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Surgery

CHYLE LEAK FOLLOWING LAPAROSCOPIC CHOLECYSTECTOMY: A RARE CASE SCENARIO

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ABSTRACT Laparoscopic cholecystectomy is the preferred method for treating gallbladder conditions, with a low mortality and morbidity rate. However, complications such as bile duct injury and, more rarely, chyle leakage can occur. Chyle leakage is an uncommon condition, with only seven cases previously reported. This report presents the case of a 50-year-old woman who developed a chyle leak following laparoscopic cholecystectomy. The patient initially presented with epigastric pain and was diagnosed with cholelithiasis and cholecystitis. After the surgery, a milky-white discharge from the drain was observed, which was confirmed as a chyle leak through elevated triglyceride levels in the drain fluid. Conservative management, including a fat-free diet, successfully resolved the leak without the need for surgical intervention. Given the rarity of chyle leakage after laparoscopic cholecystectomy, this case highlights the importance of early diagnosis and the potential effectiveness of conservative treatment.

KEYWORDS : Pancreatitis, Hepatomegaly,Cholelithiasis, Cholecystitis, Chylous ascites, Acute cholecystitis, Gallstone pancreatitis, Choledocholithiasis, Gallstone ileus

INTRODUCTION

The most common procedure for managing gallbladder pathologies is laparoscopic cholecystectomy which has a low mortality rate of 0.08–0.14% and a low morbidity rate of 1.6–5.3%). Gallstones affect about 20 million people in the United States. Approximately 300,000 cholecystectomies are performed on these individuals each year. Gallstones in ten to fifteen percent of the population are asymptomatic. Twenty percent of these have biliary colic symptoms. About 1% to 4% of the 20% who have symptoms will experience problems (such as acute cholecystitis, gallstone pancreatitis, choledocholithiasis, or gallstone ileus)(2).

Complications like bile duct damage can occur, though. Only seven occurrences of chyle leaking have been documented in the literature, making it an incredibly uncommon issue. Chylous ascites, a disease characterized by the peritoneal deposition of chyle, can be causedby trauma or rupture of the lymphatic system and has a death rate ranging from 40% to 70%. Although difficult, early diagnosis is essential because symptoms are frequently ambiguous. Analysis of the abdomen fluid, in particular the high triglyceride levels, confirms the diagnosis. Conservative methods of treatment, like a low-fat diet and medication, are usually tried first. If these don't work, surgery might be necessary.(1)

CASE REPORT

A 50-year-old woman arrived with a 2-day history of epigastric pain that persisted for a year. She did not have any other medical conditions, but she had a history of total abdominal hysterectomy 16 years prior, and epigastric pain that would flare up after fatty meals for 3 years. Upon analysis, every observation fell within the expected ranges. She had no palpable lumps or signs of peritonitis, although her abdomen was slightly sensitive in the epigastrium. The results of laboratory studies showed that serum protein and albumin were below normal (Protein/Albumin-6.0/3.45), although bilirubin and alkaline phosphatase were normal (Hb/TLC/Platelets -10.5/17100/1.69 lac, Urea/Creatinine -28/0.81, Neutrophils count -14877). Serum lipase is somewhat increased while serum amlyase was normal (amylase/lipase= 48/107) .The results of an ultrasound scan showed mild hepatomegaly (15.1 cm) and diffuse grade 1 fatty infiltration. The GB lumen, which was the largest at 9.9 mm, had sludge visible in it along with mild diffuse wall thickening and a few calculi, suggesting cholelithiasis with cholecystitis.The patient will undergo a laparoscopic cholecystectomy following completion of all the standard testing and pre-anesthetic examinations. Given the acute inflammation that was present, the technique was technically challenging, but the cystic duct and artery were carefully dissected, and the anatomy was verified prior to ligation (Fig. 1).

As per the surgeon's guidelines, a drain was left in the gallbladder fossa for 24 hours following a laparoscopic cholecystectomy due to acute inflammation.

When an unlimited diet was established on the first postoperative day, the drain effluent turned milky-white (Fig 2)

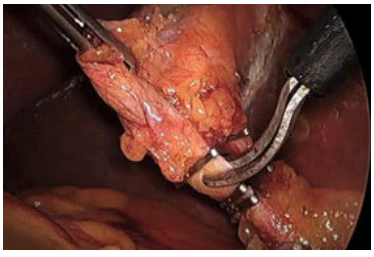

Fig.1: Clipping of cystic duct and cystic artery after Calot's triangle

Fig.2: Chyle leak on POD-1 following Laparoscopic Cholecystectomy

TABLE 1

Biochemistry	Normal Serum Values	Serum Values	Drain effluent values
Triglycerides (mmol/l)	0–1.7	1.2	19.4
Total cholesterol (mmol/l)	0–5	2.77	2.2
HDL cholesterol (mmol/l)	> 1.20	0.58	0.26
Non-HDL cholesterol (mmol/l)	0–4.0	2.19	1.9

Cholesterol/HDL ratio	0–5	4.78	9.4
Amylase (U/l)	0–90	107	54

A chyle leak was indicated by an elevated triglyceride concentration (19.4 mmol/l; drain:serum ratio of 16.7) found in the drain fluid (Table 1). Tests for liver function and inflammatory markers held steady.

When a diet devoid of fat was introduced, the drain output gradually dropped from 280 ml per day to zero over the course of the following five days. Prior to the drain being removed, ultrasonography examination verified that the chyle leak had been resolved.

DISCUSSION

There have only been seven documented incidences of chyle leaking after LC, making it incredibly uncommon.[3,4] One patient was treated conservatively with dietary changes and medium-term abdominal drainage in the community after experiencing a minor volume leak on the second day following LC for acute biliary pancreatitis[3].After LC, the second instance experienced a persistent, significant volume chyle leak (1000–1500 ml/day).[4]

Despite the paucity of controlled studies, various approaches to managing chyle leaks havebeen proposed. Antibiotic prophylaxis and ongoing chyle drainage are recommended by the current consensus[5]. Moreover, to decrease enteral lymphatic flow, a low-fat enteral diet low in long-chain triglycerides is recommended[4]It has also been suggested to utilize synthetic somatostatin analogues (like Octreotide)[6] and pancreatic lipase inhibitors (like Orlistat)[5] to reduce chyle flow and triglyceride absorption[7].There are no general recommendations for the surgical treatment of chyle leaks following LC. However, continuous output, high-volume leakage (> 500 ml/day), or nutritional impairment have all been linked to surgical intervention recommendations[5].Additionally, Huang et al. [3] contended that chyle leaks following lymphoscintigraphy-detected LC are substantial enough to necessitate surgical intervention in order to rectify.

Our patient's drain enabled a controlled fistula, preventing the need for repeat laparoscopy. Good clinical evolution and declining drain output supported a conservative management strategy that produced positive outcomes. However, it's unclear what caused the chyle leak. According to published research, this can happen as a result of enzymatic damage, brief mechanical compression of lymphatics by an inflamed pancreas, or iatrogenic harm to lymphatic arteries[8]In our instance, the patient's pancreatitis was getting better, and the drain fluid's low amylase concentration ruled out pancreatitis as the cause of the leak.

CONCLUSION

Since chyle leaking following laparoscopic cholecystectomy is an exceedingly uncommon complication, there is insufficient data to inform care. It may be best to use conservative therapy, such as chyle drainage and dietary adjustments, and save surgical and lymphoscintigraphy procedure for chronic, high-volume leaks.

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