

RADIOLOGY ROUNDS

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A woman with colicky abdominal pain, nausea and vomiting, and recent hysterectomy

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This 52-year-old woman came to the emergency department with a 4-day history of upper abdominal cramping pain, nausea, and vomiting. She had had a total hysterectomy and bilateral salpingo-oophorectomy for adenocarcinoma of the endometrium 2 months earlier. On this occasion, the patient had clinical signs and symptoms of intestinal obstruction.

The patient was unable to stand for an upright chest radiograph, but abdominal radiographs in the supine (Figure 1, page 00) and upright (Figure 2, page 00) positions revealed dilated loops of small bowel (no indentations of the serosa) and a large quantity of fluid in the bowel.

The patient was taken to surgery where adhesive bands were identified that completely obstructed the small bowel about 2 ft proximal to the ileocecal valve. After lysis of these adhesive bands, fluid and air rushed into the distal portion of the small intestine and the colon. There were no postoperative complications. Round calcified densities in the right lower quadrant were determined to be calcified mesenteric nodes. Their position shifted in the two views, indicating their intraperitoneal location.

The diagnosis was mechanical small bowel obstruction.

Discussion

The causes of bowel obstruction may be mechanical or nonmechanical. The former are subdivided into lesions extrinsic to the intestine (such as adhesions

and external hernias), intrinsic to the intestinal wall (such as diverticulitis and carcinoma), and those that obstruct the lumen (as with a gallstone).

The most common causes of small bowel obstruction are adhesions as a result of previous abdominal surgery and external hernias. These two account for almost three quarters of small bowel obstructions. In contrast are the most frequent causes of colonic obstruction—carcinoma, sigmoid diverticulitis, and volvulus on that order.¹

Adynamic ileus is the most important nonmechanical or hormonal cause of abdominal obstruction. Its development is mediated through the hormonal component of the sympathoadrenal system.¹ The differential should also include jejunal diverticulosis, which may appear as multiple air-fluid levels, but the patient is usually asymptomatic.

Characteristics of small bowel obstruction include dilated (greater than 3 cm) loops of many valvulae conniventes in the jejunum, an ileum that appears smooth with no transverse indentations,² and many air fluid levels that may have a stepladder appearance on an upright film (Figure 2, page 00). The more proximal the obstruction, the more severe the pain and the more intense the vomiting. At the same time, small bowel obstruction produces a lesser degree of abdominal distension. Hiccups are also a common symptom. If small bowel obstruction is complete, there will be few air fluid levels in the colon; if it is partial, air fluid levels may be present. A coiled-spring pattern in the distended bowel may also be evident (Figure 1, page 00).

Characteristics of colonic obstruction include less intense pain and vomiting than with small bowel obstruction,¹ marked abdominal distension, lumen di-

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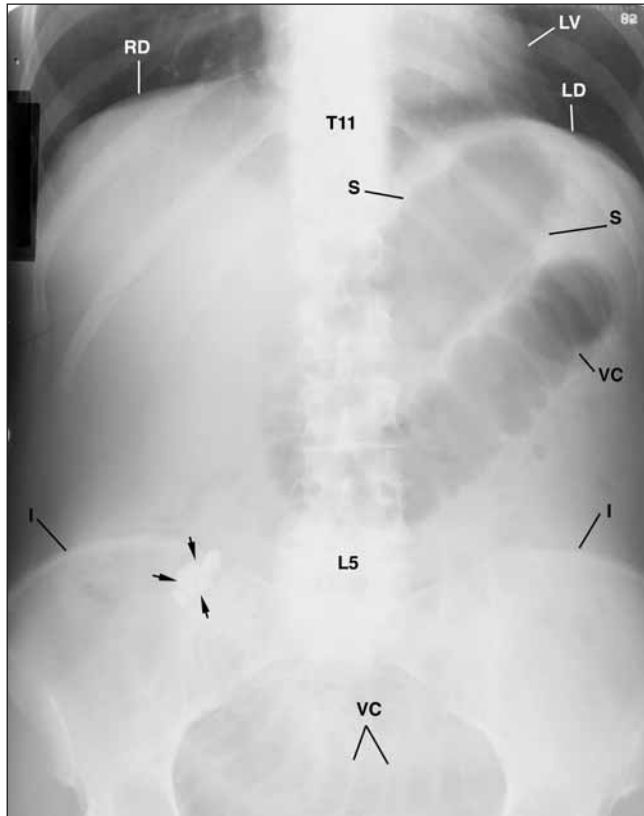


Figure 1 This anteroposterior supine abdominal view displays hazy fluid in the dilated stomach (S) and a coiled-spring appearance of the valvulae conniventes (VC) in the dilated loops of the small bowel. Observe the faint density of the sharply marginated calcified lymph node (arrows) within the mesentery over the right ilium (I). LD = left hemidiaphragm; LV = left ventricle (LV), L5 = fifth lumbar vertebrae; RD = right hemidiaphragm; T11 = 11th thoracic vertebra.

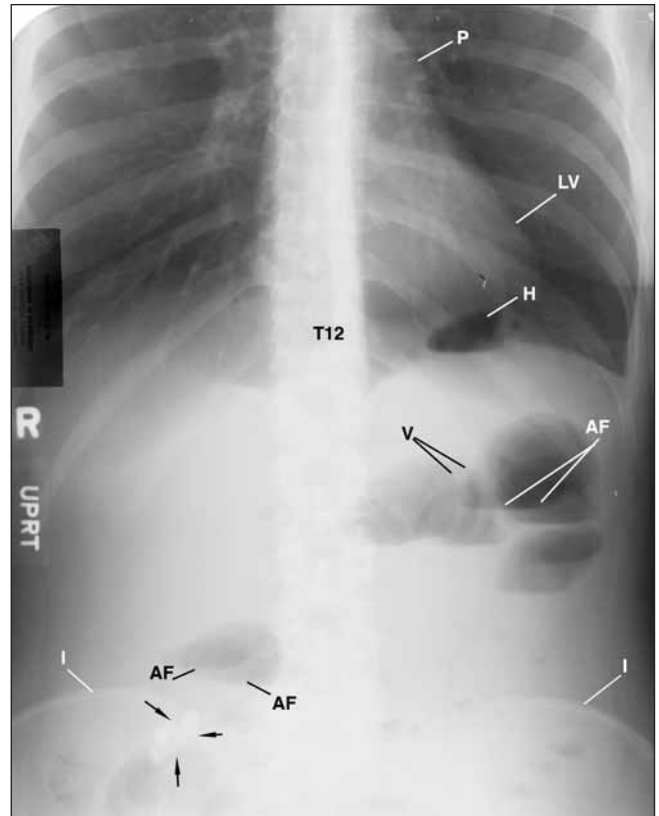


Figure 2 This upright abdominal view displays air-fluid (AF) levels in the lumen of the small bowel and in a hiatal hernia (H). Observe the faint calcified mesenteric lymph node (arrows) and its changed position compared with Figure 2 (page 00). I = ilium; LV = left ventricle; P = pulmonary artery; T12 = 12th thoracic vertebra.

iameter greater than 5 cm on plain upright and supine films, haustra incompletely crossing the bowel wall, colonic gas, and few fluid levels. Descending colonic obstruction may occasionally present a confusing picture if the ileocecal valve is incompetent. Radiographs with the patient in upright, supine, and decubitus positions facilitate identification of the obstructed segment.¹⁻³

Take-home message

In adults, plain radiographs can reliably identify small bowel obstruction by its site, specific radiographic signs, and architectural abnormalities. Characteristics to look for include fluid and gas in dilated

loops of the small bowel, often in a stepladder arrangement. A coiled spring appearance is also likely. An important historical finding is abdominal surgery, as adhesions are the most common cause of small bowel obstruction. ■

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