Abdominal plain films in acute abdominal pain: useful first line imaging or outdated modality?

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Background
Plain abdominal films are often of questionable value of diagnostics as an initial investigation. However, computed tomography provides a more conclusive diagnosis that leads to a definitive management. It also aids in planning of an emergency surgery or even to avoid negative laparotomies. On the other hand, abdominal plain films tend to be rapid and easier access but CT scans may be delayed due to because of unavailability of slots or pending renal function test.

Aim
• To assess the role of abdominal x-ray in diagnosing acute abdominal pain.
• To review the practice of plain abdominal films and CT abdomen requested in the work-up of patients with acute abdominal pain during the period of 1st of November, 2017 to 31st of January, 2018.
• To compare the result of plain abdominal film to CT scan if the latter is done.

Methods
• Retrospective study of all patients admitted to surgical department in Sunderland Royal Hospital with acute abdominal pain between November, 2017 and January, 2018 (416).
• All patients who underwent plain abdominal films or CT abdomen or both were included.
• All patients who were discharged without imaging or images with other modality were excluded.

Results
• Patients imaged with plain abdominal films or CT during this period were (n=71/416) 15% while (n=345/416) 85% were diagnosed using other modality of imaging or discharged on clinical impression.
• Patients underwent abdominal plain film (n=24/71) 34 %. Then (n=8/24) 11% underwent further CT abdomen to investigate the cause.
• Patients underwent CT abdomen as a first line (n= 47/71) 66%. The total number of CT scans n=(55/71) 77%.

• The majority of the plain abdominal films yielded no positive diagnosis (n=14/24) 59%. (n=2/24) 8% were inconclusive. (n=6/24) showed no obstruction questioned by clinician. Only (n=2/24) 8% showed obstruction and one of faecal loading and constipation.
• In patients with normal abdominal films (n=8/24) who had further CT abdomen, (n=3/8)37% of CT scans yielded a positive diagnosis.
• (n=5/8) 62% were diagnosed with non-specific abdominal pain. (n=1/8) 12% was diagnosed with pancreatitis, (n=1/8) with hepatobiliary cause and (n=1/8) with malignancy.
• (n=16/71) 23% patients underwent plain abdominal films without further imaging.

Conclusion
Plain abdominal films have limited diagnostic value in acute abdominal pain. The diagnosis and management is dependant heavily on clinical assessment to choose the appropriate modality of imaging. CT abdomen on the other hand, is more informative but not always conclusive.