

Contrast-Enhanced Magnetic Resonance mammography for screening of the contralateral breast in patients with diagnosed breast cancer

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PURPOSE: To determine the role of contrast-enhanced Magnetic Resonance Mammography (CE-MRM) for evaluation of the contralateral breast in patients with recently diagnosed breast cancer.

MATERIALS AND METHODS: 118 consecutive patients with proven unilateral breast cancer and negative contralateral breast at physical examination, ultrasound and x-ray mammography underwent CE-MRM at 1.5 T using a bilateral surface breast coil. Axial 3D T1-weighted GRE images were acquired before and at 0, 2, 4, 6, and 8 min after administration of 0.1 mmol/Kg BW gadobenate dimeglumine. Breast density and level of suspicion for contralateral breast lesions was evaluated according to the BI-RADS lexicon. Results were compared with histological findings after biopsy or surgery.

RESULTS: CE-MRM revealed contralateral lesions in 28/118 (24%) patients. Eight (28.6%) of these patients were classified as BI-RADS 4 (suspicious for malignant lesions) and underwent biopsy. The remaining 20 (71.4%) patients were classified as BI-RADS 5 (highly suggestive for malignant lesions) and underwent surgery. At histology 22 lesions were confirmed as malignant (TP lesions) whereas 6 lesions were fibroadenomas (FP lesions). No false negative lesions were detected and none of the patients with fibroadenomas was classified as BI-RADS 5. The sensitivity, specificity and diagnostic accuracy, PPV and NPV for the detection of malignant contralateral lesions was 100%, 93.8%, 94.9%, 78.6% and 100% respectively

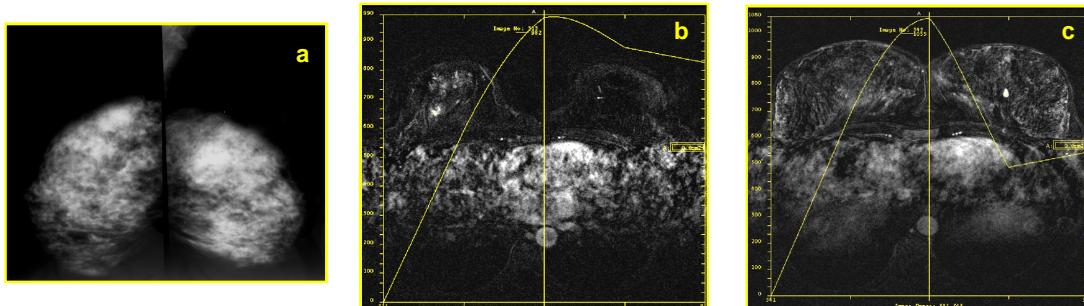


Fig. 1: Mammography (mediolateral oblique view): shows the presence of a mass with irregular margins, in the upper outer quadrant of the right breast (a). Contrast enhanced MR mammography subtracted images confirm the presence of a suspicious lesion with irregular margins in the upper outer quadrant of the right breast (b) and shows the presence of a lesion with regular margins and suspicious enhancement pattern in the contralateral breast (c)

CONCLUSIONS: CE-MRM is a highly accurate technique for the detection of synchronous contralateral cancer in patients with newly diagnosed breast cancer and should be introduced as a screening examination in patients with proven breast cancer before surgery.

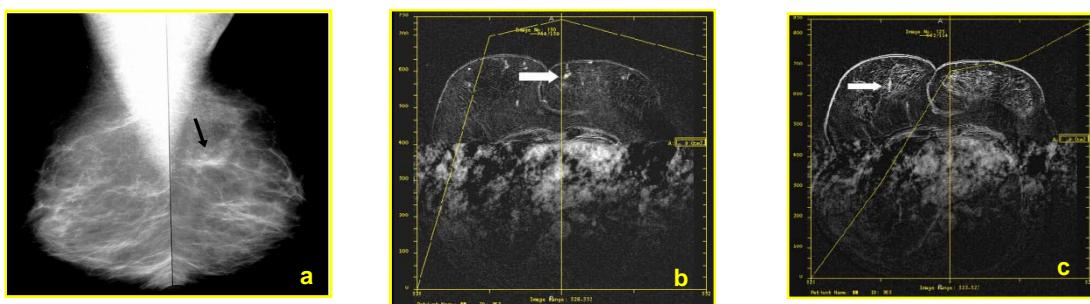


Fig 2 Conventional mammography (mediolateral oblique view) reveals a parenchymal distortion (black arrow) in the upper inner left breast (a). MR mammography confirms the presence of a lesion in the upper inner left breast with suspicious morphology and enhancement (b) and shows the presence of another lesion in the contralateral breast (homogeneous enhancement and type I curve).