



Spontaneous transanal externalization of ventriculoperitoneal shunt

Raghavendra H^{1,*}, Swetha Pendyala¹, Trivedi Punit¹, and Manas Kumar Panigrahi¹

¹ Dept of Neurosurgery, Krishna Institute of Medical Sciences, Minister Road, Secunderabad-500003, Telangana, India

Abstract

Aim of this article is to report a case of spontaneous externalization of Ventriculoperitoneal shunt tube through anus in an eighteen months old female child (k/c/o Dandy-Walker malformation) treated with placement of ventriculoperitoneal shunt for hydrocephalus. The exact cause of such externalization is not known. Unusual migration of distal catheter tip of VP shunt is rare and bowel perforation is reported to occur between 0.1% and 0.7%. In view of the potential risk for meningitis prompt and aggressive management is essential to avoid morbidity and mortality.

Keywords: transanal externalization; ventriculoperitoneal; Dandy-Walker; hydrocephalus

***Corresponding author:** Raghavendra H, Krishna Institute of Medical Sciences, Minister Road, Secunderabad-500003, Telangana, India. Email: raghavendra.harpanahalli@gmail.com

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Introduction

Ventriculoperitoneal (VP) shunting used in the treatment for hydrocephalus is associated with several complications with a reported incidence of 5–47% of cases [1]. Bowel perforation and spontaneous externalization of the lower end of the tube through the anal opening is a rare and unusual complication of the ventriculoperitoneal shunt [2]. Here, a case of transanal externalization of VP shunt catheter is reported along with a review of pertinent literature.

Case report

An eighteen-month-old female child had undergone a right sided VP shunt (Chhabra-slit-in-spring silicone shunt) procedure 6 months back for congenital hydrocephalus with Dandy-Walker malformation. She presented with complaints of protrusion of a white tube per anus on defecation. It is of one day duration with clear fluid dripping from it (Figure 1). On examination, the child was a febrile, alert, with shrunken anterior fontanelle. There was no neck rigidity, and the abdomen was soft. On rectal examination, there was a white tube

coming from beyond the reach of finger. Radiograph of the abdomen showed the course of the shunt tube toward the rectum and anal opening and did not reveal any evidence of gas under diaphragm (Figure 2). The child was operated and the cranial end was removed through a small incision behind the ear. The distal tube was extracted per rectum (to avoid contamination) and cerebral reservoir was placed. On 1st post operative day, anterior fontanelle became full for external ventricular catheter was connected. Proximal tube was cultured and was found to be the sterile. A revision shunt was done on the opposite side after 2 weeks.

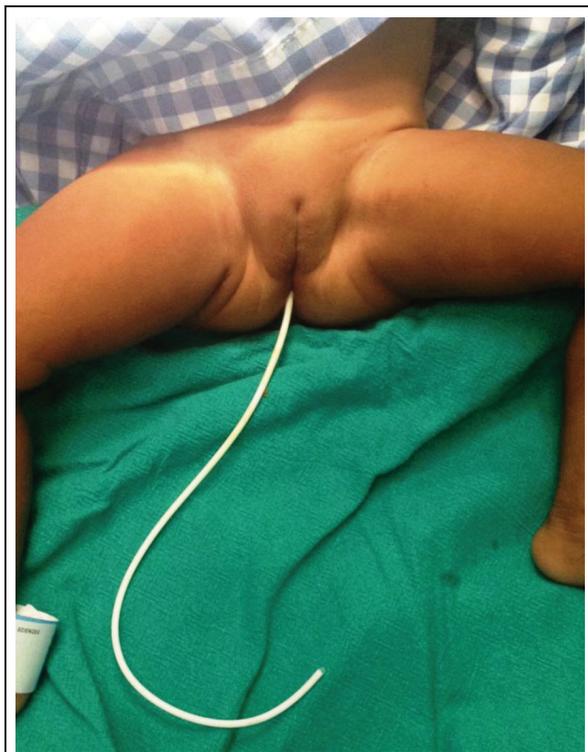


Figure 1: Shunt catheter protruding out of anal orifice.

Discussion

VP shunt is an established method of diverting CSF for the management of hydrocephalus [3]. The peritoneal end of the VP shunt has been associated with complications such as mechanical blockade by omentum leading to shunt failure, pseudocyst formation, intestinal volvulus, inguinal hernia, perforations of hollow viscus, penetration into solid organs & abdominal wall and protrusion outside the body [4]. Shunt migration into stomach, bowel, liver, chest, jugular vein, anus, vagina, and scrotum has been reported earlier. Migration of the lower end of

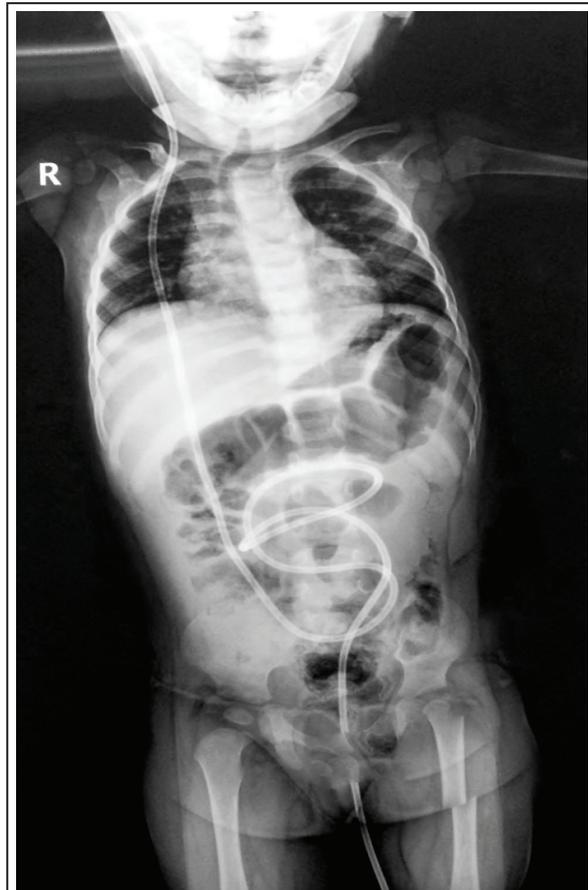


Figure 2: Radiograph of abdomen, erect view showing out line of shunt catheter in the rectal and anal regions.

the shunt catheter occurs without any recognizable cause. Distal shunt migration has been reported in as many as 10% of these cases [5].

Abdominal complications account for about 25% of the complications caused by ventriculoperitoneal shunt insertion. Bowel perforation occurs between 0.1% and 0.7% which may lead to significant morbidity and mortality, due to peritonitis and/or meningoventriculitis [6]. Thin bowel wall in children, sharp and stiff end of the VP shunt, use of trocar by some surgeons, chronic irritation by the shunt, previous surgery, infection and silicone allergy are some of the factors responsible for bowel perforation by ventriculoperitoneal shunt.

Catheter-induced gut perforations have been reported earlier in the literature (at least 119 cases), with most common site being colon (70%), followed by the stomach (16%), and small bowel (14%). Factors like poor host immunity & bioreactivity of shunt components contribute to shunt extrusion

[7]. There is no obvious relationship between the length of the distal end of the shunt and perforation rates. Vuyyuru et al., reported that malnutrition and former abdominal surgery may increase the risk of migration, due to adhesions arising from infection [8].

Most patients with abdominal complications are asymptomatic. Fibrous tract formed at the perforated site usually seals the perforation, preventing spillage of faecal matter into the peritoneum, preventing peritonitis and delaying the correct diagnosis until a later stage, by which ventriculitis or central nervous system infection will be fully established. In patients with the transanal protrusion of a VP shunt catheter, the diagnosis is obvious. The period between shunt placing and the protrusion of the catheter from the anus ranges from 2 to 20 months [9].

Management involves prompt removal of the shunt, intravenous antibiotics, an adequate recovery gap so that cerebrospinal fluid culture is sterile and then it is followed by shunt replacement on opposite side. During the interval which is about 3-4 weeks, the patient can be kept on cerebral dehydrants to limit the increasing hydrocephalus. In a patient with simple bowel perforation and no other complications, a formal laparotomy is not required while in patients with intra-abdominal complications, urgent laparotomy should be undertaken.

Conclusion

Anal protrusion of ventriculoperitoneal shunt is uncommon, but well-documented entity. The presentation may be without any symptoms or maybe with meningitis and peritonitis. In a patient with simple bowel perforation and no other complications, a formal laparotomy is not required, where as presence of peritonitis will necessitate an urgent laparotomy. If detected in time and managed properly, dreaded complications can be prevented.

Acknowledgements

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Conflicts of interest

Authors declare no conflicts of interest.

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