Laparoscopic approach in post-traumatic chylous ascites

L Tallón-Aguilar¹, JA López-Ruiz², C Domínguez-Sánchez², F Pareja-Ciuró¹, J Padillo-Ruiz¹

¹Trauma and Emergency Surgery Unit, Surgery Department, University Hospital Virgen del Rocío, Seville, Spain

²Trauma and Emergency Surgery Unit, Surgery Department, University Hospital Virgen Macarena, Seville, Spain

ABSTRACT

Chylous ascites is a rare condition little reported in literature, with even more exceptional traumatic origin. Its production mechanism is not known exactly but has been attributed to hyperflexion or hyperextension of the spine leading to a rupture of lymph ducts. We present a case of post-traumatic chyloperitoneum in a young patient after abdominal blunt trauma. Conservative treatment should be the first therapeutic option, especially if the origin is traumatic, reserving more aggressive possibilities for cases that do not respond after 15 days, if debt is greater than 1.5 litres/day in adult patients or in those with metabolic complications. A laparoscopic approach is indicated to confirm the diagnosis and to rule out other associated injuries that may require other surgical procedures.

KEYWORDS

Chylous ascites – Abdominal blunt trauma – Laparoscopy – Emergency surgery

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CORRESPONDENCE TO

Luis Tallón-Aguilar, E: ltallona@hotmail.com

Introduction

Chylous ascites is defined as extravasations of peritoneal fluid with a milky appearance, rich in triglycerides, caused by the presence of lymph of thoracic or intestinal origin in the abdominal cavity. It is usually caused by disruption of the lymphatic network secondary to traumatic injury, obstruction, extrinsic compression, infection, cirrhosis or inflammatory disease.¹

Although the condition was first described by Morton in 1684, chylous ascites is an extremely rare and little-known entity. One of the first cases of traumatic origin was reported by Vollman in 1966. Since then, only a few isolated case reports and small series have been published.²

Case report

A 40-year-old woman presented to the emergency department with abdominal pain, fever and decreased urine output after a motorcycle accident 72 hours earlier. There was pain on abdominal examination. Blood tests revealed leukocytosis with neutrophilia. Computed tomography showed free fluid in the abdominal cavity with no leakage of the urinary system.

The liquid origin was uncertain given haemodynamic stability, the absence of associated pneumoperitoneum or urinary injury, so an exploratory laparoscopy was indicated.

Dilated small bowel loops and ascites chylous appearance were found throughout the abdominal cavity (Figs 1 and 2). An abdominal cavity washout and drain placement were performed.

Her postoperative recovery was favourable. She started a diet rich in medium-chain triglycerides after six days of parenteral nutrition, with no reappearance of debit drainage.

Discussion

The mechanism of chylous ascites in cases of traumatic origin is sudden hyperextension or hyperflexion of torso, leading to a compression of the lymphatic ducts causing rupture by stretching at the root of the mesentery. Generally, because of the intensity of trauma, other organic lesions are associated, with rare isolated cases of chylous ascites.³ This disease is diagnosed and treated more frequently in children. In adults, the main cause is obstruction due to lymphoma or other malignancies. A traumatic origin is more common in closed trauma, usually causing injury to other organs.⁴

Clinical presentation is insidious, with progressive accumulation of chylous fluid leading to an increase in abdominal girth. As it progresses, this accumulation can lead to shortness of breath, nausea, abdominal pain and paralytic ileus. If prolonged in time, it can deplete protein, fat,

Figure 1

Figure 2

vitamins and electrolytes reserves, which, together with hypovolaemia, causes changes in gradient transcapillary generating oedemas.⁵

The main method of diagnosis is paracentesis of peritoneal fluid, as chyle has a similar density to water and is easily distinguishable from blood (range 0–20 Hounsfield units, HU, compared with 20–40 HU).⁶

Different methods of treatment are described.⁵ An oral diet with medium chain triglycerides, limiting intake of long-chain triglycerides should theoretically decrease lymph flow but in practice is not very useful. Total parenteral nutrition is usually effective if the ascites is traumatic in origin. Its main disadvantages are the need for prolonged hospitalisation, higher cost and risk of infection. Cases of successful venoperitoneal derivation of Le Vein are described in literature but their use is limited. It is used in cases where the leak is not in evidence. Ligation of lymphatic leakage is the most direct solution, with good results in general. Their main problem is that, in up to 50% of cases, it is difficult to identify the source but it is possible to increase the fistulous flow through intake of lipophilic dyes just before surgery or by oral gavage. A lymphoscintigraphy can also help to locate the affected area.

Conclusion

After abdominal trauma, chylous ascites should be included in any differential diagnosis. Conservative treatment should be the first choice, reserving more aggressive possibilities for cases that do not respond after 15 days, if debt is greater than 1.5 litres/day in adults or in cases where there are metabolic complications. The laparoscopic approach is one option to confirm the diagnosis and rule out other associated injuries that may require other surgical gestures.

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