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[American College of Radiology / American Roentgen Ray Society](#)

Whole-body MRI may help detect suspected child abuse

Whole-body magnetic resonance imaging (MRI), which is highly accurate at detecting soft-tissue abnormalities, may serve a role in detecting suspected child abuse in infants, according to a study in the September issue of the American Journal of Roentgenology (www.ajronline.org). Whole-body MRI does not use ionizing radiation, but employs a magnetic field, radio frequency pulses, and a computer to produce detailed images of organs, soft tissues, bone, and virtually all other internal body structures. The diagnosis of abuse relies heavily on the presence of skeletal injuries, and high-quality skeletal surveys (a series of X-rays of all the bones in the body) are recommended to visualize the often subtle high-specificity fractures seen in infant abuse. Bruises are the most common sign of physical abuse, but subcutaneous tissue and muscle injuries are not currently evaluated with a global imaging technique in living children.

The study, performed at Children's Hospital Boston and Harvard Medical School in Boston, MA, included 21 infants who underwent whole-body MRI for the evaluation of suspected child abuse. Summary skeletal survey and whole-body MRI identified 167 fractures or areas of skeletal signal abnormality. "Although our study results revealed that whole-body MRI is insensitive in the detection of classic metaphyseal lesions and rib fractures, we found it did identify soft-tissue injuries such as muscle edema and joint effusions that, in some cases, led to identifying additional fractures," said Jeannette M. Perez-Rossello, MD, lead author of the study.

"Although our study indicates that whole-body MRI is currently unsuitable as a primary global skeletal imaging tool for suspected imaging abuse, it may be useful as a supplement to the skeletal survey in selected cases, particularly with regard to soft tissue injuries," said Perez-Rossello.

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This study appears in the September issue of the American Journal of Roentgenology. For a copy of the full study or to request an interview with Dr. Perez-Rossello, please contact Heather Curry via email at hcurry@acr-arrs.org or at 703-390-9822.

About ARRS

The American Roentgen Ray Society (ARRS) was founded in 1900 and is the oldest radiology society in the United States. Its monthly journal, the American Journal of Roentgenology, began publication in 1906. Radiologists from all over the world attend the ARRS annual meeting to participate in instructional courses, scientific paper presentations and scientific and commercial exhibits related to the field of radiology. The Society is named after the first Nobel Laureate in Physics, Wilhelm Röntgen, who discovered the x-ray in 1895.

