Cholecystoduodenocolic fistula and gallstone ileus

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Summary

A patient with cholecystoduodenocolic fistula and gallstone ileus is described. Barium enema and barium meal and follow through demonstrated the passage of the gallstone from the gallbladder region to the small bowel. The clinical features and operative management are discussed in the light of four previously recorded cases.

KEY WORDS: biliary fistula, cholelithiasis, intestinal obstruction.

Introduction

Gallstone ileus is usually seen in conjunction with a cholecystoduodenal fistula but may also be associated with cholecystogastric or cholecystocolic fistulae (Andersson and Zederfeldt, 1969; Wakefield, Vickers and Walters, 1939). However, a double communication between the gallbladder and both the duodenum and colon is rare in this condition, only four previous cases having been recorded in the English language (Doromal, Estacio and Sherman, 1975; Dowse, 1963; Pitman and Davies, 1963; Shocket, Evans and Jones, 1970). A further case is presented here.

Case report

An 88-year-old woman presented in the outpatient department with a month's history of bilious vomiting, diarrhoea and recurrent right subcostal pain.

Examination revealed a frail woman who was not jaundiced. Her abdomen was not distended but was tender in the right subcostal region.

A barium enema (Fig. 1) on the 7th day after admission showed a cholecystocolic fistula and a possible cholecystoduodenal connection. There was also a round filling defect in this region which was believed to be a gallstone lying either within the gallbladder or in a walled-off cavity between the gallbladder and duodenum. After temporary improvement on antimicrobial therapy and intravenous

fluids, her diarrhoea and vomiting returned. A barium meal and follow through on the 20th day confirmed the presence of a cholecystoduodenocolic fistula but by now the gallstone had passed into the small bowel and could be seen obstructing the lumen of the proximal jejunum (Fig. 2).

FIG. 1. Detail from barium enema shortly after admission showing cholecystoduodenocolic fistula with a large stone in the region of the duodenum. Gas and barium are seen in the biliary tree.

Laparotomy confirmed the diagnosis of cholecystoduodenocolic fistula and gallstone ileus. The fistula was dismantled without difficulty and a 4×5 cm diameter gallstone, impacted 60 cm distal to the duodenojejunal flexure, was milked proximally and delivered through the duodenal defect. The duodenal and colonic defects were oversewn, and cholecystectomy performed. Her recovery was uncomplicated.

FIG. 2. Barium follow through showing stone (arrowed) impacted in mid jejunum.

Discussion

Cholecystoduodenocolic fistula is a rare complication of cholelithiasis. Only 20 examples had been reported up to 1970 (Shocket *et al.*, 1970). Our patient is the fifth reported case to have a concomitant gallstone ileus but is unique in documenting the passage of a gallstone from the gallbladder to the small intestine.

The majority of patients with cholecystoduodenocolic fistulae present with vomiting, diarrhoea and abdominal pain whether or not there is the additional complication of gallstone ileus. Indeed in the present case only a mild exacerbation of symptoms heralded the passage of the stone into the small bowel. Evidence of air in the biliary tree on a plain abdominal X-ray points to the presence of a biliary-enteric fistula, but contrast radiology by barium meal, barium enema or both is essential for the delineation of the fistulous connections.

Gallstone ileus normally demands emergency laparotomy and enterolithotomy to relieve obstruction. However, concomitant surgery to the more common cholecystoduodenal fistula is usually discouraged on the basis that subsequent symptoms are rare and that the minimum procedure should be performed in these patients, who are mostly elderly and debilitated

(Andersson and Zederfeldt, 1969; Day and Marks, 1975). Where a cholecystoduodenocolic fistula is present, however, the situation may be different. The mere presence of such a connection in the absence of gallstone obstruction is associated with a high morbidity (Shocket *et al.*, 1970). Moreover, duodenocolic and cholecystocolic fistulae are known to cause severe diarrhoea (Safaie-Shirazi, Zike and Printen, 1973; Torrance and Jones, 1972) although the high risk of cholangitis reported with cholecystocolic fistulae (Safaie-Shirazi *et al.*, 1973) would appear to be less in the presence of a concomitant cholecystoduodenal connection (Shocket *et al.*, 1970).

For these reasons we would recommend complete disconnection of the fistula and cholecystectomy where possible, as in the present case. Nevertheless, where operative conditions are less favourable it may be dangerous or impossible to dismantle the subhepatic inflammatory mass. Simple enterolithotomy may then be life-saving, leaving the option for later re-exploration. Indeed, re-exploration may prove unnecessary, for in the two reported cases where simple enterolithotomy has been performed, no re-exploration was required, the fistula closing spontaneously within 10 days in one (Doromal *et al.*, 1975), and remaining patent but asymptomatic for at least five months in the other (Pitman and Davies, 1963).

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