

Peer Review File

Article Information: Available at <http://dx.doi.org/10.21037/ales-20-99>

Comment 1: It is mentioned in the case presentation that the patient began unrestricted diet immediately after surgery. Add analysis about whether this might have participated in the chyle leak occurrence. And, add analysis about whether potential improvements (e.g. restricted diet or fat-free/protein-high diet after surgery) could do to prevent potential similar issues.

Reply 1:

It is our routine practice to commence the patient on a normal diet after an eventful laparoscopic cholecystectomy. Chyle leaks after laparoscopic cholecystectomy are so rare [5 cases as per the literature search documented in Table 3] that we do not usually entertain this complication post operatively and hence do not put patients empirically on dietary restrictions. Upon suspicion and documentation of the chyle leak we promptly instituted a fat free diet and carefully looked for resolution of the leak.

There might however be a role for starting a restrictive diet [fat free/high protein/medium chain triglycerides] in some patients at risk e.g. complex biliary dissection, especially if there is suspicion of intraoperative chyle leak.

Changes in text: We have added the following paragraph on page 9, line 7. "In our case we started a normal diet as per our practice after an uneventful cholecystectomy. This certainly compounded the chyle leak. However, a prompt diagnosis of the complication and institution of a fat free diet helped with prompt resolution of the low volume leak. The risk of a chyle leak is very low, as evidenced by 5 cases in the literature search in Table 3. Hence there might be a role for an upfront restrictive diet on those patients at risk for example those having a complex biliary dissection and especially if there is intraoperative chyle leakage noted. Those patients should have a nil by mouth status with slow progression to fat free/high protein/MCT diet while observing for suspicious drain effluent."

Comment 2: In the case presentation, there is a lack of multiple imaging evidence. CT, ultrasound and other imaging data should be supplemented.

Reply 2: Apart from the initial ultrasound and CT there was no imaging done post operatively as the patient was clinically very well and showed no signs of collections. Our aim was to scan him with CT with a view of organizing subsequent percutaneous drainage should there have been an undrained infected collection. Should the leak then be of high volume and persisting then we would have moved on to a lymphoscintigraphy.

Changes in text: We added the following in page 8, line 1: “In our case we did not perform any postoperative imaging as the leak settled and there were no signs of undrained infected collection. Otherwise we would have organized a CT before contemplating percutaneous drainage in the first instance before moving to lymphoscintigraphy in case of persistent leakage.”

Comment 3: Laboratory testing outcomes after the occurrence of chyle leak should be supplemented with other key data, such as protein content.

Reply 3: Our laboratory only processed the cholesterol and triglyceride content in the drain effluent together with the serum TG in order to make the diagnosis of a chyle leak i.e. fluid TG > 1.2mm/L with fluid/serum TG ratio >1.0. Unfortunately, our laboratory cannot test for chylomicron onsite.

Changes in text: We added the following on page 7, line 4: “Alternatively, the diagnosis could be confirmed with chylomicron testing, which unfortunately cannot be processed by our laboratory.”

Comment 4: Drain volume, treatment duration and treatment outcomes should be added in the Table 3. Meanwhile, discuss in depth about these cases. What is the take-away we get through the summary? For example, the timing of the operation is unclear, but what did we learn from several cases of surgery?

Reply 4: We have included more detailed information in Table 3 as requested as long as it was available in the individual reports. Any missing information was documented as ‘unreported’.

We have also included the findings of the literature review in relevant resection of the discussion as noted below, in order to highlight what has been learnt from them.

Changes in text:

We have included the following to Table 3:

“Percutaneously placed drain output was up to 1L per day. TPN started with no resolution of leak. Lymphoscintigraphy localised leak in gallbladder fossa. Underwent laparoscopic oversew of leak (timing unreported) and used Tisseel fibrin glue (Baxter, Illinois, USA). Leak resolved after ‘several’ days. Patient discharged home.”

“Initial drain output was 340ml/day. Fat free diet was started. Output went to zero over next 7 days. Patient discharged home and was asymptomatic at 3 months.”

“MRI showed free fluid. Re laparoscopy performed (timing unreported). 1.4L of chyle aspirated, no leak site identified, drain placed. Intolerant of sandostatin and TPN. Kept nil orally, then fat free diet introduced on day 5. Drain output was 400ml/day by day 4, stopped on day 15. Discharged home on day 19.”

“Drain output 500ml/day. TPN started on day 3. Output increased to 8L/day at day 7. Trial of somatostatin infusion/diuretics ineffective. Open exploration on day 10. Oversew of leak in liver bed

with 3-0 prolene and fibrin glue placed. Drain output reduced to zero after 7 months. No issues noted at 1 year follow up.”

The following changes were made to the manuscript:

We added the following in page 6, line 17: “Interestingly, as with our patient, none of the previously reported cases were technically difficult (Table3).”

We added the following in page 7, line 19: “Interestingly, in our literature review (Table3) among 2 cases that did not settle with conservative means only the one who underwent lymphoscintigraphy before surgical intervention had a more favourable postoperative outcome (1).”

We added the following in page 11, line 1: “Our review suggests that the volume of leak may predict likelihood of resolution with conservative treatment alone. Of the 5 cases, 3 (2, 3, 14) settled simply with low fat diet, without TPN or ongoing octreotide use. Interestingly they all had less than 1L of leak per day after initial drainage. The other cases (1, 4) had > 1L/day output and did not settle with TPN or somatostatin infusion and eventually required surgical intervention. “

Comment 5: The discussion should be more focused on this case. For example, when discussing the diagnosis of chyle leak, add point of the diagnosis of the case and give take-away. In discussing the treatment and management of chyle leak, discussion of this case should also be added.

Reply 5: We have included discussion of this case in the various sections that deal with mechanism, diagnosis, imaging and management to support the rationale for how we managed our patient.

Changes to text: (some of them have been included above)

Page 6, line 17: “Interestingly, as with our patient, none of the previously reported cases were technically difficult (Table3).”

Page 7, line 4 “Alternatively, the diagnosis could be confirmed with chylomicron testing, which unfortunately cannot be processed by our laboratory.”

Page 8, line 1: “In our case we did not perform any postoperative imaging as the leak settled and there were no signs of undrained infected collection. Otherwise we would have organized a CT before

contemplating percutaneous drainage in the first instance before moving to lymphoscintigraphy in case of persistent leakage.”

Page 9, line 7: “In our case we started a normal diet as per our practice after an uneventful cholecystectomy. This certainly compounded the chyle leak. However, a prompt diagnosis of the complication and institution of a fat free diet helped with prompt resolution of the low volume leak. The risk of a chyle leak is very low, as evidenced by 5 cases in the literature search in Table 3. Hence there might be a role for an upfront restrictive diet on those patients at risk for example those having a complex biliary dissection and especially if there is intraoperative chyle leakage noted. Those patients should have a nil by mouth status with slow progression to fat free/high protein/MCT diet while observing for suspicious drain effluent.”

Page 11, Line 5: “Resolution of our low volume leak without the need for TPN or intervention in line with the review.”

Comment 6: After adding the above content, the more valuable take-away should be obtained.

Reply 6: All the changes have been made as requested in order to integrate the discussion, the case and the literature review.

Response to checklist comments:

Comment 1: Please add background with one or two sentences in Abstract.

Reply 1: It has been corrected.

Changed to text: Added the following to Lines 1-2: “Chyle leak after a laparoscopic cholecystectomy is very rarely reported. However, it is needs to be promptly recognised and managed as otherwise it can lead to further metabolic and infective complications.”

Comment 2: The Abstract should be one paragraph.

Reply 2: Amendment made.

Comment 3: Please add “case report” in Key words regarding checklist 2.

Reply 3: Amendment made.

Comment 4: A Timeline figure is suggested regarding checklist 7.

Reply 4: Timeline included as Table 4.

Comment 5: Please provide important follow-up diagnostic and evidence regarding checklist 10b.

Reply5: We did not undertake any followup imaging as the patient was very well and showed no signs of retained or infected collections during his hospital stay. We confirmed chyle leak resolution by repeated fluid and serum triglyceride analysis. As mentioned in the checklist we have included serial pictures of the drain effluent (figure 1) and drain fluid volumes and analysis (Tables 1, 2).

We have now computed and included the drain to serum triglyceride ratio

Change to text: page 5, line 9 “with drain/serum triglyceride ratio of 0.9.”

Comment 6: What is strength AND limitation in this case? Please provide information regarding checklist 11a.

Reply 6: This has been included in the manuscript.

Change to text: Page 11, line 15 “This report only describes the case of a low volume chyle leak that settled with conservative means. However, we highlight it in the context of a literature review with a detailed summary of similar cases. We include a pathogenesis of this rare complication and provide an up to date evidence-based approach to the investigative and management options available.”