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Extrusion of peritoneal end of ventriculoperitoneal shunt through urethra in an infant: A rare complication

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ABSTRACT

Ventriculoperitoneal (VP) shunt is a common procedure performed in the management of hydrocephalus in children. The peritoneal end of the shunt can migrate in the peritoneal cavity and extrude through the mouth, umbilicus, anus, vagina or urethra after injuring the overlying structures. Timely removal is necessary to prevent transmission of infection. We are reporting a case in which there is extrusion of shunt per urethra.

Key Words: Hydrocephalus; ventriculoperitoneal shunt, extrusion; per urethra.

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Introduction

Hydrocephalus is commonly managed by ventriculoperitoneal (VP) shunt. The first successful introduction of ventriculoperitoneal shunt was done by Hartwell in 1910, using a silver wire. This is quite a safe procedure except for some complications. The complications related to this include shunt obstruction, infection, and ascites, shunt migration, perforation of viscus, skin or other body cavities. Shunt migration resulting in extrusion of peritoneal end of shunt through urethra is a rare complication. It was first described way back in 1974 by Grosfeld et al [1] who reported two instances of bladder perforation along with two cases of bowel perforation. Since then, 20 more cases of bladder perforation have been reported.

Case report

We present the case of a child admitted in a tertiary care hospital in the department of pediatric surgery. The child presented with congenital severe obstructive hydrocephalus. Cranial sonography (USG) and computerize tomography (CT) head showed gross dilatation of ventricles. Right VP shunt was performed. In follow up, the child was well till 10 months. At 10 months of age, the patient presented with the complaints of tip of the catheter coming out per urethra in the casualty [**Fig. 1**]. Patient was passing urine normally. There were no complaints of fever, irritability or excessive crying while micturition. The catheter tip was visible 4 cm outside the urethra. USG abdomen

was done to rule out any vesical calculi. The shunt was removed through an incision in post auricular area, under local anesthesia; the chamber was identified and the whole shunt was pulled out through the incision wound and wound was closed in single layer. Postoperatively, the child had seizures which were aborted with antiepileptics. Antibiotics were given for 10 days. Postoperatively, abdominal ultrasound showed no urinary leak or evidence of bladder injury. There was no increase in head size or venticulomegaly on cranial ultrasound. CT scan head showed no evidence of hydrocephalus. The child was discharged on postoperative day 10 with advice for close follow up in OPD after 1 week for hydrocephalus.

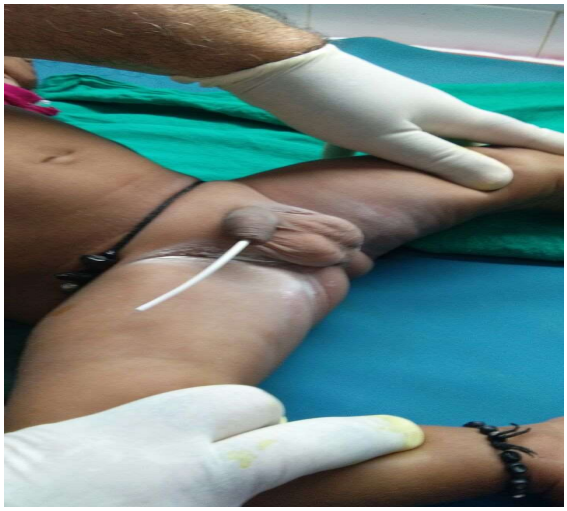

Fig. 1. Male infant with ventriculoperitoneal shunt coming out per urethra.

Discussion

The peritoneal end of the catheter can perforate the bladder and hence can get retained there acting as a foreign body and a nidus for calculus formation. This has been described in 5 case reports previously [2-6]. It can present with obstructive symptoms reported in two patients. In the index case, there were no obstructive symptoms or vesical calculi. It can come out to be visible externally through urethra, which has been reported in 12 patients previously [7-18]. This can be asymptomatic as in our case or it can present with urinary symptoms like urinary incontinence [19] or hematuria [20]. Shunt infection can either present with features of meningitis, peritonitis or urinary tract infection [18,21]. This could result due to respiratory movements resulting in erosion of peritoneal membrane and resulting fibrosis. It can erode bladder wall to come out through the urethra. This theory has not been substantiated by research. We need better understanding of the mechanisms resulting in these complications by perhaps using animal models.

This extrusion can be managed by removal through laparotomy incision/cystoscopy/retro-auricular route. However, our approach is much simpler than the previously reported ones. We removed it through the bulb through a retro-auricular incision under local anesthesia. There were no complications seen in our patient.

Conclusion

In our opinion, the VP shunt can be removed through an incision in the post auricular region above the bulb, without doing laparotomy or cystoscopy. The bladder perforation undergoes spontaneous closure.

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