Case Report

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Giant abdominal cerebrospinal fluid pseudo cyst: A case report

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1. Abstract

The cerebrospinal fluid pseudocyst is an uncommon complication of the ventriculoperitoneal shunt used to treat hydrocephalus. It manifests as the accumulation of fluid around the distal end of the catheter, surrounded by a fibrous wall lacking epithelium. Its exact origin remains uncertain. We present here a case of a large peritoneal pseudocyst, filling the abdominal cavity and exerting pressure on adjacent structures. Management involved external drainage followed by the implantation of a new ventriculo-atrial shunt.

2.Keywords: Cerebrospinal fluid, Pseudo cyst, Ventriculoperitoneal shunt

3. Introduction

Hydrocephalus is characterized by an excessive accumulation of cerebrospinal fluid, leading to ventricular dilation and increased intracranial pressure. Ventriculoperitoneal shunting, introduced by Kausch in 1905 [5], is now the surgical treatment of choice. Thanks to advancements in neurosurgery, surgical techniques, and pharmacology, this procedure has become the standard management for this condition.

However, ventriculoperitoneal shunting is not without complications, with a reported postoperative complication rate ranging from 45% to 59% [2]. Among these, the abdominal cerebrospinal fluid pseudocyst is a rare but well-documented complication, with an incidence ranging from 1% to 4.5% and a recurrence rate of 19.8% [4].

4. Case Presentation

We report the case of a 14-year-old child who has been followed since the age of 2 years old for hydrocephalus due to congenital stenosis of the mesencephalic aqueduct, and who was treated with a ventriculoperitoneal shunt. He remained asymptomatic until his admission to the pediatric emergency department for abdominal distension noted by his mother, which had been evolving for 2 months and was aggravated one week ago by the onset of diffuse abdominal pain associated with food vomiting, without other digestive or urinary signs. On admission, the clinical examination revealed a conscious child who was hemodynamically and respiratorily stable, afebrile, with diffuse abdominal tenderness. Biological tests were normal. An abdominopelvic CT scan revealed a large cystic formation measuring 29 x 22 x 15 cm, occupying the entire peritoneal cavity, extending from the posterior omental cavity to the intrapelvic region measuring 32 x 10 x 21 cm, displacing the digestive tract and the surrounding vessels, and encompassing the tube of the ventriculoperitoneal shunt, in favor of a cerebrospinal fluid peritoneal pseudocyst. As the valve puncture revealed sterile CSF, a single-stage procedure was planned: through a laparoscopic approach, the pseudo-cyst was located, fenestrated, and drained and subsequently received a ventriculoatrial shunt. The postoperative period was uneventful.

5. Discussion

Pseudocysts are fluid accumulations that form around the distal end of the catheter, surrounded by a fibrous tissue wall lacking true epithelium. Harsh (1954) was the first to report a case of a peri-umbilical pseudocyst in a child after the implantation of a shunt [8]. Although rare, this complication of the ventriculoperitoneal shunt should be considered in any patient presenting with abdominal symptoms or intracranial hypertension.

The exact etiology of cerebrospinal fluid (CSF) abdominal pseudocysts remains poorly understood. Grunebaum et al. suggest that it is a chronic inflammatory process [10]. Other hypotheses include the formation of peritoneal adhesions, an increase in protein levels in the CSF, multiple revisions of the shunt, and CSF malabsorption by the peritoneum secondary to subclinical peritonitis [3]. Clinically, the main symptoms are headaches, nausea, and vomiting, indicating shunt failure and elevated intracranial pressure [10].

Between 30% and 100% of pseudocysts are associated with shunt infection, with positive cultures typically revealing Propionibacterium acnes or Staphylococcus epidermidis [6]. In the case described, the culture of the cyst fluid was sterile, and we assume that the pseudocyst formed due to peritoneal adhesions developing silently.

The differential diagnosis of pseudocysts should include mesenteric or omental cysts, intestinal duplication cysts, abdominal abscesses, loculated intraperitoneal fluid collections,

intestinal loops distended by fluid, or free peritoneal effusion (ascites) [10].

Management of abdominal pseudocysts depends on the sterility of the CSF they contain. Conventional treatment involves the externalization of the shunt and a laparotomy with cyst wall resection [7]. In emergency situations, ultrasound-guided aspiration may be considered to temporarily relieve symptoms while awaiting surgical revision of the shunt [9].

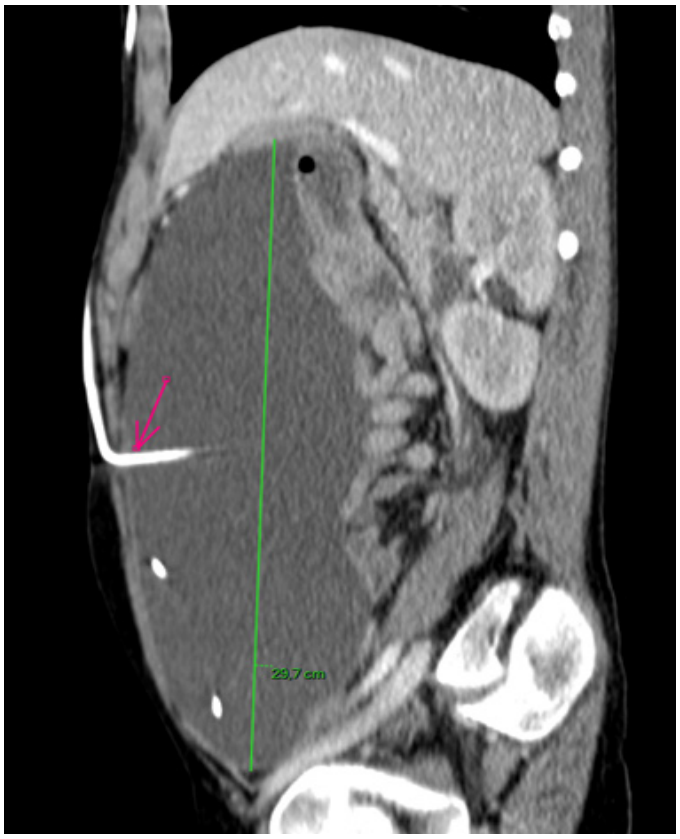

Figure : Abdominopelvic scan in axial (A) and sagittal (B) cuts showing a large cystic formation occupying the entire peritoneal cavity with a thin wall, without tissue component, and containing a ventriculoperitoneal drain (arrow).

6. Conclusion

The formation of an abdominal cerebrospinal fluid pseudocyst is a rare complication of ventriculoperitoneal shunting. Clinicians must be aware of this complication, as early diagnosis and management will ultimately help reduce abdominal pain and improve the patient's quality of life.

Reference

1. RR Bhasin, MK Chen, DW Pincus. Salvaging the "lost peritoneum" after ventriculoatrial shunt failures Child'sNerv Syst. 2007; 23: pp. 483-486.
2. JM Drake, JRW Kestle, S Tuli. CSF shunts 50 years on-past, present and future Child's Nerv Syst. 2000; 16: pp. 800-804.
3. Goldfine SL, Turetz F, Beck RA, Eider M. Cerebrospinal fluid intraperitoneal cyst: an unusual abdominal mass. Am J Roentgenol. 1978; 130: 568-569.
4. CB Dabdoub, CF Dabdoub, M Chaves, J Villarroel, JL Furrufino, A Coimbra, BM Orlandi. Abdominal cerebrospinal fluid pseudocyst: a comparative analysis between and adults Child's Nerv Syst. 2014; 30: pp. 579-589.
5. Kausch W. Die Behandlung des Hydrocephalus der kleinen Kinder. Arch Clin Chir. 1905; 87: 709-796.
6. M Burchianti, R Cantini. Peritoneal cerebro-spinal fluid pseudocysts: a complication of ventriculoperitoneal shunts, Child's Nerv Syst. 1988; 4: pp. 286-290.
7. N Rainov, A Schobess, V Heidecke, W Berkert. Abdominal CSF pseudocysts in patients with ventriculoperitoneal shunts. Report of fourteen cases and review of the literature Acta Neurochir. 1994; 127: pp. 73-78.
8. Harsh GR. Peritoneal shunt for hydrocephalus: utilizing the fimbria of the fallopian tube for entrance to the peritoneal cavity. J Neurosurgery. 1954; 11: 284-294.
9. BD Coley, WE Shiels 2nd, S Elton, JW Murakami, MJ Hogan Sonographically guided aspiration of cerebrospinal fluid pseudocysts in children and adolescents, AJR Am J Roentgenol. 2004; 183 (5): pp. 1507-1510.
10. Grunebaum M, Ziv N, Kornreich L, Horev G, Lombrozo R. The sonographic signs of the peritoneal pseudocyst obstructing the ventriculo-peritoneal shunt in children. Neuroradiology. 1988; 30: 433-438.