

## A CT in time saves a laparotomy

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### Introduction

Patients commonly present with acute epigastric pain as emergency surgical admissions. The spectrum of pathology causing this symptom can range from the mild gastritis of overindulgence to the potentially life threatening condition of severe pancreatitis. Often a specific diagnosis is obvious from a combination of good history taking, simple laboratory tests, or plain radiographs. We report a case where the availability of further imaging (CT) allowed refinement of treatment that would not have been otherwise feasible.

### Case report

A 50 year old female with a history of previous alcohol abuse was admitted with colicky epigastric pain radiating through to her back. Her symptoms had begun eight hours prior to her presentation in the Emergency Department at midnight. There were no other symptoms of note, in particular there was no associated vomiting and her bowel movements had been normal. She had a previous similar episode two years earlier which had been treated as irritable bowel syndrome and resolved spontaneously. The only other pertinent past medical history was an interval appendicectomy performed 23 years previously. She was a smoker of 35 pack years and denied any alcohol intake for the last six months. Her medication included lisinopril, omeprazole, and recently tramadol and paracetamol for an avulsion fracture of her left lateral malleolus. Examination was essentially unremarkable with mild epigastric tenderness only, and she was not

jaundiced. Blood tests on admission were also normal. An ECG showed normal sinus rhythm at a rate of 85. Her temperature was normal at 36.0, blood pressure 165/95, respiratory rate 20 and oxygen saturation 95% on air. The chest Xray (Fig. 1) was normal without subdiaphragmatic free gas, and plain abdominal Xray (Fig. 2) was also non-diagnostic although there were prominent small bowel loops. A differential diagnosis of biliary colic or gastritis was made and she was admitted for pain control and IV omeprazole, with a view to further investigations as her condition dictated.

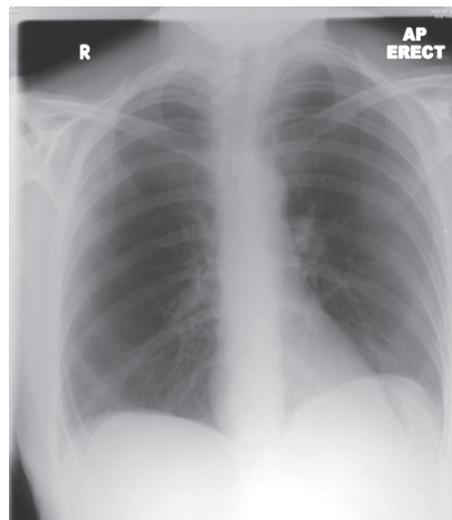


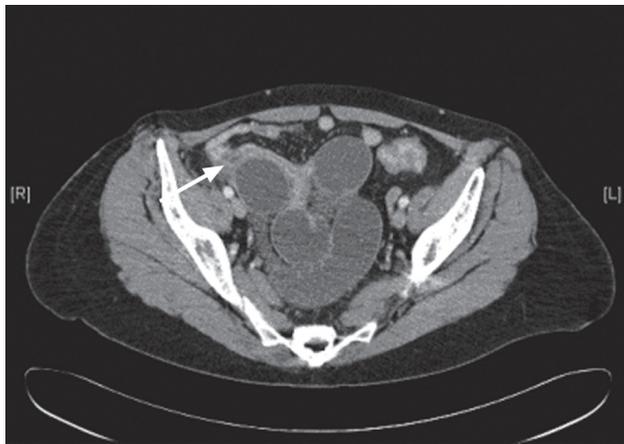
Figure 1. Erect chest Xray



Figure 2. Plain abdominal Xray

The next morning however, her condition had deteriorated, she had vomited repeatedly and there was now generalised abdominal tenderness most prominent in the epigastric region with localised peritonism. The differential diagnosis now included a localised peptic ulcer perforation, pancreatitis or bowel obstruction. A CT scan was organised which was promptly performed and reported as suggestive of high grade small bowel obstruction in the lower third of the ileum likely due to adhesions in the right iliac fossa (Fig 3).

**Figure 3.** Abdominal CT showing transition point in RIF from dilated to collapsed small bowel loops



With the information from the CT scan, she was taken urgently to theatre later that night. A laparoscopic technique was used, which confirmed the report of an adhesion in the right iliac fossa with an ischemic loop of bowel caught within it, and division of this adhesion was straightforward with diathermy scissors. The ischemic section of bowel recovered quickly and no resection was required. The entire procedure took 20 minutes and required only one 10mm port and two 5mm ports. The patient was well enough to go home on the first post-operative day.

## Discussion

Approximately 0.9% of adult general surgical admissions are for bowel obstruction<sup>1</sup>. Distal small bowel obstruction can occasionally be difficult to diagnose clinically in the early stages as changes in bowel habit or persistent vomiting would not yet have developed. Pain is usually one of the earliest features and is generally referred to the peri-umbilical region due to the embryological origin of the small intestine. Clinical findings and plain radiographs allow definitive diagnosis in only 46-67% of pre-operative cases<sup>1-3</sup> whilst a CT has a variably similar or higher diagnostic accuracy of 67-97%<sup>2,3</sup> but in addition can potentially

distinguish a cause and an accurate location for the obstruction which may not be possible on a plain radiograph especially with fluid-filled loops of bowel. A history of previous abdominal surgery would raise the possibility of adhesions and indeed this is the cause of 49-74% of small bowel obstruction<sup>3</sup> with an appendicectomy being the causative procedure in almost a fifth of these patients<sup>4</sup>. In the acute situation of a peritonitic abdomen late in the evening, it would have been usual to proceed with a laparotomy rather than laparoscopy. Although changing trends now favour laparoscopic lysis of adhesions in experienced hands, the diagnosis has to be clear to avoid unnecessary delay which may lead to bowel infarction, or complications in definitive treatment<sup>5</sup>. This case highlights a situation where a timely and accurate CT enabled a clear pre-operative diagnosis and exact localisation of the lesion to be made and thus avoid the necessity of a full laparotomy with its associated complications (chest infections, pain, post-operative ileus, incisional pain and hernia) and lengthy hospital stay.

## References

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