Background
Management of acute abdominal pain in pregnancy is particularly problematic because of the risks of surgery to the fetus, the danger of radiation associated with CT, and the paucity of published systematic research [1-4]. If ultrasound is inconclusive, MRI is increasingly used for imaging assessment and the aim of this presentation is to review the safety, technique, and interpretation of MRI in this setting.

Safety
Most studies show no adverse effects on the fetus from prenatal MRI [5-7]. Some animal studies have raised questionable concerns of teratogenesis, and extra caution during the first trimester may be appropriate. Gadolinium is teratogenic in animal studies [8], and the potential persistence of gadolinium in amniotic fluid is also worrying. Contrast enhanced MRI should only be performed for compelling indications.
**Technique**

Multiplanar fast spoiled gradient-echo T1 (e.g., FMPSPGR, FLASH) and single-shot rapid acquisition with refocused echoes T2 (e.g., SSFSE, HASTE) weighted sequences allow breath-hold imaging and are usually sufficient [9]. Oral Gastromark and Readi-Cat can be used for negative T1 and T2 enteral contrast. In later gestation, left lateral decubitus positioning may be necessary to prevent caval compression.

**Interpretation**

A thickened appendix with surrounding fat-stranding indicates acute appendicitis, although identification of these signs may be difficult near term [10,11]. Proximal bowel dilatation with distal collapse indicates bowel obstruction [12]. Unilateral perinephric fluid suggests fornical rupture, either spontaneous or due to stones [13,14]. Ureteral calculi are not well seen and CT or limited IVP may be preferred. Other causes to consider include red degeneration of leiomyoma, ovarian edema, and hepatic infarction secondary to HELLP syndrome [15-17].
References


