

Aortal aneurysm as a cause of ileus

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Abstract

A 62-year-old patient presented with flatulence, abdominal distension and other symptoms of ileus. Roentgenographic finding found compression on duodenum. Blood pool scintigraphy (^{99m}Tc erythrocytes) showed aortal aneurysm, while simultaneous gastric emptying study with liquid meal (^{99m}Tc-S-colloid) showed dislocation of duodenum and compression from abdominal aortal aneurysm.

Key words: aortal aneurysm, blood pool scintigraphy, ileus, gastric emptying scintigraphy

Introduction

Ileus can be defined as increased abdominal girth. Abdominal distension is usually not caused by disease. For example, simple weight gain, premenstrual syndrome, pregnancy or the unconscious swallowing of air can all cause distension. It commonly results from intestinal gas or from the accumulation of fluid in the abdomen. Common causes can be overeating, lactose intolerance, air swallowing, irritable bowel syndrome and partial bowel obstruction. The list of all possible causes can be extensive and include unlikely diseases and medications.

Intestinal obstruction means an interference with the normal transit of intestinal contents. Mechanical bowel obstruction is an actual physical barrier whereas ileus denotes a functional failure of progressive intestinal transit. Mechanisms of intestinal obstruction can be divided into mechanical obstruction of lumen and inadequate propulsive motility (neuromuscular defects and vascular occlusion). The former can be due to obturation of the lumen (meconium, intussusception, gallstones, impactions), lesions of

bowel (congenital, traumatic, inflammatory, neoplastic, miscellaneous), lesions extrinsic to bowel (adhesions, hernias, extrinsic masses, including annular pancreas, anomalous vessels, abscesses and haematomas and neoplasms) and volvulus. Aortic aneurysm can be one of the very rare causes of duodenal obstruction, especially as the initial symptom [1–3].

Case report

A 62-year-old patient presented with crampy abdominal pain and distension, vomiting and obstipation. Physical finding was of localised tenderness, fever, tachycardia and leukocytosis. Basic abdominal radiograph supine and lateral decubitus demonstrated gas-fluid levels of diagnostic significance, in duodenum, with its slight dislocation (Fig. 1). Considering that this finding gave a strong suspicion of aortal aneurysm, angiography was not suggested, and advantage was given to the nuclear medicine investigations. The studies were performed with ROTA scintillation camera, and Micro Delta computer. Static acquisition, blood pool scintigraphy (500 000 imp), was performed 60 min after in vivo labelling of erythrocytes with 740 MBq ^{99m}Tc in anterior view over abdomen. After the end of this study, the patient was given 100 MBq ^{99m}Tc-S colloid in 150 ml of water, and sequential static scintigrams were performed (from 15 min to 1 h). Blood pool scintigrams (Fig. 2) showed aortal aneurysm, while gastric emptying study (Fig. 3), together with blood pool scintigram, showed the compression of the duodenum by aortal aneurysm. This finding was surgically confirmed.

Discussion

Arterial aneurysm can be easily seen during numerous dynamic nuclear medicine studies. According to the literature, it is very rare [4–13] as a cause of ileus. Here, ileus is proved non-invasively, by two nuclear medicine methods.

In routine work, many methods can be used for assessing this diagnosis [14–19]. Ultrasonography, with proven accuracy, safety and low cost in the diagnosis and follow-up of aneurysms, and the possibility to estimate blood flow through aorta and aneurysm, can hardly give a result in the obese patients. CT could provide an accurate characterisation of the entire aorta, and in a three-dimensional manner. Its accuracy is not affected by the gas and obesity. Furthermore, it provides information about the character and the thickness of the aortic wall, the level of the renal arteries relative to the proximal cuff and the iliac arteries. It is particularly helpful in evaluating patients with symptoms, and in the postoperative period. MRI can provide a much more detailed image than that, available with either ultrasonography or CT scan-

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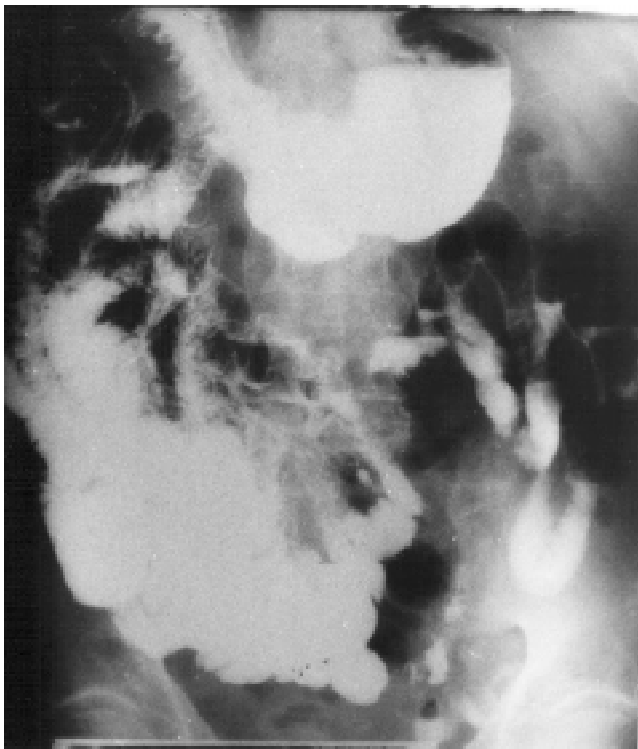


Figure 1. Roentgenographic finding of ileus: fluid collection with level and air upper. Vague contours of abdominal aorta.



Figure 3. Static scintigram (30 s) obtained 60 minutes after the first one, after peroral application of 150 MBq ^{99m}Tc sulphur colloid in 100 ml of water. Accumulation of activity is seen in stomach and slightly dislocated duodenum with no activity in small intestine. Clearly seen compression of duodenum from aortal aneurysm.

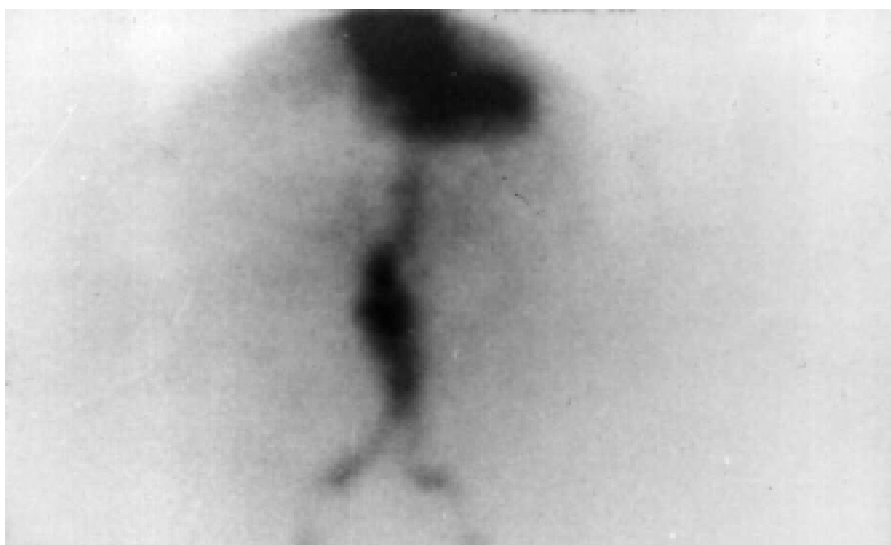


Figure 2. Added sequential scintigram obtained during first 60 seconds (1f/s) after intravenous in vivo labelling of erythrocytes with ^{99m}Tc. Activity over the heart, aorta (including aneurysm in the middle part) and iliac vessels are clearly seen.

ning. Three-dimensional presentations, showing the aneurysm's lumen and surface anatomy, allow visualisation of the neck, renal arteries, and the relationship to other periaortic structures. Disadvantages are high cost and the limitations of scanning obese patients and those with pacemakers. Arteriography is not accurate in determining the size or the presence of an aneurysm, but is helpful in defining associated vascular anatomy. The information is worth the cost and risk to the patient with the following indica-

tions: suspicion of multiple aneurysms, of renal and visceral artery involvement, defining upper and lower extent of aneurysm when other tests are inconclusive, hypertension or renal dysfunction, prior colectomy or peripheral occlusive disease.

Thus, we can conclude that arterial aneurysm can be one of the rare causes of ileus, and we prove the role of nuclear medicine as a non-invasive method in the detection of vascular abnormalities in the abdomen, with implications on the gastrointestinal tube.

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