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NEWS

RSNA Press Release

MRI Rules Out Acute Appendicitis in Pregnancy

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At A Glance

- MRI accurately rules out acute appendicitis in pregnancy without radiation exposure.
- MRI demonstrates acute appendicitis and other conditions that masquerade as appendicitis clinically, preventing unnecessary surgery.
- When an ultrasound exam is inconclusive, MRI should be used to visualize the appendix in pregnancy.

OAK BROOK, Ill.—Magnetic resonance imaging (MRI) can help rule out acute appendicitis in pregnancy when ultrasound findings are inconclusive, according to a study in the March issue of *Radiology*.

Until now, in cases where appendicitis is strongly suspected and ultrasound is inconclusive, computed tomography (CT) has been the method physicians rely on for further investigation. However, this technique involves the use of ionizing radiation, which is less desirable during pregnancy because of potential harm to the fetus.

"MRI can potentially spare thousands of women and their developing fetuses from exposure to radiation by minimizing the need for CT to rule out appendicitis," said Dr. Ivan Pedrosa, M.D., lead author of the study from Beth Israel Deaconess Medical Center and assistant professor of radiology at Harvard Medical School in Boston.

Dr. Pedrosa's study constitutes the largest series of pregnant women with abdominal pain evaluated with MRI to date. Abdominal pain is a common complaint during pregnancy, and physicians are challenged with recognizing situations where emergency surgical intervention is necessary. Appendicitis is the most common cause of belly pain requiring emergency surgical treatment in pregnant women.

Typically, ultrasound is the preferred method for imaging the appendix in pregnant women, but the enlarged uterus and other physiologic changes-particularly during the third trimester-may prevent ultrasound from effectively visualizing the appendix, rendering the exam inconclusive.

In Dr. Pedrosa's study, 51 pregnant women underwent MRI after complaints of abdominal pain. Forty-eight of the women had a prior ultrasound exam. MRI yielded four diagnoses of acute appendicitis. Two of these four cases were not detected with ultrasound.

"Our study clearly demonstrates the capability of MRI when evaluating pregnant patients

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suspected of having appendicitis," said Dr. Pedrosa. "Additionally, MRI can reveal other conditions that may masquerade as appendicitis clinically, without unnecessary radiation exposure."

Dr. Pedrosa and colleagues believe that their findings support a change in clinical practice, by replacing CT with MRI as the definitive method of investigating abdominal pain in pregnant women.

"CT should be reserved for rare cases where MRI is inconclusive and there is strong clinical concern for appendicitis," he said.

At Beth Israel Deaconess Medical Center, the examination procedure has changed to reflect Dr. Pedrosa's findings.

"We eliminated what was a common practice, using CT to examine pregnant women with inconclusive ultrasound results," he said. "Now, these patients are evaluated with MRI instead."

However, Dr. Pedrosa maintains that larger studies are needed to investigate the issue of patient outcomes and examine the reproducibility of their results. Until now, only small series of pregnant women have been evaluated with MRI.

Appendicitis occurs when the appendix becomes acutely inflamed and develops a severe infection. The importance of ruling out this and other conditions that may require surgical intervention is paramount, to avoid unnecessary delays in treatment and subsequent risks to both mother and developing fetus.

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Radiology is a monthly scientific journal devoted to clinical radiology and allied sciences. The journal is edited by Anthony V. Proto, M.D., School of Medicine, Virginia Commonwealth University, Richmond, Va. *Radiology* is owned and published by the Radiological Society of North America, Inc. (radiology.rsna.org)

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"MR Imaging Evaluation of Acute Appendicitis in Pregnancy." Collaborating with Dr. Pedrosa on this paper were Deborah Levine, M.D., Aimee D. Eyvazzadeh, M.D., Bettina Siewert, M.D., Long Ngo, Ph.D., and Neil M. Rofsky, M.D.

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