Cholecystocolic Fistula Secondary to Gallbladder Carcinoma: 
A Rare Case

ABSTRACT

Internal biliary fistulae are a well-recognized complication of biliary lithiasis. Among these, the cholecystoduodenal fistulae are the commonest while cholecystocolic fistulae (CCF) occur much less frequently. CCF secondary to gallbladder carcinoma is a rare occurrence and has been reported in very few studies. Here, the author reports a case of cholecystocolic fistula secondary to gallbladder carcinoma. Preoperative diagnosis of this condition requires high index of suspicion and is usually difficult. Computed tomography scan is helpful in establishing a preoperative diagnosis.

Key Words: Cholecystocolic fistula, computed tomography, gallbladder carcinoma

CASE HISTORY

A 46-year-old obese female presented with intermittent pain in the right hypochondrium since 6 - 12 months accompanied with weight loss. Clinical examination revealed a mild tender lump in the right hypochondrium. Past medical history and laboratory tests were unremarkable. Plain radiograph of the abdomen was also unremarkable.

Ultrasonography of abdomen revealed partially distended gallbladder with multiple calculi and hypoechoic mass lesion in the distal body and fundal region. The gallbladder wall was diffusely thickened. Thickening of the wall with some echogenic foci was noted in the hepatic flexure of the colon, which appeared to be adherent to the fundus of the gallbladder. Few enlarged lymph nodes were detected at the porta hepatis. The intra and extra-hepatic biliary tree appeared normal. Rest of the abdomen was unremarkable.

Contrast-enhanced computed tomography (CT) of abdomen revealed thickened gallbladder wall with a large mass in the body and fundal region with multiple calculi embedded within it [Figures 1 and 2]. Thickening of the adjacent greater omentum was also noted. Gallbladder was adherent to the hepatic flexure of the colon, which revealed mural thickening with slight luminal narrowing and a calculus embedded in the wall of the colon [Figure 3]. Multiplanar reconstruction of the images revealed a contiguity of the gallbladder wall with that of the wall of the hepatic flexure [Figures 4 and 5]. Lymphadenopathy was seen at the porta hepatis. Rest of the abdomen was unremarkable.

Based on the radiological findings, the provisional diagnosis of gallbladder carcinoma with cholelithiasis, omental and colonic invasion, and cholecystocolic fistula was made.

Figure 1: Non-contrast axial CT image shows calculi in gallbladder...
Laparotomy revealed a malignant appearing mass in the fundus and body of gallbladder invading the greater omentum and the adjacent part of the hepatic flexure with thickening of its wall and continuity of colonic lumen with gallbladder lumen, which was apparently obstructed by a gallstone. As the gallstones were embedded within the gallbladder mass and there was conspicuous involvement of hepatic flexure by mass, the prudent diagnosis of gallbladder carcinoma with cholelithiasis and cholecystocolic fistula secondary to invasion of colon by mass was made. The surgery involved cholecystectomy along with resection of the adjacent hepatic segments (IV and V), fistulectomy and right hemicolectomy along with resection of the regional lymph nodes.

Histopathological examination of the resected specimen revealed gallbladder adenocarcinoma and transmural invasion of the resected part of the colon.

The patient was followed up over a period of 6 months by abdominal ultrasonography during which no further development of the mass or metastases was noted.

**DISCUSSION**

Spontaneous enterobiliary fistulae are a complication of biliary disease or a disease of adjacent structures. They are usually associated with gallstones; however, peptic ulcer disease, abdominal trauma, Crohn’s disease, and malignancies of the biliary tract, bowel and head of pancreas have also been implicated as causes. In this era of imaging, early diagnosis and standard surgical treatment of cholelithiasis have made biliary intestinal fistula a very rare complication of undetected gallstone disease.

The overall incidence of internal biliary fistula is 1.2–5.0%. Cholecystoduodenal fistulae are the most frequent (75%),

Figure 2: Contrast-enhanced axial CT image shows mass in the gallbladder with embedded calculi

Figure 3: Contrast-enhanced axial CT image shows extension of gallbladder mass into the adjacent greater omentum and hepatic flexure of the colon with a calculus and mural thickening

Figure 4: Oblique sagittal MPR CT image shows calculus and mass in gallbladder with a soft tissue tract leading to the adjacent part of the hepatic flexure of the colon

Figure 5: Coronal MPR CT image shows a mass with calculus in the fundal region of gallbladder with a fistulous communication to the hepatic flexure of the colon with embedded calculus
followed by cholecystocolic (10–20%), with a variety of other types being less common (15%).[8,10]

The majority of patients with cholecystocolic fistulae are elderly and there is a female preponderance (6:1). Diagnosis may be made by plain abdominal radiograph, barium enema, ERCP, ultrasound, CT scan or diagnostic laparotomy.[11,12] MR imaging has a limited role. MRCP can visualize the mass and the gallstones, but not cholecystocolic fistula, since air in the lumen of colon appears as a region of signal void user.

The gallbladder and the right colic flexure are closely related anatomically. Pericholecystic adhesions lead to fixation of the two structures. Since carcinoma of the gallbladder is usually superimposed upon chronic cholecystitis with or without stones, the presence of pericholecystic adhesions facilitates extension of the tumour into the colon. Actual infiltration of the wall of the adjacent colon accompanies both chronic cholecystitis and carcinoma of the gallbladder.[13,14] In most instances, involvement by an inflammatory or neoplastic process appears localized to the superior aspect of the anterior hepatic flexure; nevertheless, circumferential involvement of the lumen mimicking primary carcinoma of the colon may also occur.[15,16]

Cholecystoduodenocolic fistula secondary to carcinoma of gallbladder and cholecystocolocutaneous fistula secondary to calculus cholecystitis have previously been reported.[17,18] Cholecystocolic fistulae are rare in relation to gallbladder carcinoma and herein we report one such case to highlight the importance of preoperative imaging diagnosis.

REFERENCES

1. Kaplan BJ. Massive lower gastrointestinal hemorrhage from cholecystocolic fistula. Dis Colon Rectum 1967;10:191-6.
2. McConnell F. Malignant neoplasm of gallbladder: Roentgenological diagnosis. Radiology 1957;69:720-5.
3. Waggoner CM, Lemone DV. Clinical and roentgen aspects of internal biliary fistulas: Report of twelve cases. Radiology 1949;53:31-41.
4. Khilnani MT, Wolf BS, Finkel M. Roentgen features of carcinoma of gallbladder on barium meal examination. Radiology 1962;79:264-73.
5. Hession PR, Rawlinson J, Hall JR, Keating JP, Guyer PB. The clinical and radiological features of cholecystocolic fistulae. Br J Radiol 1996;69:804-9.
6. Chandar VP, Hookman P. Choledochocolonic fistula through a cystic duct remnant: A case report. Am J Gastroenterol 1980;74:179-81.
7. LeBlanc KA, Barr LH, Rush BM. Spontaneous biliary enteric fistulas. South Med J 1983;76:1248-52.
8. Fujitani K, Hasuike Y, Tsujinaka T, Mishima H, Takeda Y, Shin E, et al. New technique of laparoscopic-assisted excision of a cholecystocolic fistula: Report of a case. Surg Today 2001;31:740-2.
9. Elsas LJ, Gilat T. Cholecystocolonic fistula with malabsorption. Ann Intern Med 1965;63:481-6.
10. Safaie-Shirazi S, Zike WL, Printen KL. Spontaneous enterobiliary fistulas. Surg Gynecol Obstet 1973;137:769-72.
11. Hession PR, Rawlinson J, Hall JR, Keating JP, Guyer PB. The clinical and radiological features of cholecystocolic fistulae. Br J Radiol 1997;69:804-9.
12. Singh AK, Gervais D, Mueller P. Cholecystocolonic fistula: Serial CT imaging features. Emerg Radiol 2004;10:301-2.
13. Litwini MS. Primary carcinoma of gallbladder: Review of 78 patients. AMA Arch Surg 1967;95:236-40.
14. Rockoff SD, Tuddenham WJ. Adherent gallbladder simulating intrinsic lesion of right side of colon: Report of case. Am J Roentgenol Radium Ther Nucl Med 1962;87:749-51.
15. Fahim RB, McDonald JR, Richards JC, Ferris DO. Carcinoma of gallbladder: A study of its modes of spread. Ann Surg 1962;156:114-24.
16. Kelli RH, DeWesse MS. Primary carcinoma of gallbladder. Am J Surg 1973;125:726-9.
17. Morris SJ, Greenwald RA, Barkin JS, Tedesco FJ, Snyder R. Cholecystoduodenocolic fistula secondary to carcinoma of the gallbladder. Am J Dig Dis 1978;23:849-52.
18. Shrestha BM, Wyman A. Cholecystocolocutaneous fistula: A case report. Hepatobiliary Pancreat Dis Int 2006;5:462-4.

Source of Support: Nil. Conflict of Interest: None declared.