MR imaging of mucinous carcinoma of the breast: differentiation between pure and mixed form

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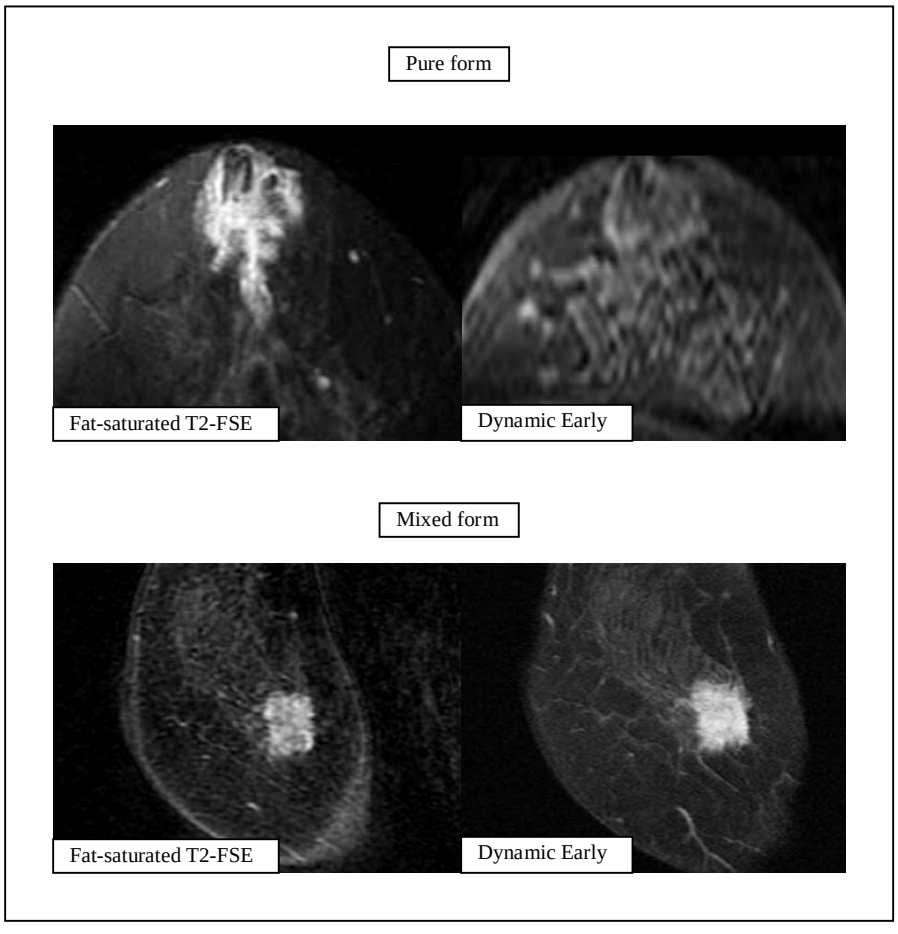
Problems: Pure form of mucinous carcinoma of the breast has favorable prognosis compared to mixed form that composes of mucinous tumor and usual-type invasive ductal carcinoma, and it is a good candidate for less invasive surgery. We reviewed MR images of mucinous carcinoma of the breast to disclose the differences in MR findings between the two forms.

Methods: Ten patients with mucinous carcinoma were examined with breast MR imaging and underwent surgery from April 2000 to September 2003. Eight patients had pure form and two had mixed form. MR imaging was performed with Signa Horizon LX Echo Speed 1.5T or Signa Twin Speed 1.5T manufactured by GE-YMS. MR images of a diseased-side breast were obtained in prone position using a unilateral element of breast surface coil. After T1-weighted SE or SPGR images and T2-weighted FSE images were obtained, 15 mL of Gadolinium contrast material were injected intravenously at rate of 3mL/second, and then early and late phase images of dynamic study were obtained with fat-saturated three-dimensional time-of-flight T1-weighted SPGR imaging 15 seconds and 95-115 seconds after the start of injection. Subsequently delayed-phase images were obtained with fat-saturated T1-weighted SE imaging.

Results: Six of eight pure-form tumors and one of two mixed-form tumors were depicted as a lobular-shape mass, and two pure-form tumors and one mixed-form tumor were depicted as an irregular-shape mass. On fat-saturated T2-weighted MR images, all eight pure-form tumors and one mixed-form tumor showed very high signal intensity and one mixed-form tumor showed very high signal intensity in the center and iso-signal intensity in the periphery. On T1-weighted MR images, five of eight pure-form tumors and all two mixed-form tumors showed low signal intensity and three pure-form tumors showed iso-signal intensity. On dynamic study, all eight pure-form tumors showed gradual enhancement pattern and all two mixed-form tumors showed early enhancement pattern. On delayed-phase MR images, all ten tumors showed inhomogeneous enhancement.



Conclusion: Both pure-form and mixed-form of mucinous carcinoma of the breast showed very high signal intensity on T2-weighted MR images. Dynamic study may be useful for differentiation between pure-form and mixed-form tumors.