Clinical Case Report

# CHYLOPERITONEUM AFTER GASTRECTOMY: IS IT A MANAGEABLE NIGHTMARE?

## QUILOPERITONEU APÓS GASTRECTOMIA: É UM PESADELO CONTROLÁVEL?

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**ABSTRACT**

Chylous ascites is a serious and rare complication after gastrectomy for gastric cancer. Most cases improve with conservative treatment, but substantial morbidity and mortality can be associated. We describe the case of a 48-year-old-male submitted to partial gastrectomy with D2 lymphadenectomy for gastric adenocarcinoma. Three days after starting a liquid diet, it was diagnosed a chyle fistula. Conservative treatment was started with improvement of the patient and he was discharged. After eighteen days, the patient was readmitted due to a large volume chyloperitoneum, requiring paracentesis. Medical treatment was reinstituted, with amelioration and dismissal of the patient. The patient returned to the emergency department due to abdominal pain and fever and was submitted to laparoscopic abdominal drainage. There was resolution of refractory ascites during hospitalization. Chylous ascites is a rare complication after radical resections for gastric cancer. Therefore, there is no well-defined treatment and these cases remain a therapeutic challenge. The therapeutic strategies described include dietary measures, the use of pharmacological agents, total parenteral nutrition and, in selected cases, surgical or percutaneous interventions.

***Keywords:*** *chylous ascites; gastrectomy; stomach neoplasms; adenocarcinoma; lymph node excision.*

**RESUMO**

A ascite quilosa é uma complicação grave e rara após gastrectomia por cancro gástrico. A maioria dos casos melhora com tratamento conservador, mas morbidade e mortalidade substanciais podem estar associadas. Descrevemos o caso de um homem de 48 anos submetido a gastrectomia parcial com linfadenectomia D2 por adenocarcinoma gástrico. Três dias após início de dieta líquida, foi diagnosticada fístula de quilo. Foi iniciado tratamento conservador com melhora do paciente e ele recebeu alta. Após dezoito dias, o paciente foi readmitido por apresentar quiloperitônio de grande volume, necessitando de paracentese. O tratamento médico foi reinstituído, com melhora e alta do paciente. O paciente retornou ao pronto-socorro por dor abdominal e febre e foi submetido à drenagem abdominal laparoscópica. Houve resolução da ascite refratária durante a internação. Ascite quilosa é uma complicação rara após ressecções radicais para câncer gástrico. Portanto, não existe um tratamento bem definido e esses casos permanecem um desafio terapêutico. As estratégias terapêuticas descritas incluem medidas dietéticas, uso de agentes farmacológicos, nutrição parenteral total e, em casos selecionados, intervenções cirúrgicas ou percutâneas.

***Palavras-chave:*** *ascite quilosa; gastrectomia; cancro gástrico; Adenocarcinoma; linfadenectomia.*



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## INTRODUCTION

Chylous ascites (CA) is defined as the leakage of milk-like triglyceride-rich lymphatic fluid from lymphatic system to the peritoneal cavity[1]. Many etiologies have been associated with CA, namely trauma, infection, neoplasia, surgery or cirrhosis, among other conditions, which lead to trauma and rupture of lymphatic vessels or increased pressure secondary to obstruction[2]. CA after gastrectomy for gastric cancer is rare with a low incidence ranging from 0.3 to 11.8%, depending on the extent of the lymphadenectomy[3,4]. Most cases improve with conservative treatment with dietary measures, pharmacological agents and total parental nutrition (TPN), but substantial morbidity can occur with worsening of the patient's general condition[2,3]. More invasive treatments are considered if conservative treatment is not effective. The aim of this clinical case report is to draw attention to the existence of this complication and the difficulties inherent in its treatment.

## CASE REPORT

A 48-year-old men with a medical history significant for arterial hypertension, dyslipidemia and urolithiasis, medicated with esomeprazole 40 mg, tamsulosin 0.4 mg, zolpidem 10 mg and atorvastatin 20mg, underwent partial gastrectomy with D2 lymphadenectomy for gastric adenocarcinoma (cT3N0M0), after perioperative chemotherapy with 4 cycles of FLOT (Fluorouracil, Leucovorin, Oxaliplatin and Docetaxel). During surgery, a sealing device was used and a drain was left. The patient started a water diet on the third postoperative day (POD) and evolved to a liquid diet on the sixth POD. Until this time, drainages were serohematic, but with significant daily increases (Table 1).

On the seventh POD, the patient had a fever and a septic screening was carried out. Urine culture revealed isolation of E.coli. The abdominopelvic computed tomography (AP-CT) scan revealed a small amount of liquid, collected in an area of about 2.6 x 1.9 cm, next to the upper face of the celiac trunk, without the organized walls typical of abscesses (Fig. 1).

The patient started ceftriaxone 1 mg day. On the ninth POD, three days after starting a liquid diet, the patient complained of testicular pain and edema and milky-white fluid was observed in the abdominal drain (output of 1000 ml/day) (Fig. 2).

Table 1 – **Drain volume and appearance and diet instituted during postoperative course. NPO: Nothing by Mouth; TPN: Total Parental Nutrition.**

| POD | Drain volume (ml/day) | Drain Appearance | Diet |
|---|---|---|---|
| 1 | 150 | Serohematic | NPO |
| 2 | 100 | | |
| 3 | 400 | | Water |
| 4 | 600 | | |
| 5 | 500 | | |
| 6 | 600 | | Liquid |
| 7 | 600 | | |
| 8 | 800 | | |
| 9 | 1000 | Milky | TPN |
| 10 | 800 | | |
| 11 | 600 | | |
| 12 | 150 | | |
| 13 | 300 | Sero-milky | |
| 14 | 250 | | Liquid |
| 15 | 950 | | |
| 16 | 300 | Serous | Low fat |
| 17 | 500 | Sero-milky | TPN |
| 18 | 500 | | |
| 19 | 650 | | |
| 20 | 150 | | Liquid |
| 21 | 500 | | |
| 22 | 900 | Serous | Low fat |
| 23 | 400 | | |


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Figure 1 – **Small amount of liquid, collected in an area of about 2.6 x 1.9 cm, next to the upper face of the celiac trunk.**

Figure 2 – **Milky-white fluid was observed in the abdominal drain.**

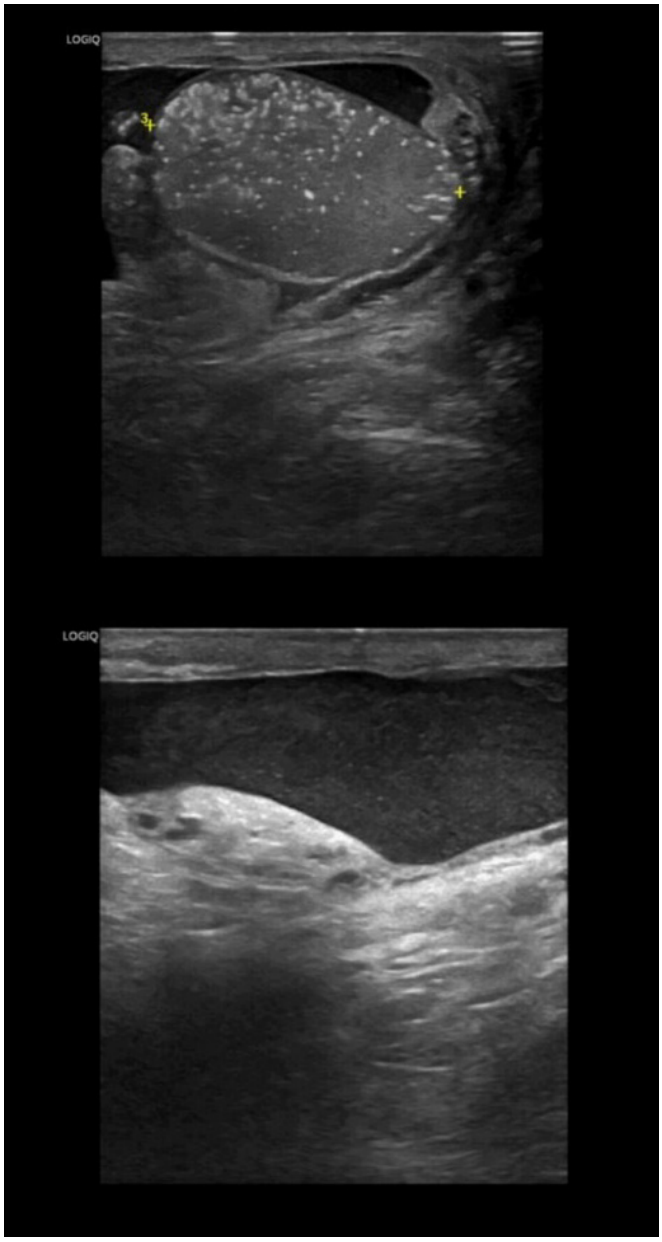


Figure 3 – **Scrotal ultrasound was compatible with chylocele due to patency of the peritoneo-vaginal canal.**

The ascitic fluid work-up revealed a triglycerides level of 642 mg/dL, diagnosing a chyle fistula. Scrotal ultrasound was compatible with chylocele due to patency of the peritoneo-vaginal canal (Fig. 3).

Conservative treatment was initiated with TPN and oral intake was discontinued. Consequent decrease in drainage was observed, becoming more serous. The patient started an oral fat-restricted diet after five days under TPN. We immediately noticed a setback with a new increase in the drainages and these becoming milky in appearance. We carried out a new cycle of conservative treatment, with progressive improvement, and the patient was discharged on the twenty-third POD, and the patient was discharged on the twenty-third POD, asymptomatic, tolerating the diet instituted by the nutritionist and with decreasing serous drainage.


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The patient was reassessed at a postoperative visit (POD35) and the drain was removed, since the drainage maintained a serous appearance. Seven days after (POD42), patient resorts to the emergency room due to pain and abdominal distension. AP-CT scan revealed a large volume ascites compatible with chyloperitoneum (Fig. 4).

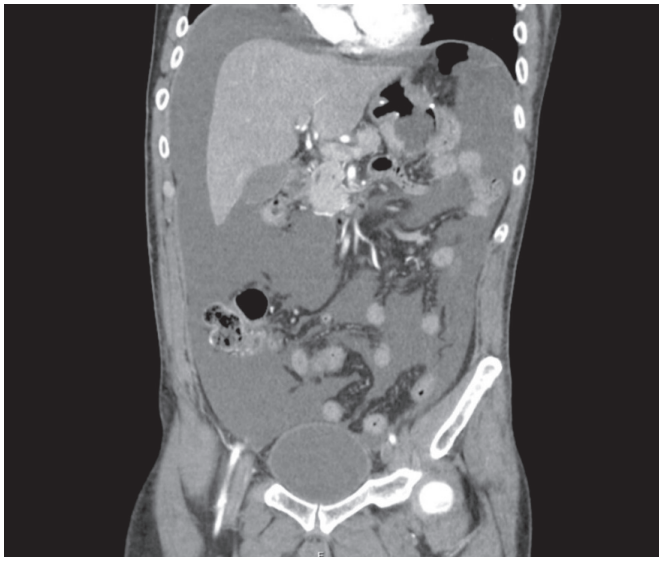

Figure 4 – **AP-CT scan revealed a large volume ascites compatible with chyloperitoneum.**

The lab work-up revealed a raised C-reactive protein (CRP) of 11.00 mg/dL [Reference range (RR): 0-0.5 mg/dL]. The patient underwent an ultrasound-guided evacuation paracentesis with output of 5100 ml of milky liquid. Conservative treatment with TPN was restarted, drainage was maintained with a daily average output of 600 ml of sero-milky fluid (Table 2).

The patient was discharged on the eighth day of hospitalization, clinically improved and with a diet adjusted by the nutritionist. Five days after discharge (POD55), the patient returned to the emergency department with abdominal pain, fever and drain obstruction. The lab work-up revealed a raised CRP of 39.92mg/dL. The AP-CT scan showed large volume ascites in all quadrants, compatible with

Table 2 – **Drain volume and appearance and diet instituted during readmission. TPN: Total Parental Nutrition.**

| POD | Drainage Output (ml/day) | Drainage Appearance | Diet |
|---|---|---|---|
| 1 | 1000 | Sero-milky | TPN |
| 2 | 900 | | |
| 3 | 600 | | |
| 4 | 500 | | |
| 5 | 300 | | |
| 6 | 500 | | |
| 7 | 600 | | Low fat |

chyloperitoneum and slight peritoneum thickening suggesting peritonitis. The patient underwent exploratory laparoscopy with abdominal drainage (Fig. 5).

No lymph node stump or outflow site was identified during operation. Medical treatment was reinstituted and the patient had a prolonged hospital stay of 38 days (POD93).

During this time, abdominal drainage was monitored and intermittent clamping of drains was performed, and they were both removed before discharge. It was necessary to use pharmacological agents such as albumin 10mg, 3 times a day, during 10 days, Octreotide 0.2 mg, 3 times a day during the entire hospitalization, and furosemide 20 mg,

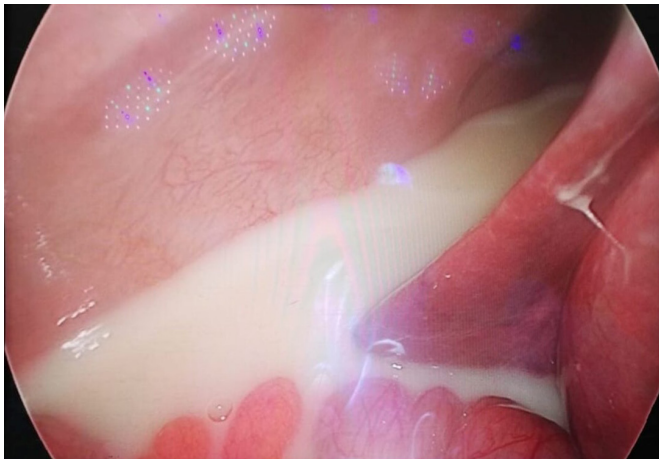

Figure 5 – **Exploratory laparoscopy with abdominal drainage.**


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once a day. Resolution of refractory ascites occurred during hospitalization.

The pathological findings were of a 55x50 mm gastric adenocarcinoma, pT3 N3a (14/42) R0 (AJCC 8th edition).

## DISCUSSION

CA is described with an incidence of up to 11%, especially after pancreatic surgery, with an increase in its incidence with the number of resected lymph nodes[5]. CA is a rare complication after radical resections for gastric cancer. Therefore, no well-defined treatment can guide our approach. Diagnosis usually occurs, as happened with our patient, after beginning enteral feeding, since lymphatic flow increases after a diet without fat restriction is initiated[3]. The clinical diagnosis was confirmed through the elevated values of triglycerides in the drained liquid and we quickly find ourselves facing a high-output chyle fistula. Curiously, the patient presented a chylocele due to patency of the peritoneo-vaginal canal, and as far as we now, it was never described a chylocele in a similar context.

In the first hospitalization, we thought we had successfully treated the CA with conservative measures. In the second hospitalization, conservative management was not enough and a paracentesis was necessary. Then the patient returned to the emergency department, septic and with a suspected peritonitis. Thus, at this point, the decision for surgery was not difficult given the obvious failure of medical therapy.

The conservative management described in literature include dietary measures (low salt, medium-chain triglycerides, and high protein), the use of pharmacological agents (albumin, octreotide, etilefrine, orlistat, diuretics) and TPN, and they are successful in the majority of the patients[1, 5-7]. But one cannot forget that a persistent fistula can cause nutritional imbalance, dehydration, hydroelectrolytic disorders and immunological impairment[3]. Therefore many authors advocate a more aggressive treatment for patients who do not respond to conservative management for a few weeks of duration, when lymphatic leakage is of 1000 ml/day or more for a week or longer, or when metabolic or nutritional conditions deteriorate[2,4]. Between conservative treatment and surgery, other interventional therapeutic options have been described, namely percutaneous embolization, transjugular intrahepatic portosystemic shunt and peritoneovenous shunt.

As described before by other authors, the possible mechanisms of lymphatic leakage may have been direct lymphatic duct or lymph node injury, what we could guess in the first CT since liquid was visible in a lymphadenectomy area[7]. Aggressive dissection around the celiac trunk and common hepatic artery can increase the risk of CA, further increasing this risk with lymph aortic node dissection[3]. The risk of CA is mainly predicted by the extent of surgery (number of lymph nodes removed, manipulation of the paraaortic area, concomitant vascular resection), but other risk factors have been described such as higher age, female gender, low preoperative albumin and preoperative ascites, chronic pancreatitis, preoperative chemotherapy, among others[5]. Excessive dissection must be avoided to prevent this complication, but without forgetting the oncological radicality necessary for the cure of the patient.

## CONCLUSION

CA is associated with mortality rates of 40-70%, highlighting the need for management guidelines to help the surgeon face this complication[2]. The case presented is a paradigmatic example of the difficulty in treating CA, with advances and setbacks and with the need to resort to various therapeutic weapons. The physical condition of the patient, the daily output drainage and the response to conservative treatment are the main determinants in treatment decisions. We can point out as limitations to this


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clinical case that we were unable to determine the effect of the pharmacological agents instituted, since the drainages were very oscillating. We could also have acted differently with an attempt to identify the site of the leakage through lymphangiogram or lymphoscintigraphy. We also believe that it would have been beneficial to inject fat-containing nutrients through the gastrointestinal tract during exploratory laparoscopy in order to facilitate the identification of lymphatic leakage. Perhaps we should have been more aggressive, resorting to invasive treatments, given the continued drainage more than one month after surgery, but there are few cases described in the literature along with our lack of experience in treating this particular complication.

In conclusion, we report a case of difficult and challenging treatment of CA after gastrectomy with D2 lymph node dissection. CA was resolved after several attempts at conservative treatment that culminated in percutaneous intervention and finally in surgery.

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