Case Report

Gallstone obstruction at the proximal ileum in an elderly woman: CT findings✩

Francesco Messinaa,*, Carmela Tebalad, Grazia Calabresea, Lorena Turanoa, Maria Giovanna Fava b, Nicola Arcadia

a Unit of Radiology — Riuniti Hospital, Azienda Ospedaliera Grande Ospedale Metropolitano (G.O.M.) “Bianchi-Melacrino-Morelli”, Via Giuseppe Melacrino n.21, 89124 Reggio Calabria, Italy
b Unit of General Surgery — Riuniti Hospital, Azienda Ospedaliera Grande Ospedale Metropolitano (G.O.M.) “Bianchi-Melacrino-Morelli”, Via Giuseppe Melacrino n.21, 89124 Reggio Calabria, Italy

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A B S T R A C T

We present the case of a 73 years old woman with intestinal obstruction caused by a rare cause of biliary ileus, who arrived at our emergency department with lower abdominal quadrants pain (since about 2 months), recently associated with nausea, vomiting and abdominal distension. After clinical and laboratory evaluations, a computed tomography (CT) scan without intravenous contrast medium administration was urgently requested. CT had shown the presence of a large gallstone (diameter of about 6 cm) at the proximal ileum (stopped in this tract after the passage through a biliary-enteric fistula), and another gallstone (diameter of about 2 cm) in the gallbladder, associated with concentric thickening of gallbladder’s walls, gas in the biliary tree, obliteration of peri-gallbladder’s fat density and fluid in the peri-subhepatic area. The patient had urgently a surgical treatment (videolaparoscopy). CT had a crucial role for the diagnosis of intestinal obstruction, for its high sensitivity and specificity. It is well able to provide the causes and the level of the obstruction, its extension and complications, thus orienting toward the best clinical management/outcome for the patient.

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Case Report

A 73 years old woman arrived at our emergency department with lower abdominal quadrants pain (since about 2 months), recently associated with nausea, vomiting, and abdominal distension; the abdomen was globose and painful on superficial and deep palpation. Hematochemical examinations showed leukocytosis, increased inflammation indices (VES and PCR), elevated blood creatinine, and anemia. After

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* Corresponding author.

E-mail address: fmessina1@hotmail.it (F. Messina).

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the clinical evaluation, in the suspicion of intestinal obstruction, a computed tomography (CT) scan without intravenous contrast medium was urgently requested. 

CT was made with a 64 MS scanner, and the images obtained were analyzed with slice-thickness of 1.2 mm and MPR reconstructions (axial, sagittal, and coronal). CT had shown (Pictures 1-4) the presence of a large gallstone (diameter of about 6 cms) at the proximal ileum (stopped in this tract after the passage through a biliary-enteric fistula, and as consequence the intestinal transit was blocked), and another gallstone (diameter of about 2 cms) in the gallbladder, associated with concentric thickening of gallbladder’s walls, gas in the biliary tree, obliteration of peri-gallbladder’s fat density (with near some small lymphonodes), and fluid in the peri-subhepatic area. The intestinal loops presented concentric parietal wall thickening, with alteration of the surrounding adipose tissue.

So the patient was recovered and had urgently a surgical treatment. The surgical approach was performed by laparoscopy, using a 3-ports technique. At first time, the surgeons displayed an exploratory laparoscopy, and a lot of free fluid in the belly was aspirated. A sample of abdominal fluid was taken for laboratory testing. Then, after having located the intestinal tract with gallstone, a minimally invasive laparotomy was performed and the intestinal tract was externalized; an enterotomy was performed and the gallstone extracted (Picture 5a-c). The enterotomy was closed by a double-layer suture and a drain was placed in the pelvic site. The treatment of the cholecysto-intestinal fistula was decided for a second step. Treatment outcomes were good, because of the early diagnosis and the appropriate therapy. In the third-day of postoperative period, the patient started to drink water and in the fifth-day the light diet, after initial bowel movements.

Discussion

In this our case report, the gallstone ileus caused a mechanical intestinal obstruction, that represent an uncommon pathology; it accounts for 1%-4% of all bowel obstructions and is a rare and difficult condition to diagnose. In patients over the age of 65 years diagnosed as having a small bowel obstruction, gallstone ileus is the cause of up to 25% of these bowel obstructions. Gallstone ileus occurs more commonly in elderly patients, with an average age reported to be between 66 and 77 years [1-6].

Our case report was very interesting because of several factors:

- the female patient was an elderly one, as clinical history describes age of typical case;
- the patient had other significant medical conditions (dyslipidemia, type 2 diabetes, cardiovascular disorders and arterial hypertension);
- symptoms before hospital admission were aspecific, and only in the same day of access to the hospital she had an acute surgical abdomen;
- the laboratory findings demonstrated only a leukocytosis and a moderate concentration increased inflammation indices (VES and PCR), elevated blood creatinine, and anemia;
- the intestinal tract wasn’t the terminal ileum as usually.

Abdominal CT was the preferred modality because of its rapid diagnosis [7,8].
The localization of the big gallstone, that entered the bowel, was not in the terminal ileum as more frequently happens, but at the first tract of ileum, more precisely in the tract between the end of jejunum and the first tracts of ileum, and this was due to the size and dimensions of gallstone (6 × 5 cms).

The gallstone was stopped in this tract after the passage through a biliary-enteric fistula, and because of his size the intestinal transit was blocked.

The mortality rate is considerable, ranging between 12% and 27%.

The most common site of gallstone arrest is the ileo-cecal valve which is the narrowest point, however, for inflammatory reasons, anatomical, neoplastic; the stone can stop in any part of the intestinal lumen. In addition to the diameter of the intestinal lumen, it is also important the sizes of gallstone: it is commonly accepted that the stones capable of causing intestinal obstruction are of dimensions greater than 2.5 cms in diameter. However, in the literature cases of biliary ileus caused by size stones are described less than 2.5 cms in diameter as cases of gallstones are described larger than 5 cms in diameter passing through all the intestinal lumen and are eliminated with the feces [9].

In our case, the gallstone had a longitudinal diameter of about 6 cms; this is very suggestive because we had never identified, before this case, a so large gallstone in our daily radiological experience in our Radiological Unit. If biliary ileus occurs in elderly patients with comorbidities, the intermittent symptoms can delay the diagnosis of some days [10]. Presentation is typically nonspecific, often with alternating symptoms such as nausea, vomiting, abdominal distension, and pain.

**Picture 3 – (a,b): Axial CT image. The gallstone was stopped in this tract after the passage through a biliary-enteric fistula, and because of his size the intestinal transit was blocked. The intestinal loop presented concentric parietal wall thickening, with distension of the other intestinal loops.**
In our experience, CT and the adequate clinical exam were essential for the diagnosis and for a surgical treatment in emergency, because this pathological picture has a low incidence but a high rate incidence of complications if the diagnosis is late; in fact the late diagnosis is associated with increased morbidity and mortality.

Currently, CT is the gold standard in the study of intestinal obstruction. In the diagnostic process of the occluded patient, the CT method can be both the first instance examination and the supplementary investigation of nonresolving imaging studies (ultrasound and/or radiographic).

The management of this case was optimal because the diagnostic and therapeutic approaches were individualized and a sequential development of a full multidisciplinary interaction between Radiologists and Surgeons was performed to define the best surgical arrangements for the patient.

Conclusions

CT is the gold standard in the suspicion of intestinal obstruction because it is able to provide important answers on the causes of the obstruction, the level of the occlusion, on the need or not for its urgent treatment and so had a crucial role orienting towards the best clinical management/outcome for the patient.

Patient Consent

The patient confirmed the consensus for publication of our case report.
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