



CLINICAL CASE

Chylous ascites as a manifestation of child abuse. A case report

José Luis Granados-González,¹ Idalia Aracely Cura-Esquivel,¹ Diego de Jesús García-Calderín,¹ Nydia Tathiana Uribe-González.¹

¹ Departamento de Pediatría. Facultad de Medicina y Hospital Universitario Dr. José Eleuterio González, Universidad Autónoma de Nuevo León (UANL). Monterrey, Nuevo León, México.

Recibido: febrero, 2009. Aceptado: junio, 2009.

KEY WORDS

Child abuse; Chylous ascites; Conservative treatment; Mexico; Parenteral nutrition, total.

PALABRAS CLAVE

Ascitis quilosa; Maltrato a los niños; México; Nutrición parenteral total; Tratamiento conservador.

Abstract

Chylous ascites is a rare pathology. It can be primary due to congenital defects or secondary to obstruction, trauma or neoplasia. We present an infant patient with chylous ascites due to damage to the cisterna chyli caused by traumatic lumbar vertebral fractures due to child abuse. Treatment of chylous ascitis has three objectives: improve and maintain the patient's nutritional status, decrease the production of chyle, and correct the cause. Initial treatment is conservative in pediatrics. Up to 10% of cases are caused by child abuse and occurs in all social groups. Healthcare professionals should be alert to its presence to make an early diagnosis and an opportune intervention.

Ascitis quilosa como una manifestación de abuso infantil. Reporte de un caso

Resumen

La ascitis quilosa es una patología poco frecuente. Puede ser primaria, debido a defectos congénitos o secundaria a obstrucción, trauma o neoplasia. Presentamos un paciente pediátrico con ascitis quilosa secundaria a una fractura lumbar traumática por abuso infantil y la subsecuente ruptura de la cisterna del quilo. El tratamiento de la ascitis quilosa tiene tres objetivos: mejorar y mantener el estado nutricional del paciente, disminuir la producción de quilo y corregir la causa que la originó. El tratamiento inicial es conservador en el paciente pediátrico. Hasta 10% de los casos son causados por el maltrato infantil y se produce en todos los grupos sociales. Los profesionales de la salud deben estar atentos a su presencia para hacer un diagnóstico precoz y una intervención oportuna.

*Correspondence author: Dr. José Luis Granados González. Departamento de Pediatría, Facultad de Medicina y Hospital Universitario Dr. José Eleuterio González. UANL. Avenida Francisco I. Madero y Avenida Gonzalitos s/n Colonia Mitras Centro, C. P. 64460 Monterrey, Nuevo León, México. Telephone/Fax: (+52 81) 8346 9959, 8348 9865. E-mail: luisgranadosglz@yahoo.com

Introduction

The ancient Greeks were the first to describe the existence of lymphatic vessels, but their observations were few for determining their meaning. Fallopius spoke of veins that coursed through the intestine full of a yellow material that flowed to the liver and lungs, but it was not until 1647 that Jean Pecquet discovered the thoracic duct and the cisterna chyli in the abdomen.¹ Morton reported the first case of chylous ascites in 1690 in a 2-year-old child who died of tuberculosis.¹

Chylous ascites is a rare pathology with a frequency of 1 in 20,000 hospital admissions.² Nix in 1957 classified chylous ascites based on its cause.¹ In children, three principal etiologies have been proposed:^{1,3} lymphatic obstruction (tuberculous lymphadenopathy, Hodgkin's disease, mediastinal masses, filariasis or bilharziasis), congenital abnormalities of the lymphatics and contuse, postsurgical thoracic or abdominal trauma. In pediatric patients trauma has been implicated in up to 10%.^{1,4} Boyesen was the first to describe it as a manifestation of Child Abuse Syndrome.^{1,5}

Case presentation

The patient was a 23-month-old boy admitted to the pediatric emergency room of the "Dr. José Eleuterio González" University Hospital of the Universidad Autónoma de Nuevo León, Mexico. Her mother referred a hematoma in the occipital area secondary to a previous fall off a bed. Other pertinent previous history was denied. The infant was neurologically normal with a heart rate of 89/min, a respiratory rate of 20/min, a blood pressure of 90/70 mmHg, and a temperature of 37 °C; height, weight and cephalic perimeter were within the 50 percentile. He presented periorbital ecchymosis and bilateral subconjunctival hemorrhage with hematomas and abrasions of the left pinna. The thorax had hematomas and ecchymosis in different stages of healing. The abdomen was protuberant because of ascites; painless, with no guarding and normal peristalsis. A hematoma in the left thigh extending from the left iliac fossa to the corresponding inguinal region and lesions on the upper thigh suggestive of cigarette burns in different phases of healing were also found. The patient was admitted with a presumptive diagnosis of child abuse and ascites of unknown origin. The patient's mother was reinterviewed and confirmed that the child had suffered an intentional injury of the lumbar region three to four weeks before, which was followed by 2 weeks of abdominal swelling. With these additional data, a workup was performed to confirm the diagnosis. Laboratory studies reported haemoglobin concentration of 9.53 g/dL, a hematocrit of 29.7%, a mean corpuscular volume of 65 fL, a RDW of 16% and hypoalbuminemia (1.8 mg/dL). Diagnostic paracentesis was performed and a thick, milky fluid was obtained with a triglyceride level of 300 mg/dL, a total of 500 cells with 80% lymphocytes, a total protein of 3.5 g/dL and an albumin/protein ratio of 0.8 g/dL. LDH was 100 IU/L, glucose 80 mg/dL and

Figure 1. Computerized tomography of the brain. A fracture line is observed at the base of the skull which extends to the right occipital area without displacement or adjacent bleed

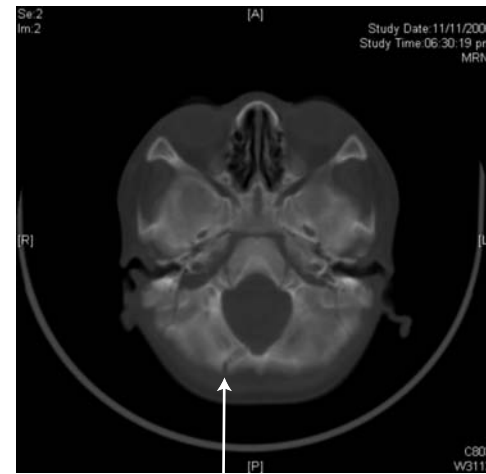
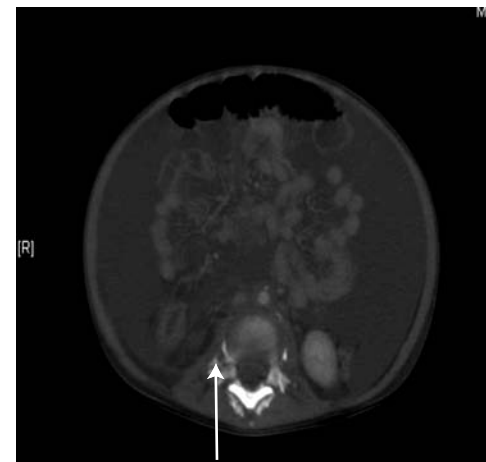


Figure 2. Computerized tomography of the abdomen. A large amount of free fluid in the peritoneal cavity and vertebral body fracture of the posterior elements of L2 with a perivertebral hematoma; a periosteal reaction at L1 because of previous fracture at this level is seen



bacterial culture negative. A thoracoabdominal X-ray film showed elevation of both hemidiaphragms, as well as a right pleural effusion, a restrictive lung pattern caused by peritoneal fluid, loss of the preperitoneal fat shadow and centralization of intestinal loops. X-rays showed the formation of callouses in the upper third of both femoral bones. A skull base fracture extending to the occipital region was observed on computerized tomography (CT) (figure 1). A large volume of peritoneal fluid, a fracture of the vertebral body of L2 with a perivertebral hematoma, a periosteal reaction of L1 secondary to a previous fracture (figure 2). A hematoma of the left inguinal

region of approximately 80 mL and bilateral hydrocele were observed on contrast-enhanced CT. At this moment the diagnosis of chylous ascites due to damage to the cisterna chyli caused by traumatic lumbar vertebral fractures because of child abuse was confirmed. Treatment with total parenteral nutrition was started and continued for two weeks. Later, a hyperproteic diet low in saturated fats and supplemented with middle chain triglycerides, hydrolyzed formula and fat-soluble vitamins was started. The patient was discharged four weeks later with a good response to conservative treatment and resolution of the chylous ascites without neurological sequelae. The orthopedics service provided treatment and follow-up of the lumbar fractures.

Discussion

Chylous ascites is a rare entity, but must be suspected in those patients with a history of abuse and abdominal distension. Symptoms vary and are caused by abdominal distension that, when massive, can cause alteration of ventilation and venous return. Lymphatic fluid in the peritoneal cavity causes an inflammatory reaction of the parietal peritoneum, the gall bladder, and lymph nodes with subsequent edema. There are few alterations in laboratory results, but suggestive findings can be a decrease in serum protein, lymphopenia with moderate anemia and malnutrition, with the latter two probably caused by diarrhea and malabsorption. Analysis of peritoneal fluid obtained by paracentesis is essential;⁴ it can also be therapeutic in those patients with restrictive lung symptoms and severe ascites.³ Peritoneal fluid that suggests lymph is characterized as milky, turbid, that separates into two layers with a specific gravity greater than 1.012, alkaline, sterile with some lymphocytes, and high levels of lipids, triglycerides greater than 100 mg/dL or a fluid-to-serum triglyceride ratio greater than 2 to 8.^{2,3,6} The CT has limited diagnostic value since it is sometimes not possible to differentiate hemorrhage from lymph accumulation. In blunt abdominal trauma for example, the finding of fluid in the intra and retroperitoneal space with a density similar to water suggests chyloperitoneum. In our case the CT was not helpful for diagnosing chylous ascites directly, it was conducted with the paracentesis, but was helpful to confirm the other data of the Abused Child Syndrome. Lymphoscintigraphy is a procedure where Tc 99m and dextran are injected into the interdigital space to perform a functional evaluation of the lymphatic system. In the case of chyloperitoneum a disruption of the lymphatic system or fistulas are observed. The advantages of this study are that there are no adverse effects or contraindications and it can be carried out several times. Lymphangiography, although in disuse, is still the gold standard in the diagnosis of lymphatic obstruction and is altered in most cases of chylous ascites. Diagnostic laparoscopy has been recently used as a diagnostic and therapeutic method, but in ascitis of unknown origin it has limited value.⁶

There are basically two treatment modalities:^{2,3,6,7} conservative, which is carried out for up to 4 weeks to maintain and improve nutrition, decrease lymph formation and allow correction of the underlying disorder, and surgery, which is generally used when conservative treatment fails. This treatment includes saphenous-peritoneal and saphenous-subcutaneous shunts and others. Conservative treatment continues to be the first option, since in most cases ascites is self-limited and in pediatrics, it is the most effective.^{7,8} This treatment option consists of a high protein, low fat diet and vitamins together with total parenteral nutrition (TPN) and a supplement of oral or intravenous middle chain triglycerides. Before the advent of TPN mortality was up to 30% in chylous ascites.¹ In some reports it has been used for up to 10-12 weeks, but usually 3-4 weeks is sufficient. Our patient had a satisfactory evolution using only conservative management with TPN and middle chain triglycerides by the time proposed in the literature without posterior comorbidities. Adjunct treatment with spirinolactone, somatostatin⁶ (which decreases intestinal blood flow and the production of lymph) or orlistat² has been used, but most cases have been in adults and with variable results. The prognosis in children is adequate with conservative treatment, and follow-up can be done with serial ultrasound scans. Mortality, prognosis and response to treatment vary according to the cause.⁴ Comparing this case with those previously reported in the literature, we find that it is not often suspect this disease in the context of a Syndrome of Child Abuse, and believe that there were the appropriate diagnostic and therapeutic measures to achieve a proper resolution of this disease. Although no "Gold Standard" diagnostic tests were performed as lymphography, it was obtained through other procedures suggested in earlier reports and reviews from a rare disease, and confirmed that the conservative treatment was the best in the pediatric patient. During the time that remained in internment at our institution, there were no complications resulting from poor diagnosis or therapeutic measures in place, thus ensuring that our management was most devoted to the standards suggested in the literature.

Conclusion

The child's mother denied a history of trauma at first, but the initial diagnostic workup corroborated the suspicion of physical abuse making the diagnosis of chylous ascites due to damage to the cisterna chyli caused by traumatic lumbar vertebral fractures obvious. **Chylous ascites in pediatric patients** is relatively infrequent. If no clear etiology is found after ruling out frequent pathologies, such as lymphangiectasis, lymphatic malformations or neoplasias, a suspicion of a possible traumatic etiology exists; child abuse as a cause must be considered by the clinician.

Acknowledgements

We wish to thank Dr. Sergio Lozano for translating and reviewing the manuscript.

References

1. Benhaim P, Strear C, Knudson MM, et al. Posttraumatic chylous ascites in a child: recognition and management of an unusual condition. *J Trauma* 1995;39:1175-7.
2. Chen J, Lin RK, Hassanein T. Use of ortistat (xenical) to treat chylous ascites, *J Clin Gastroenterol* 2005;39:831-3.
3. Whittlesey RH, Ingram PR, Riker WL. Chylous ascites in childhood, report of five cases. *Ann Surg* 1955;142:1013-20.
4. Aalami OO, Allen DB, Organ CH Jr. Chylous ascites: a collective review. *Surgery* 2000;128:761-78.
5. Olazagasti JC, Fitzgerald JF, White SJ, et al. Chylous ascites: a sign of unsuspected child abuse. *Pediatrics* 1994;94:737-9.
6. Geary B, Wade B, Wollmann W, El-Galley R. Laparoscopic repair of chylous ascites. *J Urol* 2004;171:1231-2.
7. Cochran WJ, Klish WJ, Brown MR, et al. Chylous ascites in infants and children: a case report and literature review. *J Pediatr Gastroenterol Nutr* 1985;4:668-73.
8. Beshay VE, Beshay JE, Rosenberg AJ. Chylous ascites: a case of child abuse and an overview of a rare condition. *J. Pediatr Gastroenterol Nutr.* 2001;32:487-9.