical fibroadenomas.⁽⁴⁾

Mastitis with or without an associated abscess formation is a commonly seen pathology during lactation.^(3,5) The most probable cause of mastitis is retrograde infection through cracked nipples and due to poor emptying of milk. Sonographic findings in early mastitis are usually limited to regional edema and thickening of skin. As tissue necrosis occurs in focal mastitis, skin thickening is usually accompanied by a focal hypoechoic mass with surrounding hyperemia. In few cases of focal mastitis, an inflammatory focal mass may occur and it mimics the appearance of a solid mass.

Pregnancy-associated breast cancer (PABC) is a breast cancer that is diagnosed during pregnancy or within 1 year after giving birth. They have a poorer prognosis than breast cancers in non pregnant women. Imaging findings of PABC are similar to those of breast cancer in non-pregnant women. ⁽⁷⁾

CONCLUSION

Familiarity with the imaging spectrum of breast disorders during lactation is very helpful for radiologists to provide the correct diagnosis and avoid delayed diagnosis of breast cancer and unnecessary surgery for benign lesions.

It would be a better practise to always perform USG evaluation in lactating women referred to Xray mammography for breast complaints. It is also prudent to use MR mammography for indecisive cases

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