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## RSNA Press Release

### MRI Accurately Depicts Spread of Cancer to Bone

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OAK BROOK, Ill. - Magnetic resonance (MR) imaging is extremely accurate in helping radiologists identify involvement of soft-tissue sarcomas (malignant tumors found in connective tissue) of underlying bone, according to a study appearing in the October issue of the journal *Radiology*.

"Our study has shown that MR can accurately identify the presence of bone invasion in sarcoma cases," said the study's lead author, David A. Elias, M.B.B.S. "MR helps to clarify the disease stage and may help in planning surgery and making a prognosis." Dr. Elias is a former fellow in musculoskeletal radiology at the University of Toronto and a current consultant in musculoskeletal radiology at King's College Hospital NHS Trust in London, U.K.

Sarcomas are usually imaged with MR to assess soft tissue and nerve involvement for surgical planning and radiation therapy. "The purpose of our research was to investigate the accuracy of MR in determining bone involvement," said coauthor, Lawrence M. White, M.D., associate professor and head of the division of musculoskeletal imaging in the department of medical imaging at the University of Toronto.

Bone invasion by soft-tissue sarcoma is uncommon but requires bone resection. Bone invasion is associated with decreased survival and a greater proportion of high-grade versus low-grade soft-tissue sarcomas.

The researchers compared MR scans with actual surgical findings for 51 sarcoma patients to evaluate the overall accuracy of MR imaging in detecting bone invasion from soft-tissue sarcoma and found that the overall MR accuracy had 100 percent sensitivity and 93 percent specificity. In addition, MR displayed a 79 percent positive predictive value and 100 percent negative predictive value.

"This research gives radiologists the confidence to say they believe the MR results are accurate when evaluating sarcoma's bone involvement," Dr. White said. "In the past, this confidence was reserved for soft-tissue involvement."

#### At A Glance

- MR shows bone invasion in cases of soft-tissue sarcoma.
- Sarcomas are tumors, usually highly malignant, that originate in connective tissue.
- Bone invasion is associated with decreased survival and a greater percentage of high-grade sarcomas.
- In the study, MR depicted bone invasion with 100% sensitivity and 93% specificity.

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"Osseous Invasion by Soft-Tissue Sarcoma: Assessment with MR Imaging." Collaborating with Drs. Elias and White on this study were David J. Simpson, M.B.B.S., Rita A. Kandel, M.D., George Tomlinson, Ph.D., Robert S. Bell, M.D., and Jay S. Wunder, M.D.