

Vaginal perforation caused by distal tip of ventriculoperitoneal shunt: Report of a rare complication

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ABSTRACT

Ventriculoperitoneal (VP) shunt is commonly employed in the management of hydrocephalus. Various complications such as dissection or migration may develop besides shunt malfunction. Migration may occur into the lateral ventricle mediastinum, gastrointestinal tract, abdominal wall, bladder, vagina, or scrotum. Although vaginal penetration is rare, we present a case of migration of the peritoneal catheter out of the vagina.

KEY WORDS: Ventriculoperitoneal Shunt, Complication, Foreign Body, Vagina.

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INTRODUCTION

Ventriculoperitoneal (VP) shunt is commonly employed in the management of hydrocephalus.^{1,2} Various complications such as dissection or migration may develop besides shunt malfunction.² Migration may occur into the lateral ventricle mediastinum, gastrointestinal tract, abdominal wall, bladder, vagina, or scrotum. Although vaginal penetration is very rare, we present a case of migration of the peritoneal catheter out of the vagina.^{3,4}

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CASE REPORT

Our patient was born prematurely at 28 weeks 1200 gr (25 percentile) postgestation via cesarean section. She needed ventilatory support and mechanically ventilation for three months. During her treatment her head circumference gradually increased and exceeded the 97th percentile for her age. Cranial CT displayed hydrocephalus. VP shunt was placed to the patient. During her follow up she needed revision of VP shunt due to VP shunt dysfunction at 12 months of age. Two months after shunt revision, she was referred to pediatric clinic with a foreign body in her vagina by pediatrician of state hospital. Examination of the patient revealed that distal connector of the shunt was seen to extrude from vagina. She did not have any sign of meningeal or peritoneal irritation. The patient was examined in the brain surgery and gynecology clinics. The shunt is removed and a new shunt was placed after one week of external ventricular drainage by brain surgery. The patient is discharged home in satisfactory condition and she is doing well.

DISCUSSION

VP shunting is the standard treatment for hydrocephalus.¹ Though it is considered as a safe and effective method, it may lead to various intra-abdominal complications that increase morbidity



Fig.1: Photograph of VP shunt catheter prolapsing through the vagina.

and the risk of mortality. Spontaneous vaginal perforation is an infrequent complication of VP shunting. There have been approximately three reported cases in literature since the first case of vaginal perforation by a VP shunt catheter was described by D.C. Patel in 1973.⁵

Although the frequency of VP shunt malfunctions is cited up to 50% at 5 years, with the most common symptoms being headache, vomiting, and lethargy, abdominal findings are still described as rare. The most frequent types of malfunction continue to be mechanical obstruction and infection, but there are many interesting reports in the literature of less usual abdominal pathology. Summaries of the literature describe series of abdominal pseudocysts, as well as cases of intussusceptions, volvulus, incarcerated bowel, and perforation of bladder, stomach, colon, and gallbladder. Migration of the tubing into the mediastinum, umbilicus, and thoracic cavity has occurred. Perforation into the colon with anal protrusion and extraction as presumed ascaris worm, and gastric perforation with protrusion through the mouth have been reported.⁶ Genitourinary presentations are unique. intrascrotal migration of the catheter which presented like testicular torsion and vaginal penetration have been reported rarely.⁷

The pathogenesis of vaginal perforation by VP shunt catheter is still unclear. Since children and patients with myelomeningocele are more susceptible to vaginal perforation, weak vaginal musculature may likely be one of the factors. Furthermore, the use of hard-tipped and sharp peritoneal catheters increase the risk of this complication. Local inflammation due to repeated irritation of periton of the douglas pouch by the catheter tip may lead perforation of vaginal or uterine wall.

Additionally, allergic reaction to silicone may lead to adherence of shunt tubing to the Douglas pouch with subsequent erosion into vaginal lumen.



Fig.2: Plain radiographs of abdomen. Peritoneal catheter extends through the vagina.

Previous abdominal surgical procedures and infections may increase the chance of VP shunt complications. Genitourinary perforation by VP shunt catheter is associated with high mortality rate because of peritonitis and ascending gram-negative intracranial infections such as ventriculitis, meningoencephalitis and subdural abscess. In our case there were no signs of meningeal irritation as well as peritoneal irritation. In fact, this was surprising because the tip of the catheter was outside of the vagina and dripping CSF.

CONCLUSION

In conclusion, VP shunt-related vaginal perforation is a rare but it may be serious complication. Further investigations should be carried out to prevent such potentially dangerous complications and the clinicians should be aware of such rare situations.

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