

Traumatic Chylous Ascites after Blunt Abdominal Injury

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ABSTRACT

Accumulation of chyle in the peritoneal cavity is known as chylous ascites. It mostly represents one of the early and serious complications after cardiothoracic operations and is rarely seen after blunt abdominal trauma. It is a rare condition having high mortality and morbidity rates. Due to the difficulty in diagnosing chylous ascites preoperatively keeping isolated chylous injury as a differential after blunt abdominal trauma is not in practice. We describe this case report to highlight this important fact. A high level of suspicion must be kept in mind for isolated chylous injury after blunt abdominal trauma. An 8-year boy sustained a road traffic accident and presented in the emergency bay after one day. He had severe abdominal pain and was in a state of profound shock. His Focused Assessment with Sonography for Trauma (FAST) scan revealed gross peritoneal ascites. Emergency laparotomy was undertaken on suspicion of haemoperitoneum but peroperatively a traumatic injury to cisterna chyli was found. Ligation of cisterna chyli led to the resolution of the condition.

Key Words: Chylous ascites, Abdominal trauma, Laparotomy.

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INTRODUCTION

Accumulation of triglyceride-rich fluid in the peritoneal cavity is defined as chylous ascites, also known as chyloperitoneum. It is a rare entity caused by obstruction of lymphatic flow in abdominal lymphatics secondary to congenital anomalies (among children), malignancy, tuberculosis (TB), cirrhosis, and rarely trauma.¹ The incidence of chylous ascites is estimated as 1 per 20,000 in general hospital admissions. Turbid milky fluid found on abdominal paracentesis is the key characteristic feature in the diagnosis of chylous ascites. The management of chylous ascites depends upon the underlying cause. It may be conservative with medical treatment i.e. total parenteral nutrition (TPN), medium chain triglycerides (MCT) diet, and octreotide.² Surgical management is utilised in resistant cases and in those not improving with medical treatment. Laparoscopic ligation of cisterna chyli is also a useful modality in refractory cases of chylothorax.

CASE REPORT

An 8-year boy had a road traffic accident (RTA) and sustained blunt trauma to the abdomen. He was taken to a rural health-care set-up but his condition was continuously deteriorating despite all resuscitative measures.

He was taken to a tertiary care hospital after 24 hours of the accident. Upon arrival at our centre, he was conscious, oriented, and sweating with shallow breathing at room temperature. He complained of generalised pain in the abdomen.

Abdominal examination revealed guarding, distention, tenderness, and board-like rigidity. Bowel sounds were sluggish. He had a blood pressure (BP) of 90 / 60 mmHg, pulse rate of 120 beats/min, respiratory rate of 22 breaths/min, and temperature of 99° F. He was maintaining oxygen saturation on room air. Resuscitation was started as per protocol and his baseline investigations were immediately sent along with blood grouping and cross-match. His FAST scan showed gross ascites. Aspiration test was not done owing to the deteriorating condition of the boy and the high index of suspicion of hollow organs or visceral injury. His past medical and surgical history was unremarkable.

Emergency exploratory laparotomy was planned and he was immediately shifted to operation theatre. A conventional midline laparotomy incision was made and the peritoneal cavity was filled with a dirty white fluid, found in all quadrants of the abdominal cavity interspersed among gut loops, which was aspirated (Figure 1A). The fluid was taken for cytological analysis. On formal exploration of the abdomen, there was no evidence of solid and hollow abdominal visceral injury. To identify the source of this fluid, mobilisation of the right gut was carried out through the Cattell-Braasch manoeuvre. The source of turbid fluid was found to be coming from lymphoid tissue posterior and right to the abdominal aorta. All the lymphoid tissues between the inferior vena cava, aorta, inferior to the left renal vein, and lateral and inferior to the aorta were excised and leaking cisterna chyli was identified and ligated (Figure 1B, C).

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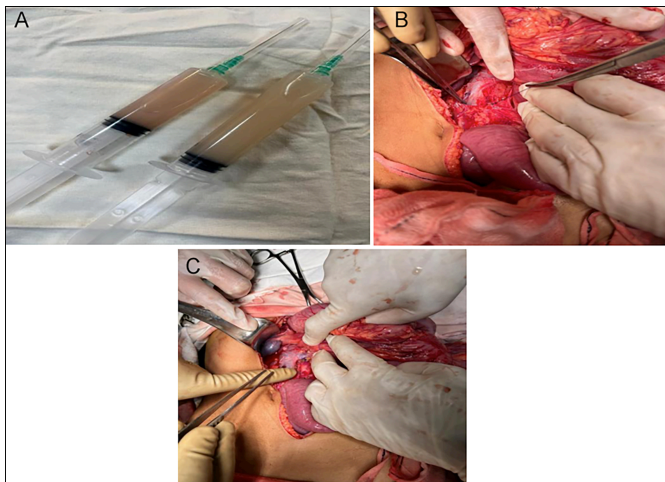


Figure 1: (A) Dirty white aspirated fluid during emergency laparotomy (B) Cisterna chyli identified with leakage of dirty white fluid (C) Ligation of cisterna chyli.

Postoperatively, he made an uneventful recovery and was discharged on 5th postoperative day. The cytological examination of peritoneal fluid revealed triglyceride levels of 740 mg/dl, cell count >550 (predominantly lymphocytes), and cholesterol levels were low. The histopathological report of excised lymphoid tissue showed the presence of lymphoid follicles.

DISCUSSION

Chylous ascites was first described by Morton in 1684.³ The mortality rate of chylous ascites lies in the range of 40 – 71%, and is increased to 90% when malignancy is the cause. Isolated chylous injury is a rare clinical condition caused by rupture of lymphatic vessels due to the destructive forces of the trauma causing accumulation of fluid rich in triglycerides in the peritoneal fluid. It is usually accompanied by injuries of other associated structures. Up to 10 cases have been reported of isolated chylous injury from the literature we extracted.^{4,5} This case is the first one being documented in Pakistan following blunt abdominal trauma. Another case of chylous ascites due to pancreatic cancer was documented by Ghafoor *et al.* The common causes of chylous ascites include malignancy, TB, and inflammatory conditions in adults, whereas in children, congenital anomalies and trauma are the most common.⁶ Malignancy is the most common cause of chylous ascites in western countries whereas infectious diseases such as TB and filariasis are most common in the eastern regions.⁷ Traumatic and atraumatic groups are two important aetiological classifications of chylous ascites.⁴ Although trauma is a rare cause of chylous ascites, this patient sustained shearing forces during RTA causing rupture of lymphatic ducts and cisterna chyli and hence presented with acute presentation of traumatic chylous ascites.

The patient presented with a one-day history of trauma and marked abdominal distention and rigidity. He was in a state of shock and dehydration. He also manifested acute signs of peritonism, which advocated a dire need for an emergency exploratory laparotomy.

Several diagnostic modalities are available to diagnose chylous ascites. Computed tomography (CT) scan remains a useful investigation, showing a fat-fluid level, which is pathognomonic of chylous ascites.⁷ Abdominal paracentesis is an important tool in evaluating and treating patients with chylous ascites. Both CT scan and aspiration test were not performed in this case. Only FAST was performed in the emergency bay, which manifested gross ascites in the peritoneal cavity. The patient's haemodynamic instability and suspicion of haemoperitoneum were a significant contraindication for any other diagnostic investigation. The triglyceride levels >200 mg/dl in the ascitic tap are confirmatory for chylous ascites.⁷ The triglyceride levels of fluid aspirated during emergency laparotomy were 740 mg/dl in the present case.

The management of chylous ascites is either conservative with medical treatment or surgical / laparoscopic. TPN in combination with somatostatin can reduce the lymphatic leak and relieve the symptoms effectively and rapidly. It is also used in iatrogenic injury of lymphatic ducts in abdominal and thoracic surgeries. Regarding the dietary measures, restriction of long-chain triglycerides (LCT) and introduction of high protein and MCT is the best regimen.

Surgical management is indicated in cases of chylous ascites extending more than two weeks, failure of medical treatment, and refractory chylous ascites. Exploratory laparotomy employed in cases of chylous ascites demands a formal exploration of all the quadrants of the abdominal cavity to rule out any associated intra-abdominal visceral and other vital organ injuries. In this case, an exploratory laparotomy was carried out due to signs of peritonism and a profound state of shock. Cisterna chyli was identified as a source of leakage along with leaking lymphatic ducts. All of the lymphoid tissue was excised and ligation of cisterna chyli was done. The histopathology report of the excised specimen confirmed the presence of lymphoid tissue. Laparoscopic ligation of cisterna chyli has been undertaken in cases of recurrent chylothorax. Laparoscopy is also a useful modality in cases of chylous ascites not manageable with medical treatment, embolisation, and trans-thoracic ligation of the thoracic duct. As the suspicion of haemoperitoneum and hollow organ or visceral injury was very high in this case, laparoscopy was not considered. Long-term complications of ligating cisterna chyli include chronic lower limb oedema (documented in fewer cases) owing to blockage of collaterals.

In conclusion, chylous ascites due to blunt abdominal trauma is the rarest of all causes, there is a need to include it in the differentials of acute abdomen. A comprehensive history, detailed clinical examination, and appropriate investigations from the essence of diagnosis are important for the management of chylous ascites due to blunt abdominal trauma.

PATIENT'S CONSENT:

Informed consent was taken from the patient.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

MOF: Substantial contributions to the conception and design of the work, literature research, and revising the manuscript critically for important intellectual content.

SA: Substantial contributions to the conception or design of the work and collection of data from the patient.

TMF: Critical revision.

KM: Revising the manuscript critically for important intellectual content.

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All authors approved the final version of the manuscript to be published and agreed to be accountable for all aspects of the work.

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