Gall-stone intestinal obstruction (GSO) is an unusual form of mechanical obstruction and a rare complication of cholelithiasis. The treatment options are controversial, usually the management is surgical but associated with significant morbidity and mortality. A spontaneous evacuation of the gall-stone that had induced GSO is even more exceptional, only few reports being published up to date. We report the case of an 81-year-old female patient presenting GSO admitted to our department due to abdominal pain and vomiting. Computed tomography revealed pneumobilia, distention of the ileum and a calcified mass in the small bowel lumen. The diagnosis of GSO was established, but since the gall-stone was <25 mm and severe cardiorespiratory co-morbidities conservative treatment was initiated and spontaneous evacuation of the gall-stone was obtained. Diagnostic and management modalities of GSO as well as literature reviews are reported.

Key words: gall-stones, cholecystoenteric fistula, gall-stone ileus, spontaneous evacuation

We describe an additional clinical case of GSO with a spontaneous evacuation in a 81-year-old female patient with severe cardiorespiratory co-morbidities which was managed non-operatively.

CASE REPORT

An 81-year-old Caucasian female patient was referred to our hospital presenting a 24 h history of intermittent abdominal pain and vomiting. Past medical history was significant for severe cardiorespiratory co-morbidities but no episodes of cholecystitis. Her heart rate on admission was 90 beats/min and blood pressure – 130/80 mm Hg. The abdomen was slightly distended but soft without muscle guarding. Abdominal auscultation revealed weak but audible bowel sounds. The laboratory tests were unremarkable except a moderate leucocytosis. A plain abdominal X ray showed an obstruction in the ileum. Neither pneumobilia nor an ecto-
pie gall-stone was apparently observed on plain abdominal X ray. For further examination a CT scan was performed and air in the intrahepatic biliary ducts, as well as distention of the ileum and a calcified mass in the small bowel lumen were revealed (fig. 1, 2).

Based on these radiologic and clinical assessment the diagnosis of GSO was established. The gall-stone size measured on the CT scan was 22.8x17.3 mm. Since most reports (6, 7, 8) indicate stones < 25 mm usually pass through spontaneously and severe cardiorespiratory co-morbidities in our patient, non-operative treatment with nasogastric decompression and i/v fluids was started. On the second day after admission abdominal examination showed no sign of deterioration and the stone was evacuated spontaneously. The patient was discharged 72 h after admission in good condition with neither clinical nor X ray signs of intestinal obstruction.

DISCUSSION

Due to the progressive rise in the proportion of aging population in the western world, GSO is assuming an increasing significance. The first description of GSO is attributed to Bartolin in 1654 and about 50% of patients present a history of gall-bladder disease (3, 5). Decades ago GSO was known to be a disease with a mortality rate about 70%, however due to current progress in diagnostic and surgical techniques as well as innovative drugs, the mortality dropped to 15-20% nowadays (9). Several reasons could be responsible for high morbidity and mortality rates in this group of patients: 1) GSO is a disease of the elderly; 2) preexisting co-morbidity; 3) uncommon clinical signs inducing diagnosis delay and misdiagnosis (3, 5). Usually the obstructed stone in GSO originates from the gall-bladder although there are cases reported in the presence of gallbladder agenesis (10).

The preceding episodes of acute or chronic cholecystitis with the gall-stone obstruction of the cystic duct, inflammation and adhesions finally result in cholecysto-enteric fistula by erosion of the gall-stone through the gall-bladder wall into the gut (11). The commonest fistula site is the cholecystoduodenal fistula accounting over 80% of cases, followed by cholecystocolonic fistulas or other sites of the gastrointestinal tract such as stomach and small bowel (5, 11, 12, 13).

Once in the gastrointestinal tract, the stone can follow the following scenario: 1) become impacted causing GSO; 2) pass through; 3) exceptionally be expelled by vomiting (13). Once impacted a spontaneous passage is rare, these patients usually requiring surgery (2, 14). The main determining factors whether the stone will be impacted or passed through are the stone size and luminal diameter, most authors believe that stones less than 25 mm will pass spontaneously through the gastrointestinal tract (6, 7, 8, 15). An impaction of a gall-stone less than 20 mm is mostly unusual, still GSO may occur in some pathologic state of the intestine including spasms, angulations or adhesions inducing intestinal lumen nar-
The most common stone impaction site include the terminal ileum (85%), ileocecal valve and rarely the jejunum, colon or duodenum (Bouveret’s syndrome), although stone impaction site can be anywhere in the gastrointestinal tract (1, 4, 5, 13).

Symptoms of GSO are vague and insidious, often characteristic for small intestinal obstruction and include abdominal pain, distension, nausea and vomiting. The antecedent history of gall-stone disease is reported in about 27% of cases (5). Symptoms may be intermittent due to stone passage through the gastrointestinal tract, all the above mentioned being incriminated for diagnosis delay of 3-8 days after admission (13). The clinical signs in GSO are mostly nonspecific, for several years the diagnosis being established upon the presence of Rigler’s triad (pneumobilia, ectopic gall-stone and mechanical bowel obstruction) on a plain abdominal radiograph (5). Plain abdominal X ray is helpful to diagnose intestinal obstruction, including GSO, although the classical Rigler’s triad occurs in less than 50% of cases (1, 4, 15).

Up to date the CT scan is widely accepted as the investigation of choice in the diagnosis of bowel obstruction, since it can effectively show the site and etiology of the intestinal obstruction. In GSO, CT allows to determine the obstruction site, gall-stone size, as well as the presence of biliary-enteric fistula (1, 15).

The treatment goal of GSO is early relief of intestinal obstruction, thus reducing morbidity and mortality. The treatment modality is still a matter of debate, several options being available: 1) one-stage procedures; 2) two-step procedures; 3) enterolithotomy alone or 4) non-operative management (3, 5, 7). The one-stage procedures include enterolithotomy, cholecystectomy and fistula repair. The two-step procedures include initial enterolithotomy with a cholecystectomy and fistula repair some 4-6 weeks later on. Enterolithotomy alone becomes more popular recently taking in account the progressive rise in the proportion of aging population and significant morbidity and mortality rates in these patients, as well as a rate of spontaneous fistula closure of about 50% despite a cholangitis rate of 11% (4, 5, 13). Spontaneous fistula closure occurs only in cases of stone-free gall-bladder and permeable cystic duct (16).

Advocates of the one-stage procedures believe that the elevated morbidity associated with persistent cholelithiasic symptoms justifies this kind of approach in order to prevent recurrence (3, 4, 12). Still this type of procedure is associated with a elevated rate of morbidity and mortality in high-risk patients (17). Generally the reported death rate after one-stage procedures and enterolithotomy is 17 and 11.7% respectively (4). On the other hand Clavien et al. reports no significant difference in morbidity and mortality referring to one- and two-stage procedures (18).

Non-operative management can be attempted in those patients with gall-stones size less than 25mm established on CT since these stones usually pass through spontaneously (6, 7, 8, 15). According to the recently published review, among 176 Japanese patients, 14.2% (25/176) were managed conservatively (2).

In conclusion, gall-stone ileus is an uncommon situation requiring a high index of suspicion in order to establish a correct diagnosis. The diagnosis accuracy and prompt therapeutic decision making can be improved with the unreserved use of the imaging techniques. The management of gall-stone ileus must be individualized. Our case highlights that non-operative management can be attempted when the gall-stone size does not exceed 25 mm based on the CT findings and in high risk patients with significant co-morbidities. In order to draw out the final conclusions larger patient series must be accumulated.

REFERENCES


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