

Suciu B.A.^{1,2}, Hălmăciu Ioana², Vunvulea V.², Trâmbițaș C.², Pisciă R.¹, Lata Laura¹, Fodor D.¹, Molnar C.¹, Copotoiu C.¹, Brînzaniuc Klara²

Gallstone Ileus Caused by a Cholecysto-Duodeno-Colic Fistula, Case Report And Literature Review

¹ Surgery clinic nr.1, Mureș County Hospital

² Anatomy Department; University of Medicine and Pharmacy Târgu Mureș

ABSTRACT

Introduction: Complex cholecysto-duodeno-colic fistulas are an extremely rare complication that can occur in patients with cholelithiasis. The aim of this article is to present the case of a patient with cholecysto-duodeno-colic fistula manifested with biliary ileus in a patient known for many years with cholelithiasis.

Case report: We present the case of a 62 y/o male that was admitted in our clinic with the diagnosis of gallstone ileus. Emergency surgical intervention was needed. Intraoperatively we discovered a cholecysto-duodeno-colic fistula complicated with gallstone ileus. During the operation we practiced retrograde cholecystectomy, closure of the fistulous tract (duodenoraphy, coloraphy), enterotomy and extraction of the calculus located inside the small intestine. The postoperative evolution was favorable.

Conclusions: Cholecysto-duodeno-colic fistulas complicated with gallstone ileus are an extremely rare complication that can occur in patients with gallstones. In case of the occurrence of gallstone ileus, the surgical treatment is an emergency, being the only therapeutic technique that can save the patient's life.

Keywords : cholecysto-duodeno-colic fistula, ileus

Introduction

Internal biliary fistulas are extremely rare complications that can occur in patients with cholelithiasis. This type of complication can arise in up to 2% of the patients with cholelithiasis. Usually the most frequent types of internal biliary fistulas are cholecystoduodenal fistulas, but there exists cholecystogastric or cholecystocolic fistulas as well. [1] Complex cholecysto-duodeno-colic fistulas are an extremely rare complication that can occur in patients with cholelithiasis. Up to this date there are only 6 such cases described in the English medical literature. [2,3]

The aim of this article is to present the case of a patient with cholecysto-duodeno-colic fistula manifested with biliary ileus in a patient known for many years with cholelithiasis.

Case report

We present the case of a 62 y/o male that was admitted to the emergency room accusing intense abdominal pain, nausea, vomiting and a lack of bowel movement. The patient was aware of his diagnosis of cholelithiasis for the past 10 years, but refused the surgical treatment offered. The computed-tomography examination of the abdomen revealed

Ioana Hălmăciu

Anatomy Discipline;
University of Medicine and Pharmacy Târgu Mureș

email : anca_halmaciu@yahoo.com

the existence of multiple hydroaeric levels in the area of the jejunum, with the presence of a calculus causing intestinal obstruction. This examination also revealed the existence of a gallstone at the level of the common bile duct. (Figure 1)

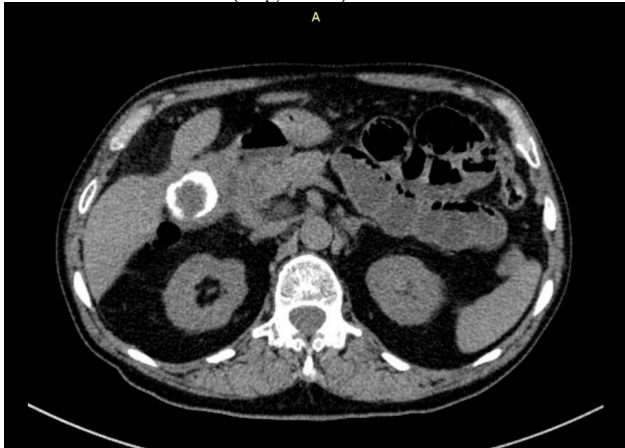


Figure 1 : Abdominal CT, highlighting the calculus within the small intestine

Emergency surgical intervention was needed thus we practiced exploratory laparotomy. When exploring the peritoneal cavity, we noticed the dilatation of a couple of jejunal segments with a bowel obstruction caused by an intestinal calculus, 6 cm cross section. We also noticed the existence of a complex biliary fistula (cholecysto-duodeno-colic). (Figure 2)

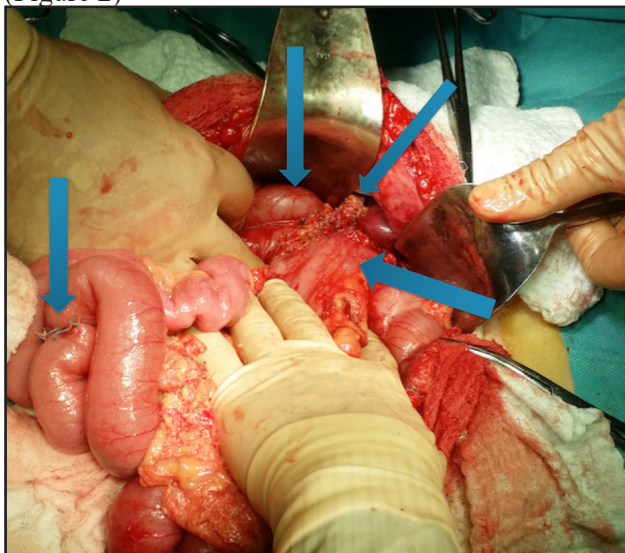


Figure 2 : Intraoperative image, cholecysto-duodeno-colic fistula, enterorraphy

After closing the fistulous tract, we discovered the existence of a calculus, 4 cm in cross section, at the level of the common bile duct. (Figure 3). During the operation we practiced retrograde cholecystectomy, closure of the fistulous tract, enterotomy and extraction of the calculus located inside the small intestine followed by monoplane enterorraphy. The openings of the fistula located at the level of the colon and duodenum were closed by a monoplane suture. After extracting the gallstone at the level of the common bile duct, we explored the main bile ducts without finding any other obstacles and placed a Kehr drain at the aforementioned level. The postoperative evolution was favourable, the patient being discharged 10 days later.

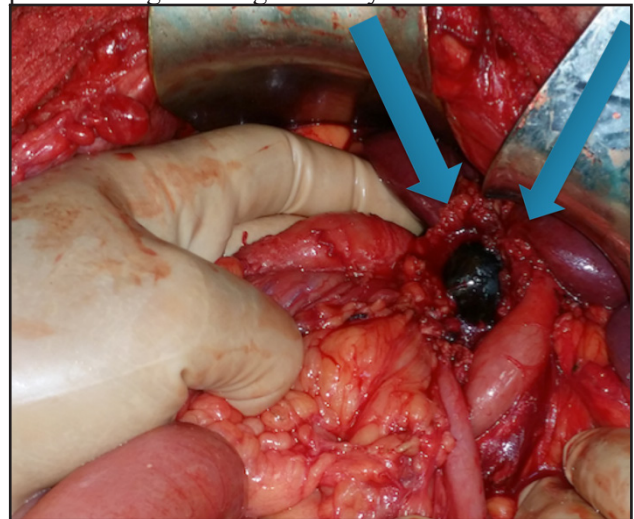


Figure 3 : Intraoperative image, after the closure of the fistulous opening we can observe the existence of the gallstone in the biliary ducts

Discussions

Gallstone ileus sums up to around 1-2% of all the cases of mechanic obstructions of the small intestine. [4] The majority of these cases occur in patients already known with cholelithiasis after being asymptomatic long periods of time, the most of the patients being elderly. [5] The entrance of

the calculus into the bowel is possible through the formation of an internal biliary fistula. The formation of such an aforementioned fistula is possible due to local inflammatory processes persisting a long amount of time. [6] Another possible cause could be the existence of a gallbladder neoplasm occurring in a patient with gallbladder lithiasis, the tumor invading the surrounding organs. In such cases it often happens that the intraoperative differential diagnosis between a benign and malignant tumor is very difficult. For this reason, a frozen section becomes very useful. [7]

It is usually very difficult to diagnose such pathologies preoperative. Nowadays with the development of the imagistic techniques it is possible in some cases to diagnose preoperative a gallstone ileus, usually this diagnosis being set during the surgical intervention itself. [8,9]

The majority of the patients are admitted at the emergency room accusing nausea, vomiting, abdominal pain or diarrhea. In the cases of the existence of a gallstone ileus, these patients also present signs of intestinal occlusion. [10] Despite this fact, the majority of the studies published in the medical literature suggest that, the most frequent symptom of patients with internal biliary fistula is actually diarrhea. This is due to the laxative effect of bile acids. [11,12] Sometimes the diarrheic syndrome can be so severe that it can lead to intestinal malabsorption and megaloblastic anemia. [13] The abdominal pain occurring in such patients are usually localized in the right hypochondrium, but are not the dominant symptom of this pathology. [14] Another important fact to take into account is the direct communication between the bile ducts and the intestinal tract that can lead to an infectious syndrome due to the occurrence of angiocholitis. [15]

The positive diagnosis in such case is very difficult to establish preoperative. Radiological examination is usually inconclusive, being able only to highlight signs of intestinal occlusion or the existence of a gallstone, if the latter is radiopaque. Abdominal ultrasound is not useful either. The main imagistic examination that can establish the diagnosis of gallstone ileus is abdominal computer tomography with contrast dye. The use of this imagistic technique has maximum relevance in patients with radiopaque calculus. [16,17]

Bearing in mind this fact, it was proven that approximately 43% of cases of biliary fistulas were correctly diagnosed before the surgical intervention, in patients with cholecysto-colic fistula this percentage drops to around 10%. [6,18] The difficulty of establishing a correct preoperative diagnosis relies in the fact that, the pathognomonic sign of internal biliary fistulas is pneumobilia, but it is often not present in these patients. [19,20]

Regarding the treatment of these patients, surgical treatment is the gold standard. The patients who are admitted with an altered general condition and aren't suited for surgical intervention, can benefit from endoscopic sphincterotomy as a viable alternative as some authors reported. This way, the pressure generated in the bile ducts is reduced, and after removing the gallstone there can even be a possibility of the internal fistula to close on its own. [21-23] Despite that, this technique is not suitable for patients who also present gallstone ileus, the surgical treatment being the only lifesaver.

Regarding the technique of the surgical approach in these patients we must remember that 20 years ago, the majority of authors recommended an open approach, whilst in recent times more and more authors suggest laparoscopic approach as being more viable. This approach has the advantage of a lower mortality and morbidity rate, as well as a more rapid social insertion of these patients and a less overall pain. On the other side, it often happens in patients with gallstone ileus that the laparoscopic approach is not possible, due to a high risk of an intraoperative iatrogenic lesion. [24-26]

Conclusions

Cholecysto-duodeno-colic fistulas complicated with gallstone ileus are an extremely rare complication that can occur in patients with gallstones. In case of the occurrence of gallstone ileus, the surgical treatment is an emergency, being the only therapeutic technique that can save the patient's life.

References

1. Yamashita, H., Chijiwa, K., Ogawa, Y., Kuroki, S., & Tanaka, M. (1997). The internal biliary fistula—reappraisal of incidence, type, diagnosis and management of 33 consecutive cases. *HPB Surgery*, 10(3), 143-147.
2. Bhat, G.A., Jain, R. & Lal, P. (2016). Cholecystoduodenocolic Fistula: An Unexpected Intraoperative Finding, a Surgical Challenge. *International Journal of Clinical Medicine*, 7, 261-264
3. Ross, G.B. (1984). Cholecystoduodenocolic Fistula and Gallstone Ileus. *Postgraduate Medical Journal*, 60, 698-699
4. Doromal, N.M., & Estacio, R., Sherman, H. (1975). Cholecysto-duodeno-colic fistula with gallstone ileus : report of a case. *Disease of the Colon & Rectum*, 18,8,702-705
5. Costi, R., Randone, B., Violi, V., Scatton, O., Sarli, L., Soubrane, O., Dousset, B. & Montariol, T. (2009). Cholecystocolonic fistula: facts and myths. A review of the 231 published cases. *J Hepatobiliary Pancreat Surg.* 16(1), 8-18. doi: 10.1007/s00534-008-0014-1
6. Glenn, F., Reed, C. & Grafe, W.R. (1981). Biliary enteric fistula. *Surg Gynecol Obstet.* 153,527-531
7. Hession, P.R., Rawlinson, J., Hall, J.R., Keating, J.P. & Guyer, P.B. (1996). The clinical and radiological features of cholecystocolic fistulae. *Br J Radiol.* 69,804-809
8. Angrisani, L., Corcione, F., Tartaglia, A., Tricarico, A., Rendano, F., Vincenti, R., Lorenzo, M., Aiello, A., Bardi, U., Bruni, D., Candela, S., Caracciolo, F., Crafa, F., De Falco, A., De Werra, C., D'Errico, R., Giardiello, C., Petrillo, O. & Rispoli, G. (2001). Cholecystoenteric fistula (CF) is not a contraindication for laparoscopic surgery. *Surg Endosc.* 15:1038-1041
9. Chowbey, P.K., Bandyopadhyay, S.K., Sharma, A., Khullar, R., Soni, V. & Baijal, M., (2006). Laparoscopic management of cholecystoenteric fistulas. *J Laparoendosc Adv Surg Tech A.* 16:467-472.
10. Gibbons, C.P. & Ross, B. (1984). Cholecystoduodenocolic fistula and gallstone ileus. *Postgraduate Medical Journal*, 60,698-699
11. Rosenqvist, H. & Sjoberg, S.G. (1955). Duodenocolic fistulas. *Acta Chir Scand.* 109,293-298
12. Levrat, M., Bret, P., Romier, H. & Grivet, A. (1957). Cholecystocolic fistula with cholelithiasis causing chronic diarrhea. *Arch Mal Appar Dig Mal Nutr.* 46,879-886
13. Isherwood, I. & MacCaig, J. (1963). Cholecystoduodeno-colic fistula presenting with megaloblastic anaemia. *Clin Radiol.* 14,91-93
14. Ibrahim, I.M., Wolodiger, F., Saber, A.A. & Dennery, B. (1995). Treatment of cholecystocolonic fistula by laparoscopy. *Surg Endosc.* 9, 728-729.
15. Hession, P.R., Rawlinson, J., Hall, J.R., Keating, J.P. & Guyer, P.B. (1996). The clinical and radiological features of cholecystocolic fistulae. *Br J Radiol.* 69,804-809
16. Swinnen, L. & Sainte, T. (1994). Colonic gallstone ileus. *J Belge Radiol*, 77,272-274
17. Mittendorf, E.A., Goel, A. & Seaman, D. (2004). Image of the month. Cholecystocolonic fistula. *Arch Surg.* 139:907
18. Chowbey, P.K., Bandyopadhyay, S.K., Sharma, A., Khullar, R., Soni, V. & Baijal, M. (2006). Laparoscopic management of cholecystoenteric fistulas. *J Laparoendosc Adv Surg Tech A.* 16,467-472.
19. Swinnen, L. & Sainte, T. (1994). Colonic gallstone ileus. *J Belge Radiol.* 77,272-274
20. Rigler, L.G., Borman, C.N. & Noble, J.F. (1941). Gallstones obstruction: pathogenesis and roentgen manifestations. *JAMA.* 117,1753-1759
21. Caroli-Bosc, F.X., Ferrero, J.M., Grimaldi, C., Dumas, R., Arpurt, J.P. & Delmont J. (1990). Cholecystocolic fistula: from symptoms to diagnosis. *Gastroenterol Clin Biol.* 14,767-770.
22. Goldberg, R.I., Phillips, R.S. & Barkin, J.S. (1988). Spontaneous cholecystocolonic fistula treated by endoscopic sphincterotomy. *Gastrointest Endosc.* 34,55-56.
23. Caroli-Bosc, F.X., Ferrero, J.M., Grimaldi, C., Dumas, R., Arpurt, J.P. & Delmont, J. (1990).

- Cholecystocolic fistula: from symptoms to diagnosis. *Gastroenterol Clin Biol.* 14,767–770.
24. Williams, J., Deans, G., Royston, C. & Brough, W. (1995). Laparoscopic management of cholecystocolic fistula. *Br J Surg.* 82,565.
 25. Ibrahim, I.M., Wolodiger, F., Saber, A.A. & Dennery, B. (1995). Treatment of cholecystocolonic fistula by laparoscopy. *Surg Endosc.* 9,728–7299.
 26. Pianalto, S., Rossi, M., Battaglia, G., Pizzato, D. & Ancona, E. (1997). Cholecysto-colic fistula: laparoscopic treatment. *Ann Ital Chir.* 68,231–233.