Thecoperitoneal Shunt Migration through Anus–A Rare Presentation

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Abstract

The thecoperitoneal (TP) shunt is a cerebrospinal fluid (CSF) diversion technique. It is a commonly used technique in many neurosurgical conditions, and many complications are associated with it. This is a case of TP shunt migration through the anus. It is an uncommon and rare presentation of one of the complications associated with the TP shunt. Caregivers should keep this in mind about this complication, as it leads to devastating complications like meningitis and suffering for the patient.

Keywords
- thecal sac
- cerebrospinal fluid
- complications

Introduction

The thecoperitoneal (TP) shunt is a technique by which cerebrospinal fluid (CSF) is diverted from the lumbar thecal sac to the peritoneal cavity. It is indicated in many conditions such as communicating hydrocephalus, normal pressure hydrocephalus, spinal and cranial CSF leaks, slit ventricle syndrome, raised intracranial pressure following chronic meningitis, persistent bulging of craniotomy site after operations for intracranial tumors or head trauma, syringomyelia, and failed endoscopic third ventriculostomy with a patent stoma.[1] The TP shunt has an advantage of being a completely extracranial procedure. Fewer revisions are required in a TP shunt compared with ventriculo-peritoneal shunt; thus, it is preferred among growing children. There are very few case reports of asymptomatic bowel perforation and migration of the shunt tube through the anus. In this study, we report a case of migrated peritoneal end of a TP shunt through the anus.

Case Presentation

A 15-year-old young man presented with insidious onset, gradually progressive spastic paraparesis. Investigation revealed features of an arachnoid cyst extending from C6 through S2. In view of the long segment extension of the cyst, it was decided to do a cystoperitoneal shunt at the lumbar level. Hence, he underwent a lumbar TP shunt with the proximal catheter tip within the arachnoid cyst. The patient initially showed improvement in his symptoms; however, after a year, he developed recurrence of symptoms. MRI revealed collapse of the lumbar segment of the arachnoid cyst; however, due to internal septations, the cervicodorsal cyst was not decompressed. Hence, he underwent another cystoperitoneal shunt with the proximal catheter tip within the dorsal arachnoid cyst. Following the second surgery, he made a complete recovery without any residual neurological deficit. Eleven months following the second surgery, the patient presented to emergency with the history of extrusion of shunt tip through the anus. There was no history of vomiting, headache, or fever. There were no signs of peritonitis or meningitis. On examination, the peritoneal end of the TP shunt was seen coming out of anus, as shown in ►**Fig. 1**. He was investigated with CT of abdomen and pelvis, which showed that the peritoneal end of the lumbar TP shunt had perforated the sigmoid colon and passed through the rectum and anus, as shown in ►**Fig. 2**. The patient underwent emergency removal of the shunt. The previous right iliac fossa incision was opened; then, the shunt tube was cut and the proximal end retrieved. The distal end of the shunt was retrieved from the anus. The shunt tip was sent for culture. His proximal shunt tip grew *Escherichia coli*. However, due to the absence of evidence of infection, he was not treated with intravenous antibiotics. He made an uneventful recovery.

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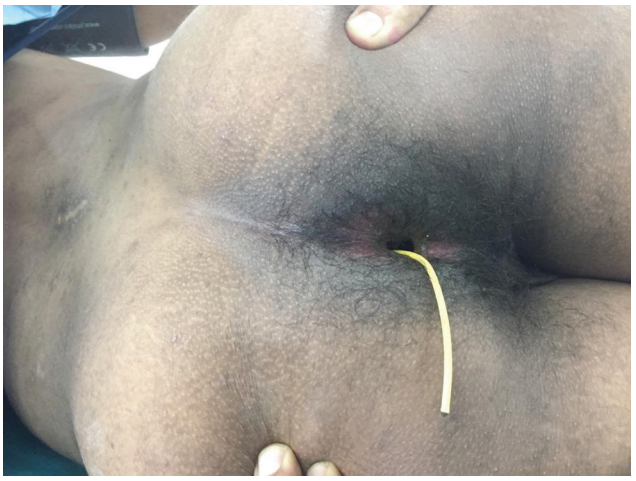

Fig. 1 Image showing peritoneal end of shunt coming out of anus.

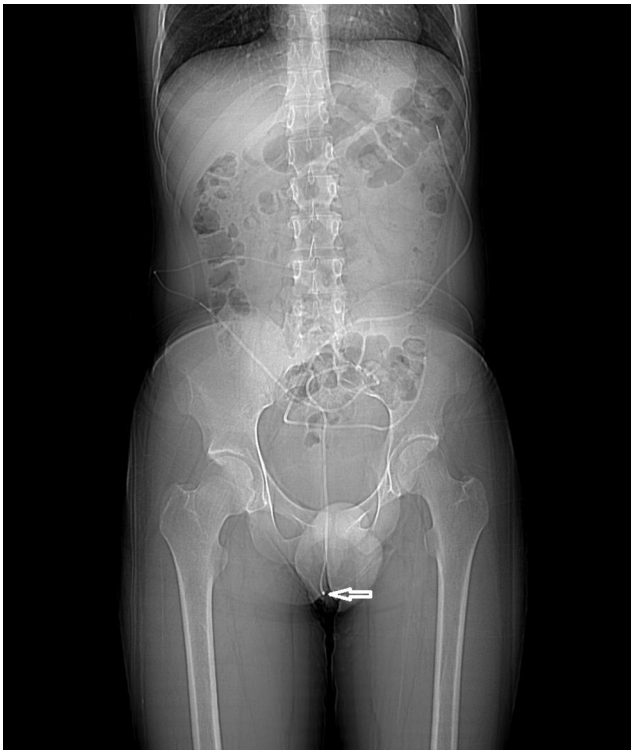

Fig. 2 Computed tomography scan image showing peritoneal end of shunt passed in rectum and anal canal.

Discussion

Many complications pertaining to abdominal end have been described, which include blockage or kinking of the shunt tube, adhesion encasement of the peritoneal tip, slipping out through the surgical wound, or migration of the shunt or its components.[2] Hollow viscous perforation and anal extrusion of the peritoneal end of the catheter is a rare complication which was first described by Wilson and Bertrand in 1966.[3] There are many theories explaining about how the peritoneal end of the shunt enters the bowel lumen. The peristaltic activity of bowel carries it all the way down to the anus. Teegala and Kota[4] reported two cases of anal extrusion and postulated that the poor nutritional status along with infection could have been the causing factor. The bowel perforation due to shunt tube migration is asymptomatic in majority of the cases, although some patients can present with complications like intestinal obstruction, adhesion, and tube knotting, which would require skilled management.[5]

The treatment of these patients involves shunt removal/exteriorization, control of infection, and reinsertion of the shunt at an appropriate time. Those cases without peritonitis and meningitis can safely be managed by removing shunt per anus after disconnecting the shunt tube in the flank. This will prevent laparotomy. However, in cases where serious abdominal complications such as peritonitis and pelvic abscess develop, exploratory laparotomy is indicated for removing the shunt and tackling the abscess.[6] It is also important to check for knotting of the shunt tube in the abdomen to prevent difficulties during the removal of the tube from the anus. In such circumstances, it is advisable to go for exploratory laparotomy instead of simply removing the shunt from the anus. It should be kept in mind that the distal end of the shunt should not be pulled back into the peritoneal cavity to prevent contamination of the tract. There should be no hurry for CSF diversion in cases where infection is present. Immediate CSF diversion is only needed when patient is symptomatic.

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Conflict of Interest
None declared.

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