CASE REPORT

Laparoscopic Cholecystectomy-Chyle Leak: A Case Report

Lingam Sridhar[1], Rohit Phadnis[2], Faiz Hussain[3], Sarath C Chappidi[4], Subrahmanya Narayan Dora K[5]

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Abstract

Aim: To elucidate the findings in a rare yet potentially morbid complication in a case of uncomplicated Cholecystitis.

Background: Chyle leak after laparoscopic cholecystectomy (LC) is rarely reported. However, it must be recognized promptly and managed as it can lead to further metabolic and infectious complications.

Case description: We present the case of a 40-year-old lady who was admitted with ultrasound-proven cholelithiasis with no signs of cholecystitis. Her Total leukocytic count and liver function tests were within normal limits. She underwent an uneventful standard LC. Postoperatively there was a cumulative collection of 150 mL of white fluid in his drain. The fluid triglyceride was 1620 mg/dL, confirming it to be chyle. She was clinically asymptomatic. She was managed conservatively as a low-volume chyle leak with a fat-free diet. The drain was removed on postoperative day (POD) 11 after nil collection for 3 consecutive days.

Conclusion: Chyle leak, though a rare complication, after LC timely response and active intervention help in managing rare complications of LC like chylous leak for better outcomes.

Significance: The 'take home' message is that although rare, chyle leaks should be considered even in uncomplicated LC.

Keywords: Case report, Chyle leak, Laparoscopic cholecystectomy, Triglycerides.

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Introduction

Gallstone disease is widespread, and laparoscopic cholecystectomy (LC) is the commonly chosen and safe treatment option on a Global scale each year. The postoperative complications of the procedure have been well elucidated, including bile leak and common bile duct (CBD) injury. While less common, chylous ascites represent an unusual yet serious postoperative complication.

Case Description

A 40-year-old female with no comorbidities was admitted with a clinical diagnosis of symptomatic cholelithiasis. Her preoperative ultrasound was suggestive of 12.5 mm calculus in the gallbladder (GB) with normal GB wall thickness and no evidence of pericholecystic fluid collection. LFT within normal limits. Elective LC was planned. Intraoperatively, after extracting the specimen, a turbid discharge (Fig. 1) was identified from the region superior to Rouviere's sulcus for which saline irrigation was done, and an abdominal drainage kit was placed before closure. On postoperative day (POD) 2, a milky white discharge was observed (Fig. 2) and chylous discharge was suspected. Ultrasonography (USG) abdomen was done, and drain fluid was sent for amylase and triglycerides. A USG scan was suggestive of minimal fluid in the GB fossa with no pelvic collection. Drain fluid for amylase and triglycerides were 69 IU and 1620 mg/dL respectively. The patient was advised to consume a fat-free diet with which the patient clinically improved. Given progressively decreasing drain output a review USG on POD 9 was suggestive of no free fluid in the intraabdominal cavity. The patient was discharged on POD 11 with the drain *in situ* and advised of a no-fat diet. After 7 days the patient was reviewed in the OPD with an empty drain bag. Review USG was suggestive of no collection and the drain was removed. The patient was advised to review in the presence of pain abdomen or distension.

[1–5]Department of General Surgery, Apollo Institute of Medical Sciences & Research, Hyderabad, Telangana, India

Corresponding Author: Sarath C Chappidi, Department of General Surgery, Apollo Institute of Medical Science & Research, Hyderabad, Telangana, India, Phone: +91 9347193312, e-mail: chandu011095@gmail.com

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Discussion

Laparoscopic cholecystectomy, a minimally invasive surgery to remove a diseased gallbladder, has largely supplanted the open technique for routine cholecystectomies since the early 1990s.[1] In the United States, where roughly 20 million individuals have gallstones, approximately 300,000 cholecystectomies are conducted each year.[2] Although well-documented complications such as injury during trocar or Veress needle placement, bleeding, CBD injury, bile leakage, and gastrointestinal injury are commonly associated with laparoscopic cholecystectomies, the incidence of postoperative chyle leak is exceedingly rare, with only six reported cases documented to date.

There are many hypotheses for explaining the mechanism of chyle leak, which are yet to be proven.

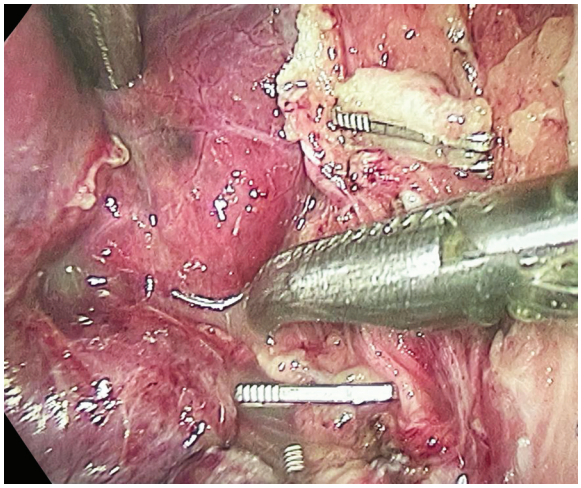

Fig. 1: Intraoperative picture showing milky white collection below CBD near the Rouviere's sulcus

Fig. 2: Drain fluid on postoperative day 3 showing milky white, thick chylous output

Chyle typically lacks odor, is alkaline, sterile, and contains abundant lymphocytes while being low in bilirubin and amylase content. Furthermore, the ratio of triglycerides in the drain fluid to that in the serum exceeds 1.0. In this instance, the distinct appearance of the postoperative drain fluid, characterized by its significantly elevated triglyceride content, allowed us to make an initial diagnosis. Confirmatory chylomicron testing, although not deemed necessary for our patient due to the notably high triglyceride levels, could have been employed for verification.[3]

In our case, given declining drain content; neither computed tomography (CT) nor lymphangiography was advised.

Management is generally categorized into conservative and surgical management. Initial intervention should involve conservative measures, reserving surgical management for severe cases with persistent high output.[4,5]

Conservative management primarily aims to decrease enteric lymph flow while addressing any electrolyte deficits, fluids, or protein.[6]

Sustaining the advantages of enteral feeding involves placing the patient on a diet low in fat but high in protein, supplemented with medium-chain triglycerides (MCT). Medium-chain triglycerides have the ability to bind with albumin and enter the portal system directly, thereby bypassing the lymphatic system.[5]

In our scenario, we adhered to our institutional protocol by introducing a regular diet on POD 1. Nevertheless, prompt identification of the complication and the immediate initiation of a low-fat diet were pivotal in swiftly resolving the low-volume chyle leak. The risk of such a leak following LC for uncomplicated cholelithiasis is notably low, demonstrated by only six documented cases found in the literature.

In cases where traditional treatments prove ineffective, surgical intervention becomes a critical component of the treatment plan. The decision to proceed with surgery hinges on many factors, including the patient's overall health, the extent of the chyle leak (especially if it surpasses 500 mL daily), and any past surgical procedures. It is essential to tailor these considerations to each individual case. The core principle of surgical intervention involves facilitating the drainage of leaked chyle within the abdomen, followed by the closure or ligation of the identified lymphatic leak source. In our patient's case, such intervention was deemed unnecessary given the low output and spontaneous resolution.

Among 4 out of 6 cases were managed with a low-fat diet alone, without requiring TPN, Somatostatin, octreotide infusion, or surgery. All four cases had less than 1 L/day leakage after initial drainage.[6]

This case underscores that while chyle leaks are exceedingly rare, they can still manifest even in technically uncomplicated LC, leading to heightened patient morbidity and increased treatment expenses.

Conclusion

Timely response and active intervention help in managing rare complications of LC like chylous leak for better outcomes.

Clinical Significance

The key takeaway is that, despite being uncommon, one should consider the possibility of chyle leaks even in cases of uncomplicated LC.

Orcid

Sarath C Chappidi https://orcid.org/0009-0003-4751-6573
Subrahmanya Narayan Dora K https://orcid.org/0009-0002-3981-7766

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