
IMAGING-PATHOLOGICAL CORRELATION

The 'Pear' Sign

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APPEARANCE

The 'pear' sign is seen on supine abdominal radiographs, and refers to radiolucency (air) around a distended gall bladder, and is akin to a vertically held pear (Figure 1).



Figure 1. The pear.

EXPLANATION

The pear sign is demonstrated in patients with massive pneumoperitoneum where the free intraperitoneal air creates a discrete interface with a distended fluid-filled gall bladder (Figures 2 and 3). It is most evident in subjects having a distended gall bladder related to prolonged fasting, followed by perforation of a hollow viscus containing air.



Figure 2. A supine radiograph demonstrating pear-sign free air (arrows) around a distended gall bladder (GB).

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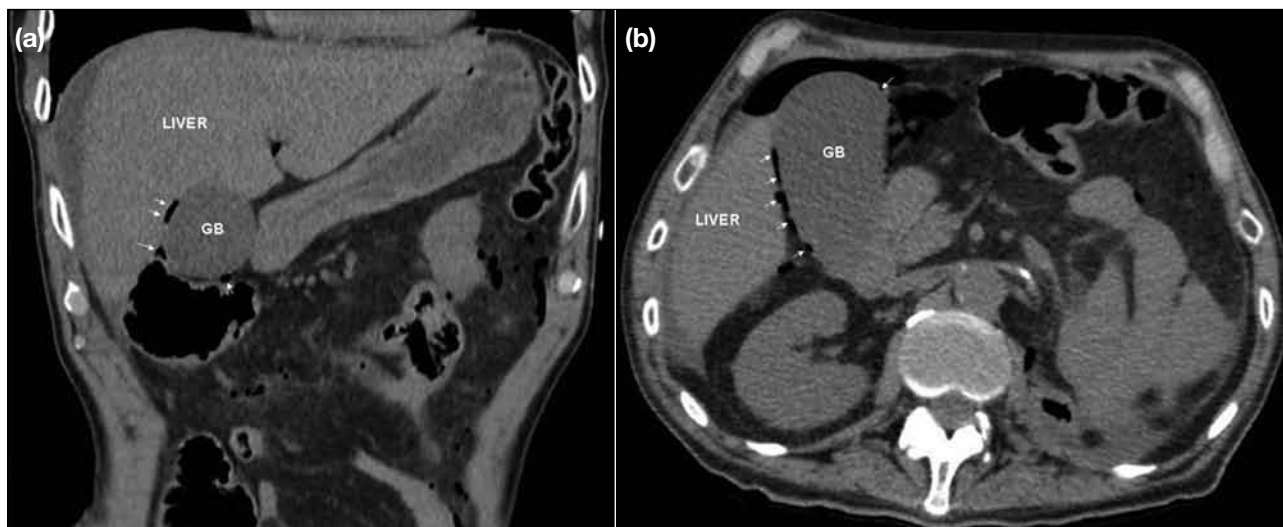


Figure 3. (a) Coronal and (b) axial reformats of unenhanced computed tomography of abdomen demonstrating free air (arrows) around distended gall bladder (GB).

DISCUSSION

The aetiology of pneumoperitoneum is quite varied. It commonly results due to perforated gastric or duodenal ulcer, or could indicate colonic (diverticular) perforation.¹⁻³ Pneumoperitoneum is usually demonstrated in erect radiographs, but identification even on supine films can help decrease morbidity and mortality.

Various clinical clues have been described to aid the diagnosis of pneumoperitoneum⁴⁻⁶; about 85% of which depend on radiographs.³ On supine abdominal radiographs, signs demonstrating pneumoperitoneum include Rigler's sign, where gas is demonstrated on both sides of the bowel wall. The falciform ligament sign demonstrates free gas outlining the falciform ligament. The football sign is seen more commonly in neonates with free gas outlining the peritoneal cavity. Free gas may outline the medial umbilical folds, known as "the inverted-V sign".

Pneumoperitoneum in adults due to perforated

duodenal ulcer produces less intraperitoneal air, which is generally insufficient to produce the pear sign. However, sigmoid colon or gastric perforations result in massive pneumoperitoneum and combined with a pre-existing distended gall bladder could result in the pear sign. The pear sign could prove to be crucial for the detection of pneumoperitoneum on supine abdominal radiographs.

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