Author's response to reviews

Title: Subhepatically located appendix due to adhesions and foetal malrotation: two case reports

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Author's response to reviews: see over
Thank you for your comprehensive and insightful reviews of **Subhepatically located appendix due to adhesions and foetal malrotation: two case reports**

**In response to Dr Dileep Lobo**

Thank you for highlighting previous reports in the surgical and radiological literature regarding non-typical locations of the appendix. However we believe that subhepatic appendicitis is worthwhile reporting in the context of difficult diagnosis for older adult patients referred to the Emergency Department (ED) with acute undifferentiated abdominal pain. Subhepatically located acute appendicitis occurs rarely, being found in only 0.08% of a highly selected adult cohort of 7210 patients presenting with appendicitis.¹ In an unselected or unreferred adult ED population with acute undifferentiated abdominal pain, subhepatic appendicitis would be expected to be even more rarely encountered than by surgical units, with initial assessment performed by a non-surgical clinician. Dr M Kapischke (second reviewer) describes "the difficult diagnosis of appendicitis in elderly patients....a daily problem in emergency medicine." More frequent undifferentiated ED presentation with acute abdominal pain in the increasingly elderly population is compounded by atypical presentations from mal-located appendices leading to diagnostic difficulties for ED clinicians. Furthermore, missed appendicitis is one of the leading reasons for litigation against primary care physicians.²

The advocacy for abdominal CT in the diagnostic differentiation of acute abdominal pain has been well made in the past;³ however, despite overall escalating use of CT, USS and diagnostic laparoscopies, a recent population based study demonstrated increasing frequency of false positive diagnoses leading to unnecessary appendectomy and higher perforation rates, with misdiagnosis increasing to 8% per year in patients > 65 years old. This lack of impact on the rate of negative appendectomy may be partly explained by their relative underutilization because of clinical practice patterns or cost.⁴ Reduced access to abdominal CT in a time- and resource-pressured ED may occur even in older patients with abdominal pain and associated with increased risk of non-typical presentation.
Outcome in Case 2: Symptoms including significant pain resolved over 48 hours with IV as required narcotic analgesia and IV antibiotics. A normal looking appendix was left in situ during a diagnostic laparoscopy. A follow-up colonoscopy revealed no evidence of inflammatory bowel disease. **Paragraph 3 on p 5 has been amended to reflect these clarifications (highlighted).**

**In response to Dr M Kapische**

Case 1: Description of the comorbidities for Case 1 has been shortened (Paragraph 3, p 3). The histopathology of the resected appendix is that of transmural acute inflammation and focal mucosal ulceration (this finding has added to paragraph 4, p 4). The patient was ventilated for 72 hours for his COPD and had a protracted in patient stay due to surgical wound infection, which was treated with IV vancomycin and gentamicin.

Case 2: IV antibiotics were commenced as the patient subsequently developed high fevers during her admission in the context of normal urine cultures and some peri-colonic inflammation on abdominal CT scan. A normal looking appendix was left in situ during a diagnostic laparoscopy. A follow-up colonoscopy revealed no evidence of inflammatory bowel disease. Symptoms including significant pain resolved over the next 48 hours with IV as required narcotic analgesia and IV antibiotics. These details have been added to paragraph 3, p 5.

Addition to Discussion: In a recent review, CT abdomen was found to be excellent for diagnosing acute appendicitis, with sensitivity being 88-100%, specificity 92-98%, PPV 86-98% and NPV 95-100%.⁵ In situations where CT abdomen is inconclusive, clinical diagnosis of appendicitis remains doubtful and the patient remains clinically unwell, a diagnostic laparoscopy is recommended.⁶

**As these additional aspects was requested to be added to the Discussion, two further references were necessarily added to the report (7, 8 in the Report; 5, 6 in this explanatory note)**

Minor criticisms have been addressed in the text of the manuscript.

**References**


