

Externalization of the drain of the ventriculo-peritoneal shunt through the mouth

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World Journal of Advanced Research and Reviews, 2024, 22(02), 1177–1180

Publication history: Received on 08 April 2024; revised on 13 May 2024; accepted on 16 May 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.22.2.1533>

Abstract

This abstract outlines the case of a 1-year-old patient with spina bifida and congenital hydrocephalus who developed a rare complication of ventriculoperitoneal shunt insertion: externalization of the drain through the mouth. Surgical intervention successfully addressed the perforation of the duodenal loop, with subsequent management including drainage for ascites and conversion to a ventriculo-atrial shunt. Postoperative follow-up revealed stable neurological status at 24 months.

Keyword: Ventriculoperitoneal shunt; Digestive perforation; Fibroscopy; Laparoscopy; Surgical intervention

1. Introduction

Digestive perforation is a rare complication of ventriculoperitoneal shunt, occurring in less than 0.1% of cases, this complication can lead to a fatal meningeal infection when not detected early because of the absence of specific signs in the child.

The externalization of the drain of the VPS through the mouth is a very rare sign of digestive perforation. To date, only six cases have been described in the literature, including one from our department.

2. Clinical case

This is a 1 year old patient followed in our department for spina bifida type myelomeningocele operated at 8 days of life and congenital hydrocephalus operated at 4 months.

Admitted for externalization of the drain of the VPS through the mouth(Fig 1),a thoracoabdominal X-ray (Fig 2) was performed, then we admitted the patient to the operating room.

The operation was performed in 3 steps : first, a fibroscopic (Fig 3) which showed a perforation of the 4th duodenal loop, 2nd, a laparoscopy (Fig 4) which showed the distal end of the VPS drain perforating the 4th duodenal loop. This perforation was sealed with the omentum when there was doubt about the presence or absence of another perforation, and the poor exposure, the decision was to convert to a laparotomy, (Fig 5 and 6)our third step. Intraoperative exploration revealed a perforation of the 4th duodenal loop with the presence of multiple flanges that were resected with suture of the perforation.1 month later, the patient presented an abdominal distension. The clinical examination found a distended abdomen with diffuse dullness. The abdominal ultrasound showed an ascites of great abundance and the brain scan showed an increase of the passive triventricular hydrocephalus. The patient was admitted to the

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operating room . The intraoperative exploration showed parieto-greatic and grelo-greatic flanges with a functional VPS drain with a large amount of encysted ascites that was evacuated.1 month later the patient presented the same symptomatology, made of abdominal distension. The abdominal ultrasound was in favor of ascites and the abdominal CT scan showed an encysted DVS drain, the indication of a ventriculo-atrial shunt was given.The patient was admitted to the operating room. The postoperative follow-up was simple, at the moment, 24 months after the operation, the patient does not present any particular sign with a stable cranial perimeter.



Figure 1 Clinical picture



Figure 2 X Ray

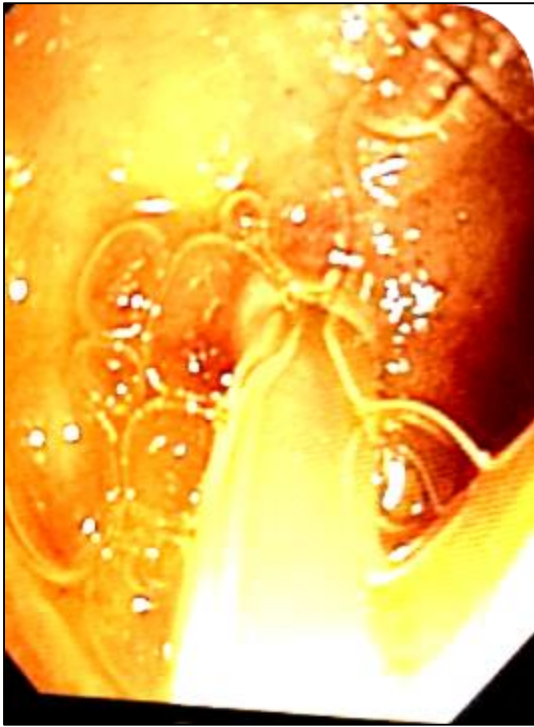


Figure 3 Fibroscopy: perforation of the 4th duodenal loop

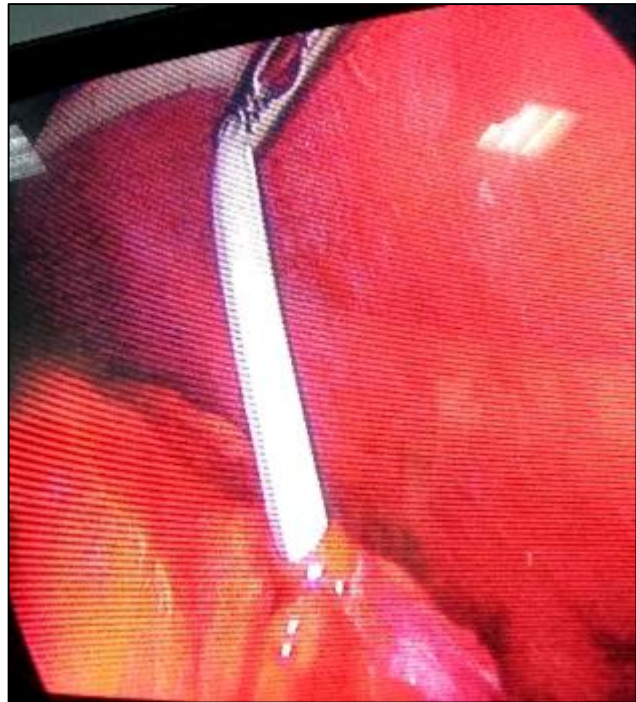


Figure 4 Laparoscopy: distal end of the drain perforating the 4th duodenal loop



Figure 5 and 6 Intraoperative image

3. Discussion

In a recent review of the literature, the incidence of DP in shunted patients was estimated between 0.01 and 0.07% of VP shunts. [1] Among these, nearly half was diagnosed after extrusion of the catheter. [1-2] BP is certainly an underdiagnosed complication, explaining a large number of shunt dysfunctions, infections and fatal unexplained

outcomes in shunted patient, while the diagnosis of bowel perforation is apparent on the appearance of the passing tube, a valvogram with instillation of metrizamide in the lower end of the shunt tube has been used to demonstrate perforation in some cases [3]. In the absence of extrusion of the catheter, the diagnosis of bowel perforation can be difficult and delayed because of nonspecific signs particularly in young patients. Overall mortality of BP is near to 15% in shunted patients; therefore, an accurate diagnosis is mandatory [1]. Spontaneous bowel perforation is a rare complication of VP shunt surgery, occurring in only 0.01% to 0.07% of patients [4]. Nonetheless, given its mortality rate of 15%, it's crucial to identify its onset despite its diverse symptoms. A keen sense of suspicion is vital in diagnosing this condition, as fewer than 25% of patients with bowel perforation display peritonitis symptoms. [5]

4. Conclusion

In conclusion, bowel perforation is a rare but serious complication of ventriculoperitoneal shunt surgery, with a mortality rate of up to 15%. Diagnosis can be challenging due to nonspecific symptoms, especially in young patients. Extrusion of the catheter through the mouth is an unusual sign of bowel perforation, but when identified, prompt surgical intervention is essential. Despite its rarity, clinicians must maintain a high level of suspicion to ensure early detection and treatment, as delayed diagnosis can lead to fatal outcomes. Further studies are needed to better understand the risk factors and optimize management strategies for this potentially life-threatening complication.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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