



(CASE REPORT)



ANAL MIGRATION OF A VENTRICULOPERITONEAL SHUNT: CASE REPORT AND LITERATURE REVIEW

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ABSTRACT

Ventriculoperitoneal (VP) shunt surgery is the standard treatment for hydrocephalus; it involves draining excess cerebrospinal fluid from the ventricular cavities into the peritoneal cavity using a valve. This method is associated with two main types of complications: infectious and mechanical.

Most published series report an infectious complication rate of around 10% and a mechanical complication rate that can reach 40%.

Anal migration of the valve is a rare complication. In such cases, the catheter is removed on an emergency basis and replaced with another valve.

The aim of this poster was to alert physicians and neurosurgeons to the importance of early diagnosis and management of this complication in order to prevent infectious consequences.

Keywords: Ventriculoperitoneal shunt, Hydrocephalus, Anal migration, Abdominal complication.

1 INTRODUCTION

Ventriculoperitoneal (VP) shunting is the standard treatment for hydrocephalus; it involves draining excess cerebrospinal fluid from the ventricular cavities into the peritoneal cavity using a valve. This procedure is primarily associated with two types of complications: infectious and mechanical.

Most published case series report an infectious complication rate of approximately 10%, while the rate of mechanical complications can reach as high as 40%.

Anal migration of the shunt valve is an extremely rare complication. In such cases, the catheter must be removed on an emergency basis and replaced with a new valve.

The purpose of this poster was to alert physicians and neurosurgeons to the importance of early diagnosis and prompt management of this complication, in order to prevent infectious consequences.

2 CASE REPORT

The patient is a 2-year-5-month-old girl followed by the neurosurgery department at the Rabat Specialty Hospital for malformative hydrocephalus. Brain imaging revealed active hydrocephalus with significant cortico-subcortical atrophy and an infracerebellar cystic formation consistent with a persistent Blake's pouch cyst. She had previously undergone ventriculoperitoneal (VP) shunting at one year of age; this was complicated by CSF overdrainage resulting in compressive bilateral hemispheric subdural hematomas, which required bilateral evacuation via two burr holes and initial valve ligation, followed by a shunt revision. Her clinical course was favorable until June 2026, when the VP shunt catheter extruded through the anus, necessitating emergency valve removal. This procedure was complicated by *Klebsiella pneumoniae** meningitis and active hydrocephalus, requiring the placement of an external ventricular drain (EVD). During her hospitalization, she developed pneumonia and acute respiratory distress, leading to cardiac arrest and her death.

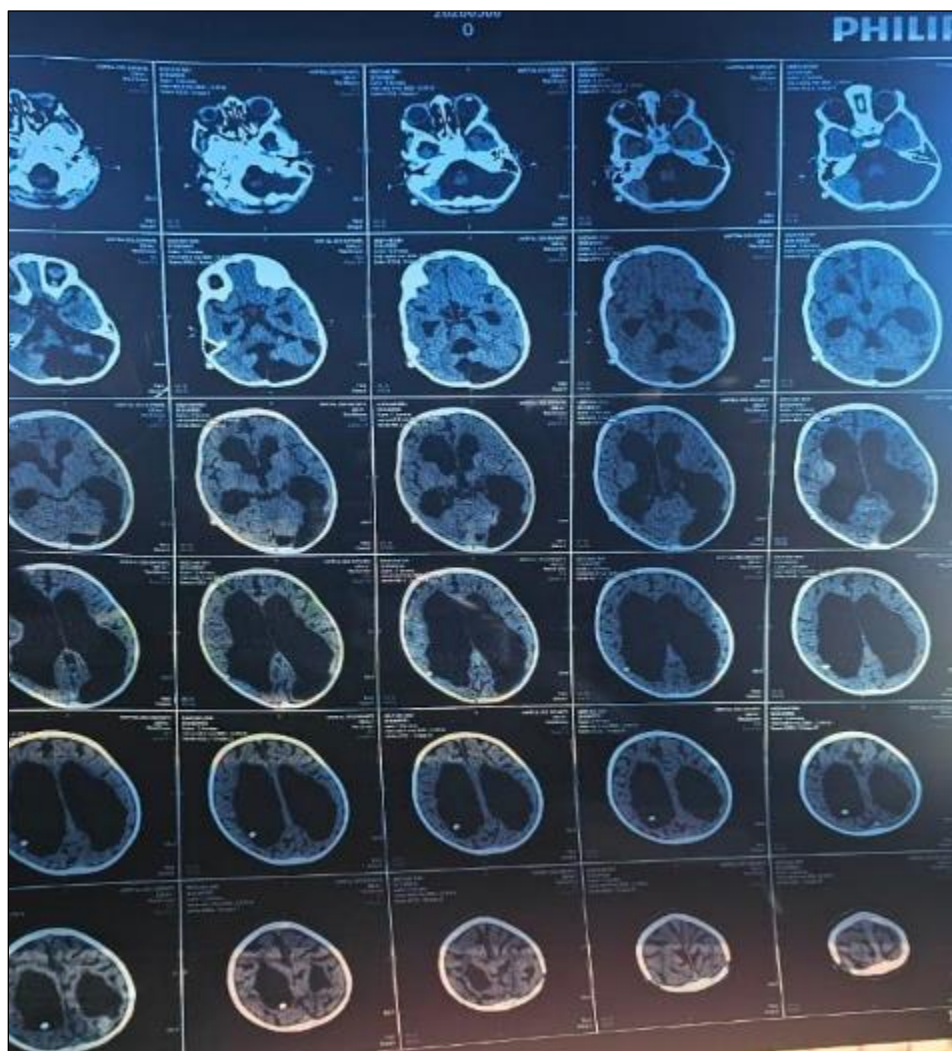


Figure 1: Brain CT scan showing hydrocephalus with cortico-subcortical atrophy, a persistent Blake's pouch, and a ventriculoperitoneal (VP) shunt in place.



Figure 2: Clinical photograph of per anal protruded shunt.

3 DISCUSSION

No national data regarding these complications were found. In the literature, the incidence of abdominal complications associated with ventriculoperitoneal (VP) shunts ranges from 10% to 30%. However, anal migration is rare, occurring in less than 0.1% to 0.7% of cases [1].

From a pathophysiological standpoint, the most frequent complications of this surgery stem from valve malfunctions, which are observed in over 50% of cases within the first two years post-surgery [2,3].

The exact cause of hollow viscus perforation remains unknown, though several hypotheses have been proposed. It is hypothesized that prolonged contact between the silicone and the intestinal epithelium triggers an inflammatory reaction and local fibrosis, causing the distal tip to adhere to the intestinal wall. Pulsatile cerebrospinal fluid movements then contribute to intestinal perforation. Once the peritoneal catheter enters the intestinal lumen, peristaltic movements propel it distally toward the anus.

Other mechanisms for perforation suggested in the literature include weakening of the intestinal wall due to a decline in general health and the rigidity of the distal catheter tip [4,5].

The type of peritoneal catheter is linked to the occurrence of perforation; firm, long catheters carry a higher risk of intestinal perforation.

Intestinal perforation may follow an insidious abdominal course, as fewer than 25% of patients exhibit signs of peritonitis.

Treatment involves emergency removal of the shunt, as recommended in the literature, combined with a two-week course of broad-spectrum antibiotics. A new shunt is implanted once infection—specifically meningitis—has been ruled out [6].

4 CONCLUSION

Regular follow-up of patients with shunts is necessary to monitor for various complications. It is important that parents be informed about these complications so that they can seek medical assistance if needed.

Surgical treatment involves the urgent removal of the shunt, the optional placement of an external ventricular drain, and finally, the insertion of a new ventriculoperitoneal shunt.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent and verbal permission were obtained from the patient before the submission of this article. In addition, this article follows both the Consensus-based Clinical Case Reporting Guideline and the Recommendations for the Conducting, Reporting, Editing, and Publication of Scholarly Work in Medical Journals

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