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Unusual Cause of Lower Back Pain in Child: An Intraperitoneal Pseudocyst

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Abstract

Ventriculoperitoneal shunt is one of mostly operations performed for the management of hydrocephalus. Many complications have been reported with this method. Abdominal pseudocyst is relatively rare but important complication in patients with ventriculoperitoneal shunts. We herein report the case of a 7-year-old boy with ventriculoperitoneal shunt who presented with low back pain and abdominal distension associated to headache. Brain computed tomographic scan showed mild hydrocephalus and abdominal ultrasound confirmed a diagnosis of intraperitoneal pseudocyst due to shunt malfunction. Laparotomy was done with total excision and relocation of the shunt. In addition, here, etiology, presentation, diagnosis, and treatment of intraperitoneal pseudocyst were reviewed.

***Keywords:** Intraperitoneal pseudocyst; Ventriculoperitoneal shunt; Hydrocephalus; Shunt complication*

1. Introduction

Hydrocephalus is a common pathological entity characterized by abnormalities of secretion, circulation or absorption of cerebrospinal fluid (CSF), which results in ventriculomegaly [1]. Ventriculoperitoneal shunt (VPS) is the most common operative procedure for the treatment of hydrocephalus and the peritoneal cavity is the favorable site for CSF absorption [2]. Intraperitoneal pseudocyst (IPP) is a rare and important complication of VPS [3-5]. Typical clinical presentation includes abdominal pain, abdominal distension, nausea, vomiting, decreased appetite, fever and signs dysfunctions such as headaches [6]. This article describes a particular case of a 7-year-old boy, with history of VPS, who was admitted for low back pain with abdominal distension. Clinical and radiological investigations confirmed the diagnosis of an IPP due to VPS dysfunction.

2. Case Report

A 7-year-old male child, with a history of VPS in the neonatal period for congenital hydrocephalus, was referred to our institution for lower back pain and abdominal distention associated to headache. On examination, the patient was lethargic

without fever (37.6°C). The abdomen was distended with mild tenderness. The rest of the clinical examination did not find any other anomaly. Initially, a brain scan was performed showing an intraventricular drain with moderate hydrocephalus with no signs of resorption.

An abdominal ultrasound revealed a large and well limited intraperitoneal fluid mass containing multiple septa, and tip of shunt catheter within it (FIG. 1).

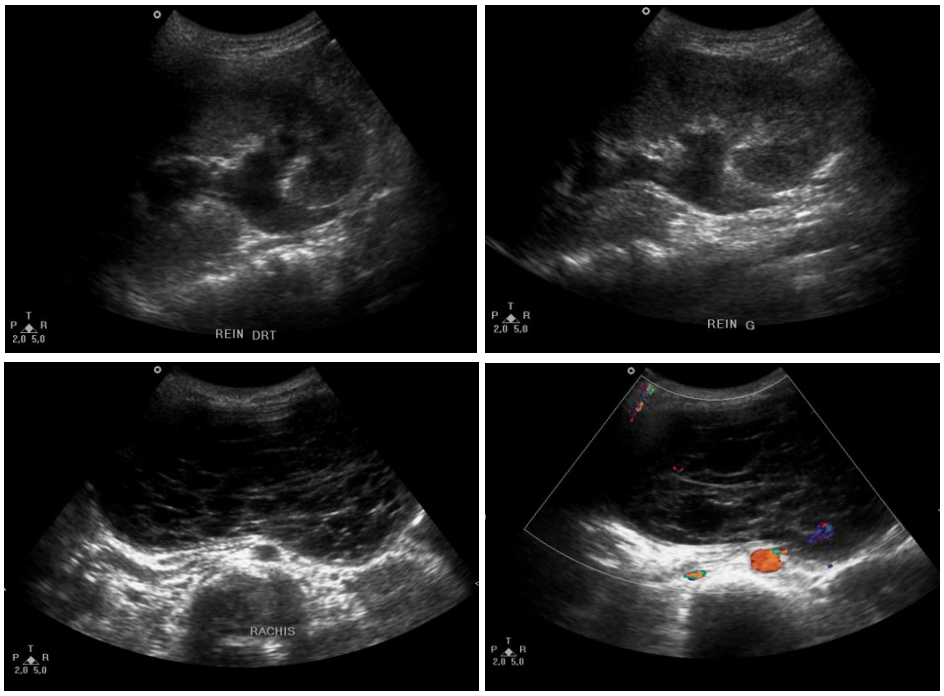

FIG. 1. **An abdominal ultrasound revealing a large and well-limited intraperitoneal fluid mass containing multiple septa, and tip of shunt catheter within it. This mass is in intimate contact with the rachis back and exerting a mass effect on the ureters with upstream dilatation.**

Abdominal computed tomography was performed for better lesional and topographic characterization of the cystic mass. The CT scan confirmed the presence of a well-defined intraperitoneal cystic mass containing multiple septa with the presence of the distal extremity of the shunt within it. This mass was in intimate contact with the lumbar spine explaining the lower back pain. It had repression of the vascular and intestinal structures associated with a bilateral ureter-hydronephrosis by mass effect on the ureters. Size of the mass was approximately 12 cm × 13 cm.

Laparotomy was done for shunt malfunction. There was a large cyst with internal septations, adherent to colon and terminal ileum. Clear fluid was drained from the cyst with total excision and relocation of the shuntat the left iliac fossa. CSF analysis was performed. It was clear with normal protein and glucose levels and the culture did not reveal any germs. Postoperative period was uneventful with a disappearance of the abdominal distension and a clear regression of the lumbar pains. In follow-up period at 10 months, child was doing well.

3. Discussion

VPS can be the cause of multiple complications such as mechanical VP shunt failure, infection and abdominal complications [7,8]. IPP is an unusual complication of VPS [9]. Its incidence of IPP is low with rates that have been reported to range from 0.33% to 6.8% since it was first reported in 1954 [10]. The pathogenesis of CSF pseudocysts is still debated. Some authors explain that the elevation of the level of proteins in CSF because of infections and chronic inflammation of the shunt would be a predisposing factor to the formation of pseudocysts. However, these explanations remain hypotheses without exact proof [11].

Ultrasonography and CT scan are the principal diagnostic imaging techniques. Abdominal Sonography is an easy, innocuous and non-irradiating way for rapid and reliable diagnosis of IPP, especially for childhood and pregnancy. CT scan is indicated for a definitive diagnosis when abdominal pseudocysts are not defined by ultrasonography. The imaging techniques shows typically a large fluid-filled mass delimited by a thin wall adjacent to the catheter tip and without septations [1,12,13].

The most usual differential diagnoses of intraperitoneal cystic mass are abdominal abscess, mesenteric cyst, benign cystic lymphangioma, cystic spindle cell tumor, pancreatic pseudocysts, and duplication cyst [12].

For therapeutic management, the surgical treatment is the gold option. It include laparotomic or laparoscopic-assisted fluid drainage with or without wide excision of the IPP walls, removal of shunt/shunt externalization and placement of shunt catheter in a different abdominal quadrants, or conversion to either a ventriculoatrial or ventriculopleural system [14].

4. Conclusion

Intraperitoneal pseudocysts are a known, but rare, complication of VP shunt placement. It is likely secondary to a low-grade inflammatory process. IPP whenever suspected should be evaluated properly by imaging. Laparotomic exploration should be performed to manage the cyst and relocate the shunt.

5. Conflict of Interest

The authors declare no competing interest.

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