AUCKLAND RADIOLOGY GROUP

SCAN OFFICIAL NEWSLETTER

October 2009

Imaging Assessment of Right Iliac Fossa Pain

RIF pain represents a significant problem in the community due to:

1. Relatively common occurrence, representing approximately one third of all abdominal pain, or up to half of acute severe abdominal pain.
2. Complex nature with multiple widely varying causes which may display considerable overlap in clinical symptoms and signs.

The primary decision required is whether further intervention is required and, if so, which surgical specialty is appropriate. In addition, is hospitalization necessary? Accurate and rapid diagnosis is important. In some cases the diagnosis may be readily apparent from clinical assessment and laboratory testing, but clinical findings may be atypical and confusing.

Potential causes of RIF pain which may be difficult to confidently distinguish clinically include:

Gastrointestinal: Appendicitis, inflammatory bowel disease, irritable bowel syndrome, viral mesenteric adenitis, bacterial infections, diverticulitis, malignancy, hernia etc.
Urological: Ureteric colic, UTI, scrotal pathology.
Gynaecological: PID, ectopic pregnancy, endometriosis, ovarian cyst or torsion, malignancy.
Other: Aortic or iliac aneurysm/rupture.

Many of these pathologies show characteristic imaging features allowing a confident diagnosis. Thus imaging tests have a role to play in determining the need for treatment and the type of therapy required, by providing valuable additional information.

Available Imaging Tests -

Ultrasound: No ionizing radiation, readily available, realtime assessment, good in small/slim patient. Best initial test for suspected gynaecological problems. Limited by adipose tissue and bowel gas. Severe pain can limit the examination as transducer contact on skin may require moderate pressure.

CT Scan: Rapid, no skin contact so pain and tenderness not limiting, adipose helpful (up to a point), most comprehensive/best test for majority of conditions, but ultrasound better for gynaecology. Uses radiation, and usually IV contrast is required.

MRI: Best as a problem solving tool after initial clinical and ultrasound or CT assessment.

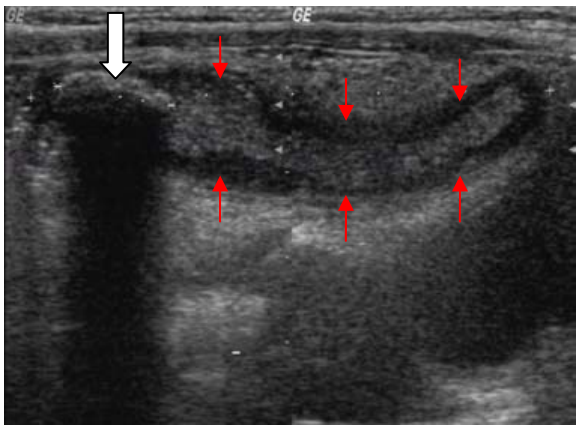

Fig 1 (left) – Ultrasound scan of an inflamed appendix. A distended and thick-walled appendix is shown (red arrows). An appendicolith is evident within the lumen, with acoustic shadowing beyond it (white arrow).

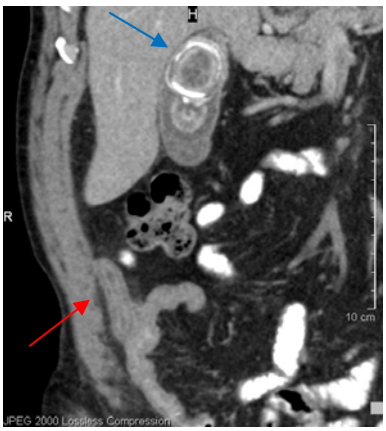

Fig 2 (right) – Acute appendicitis on CT. A distended inflamed appendix is shown (red arrow). Also note calculi in the gallbladder (blue arrow).

Guidelines for Imaging –

Selection of the most appropriate imaging test depends on:

1. Patient age and body habitus.

- Age under 20 – ultrasound initially, regardless of suspected pathology. Then CT or MRI if additional information required.
- Age over 20 - Use ultrasound initially in young, slim adults, particularly women of reproductive age.
- CT in older or obese patients.

2. Suspected pathology based on clinical and laboratory findings.

- **Appendicitis:** Frequent atypical presentation. Negative appendicectomy rate is higher in females of reproductive age due to clinical confusion with gynaecological pathology. Ultrasound and CT similar high sensitivity and specificity for acute appendicitis.
- **Renal Colic**: CT scan has sensitivity and specificity approaching 100%, regardless of location of the calculus. US cannot visualize very small calculi or mid ureteric calculi.
- **Gynaecological:** Wide range of pathologies, all best initially characterized by US (transvaginal), even if obese. Some pathologies may require further assessment with MRI.
- **Hernia:** US, or CT if obese.
- **Bowel related**: CT unless under 20 yrs of age, then US.
- **Vascular** cause for pain, such as aneurysm with or without leak: CT scan.

Nicholas Dodd

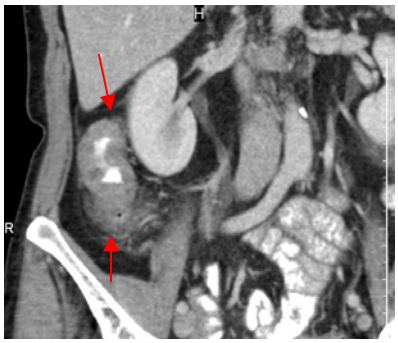

Fig 3 – Coronal CT image showing diverticulitis of the ascending colon. The colon wall is thickened and there are inflammatory changes in the surrounding fat. Air is evident within a diverticulum.

Fig 4 – Renal colic. CT shows a ureteric calculus.

Fig 5 – Typical transvaginal ultrasound appearances of an endometrioma related to the right ovary.