



POST VENTRICULOPERITONEAL SHUNT ABDOMINAL PSEUDOCYST IN CHILDREN: REPORT OF ONE CASE

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ABSTRACT

Peritoneal pseudocyst is a rare chronic complication of the distal end of the ventriculoperitoneal bypass (DVP) drain occurring in children under 5 years of age, usually in the first six months after insertion of the bypass system. The clinical symptomatology is made of abdominal distension associated with digestive signs by mechanical compression, or abdominal pain in case of cystic infection. Abdominal ultrasound supplemented by a CT scan without and with injection confirms the diagnosis of a well-limited and homogeneous fluid cystic mass in contact with the distal end of the lead. The management of aseptic cases relies on reinsertion of the DVP catheter at a different site, while temporary external drainage with antibiotic coverage followed by reinsertion of the catheter is recommended in cases of infected peritoneal pseudocyst.

KEYWORDS: Pseudocyst; Post Ventriculoperitoneal; CT SCAN; Imaging.

The Story

Peritoneal pseudocyst is a rare chronic complication of the distal end of the ventriculoperitoneal bypass (DVP) drain occurring in children under 5 years of age, usually in the first six months after insertion of the bypass system. The clinical symptomatology is made of abdominal distension associated with digestive signs by mechanical compression, or abdominal pain in case of cystic infection. Abdominal ultrasound supplemented by

a CT scan without and with injection confirms the diagnosis of a well-limited and homogeneous fluid cystic mass in contact with the distal end of the lead. The management of aseptic cases relies on reinsertion of the DVP catheter at a different site, while temporary external drainage with antibiotic coverage followed by reinsertion of the catheter is recommended in cases of infected peritoneal pseudocyst.

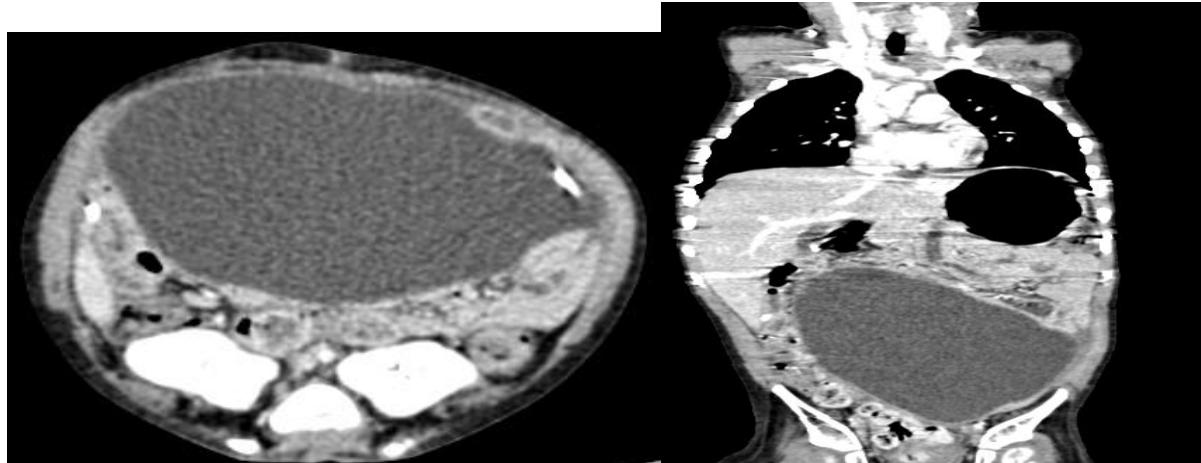


Figure 1 (a, b): Abdominal CT scan with injection of contrast product in axial section with coronal reconstruction showing a voluminous oval abdomino-pelvic mass well limited of homogeneous to fine fluid enhanced after injection of contrast product, coming into contact with the distal end of the ventriculo bypass drain -peritoneal. This mass comes into contact with the anterior abdominal wall in front, pushes back the digestive structures, the transverse colon at the top and the bladder dome at the bottom.

The Comments

Hydrocephalus is defined as an increase in the volume of the ventricles reflecting an imbalance between the production and elimination of cerebrospinal fluid (CSF), or an obstruction in its path from the ventricles to the subarachnoid spaces. The management of chronic hydrocephalus is neurosurgical and relies on the placement of a ventriculoperitoneal shunt (DVP) in order to avoid intracranial hypertension. This neurosurgical method is frequently practiced because of the rapid and efficient resorption capacity of the peritoneum, thus giving it an ideal diversion environment. The DVP drain was first used by Kausch in 1905,^[1] and is associated with a rate of abdominal complications ranging from 5 to 47%,^[2] making it one of the most complicated implantable medical devices in modern medicine.

Post-ventriculoperitoneal bypass complications can be acute (peritonitis, hollow organ wound, malpositioning, hematoma of the wall, skin necrosis, occlusion, or even volvulus) or chronic (SCS fistula on the skin, inguinal hernia, ascites, etc. catheter migration, eventration or peritoneal pseudocyst) as is the case in our patient.^[3,4]

Peritoneal pseudocyst is a rare development, occurring in children less than 5 years of age less than 6 months after the placement of a DVP. Its incidence varies from 0.7 to 12.5% and its cause remains poorly understood. However, certain predisposing factors have been evoked creating a surface impermeable to the resorption of the LCS, in particular intraperitoneal adhesions (secondary to surgeries involving the abdomen or to revision procedures for DVP) and peritoneal inflammation linked to repeated infections at low levels. These hypotheses justify the occurrence of this complication in our patient because of his multiple history of DVP poses.

The clinical symptoms are nonspecific and a function of the volume of the cystic mass, ranging from abdominal distension to digestive disorders related to mechanical compression by the mass. Sometimes, the occurrence of abdominal pain related to a cystic superinfection brings the patient into consultation. Physical examination found a distended abdomen, taut on palpation and painless except in cases of superinfection. On ultrasound, the mass is well limited by anechoic thin-walled echostructure, sometimes thickened in case of superinfection. Abdominal CT without and with injection of contrast product confirms the fluid nature of the mass, which is homogeneous and well defined, with a thin wall enhanced after injection of the contrast product, opposite the distal end of the catheter.^[5]

As for the management of the post-DVP peritoneal pseudocyst, it is based on several strategies associating the fenestration of the cyst, the repositioning of the catheter in the peritoneal cavity, the external shunt or the change of shunt. A management algorithm has been proposed by some authors depending on whether the peritoneal pseudocyst is infected or not. They

recommend culture of the CSF and the ends of the DVP drain intraoperatively. In case of sterile culture, the upper and intraventricular part of the shunt system can be left in place, thus reducing the risk of possible complications. The distal end of the DVP drain will be reintroduced to another site in the peritoneum. If, on the other hand, the culture is positive, the entire bypass system must be removed followed by the installation of an external drainage. Antibiotic therapy at an appropriate curative dose will be carried out until sterilization of the peritoneal medium, followed by a new installation of DVP. Ventriculo-atrial leads are recommended for recurrences of peritoneal pseudocyst.

CONCLUSION

Peritoneal pseudocyst is a rare chronic complication occurring in patients on ventriculoperitoneal bypass. It has a poorly understood etiology, however predisposing factors have been described, namely: alteration of the resorption of the LCS at the peritoneal level (adhesions following abdominal surgery or repeated revisions of the bypass system) as well as inflammatory damage to the peritoneum by repeated infections at low noise. Patient history, clinic and imaging support the diagnosis. The management strategy is well codified according to the presence or absence of cystic infection.

Conflicts of interest: None.

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