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Gallstone ileus caused by a gallstone impacted at a cecum neoplasm – A case report

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ABSTRACT

BACKGROUND: Gallstone ileus is an infrequent complication of biliary disease that produces a mechanical intestinal obstruction. It is caused by a gallstone passing through a bilio-digestive communication, usually a cholecystoduodenal fistula. The presence of neoplasms can decrease the bowel lumen size and may cause the gallstone to impact at the narrowing site.

CASE SUMMARY: In this report, we present a unique case of gallstone ileus due to a gallstone impacted in a cecum tumor, causing obstruction at the level of the ileocecal valve. The patient needed an urgent right hemicolectomy to solve both his problems. The gallbladder and the enterobiliary fistula remained *in situ*.

DISCUSSION: The clinical presentation is not always straightforward and sometimes the diagnosis is only made by imaging, mostly resorting to an abdominal CT. The mainstay of management is surgical relief of the gastrointestinal obstruction, with the surgical method being based on what is found intra-operatively and according to the patient general condition.

CONCLUSION: Although a rare disease, gallstone ileus should be suspected in elderly patients with intestinal obstruction and a previous history of biliary problems, keeping in mind that other conditions may be present and can alter the surgical treatment of choice.

1. Introduction

Gallstone ileus is a mechanical intestinal obstruction due to gallstone impaction within the gastrointestinal tract [1–3], most commonly in the terminal ileum and the ileocecal valve due to its narrow lumen and potentially less active peristalsis [2,3].

It is a rare complication of chronic cholelithiasis [4,5], representing less than 5% of all cases of mechanical bowel obstruction [6,7].

It has been observed with a higher frequency among the elderly, being responsible for up to one quarter of nonstrangulated small bowel obstructions in these patients, the majority of which have concomitant medical illness [2,8].

The presentation of gallstone ileus may be preceded by a history of prior biliary symptoms and may be manifested with the typical symptoms of gastrointestinal obstruction such as nausea, vomiting, abdominal distention and crampy abdominal pain, depending on the site of obstruction [2,9].

Diagnosis is difficult and may be delayed for several days because of the lack of a clear history of previous biliary disease, the nonspecific symptoms or signs at hospital admission and the fact that the typical radiological features (pneumobilia and ectopic gallstones) may be overlooked, if not supported by a clinical suspicion [10]. Therefore, almost 50% of cases are only diagnosed intraoperatively [6].

The management of these patients in every case should be individualized, with many options available for treatment, non-operative (endoscopic) or operative, with various surgical procedures possible [7]. Although controversial, surgical relief of the gastrointestinal obstruction remains the mainstay of operative treatment of gallstone ileus, given the specifics of the population it mostly affects [2,6,10].

In this article, we present a case of gallstone ileus in a patient with a cecum neoplasm associated.

This paper was reported in line with the SCARE criteria [11].

2. Timeline

Day 1 – Emergency Room visit for abdominal pain, nausea, vomiting and lack of bowel movements: CT raised the suspicion of a gallstone ileus.

Day 3 – Urgent Exploratory Laparotomy: Right hemicolectomy for cecum neoplasm with a gallstone impacted on the tumor mass responsible for the intestinal obstruction.

Day 10 – Superficial surgical site infection: Antibiotics and wound care.

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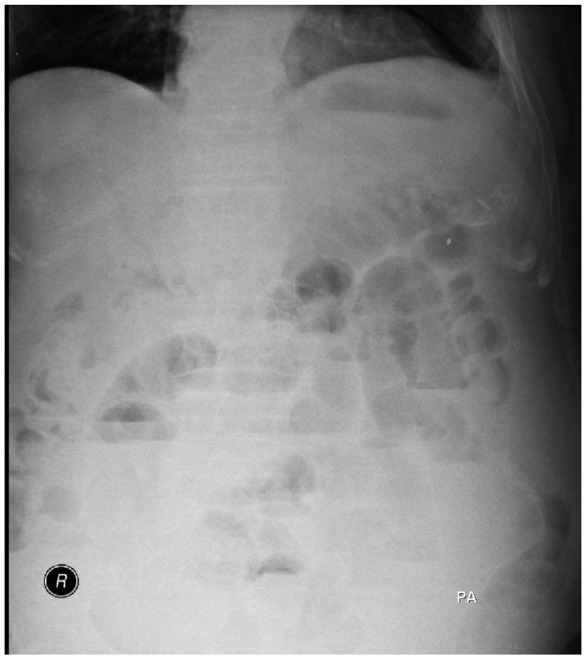

Fig. 1. X-ray demonstrating air fluid levels.

Day 21 – Hospital Discharge.

3. Case

An 84 year old male with hypertension, diabetes mellitus type 2, dyslipidemia and a previous history of cholangitis and biliary lithiasis, submitted to an endoscopic retrograde cholangiopancreatography one year earlier, presented to the emergency room with abdominal pain, nausea and vomiting, for the past 4–5 days. He also complained of not passing flatus or stool during that same amount of time.

On physical exam, he looked well nourished, had no fever, but had a distended abdomen, tender to palpation of the inferior quadrants, with no signs of peritonitis. He had no hernias and his rectal exam was innocent.

His blood work in the emergency room only revealed a slight increase of leucocytes (along with neutrophilia) and of reactive protein C. He had no renal dysfunction and his liver function was normal.

The abdominal x-ray demonstrated air fluid levels, mainly in the small bowel, with no other important features (Fig. 1).

An abdominopelvic computed tomography (CT) was also performed showing free air in the bile ducts, a scleroatrophic gallbladder, dilated small bowel loops with air fluid levels, a parietal thickening of the cecum and ascending colon with a nodular and hyperdense lesion at the ileocecal transition/valve suggestive of gallstone ileus (Figs. 2 and 3).

The patient was initially managed with nasogastric drainage and intravenous (iv) fluids and was admitted into the surgical floor awaiting for surgery.

Two days after optimizing his clinical condition, he was taken to the operating room (OR) and an exploratory laparotomy was performed, revealing a stenosing neoplasm of the cecum that demanded a right hemicolectomy, which was done with no complications and respecting the oncological principles. The fistula between the gallbladder and the bowel was not explored nor repaired and the gallbladder was not removed. Upon opening of the surgical specimen, a gallstone was found in the interior of the tumor mass, in the cecum lumen and near to the ileocecal valve, responsible for causing the obstruction (Fig. 4).

Fig. 2. CT topogram revealing aerobilia.

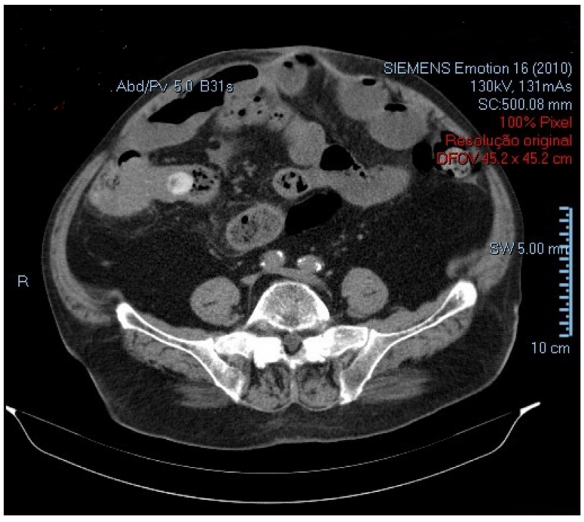

Fig. 3. CT showing the hyperdense lesion at the ileocecal transition.

In the post-operative period the patient remained in the surgical floor, clinically improving, with only a superficial surgical site infection to report, treated with antibiotics and wound care, previous to discharge.

He was discharged home at the 18th post-operative day, tolerating diet and with regular bowel movements.

The pathology of the surgical specimen confirmed a moderate differentiated adenocarcinoma of the cecum, with no ganglion invasion (23 ganglion examined).

Two weeks after discharge, the patient was seen in the outpatient clinic and was well, with no complaints, with his surgical wound fully healed. A thoracic CT was also obtained to complete the oncologic staging, along with the tumor markers CEA and Ca 19.9 which were not elevated. The tumor was finally staged as $pT_3N_0M_0$, according to AJCC Cancer Staging Manual 8th Edition [12].

Due to advancing age and comorbidities no further investigation regarding the biliary anatomy was conducted and no cholecystectomy was performed.

Fig. 4. Surgical specimen with the gallstone already removed from the tumor.

The case was presented on a multidisciplinary therapeutic reunion and was decided that no further treatment was necessary, so the patient is maintained on surveillance until today.

4. Discussion

The clinical presentation of patients with gallstone ileus can be notoriously non-specific, with most signs and symptoms depending on the site of gallstone impaction and most commonly resembling a small bowel obstruction of any cause [2,8]. Patients usually present 4–8 days after the beginning of symptoms [2,6] and diagnosis is usually made with radiological imaging [1,5], with CT being the investigation of choice [6,10]. This was the case of our patient.

Management of these patients requires prompt resuscitation, proximal decompression with placement of a nasoenteric tube, and operative relief of intestinal obstruction [4].

The surgical method should be based on the impaction site and selected according to the patient's general condition [5]. Although there are many options available, enterolithotomy alone (without cholecystectomy and fistula repair) seems to be the most suitable procedure for elderly patients with concomitant comorbidities, with an acceptable risk of recurrences and acute biliary complications [6,7,9,10]. In this case, our patient had an associated neoplasm of the cecum, found intra-operatively, which also implicated a right hemicolectomy [13], therefore treating both the gallstone ileus and the tumor.

Despite the complications rate and the high mortality described in the literature [5,9,13], our patient obtained a favorable final result, with only a minor wound infection to report and no recurrence of biliary disease or the neoplasm until now.

5. Conclusion

A gallstone ileus is a rare disease and should be suspected in elderly patients with signs and symptoms of intestinal obstruction and a previous history of biliary problems. Its diagnosis is challenging and the treatment is almost always surgical. Since this is an aged population, it must be kept in mind that there can be other pathologies associated that can alter the surgical method previously chosen, based on what is found intra-operatively. In this case the gallstone actually prompted the earlier diagnosis and treatment of the colon cancer the patient had.

Declaration of Competing Interest

The authors report no declarations of interest.

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Ethical approval

Not Applicable.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Both N. Pratas and D. Salvador were involved in patient care and wrote the manuscript.

C.S. Costa was involved in patient care and contributed to writing the manuscript.

All authors approve the last version of the manuscript.

Registration of research studies

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References

[1] L. Brandariz-Gil, T. Fernández-de-Miguel, J. Perea, Rigler triad in gallstone ileus. Pictures in digestive pathology, Rev. Esp. Enferm. Dig. (2016), PMID: 2761502.

[2] C.M. Nuño-Guzmán, et al., Gallstone ileus, clinical presentation, diagnostic and treatment approach, World J. Gastrointest. Surg. 8 (January (1)) (2016) 65–76, http://dx.doi.org/10.4240/wjgs.v8.i1.65.

[3] V. Scuderi, et al., Gallstone ileus: monocentric experience looking for the adequate approach, Updates Surg. 70 (December (4)) (2018) 503–511, http://dx.doi.org/10.1007/s13304-017-0495-z, Epub 2017 Oct 10.

[4] N. Panda, et al., Gallstone ileus, J. Gastrointest. Surg. 22 (November (11)) (2018) 1989–1991, http://dx.doi.org/10.1007/s11605-018-3721-1, Epub 2018 Mar 6.

[5] K. Inukai, Gallstone ileus: a review, BMJ Open Gastroenterol. 6 (November (1)) (2019), e000344, http://dx.doi.org/10.1136/bmjgast-2019-000344, eCollection 2019.

[6] L. Dunphy, I. Al-Shoek, Gallstone ileus managed with enterolithotomy, BMJ Case Rep. 12 (October (10)) (2019), e231581, http://dx.doi.org/10.1136/bcr-2019-231581.

[7] M. Jakubauskas, R. Luksaite, A. Sileikis, K. Strupas, T. Poskus, Gallstone ileus: management and clinical outcomes, Medicina (Kaunas) 55 (September (9)) (2019) 598, http://dx.doi.org/10.3390/medicina55090598.

[8] L. Chang, et al., Clinical and radiological diagnosis of gallstone ileus: a mini review, Emerg. Radiol. 25 (April (2)) (2018) 189–196, http://dx.doi.org/10.1007/s10140-017-1568-5, Epub 2017 Nov 16.

[9] F. Alemi, N. Seiser, S. Ayloo, Gallstone disease: cholecystitis, mirizzi syndrome, bouveret syndrome, gallstone ileus, Surg. Clin. North Am. 99 (April (2)) (2019) 231–244, http://dx.doi.org/10.1016/j.suc.2018.12.006.

[10] E. Erdas, F. Medas, C. Salaris, G.L. Canu, S. Sanna, L. Gordini, G. Pisano, P.G. Calò, Gallstone ileus in elderly patients. Critical appraisal of a case series, Minerva Chir. 73 (December (6)) (2018) 620–623, http://dx.doi.org/10.23736/S0026-4733.18.07718-0, Epub 2018 May 24.
[11] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, for the SCARE Group, The SCARE statement: consensus-based surgical case report guidelines, Int. J. Surg. 60 (2018) 132–136.
[12] Martin R. Weiser, AJCC 8th edition: colorectal cancer, Ann. Surg. Oncol. (June) (2018).
[13] John L. Cameron, Andrew M. Cameron, Current Surgical Therapy, 13th edition, Elsevier, 2020, p. 245.