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Case report

Chylous ascites: Our experience from a resource-limited setting

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ABSTRACT

Introduction and importance: Chyle is a lipid-rich, milky-appearing fluid originating from lymph tissues. Chylous ascites is the collection of chyle in the peritoneal cavity and is a rare pathology.
Case presentation: In this case report we share our experience of successfully managing chylous ascites conservatively from a resource-limited setting.
Clinical discussion: There are numerous causes hence management includes treating the cause. Generally responds well to conservative management however some cases require surgical intervention.
Conclusion: Ascitic tapping is an effective diagnostic and therapeutic tool is chylous ascites.

1. Introduction

Chylous ascites is a rare pathology accounting for less than 1 %. The commonest causes include malignancy and liver cirrhosis in adults and congenital lymphatic disorders in children [1]. Treatment is usually a challenge due to its rarity and especially in resource-limited settings however, usually involves management of the underlying cause [1,2]. Herein we present a case of chylous ascites following multiple abdominal surgeries that was managed conservatively at a resource-limited setting.

This work has been reported in line with the SCARE 2020 criteria [3].

2. Case presentation

A 19-years-old female presented to our center with a one-month history of abdominal pain which was generalized and associated with progressive abdominal distension, pain on passing stool, and difficulty in breathing on lying flat. There was no history of cough, fever nor chest pain. She denied any abnormal vaginal discharge.

Nine months ago she had a cesarean section due to obstructed labour in a peripheral hospital after which she developed peritonitis and was referred to our center. She underwent an emergency midline laparotomy whereby a gauze was found in the peritoneal cavity with multiple pus pockets and a biopsy of the omentum was obtained to rule out malignancy. This was complicated by a burst abdomen five days later for which she was operated on again followed by delayed wound healing. She was then discharged only to develop abdominal pain and distension in the current presentation.

On admission, she was fully conscious and alert, mildly pale, and tachypnoeic with a respiratory rate of 26 breaths/min, an axillary temperature of 36 °C, blood pressure of 98/67 mm Hg, pulse rate of 137 beats/min and was saturating at 97 % on room air. She also had bilateral, non-tender lower limb pitting edema up to the level of her knees.

Her abdomen was globally distended with a healed midline and Pfannenstiel surgical scars from previous surgeries, symmetrical abdominal contours, tenderness over the umbilical and flank areas with a dull percussion note, and positive fluid-thrill. Her bowel sounds were heard normally. Her cardiovascular exam revealed a gallop rhythm with raised JVP with no hepato-jugular reflux. There were no positive findings in her respiratory examination. Ascitic fluid tapping was done under sterile conditions using a large bore cannula (16G) attached to a collecting bag and drained 5 L of milk-like fluid (chyle) (Fig. 1).

Her laboratory investigations revealed a white blood cell count of 5.91×10^9/L, hemoglobin of 16.2 g/dL, and a platelet count of 437×10^9/L. Her hepatitis panel was negative for hepatitis B and C. Her aspartate transaminase of 16.09 U/L, alanine transaminase of 20.88 U/L and serum albumin of 22.1 g/L. Her serum creatinine was 75 μmol/L, BUN of 1.01 mmol/L, lactate dehydrogenase of 350.54 IU/L, and Prolactin of 317.5 μg/L. Peritoneal fluid triglyceride level was 201 mg/dL, negative gram-stain, serum-ascites-albumin-gradient of 1.2 g/dL and Gene Xpert was negative for *Mycobacterium tuberculosis*. Cytology of

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peritoneal fluid revealed an inflammatory effusion mixed with fresh RBC. Histology of the omental specimen ruled out malignancy. Ultrasound of the abdomen revealed a massive anechoic collection in the whole abdomen with an impression of ascites. CT scan of the abdomen and pelvis revealed a substantial amount of free fluid within the peritoneum, suggestive of severe ascites (Fig. 2). The echocardiogram showed a small pericardial effusion with an ejection fraction of 66 %.

Throughout admission, she was kept on oral spironolactone and furosemide for the ascites as well as Ceftriaxone, Metronidazole, and Gentamicin to prevent spontaneous bacterial peritonitis. She faired well on conservative management, whereby she was discharged on oral furosemide, and spironolactone and was advised on a high-protein diet. She was reviewed weekly at the surgical outpatient unit initially and was tapped of which the frequency of ascetic tapping gradually decreased over two months from 2.5 L/week to less than 500 mL/week. She is currently on observation with no medical intervention.

3. Discussion

Chylous ascites is a rare clinical condition first described by Morton in 1684, of which he demonstrated the first case of a 2-year boy with chylous ascites [4,5]. It is defined as a milky-appearing, triglyceride-rich peritoneal fluid containing thoracic or intestinal lymph in the peritoneal cavity [1]. The current incidence of chylous ascites is not well known. Previous studies have indicated 1 in 20,000 admissions with a mortality rate of 40–70 % [1,6]. The highest mortality rate was 90 % when the underlying cause is of neoplastic origin [4,5].

The etiology can be grouped into congenital and acquired. Congenital causes include Yellow-nail syndrome, Klippel-Trenaunay syndrome, and lymphangioma. Acquired causes include trauma, surgery, infections including tuberculosis and filariasis, systemic lupus erythromatous, sarcoidosis, and lastly tumors including lymphomas, leukemia, sarcoma, and neuroendocrine tumors. The most common causes in developed countries were attributed to abdominal malignancy and cirrhosis while in developing countries filariasis and tuberculosis were the leading causes [1]. The most common surgical causes include abdominal retroperitoneal lymphatic drainage, abdominal aortic aneurysm repair, and retroperitoneal lymph node dissection [7]. In the index case, the cause was due to multiple abdominal surgeries which may have led to injury to lymph vessels, as mentioned by Al-Busafi et al. in their report [5].

The clinical presentation of chylous ascites includes progressive abdominal distension which occurs over months and weeks if the etiology is of traumatic origin, with abdominal discomfort and pressure symptoms in the late stages of the disease as evident in our case [4]. Other non-specific symptoms, such as anorexia, malaise, diarrhea, edema, nausea, enlarged lymph nodes, early satiety, fever, and night sweats, may be present [6].

Abdominal paracentesis is the initial diagnostic tool for chylous ascites. A milky, odorless, and thick fluid is diagnostic however needs confirmatory tests in the diagnosis of this rare clinical condition. The fluid is then sent for measuring triglycerides, albumin, glucose concentration, and lactate dehydrogenase levels. A gram stain together with an acid-fast bacilli smear is an important test for ruling out causes and confirming the diagnosis as done in the index case to rule out Tuberculosis. Radiological modalities including Lymphangiography and lymphoscintigraphy can detect leakage from lymphatic channels, however, these modalities are not available in our limited-resource setting. CT scans can detect fluid collection in the peritoneal cavity but cannot differentiate the types of ascites as lymph is also hypodense as seen in Fig. 2 [1,4,6].

The initial management is conservative. This involves diet modifications which involve a high-protein diet and low-fat diet with medium chained triglycerides. Medical management with somatostatin and its analogs such as octreotide is initiated to reduce the volume of lymph produced in the abdominal cavity [8]. Therapeutic paracentesis can be done to provide temporary symptomatic relief as done in our patient [1,6]. Surgery is performed in patients who fail to respond to conservative management. Options include laparotomy with fistula closure, bowel resection, or insertion of a peritoneo-venous shunt [1]. Insertion of a peritoneo-venous shunt has aided in the management of this disease as seen in a case report published by Sakamoto et al. on a patient who developed chylous ascites following gastric resection [8]. Our patient faired well on conservative management hence surgery was not needed.

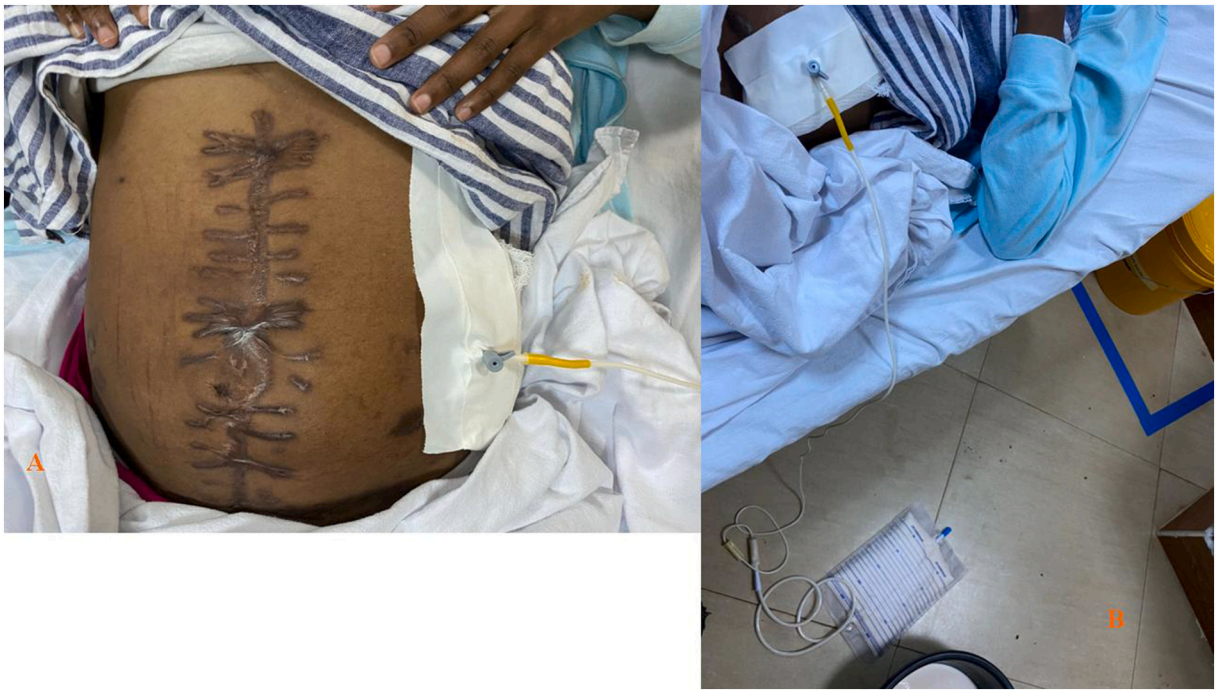

Fig. 1. A: Ascitic abdomen with previous laparotomy scars. B: Drainage of chyle ascites.

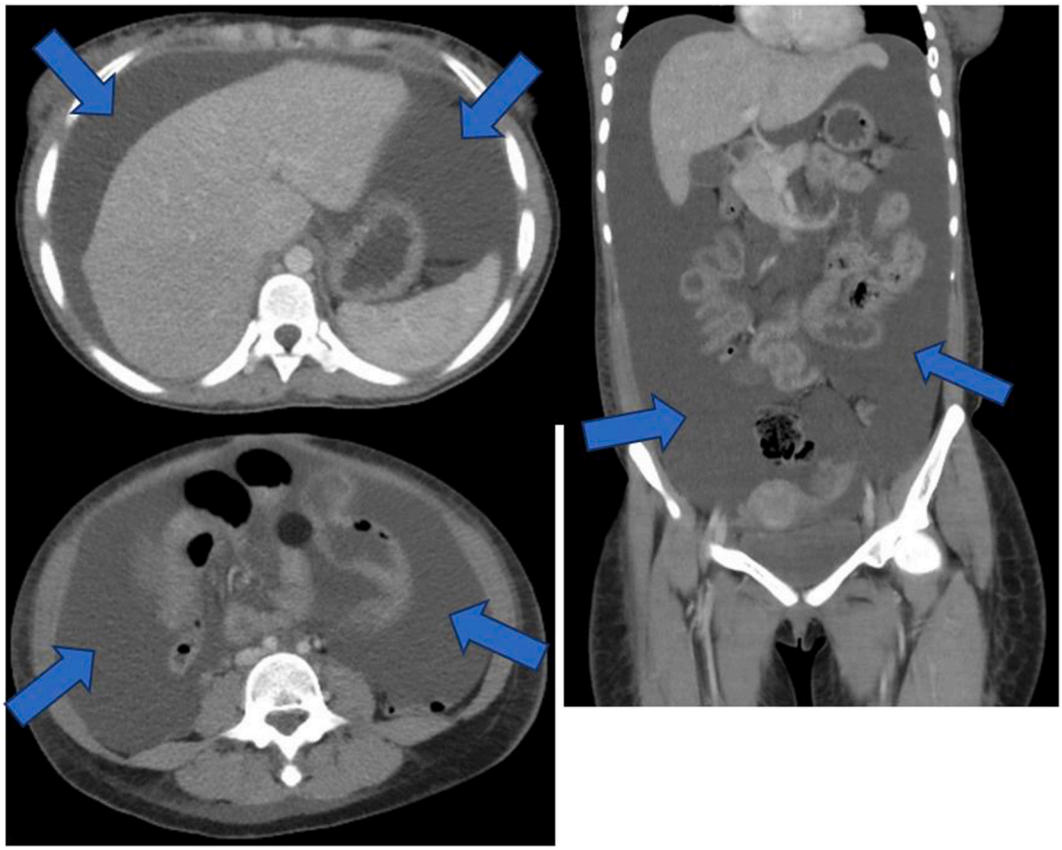

Fig. 2. Contrasted CT abdomen axial and coronal views show gross free fluid in the peritoneal cavity (blue arrows) displacing the small bowels centrally.

4. Conclusion

We presented a rare case of chylous ascites in a female patient following multiple abdominal surgeries who is currently under conservative management. Due to the rarity of this condition, awareness is the key to better management. The initial management is conservative however, surgery including insertion of a peritoneo-venous shunt and ligation of the leaking lymphatic channels may offer an earlier recovery and reduce mortality.

Consent

Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Not commissioned, externally peer-reviewed.

Ethical approval

Approval was obtained from the department of General Surgery and the appropriate hospital institutional review board has approved the publication of this case report.

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Guarantor

JL accepts full responsibility for the work and the conduct of the study had access to the data and controlled the decision to publish.

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CRediT authorship contribution statement

MS, AM and JL conceptualized and drafted the manuscript. JT reviewed the medical records and AS reviewed and reported the radiology films. All authors have read and approved the final script.

Competing interest

The authors declare they have no competing interests.

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