Laparoscopic management of chylous ascites post hiatal hernia repair with Toupet fundoplication

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Abstract
We present a case of chylous ascites in a 69-year-old man 5 months after a laparoscopic Toupet fundoplication (posterior 270°). This was successfully treated with laparoscopic ligation of tissue adjacent to the right crus. Laparoscopic ligation is a management option that should be considered after this rare complication, offering rapid results.

Keywords: Chyle leak, chylous ascites, fundoplication, laparoscopy

INTRODUCTION
Chyle leak is a known complication after surgery due to lymphatic injury.1-3 However, it is rare after hiatal hernia repair, with only seven cases being reported in the literature. A chyle leak can be diagnosed clinically with drainage of milky fluid. Suspicions are confirmed with a fluid triglyceride concentration of >110 mg/dl.2 We present a case of chylous ascites after laparoscopic Toupet fundoplication, successfully managed with laparoscopic ligation of tissue adjacent to the right crus.

CASE REPORT
A 69-year-old man presented with acute worsening of abdominal pain and distension. Five months ago, he had an elective laparoscopic hiatal hernia repair with Toupet fundoplication for a symptomatic hernia containing a total intrathoracic stomach. The operation lasted about 5 h, and dissection was difficult due to a thick hernia sac. Dissection was carried out with the LigaSure electrothermal bipolar tissue sealing system. 2-0 Novafil sutures were utilised for securing the fundoplication. The patient was discharged on day 5 due to minor issues with high blood pressure. Since the operation, he had been experiencing increasing abdominal distension. Gastroscopy was performed 10 days before presentation with chylous ascites, for work-up of distension. This demonstrated solid food residue in the stomach. Botulinum toxin type A was injected to the pylorus for suspected delayed gastric emptying.

On examination, the patient’s abdomen was grossly distended with dullness to percussion. A computed tomography scan confirmed findings of free fluid throughout the abdomen. An ultrasound-guided ascitic drain was inserted which immediately drained 2 l of fluid. The triglyceride concentration of the fluid was 300 mg/dl. The patient was placed on a “low-fat” diet.

How to cite this article: Lee AH, Gillespie C, Johnson MA. Laparoscopic management of chylous ascites post hiatal hernia repair with Toupet fundoplication. J Min Access Surg 2020;16:421-3.
Initially, the patient was planned for a lymphangiogram with lipiodol, with subsequent thoracic duct embolisation. However, the lumbar lymphatic trunks were unable to be cannulated, and the procedure was abandoned. After 10 days of persistently high drain output, it was decided that a laparoscopic repair would be attempted. One hundred millilitres of full fat cream was fed down the nasogastric tube just before surgery to facilitate identification of the leak. After adhesions were dissected off the diaphragm, a small hole was noted in the pars flaccida. This was opened up to the level of the right pillar, and milky fluid was noted to be escaping from fatty tissue adjacent to the crus. After dissecting the caudate lobe of the tissue, three polydioxanone EndoLoop Ligatures were applied with good effect. No further leak was identified. Four millilitres of Tisseel fibrin sealant was used. A drain was inserted before closure [Figure 1].

After surgery, no further chyle appeared in the drain and the patient was upgraded to a full diet. The drain was removed and the patient was discharged on day 2 post-laparoscopy. Follow-up after 1 month was uneventful.

DISCUSSION

Chylous ascites is a known complication after surgery, especially after retroperitoneal procedures.[3] However, this is a rare post-fundoplication, with only seven cases being reported in the literature post-Nissen (posterior 360°) fundoplication.[1-5] There are two instances where the lymphatics are especially susceptible to damage: first, when entering the retroperitoneum medial to the right crus when developing the retroesophageal window, and second, when re-approximating the left and right crus as the thoracic duct can be damaged.[1,3] Anatomical lymphatic variants due to syndromic disorders may also predispose to lymphatic injury.[2]

Patients usually present with symptoms of abdominal distension and discomfort days to weeks after surgery. Our case was atypical as presentation was months after surgery. Park et al. similarly described chylous ascites 4 months after laparoscopic Nissen fundoplication. Symptoms were initially attributed to faecal impaction and diagnosis was delayed.[2]

Management options described include conservative management with a low-fat diet, thoracic duct embolisation with N-butyl-cyanoacrylate and surgery via laparoscopy or laparotomy. N-butyl-cyanoacrylate polymerises on contact with anionic substances, such as endothelium and plasma, provoking an inflammatory reaction with fibrosis that stops the chyle leak.[1-5] Only one other case report by Powell et al. described laparoscopic management via ligation of the leaking duct at the right crus.

Overall, this case highlights that a chyle leak can occur after fundoplication and presentation can be delayed. Laparoscopic ligation should be considered early if there is persistence of high drain output, despite conservative measures, offering minimal risks and instantaneous results.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.
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