
MR spectroscopy reduces unnecessary breast biopsies

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Lia Bartella, M.D., director of breast imaging at Eastside Diagnostic Imaging in New York City, was lead author of the study, which was conducted at Memorial Sloan-Kettering Cancer Center in New York City.

Bartella and colleagues performed 1H MRS on 32 non-mass enhancing breast lesions in 32 women, age 20 to 63. Twenty-five of the patients had lesions that had been labeled suspicious at MR.

MR depicts more abnormal findings than other breast screening procedures but it is not 100 percent accurate in distinguishing benign from malignant lesions, resulting in a large number of breast biopsy procedures recommended on the basis of imaging findings. Currently, approximately 80 percent of breast lesions biopsied are found to be benign.

Non-mass enhancing lesions are characterized by enhancement of an area that is not a mass or lump and may extend over large or small regions. Non-mass lesions occur with benign hormonal changes, but can also signify malignancy. Biopsy is often required to distinguish benign non-mass lesions from cancer.

With MR spectroscopy, which adds only 10 minutes to a standard MR exam, the radiologist is able to see the chemical make-up of a tumor. In most cases, the results indicate whether the lesion is cancerous without the need for biopsy.

For the study, 1H MRS can provide radiologists with chemical information about a lesion by measuring the levels of choline compounds—markers of an active tumor. All of the cancers present in this study were identified with MR spectroscopy. In the study, positive choline findings were present in 15 of 32 lesions, including all 12 cancers, giving 1H MRS a specificity of 85 percent and a sensitivity of 100 percent. If only the lesions with positive choline findings had been biopsied, 17 (68 percent) of 25 lesions may have been spared invasive biopsies and none of the cancers would have been missed.