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Indian Journal of Breast Imaging

Editorial

MRI Breast—The road ahead

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Received: 30 December 2024
Accepted: 30 December 2024
Published: 15 January 2025

DOI
10.25259/IJBI_28_2024

Quick Response Code:

The armamentarium of breast radiologists has a spectrum of imaging tools, including digital mammography (DM), contrast-enhanced mammography, ultrasound (USG), contrast-enhanced ultrasound, elastography, and magnetic resonance imaging (MRI). Each of these modalities has their specific place in patient approach and management protocol. As per the guidelines, females above 35 years of age undergo evaluation with DM, and the younger/pregnant/lactating females should be first subjected to USG. Dynamic contrast enhanced MRI (DCE-MRI) is considered as the most sensitive modality for evaluation of breast; however, it faces limitations in the form of low specificity, limited availability, the need of dedicated equipment and an experienced radiologist, patient compliance, and administration of nephrotoxic contrast medium.[1]

Despite all these factors, DCE-MRI has been considered the strongest arrow in the quiver of radiologists over the last few years due to all the advancements and refinements in its acquisition sequences. Although it is considered and often performed as a first-line investigation in western populations for screening and evaluation prior to breast conservation surgeries, its role is predominantly problem-solving in developing countries. The last few decades have shown MRI as an important tool for breast cancer staging, pre-surgical planning, screening high-risk populations, and assessing implant integrity.[2] The integration of MRI breast in the clinical scenario has been largely achieved in Tier-1 cities where there is relatively better availability and accessibility of the modality.

However, the state of affairs is entirely different in rural areas, and this disparity gets compounded by higher costs associated with the installation and application of MRI. This raises an intriguing question on how we can tailor the needs to serve best to all kinds of populations. The advent of diffusion weighted imaging and further advancements in form of intravoxel incoherent motion and diffusion kurtosis imaging have shown promising results in detection, and characterization of breast diseases.[3] This may give some relief from contrast-related expenditure but would need substantial evidence to be considered as a replacement for contrast-enhanced imaging.

On the other hand, there is a growing literature on utility of ultrafast and abbreviated MRI, which have proven to complement standard imaging sequences in detection, and delineation of underlying pathologies. Despite the increasing availability of breast MRI even in metropolitan cities, the need for specialized radiologist training is critical.[4]

The future of breast MRI lies in addressing these challenges head-on. Interpreting breast MRI requires expertise that goes beyond traditional radiological skills. Institutions such as the Breast Imaging Society of India and Indian Radiological and Imaging Association have been working towards academic training by offering targeted courses and workshops to train radiologists with the

necessary knowledge to interpret these complex images.[5] In addition, there is a need for more efforts to achieve cost reduction and increase public awareness for crucial utility of screening high-risk females. The possibility of integration of teleradiology and telemedicine needs to be explored in order to bridge the gap and offer remote interpretations.

In short, though breast MRI plays a vital role in the management of breast cancer, considerable work is still needed for us to make the best use of it. This issue is one attempt in that direction which focuses on the various indications where MRI can serve as an important component of the patient evaluation and how non-contrast sequences can contribute to lesion characterization.

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Indian Journal of Breast Imaging

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How to cite this article: Dhamija E. MRI Breast—The road ahead. Indian J Breast Imaging. 2024;2(2):53–54. doi: 10.25259/IJBI_28_2024