

Right lower quadrant pain

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Section: Abdominal imaging

Imaging Technique: Ultrasound

Imaging Technique: CT

Imaging Technique: CT

Case Type: Clinical Cases

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Patient: 76 years, male

Clinical History:

The patient was admitted to the emergency department because of right lower quadrant pain and nausea. Physical examination showed tenderness of the right lower quadrant, but no fever.

Imaging Findings:

The patient was admitted to the emergency department because of right lower quadrant pain and nausea. Physical examination showed tenderness of the right lower quadrant, but no fever. Laboratory investigations demonstrated an elevated white blood cell count and elevated C-reactive protein.

An abdominal plain film was normal. Ultrasound demonstrated an uncompressible appendix with anteroposterior measurements consistently 10mm. Computed tomography scanning demonstrated an enlarged appendix with fat stranding. Appendicitis was diagnosed and confirmed by surgery.

Discussion:

Acute appendicitis is one of the most frequent acute abdominal surgical emergencies. Clinical signs and symptoms associated with appendicitis include right lower quadrant abdominal pain, initial periumbilical pain, fever, elevated white blood cell count, nausea, vomiting and anorexia.

Abdominal plain films are most frequently normal, but can demonstrate appendicolith. Ultrasound demonstrates a non-compressible bowel loop attached to apical caecum with a termination as a blind pouch corresponding to the enlarged appendix, with anteroposterior diameter measurements consistently 6mm or greater. If an appendicolith is identified within an appendix of any size, the examination is always considered positive for appendicitis. CT signs of appendicitis can be divided into direct and indirect signs. Direct signs are an enlarged (>6mm in diameter), unopacified appendix, appearing tubular or circular, and possibly containing an appendolith (specific for appendicitis but not frequent). Indirect signs are focal caecal apical thickening, the arrowhead sign of appendicitis (contiguous spread of appendiceal wall inflammation into the caecal apex results in a triangular-shaped space between the thickened apical walls), the caecal bar sign (a curved soft tissue bar of density interposed between the caecal lumen and the proximal appendicolith), right lower quadrant abdominal fat stranding, lateroconal fascial thickening, abscess, phlegmon, and diffuse caecal wall thickening.

Differential Diagnosis List: Appendicitis

Final Diagnosis: Appendicitis

References:

Choi YH, Fischer E, Hoda SA, Rubenstein WA, Morrissey KP, Hertford D, Hwang K, Ramirez de Arellano E, Kazam E. Appendiceal CT in 140 cases. Diagnostic criteria for acute and necrotizing appendicitis.

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Jeffrey RB, Jain KA, Nghiem HV. Sonographic diagnosis of acute appendicitis: interpretive pitfalls. AJR Am J Roentgenol 1994;162(1):55-9. (PMID: [8273690](#))

Rao PM, Rhea JT, Novelline RA. Sensitivity and specificity of the individual CT signs of appendicitis: experience with 200 helical appendiceal CT examinations. J Comput Assist Tomogr 1997;21(5):686-92. (PMID: [9294553](#))

Rao PM. Cecal apical changes with appendicitis: diagnosing appendicitis when the appendix is borderline abnormal or not seen. J Comput Assist Tomogr 1999;23(1):55-9. (PMID: [10050808](#))

Figure 1

a



Description: Abdominal plain film showing no abnormality. **Origin:**

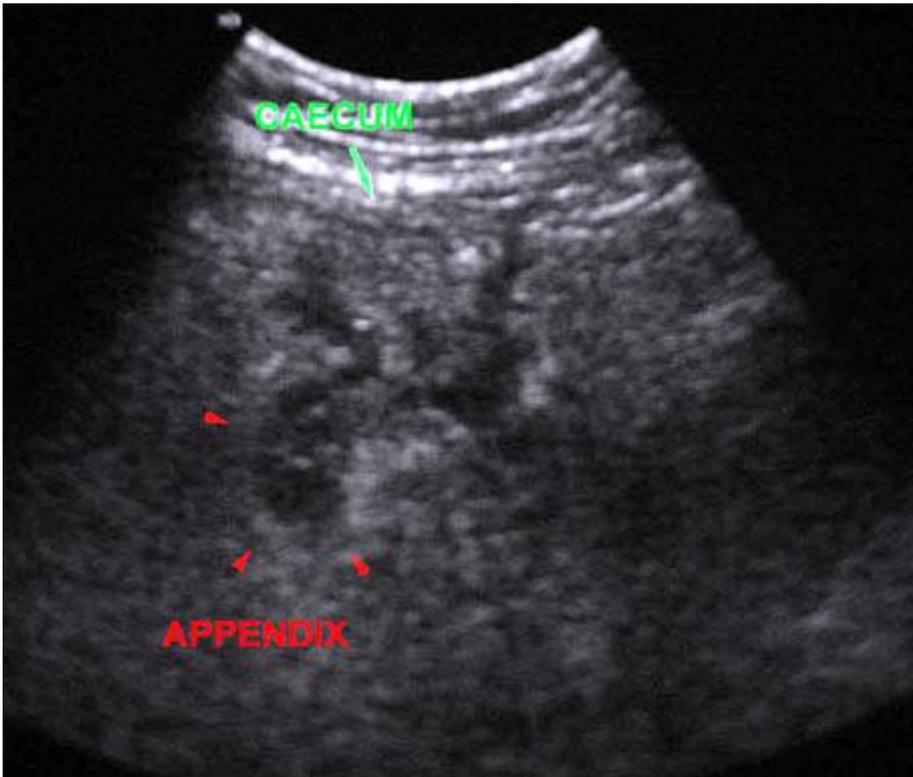
Figure 2

a



Description: Presence of non-compressible bowel loop with a termination as a blind pouch corresponding to an enlarged appendix. **Origin:**

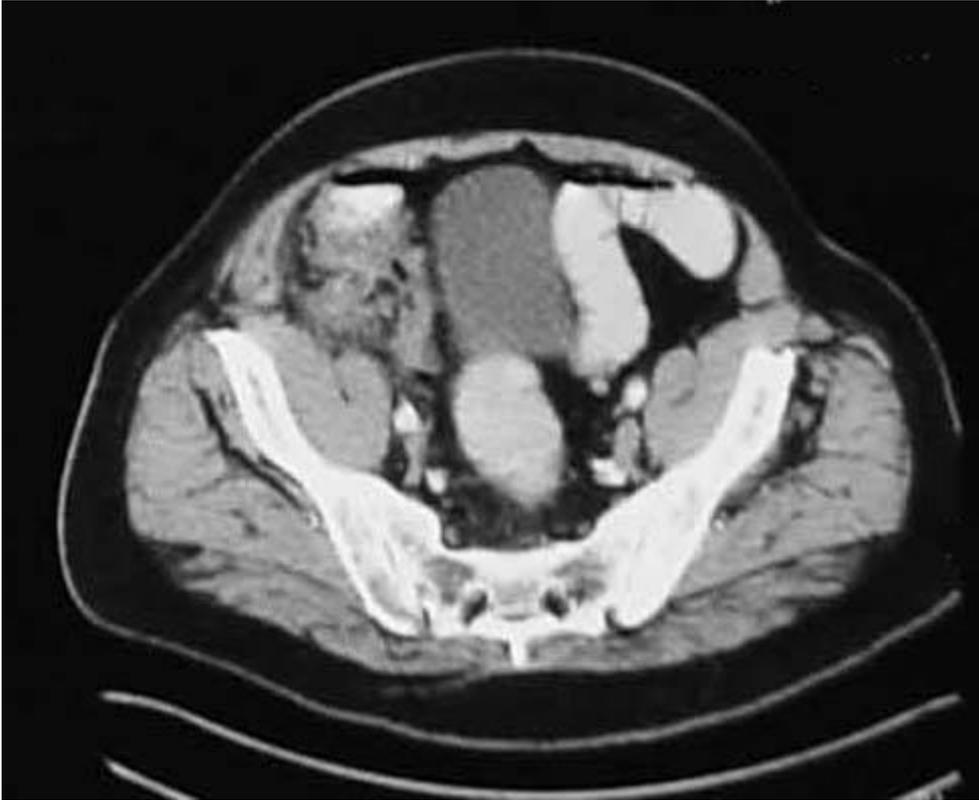
b



Description: Annotated picture. Origin:

Figure 3

a



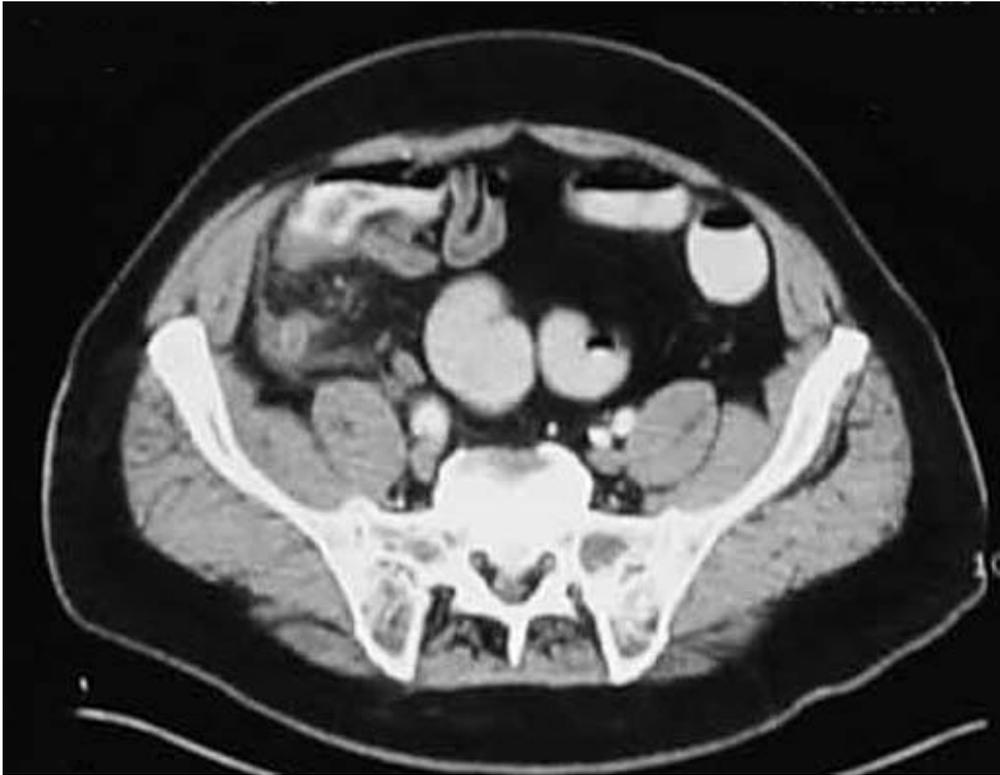
Description: Axial contrast-enhanced CT scan demonstrating enlarged, unfilled appendix and caecal apical wall thickening. **Origin:**

b



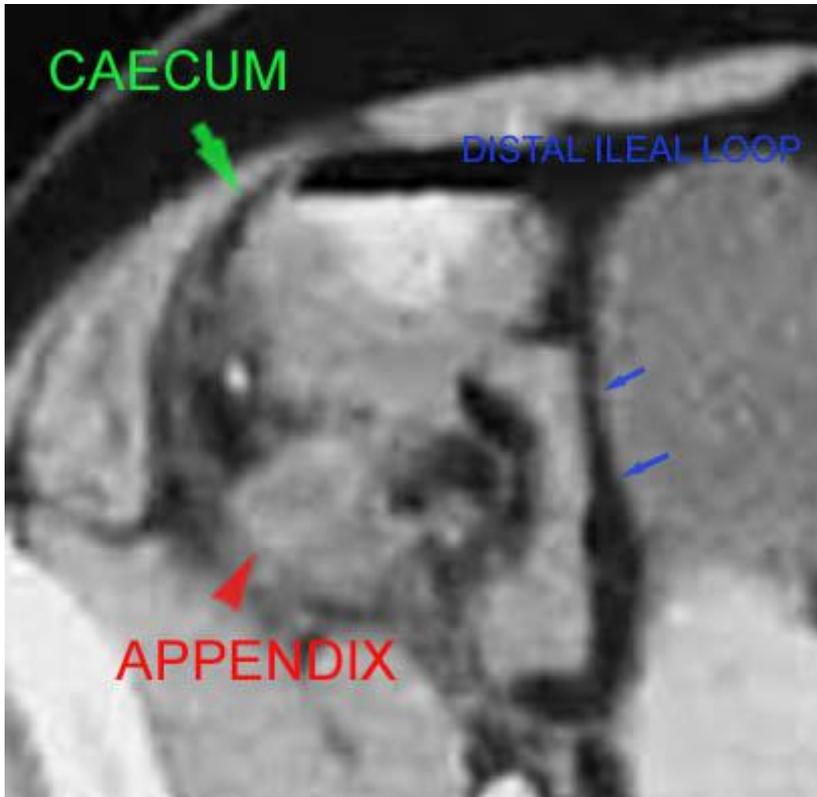
Description: Axial contrast-enhanced CT scan demonstrating enlarged, unfilled appendix and caecal apical wall thickening. **Origin:**

c



Description: Axial contrast-enhanced CT scan demonstrating enlarged, unfilled appendix and caecal apical wall thickening. **Origin:**

d



Description: Annotated picture. **Origin:**

Figure 4

a



Description: Axial contrast-enhanced CT scan demonstrating right lower quadrant fat stranding.

Origin: