

## Renal Excretion of Oral Gastrografin Seen on an Abdominal Film in a Patient with Incomplete Intestinal Obstruction due to Multiple Bezoars

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We report the visible renal excretion of orally ingested gastrografin seen on an abdominal film in a patient with incomplete intestinal obstruction due to multiple bezoars. This rare phenomenon should arouse the suspicion of a gastrointestinal pathology of various entities.

Recently Apter et al. [1] described urinary excretion of orally ingested gastrografin, an iodinated contrast material that is seen on computerized tomography in various bowel diseases. They observed it in patients with inflammatory and ischemic bowel diseases, radiation enteritis, and small bowel lymphoma, as well as in cases of gastrointestinal perforation or ileus either obstructive or adynamic. Detection on plain abdominal films of urinary excretion after ingestion of gastrografin has also been reported in cases of gastrointestinal perforation and abdominal emergencies such as acute appendicitis, peritonitis and postoperative obstruction [2,3]. We encountered this phenomenon on an abdominal film in a patient with multiple bezoars.

### Case Description

A 40-year-old patient presented with abdominal pain of 3 days duration. Six years previously he had undergone vagotomy and pyloroplasty for a duodenal ulcer. His physical examination was unremarkable. A plain film of the abdomen disclosed a markedly distended stomach with mottled lucencies within, compatible with a gastric bezoar. On gastroscopy, a fair amount of bilious secretions surrounding a

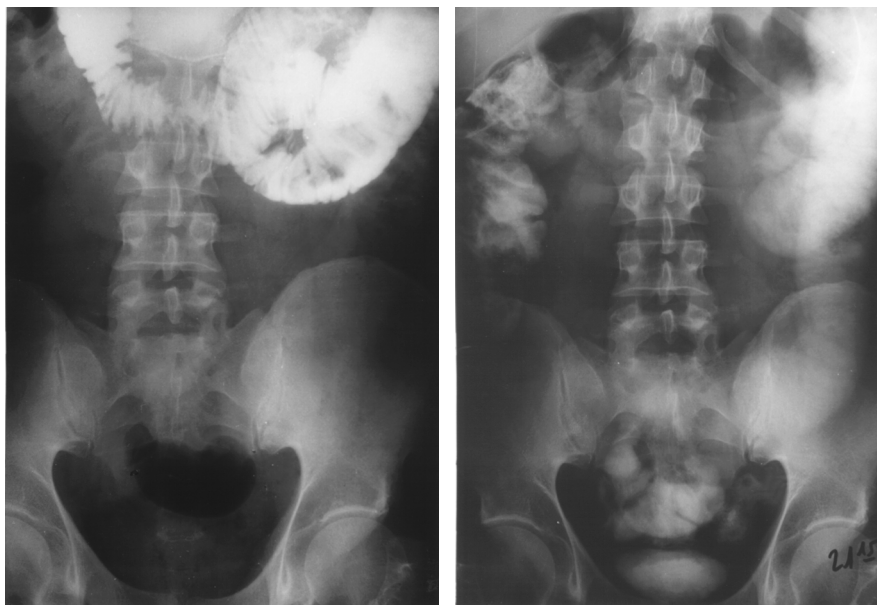
large bezoar was found in the stomach. The pylorus was wide open and additional bezoars were suspected to be in the proximal jejunum. The gastric bezoar was extracted endoscopically. A small bowel follow-through using gastrografin, recommended by the endoscopist, showed multiple filling defects in the proximal jejunum [Figure A]. Contrast material reached the colon after 6 hours, a sign of incomplete obstruction. Surprisingly, this late film clearly demonstrated the urinary bladder filled with contrast material (Figure B).

The next day the patient complained of severe abdominal pain. On explorative laparotomy performed for

the clinical diagnosis of intestinal obstruction, three masses of hard bezoars were found 20 cm distal to the ligament of Treitz, necessitating enterotomy for extraction. Additional smaller bezoars were treated by "milking" them through the ileocecal valve. The postoperative course was uneventful.

### Comment

Urinary tract opacification following the oral administration of gastrografin is rarely seen in the absence of intra-abdominal pathology, and usually indicates perforation, break of the intestinal mucosa or significant intestinal stasis [1-3].



A bezoar was suspected on the plain abdominal film of a 40-year-old man with abdominal pain and a past history of vagotomy and pyloroplasty for duodenal ulcer. [A] Early abdominal film following ingestion of gastrografin shows multiple filling defects in dilated proximal jejunal loops. No contrast material is seen in the pelvis. [B] Six hours later the gastrografin had reached the right colon. The urinary bladder filled with contrast material is clearly seen.

Patients with previous gastric surgery have an increased risk of developing phytobezoar due to alteration in the motility of the stomach with resulting inadequate emptying [4]. An associated gastric ulcer, caused by increased gastrin secretion or by stasis, is often present [5]. Theoretically, jejunal bezoars can similarly affect the intestinal mucosa either by stasis or by mechanical pressure. The renal excretion of the orally ingested water-soluble contrast material, in our case, may thus have been caused either by the direct effect of the bezoars on the intestinal mucosa or by the incomplete intestinal obstruction [1].

Radiologists, as well as surgeons, who use oral administration of gastrografin in patients with a clinical picture of ileus, should be familiar with this rare phenomenon. It may be depicted not only on an unenhanced abdominal CT scan, but on an abdominal film as well and should not be erroneously interpreted as a fistula to the urinary bladder. Its clinical implication is the risk of an adverse allergic reaction to the absorption of this iodinated contrast material.

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