CASE REPORT

Laparoscopic Management of Trans-oral migration of VP shunt: A case report

[1]Dr. Ranjan Kumar Jena, [2]Dr. Subrat Kumar Sahoo, [3]Dr. Arnav Sharma

[1]Professor, Department of Neurosurgery, Rama Medical College, Kanpur, U P, India
[2]Additional Professor, Department of Pediatric Surgery, AIIMS, Bhubaneswar, Odisha, India
[3]Junior Consultant, Department of Neurosurgery, Gangaram Hospital, New Delhi, India

Corresponding Author
Dr. Ranjan Kumar Jena
Professor, Department of Neurosurgery, Rama Medical College, Kanpur, U P, India

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ABSTRACT
Ventriculoperitoneal (VP) shunting is a well-known procedure in managing hydrocephalus.1 This procedure comes with the risk of developing certain common complications, including shunt obstruction and infections. In the present case, we presented report of a 2 ½ year old girl presented with trans oral migration of lower end of VP shunt. Previously operated for lumbosacral meningomyelocele and congenital hydrocephalus (multiple VP shunt revisions).Underwent Diagnostic Laparoscopy with shunt removal and repair of GE junction perforation. There was no evidence of inflammation along the shunt tract. At 1-year follow-up the patient is doing well.

Keywords: Laparoscopy, Management, VP shunt

INTRODUCTION

The treatment of hydrocephalus has evolved over centuries, but progress has occurred during the past few decades.[1,2] The ventriculoperitoneal shunt insertion is the commonly performed surgical procedure for treating hydrocephalus caused by various etiologies and is performed across all age groups.[3,4] Various complications occur in approximately one-fifth to four-fifths of the cases following the VPS insertion, and many of them require shunt revisions.[5,6] VPS revisions are needed more during the first 12 months following the initial VPS placement. VPS complications and shunt revisions are more frequently documented and required in children than adults.[7] Perforation of the hollow viscus viz gastrointestinal tract, urinary bladder, and uterus (female genital tract) by the peritoneal end of a VPS catheter is known, and it may occur with or without extrusion of the distal VPS catheter through the natural orifices.[8]

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2 ½ year old girl presented with trans oral migration of lower end of VP shunt. Previously operated for lumbosacral meningomyelocele and congenital hydrocephalus (multiple VP shunt revisions). Underwent Diagnostic Laparoscopy with shunt removal and repair of GE junction perforation. There was no evidence of inflammation along the shunt tract. The cerebrospinal fluid study was normal. There was no evidence of peritonitis or meningitis. The peritoneal end of the shunt was then removed. Revision VP shunt was done under antibiotic coverage on the opposite side. The patient was discharged on the 10thpostoperative day without any complications. At 1-year follow-up the patient is doing well.

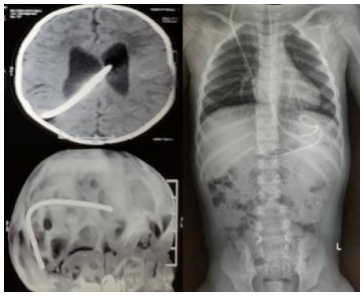

Figure 1: Radiographic profile

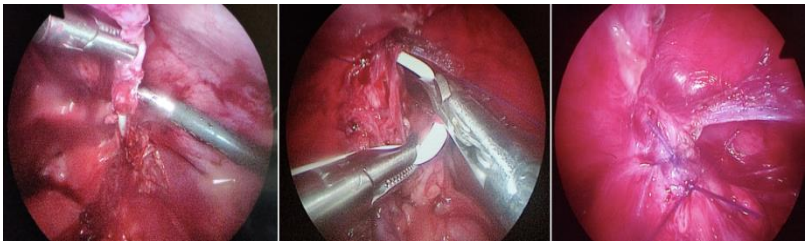

Figure 2: Intraoperative finding

DISCUSSION

Ventriculoperitoneal (VP) shunt as a means of cerebrospinal fluid (CSF) diversion is the standard therapy for hydrocephalus in the presence of an aqueduct stenosis or other passage obstacles in the CSF pathway. For example, it is frequently required after subarachnoid hemorrhage, trauma, or infection of the neurocranium or for congenital conditions. Complications at the in traperitoneally (ip) lodging distal end of the shunt tube are reported to be from 10% to 30%.[9,10] Typically, one encounters preperitoneal or I p pseudocysts, shunt infection, shunt dislocation, or disconnection.[11] Also, migration of the abdominal end has been reported on frequently.[12,13] It can cause a rise in intracranial pressure as a result of obstruction as well as infection of the central nervous system from ascending infection.[14] Proposed mechanisms suggest the shunt tip erodes the bowel wall due to continuous friction.[15] Laparoscopic approach has emerged as a means of removing the shunt tube under visual guidance and also enables inspection of entire peritoneal cavity.[16] Less than 10 such cases have been reported in literature.[17]

2 ½ year old girl presented with trans oral migration of lower end of VP shunt. Previously operated for lumbosacral meningomyelocele and congenital hydrocephalus (multiple VP shunt revisions). Underwent Diagnostic Laparoscopy with shunt removal and repair of GE junction perforation. There was no evidence of inflammation along the shunt tract. The cerebrospinal fluid study was normal. There was no evidence of peritonitis or meningitis. The peritoneal end of the shunt was then removed. Revision VP shunt was done under antibiotic coverage on the opposite side. The patient was discharged on the 10thpostoperative day without any complications. At 1-year follow-up the patient is doing well.Kavic SM et al[18] presented the largest published series of laparoscopic treatment of VP and LP shunt complications in adults, by retrospectively reviewing all cases performed in a 1-year interval by a single surgeon. Ten patients presented with complications of previous shunting; all were managed laparoscopically. Eighty percent of these patients had a successful single laparoscopic intervention. One patient developed a cerebrospinal fluid leak from the lumbar wound, and 2 patients required additional laparoscopic shunt revisions. They concluded that laparoscopy has great utility in the assessment of shunt function. Laparoscopic techniques should be considered not only for placement of peritoneal catheters, but also for the management of distal shunt malfunction and diagnosis of abdominal pain in these patients. Popa F et al[19] reported a retrospective study including 17 patients with abdominal complications secondary to VP shunt for hydrocephalus, laparoscopically treated in their department, between 2000 and 2007. Patients' age ranged from 1 to 72 years old (mean age 25.8 years old). Male: female ratio was 1.4. Abdominal complications encountered were: shunt disconnection with intraperitoneal distal catheter migration 47.05% (8/17), infections 23.52% (4/17) such as abscesses and peritonitis, pseudocysts 11.76% (2/17), CSF ascites 5.88% (1/17), inguinal hernia 5.88% (1/17), and shunt malfunction due to excessive length of in traperitoneal tube 5.88% (1/17). Free–disease interval varies from 1 day to 21 years, depending on the type of complication, short in peritoneal irritation syndrome and abscesses (days) and long in ascites, pseudocysts (months– years). Laparoscopic treatment was: extraction of the foreign body in shunt disconnection with intraperitoneal distal catheter migration, evacuation, debridement, lavage and drainage for pseudocysts, abscess and peritonitis, shortening of the tube in shunt malfunction due to excessive length of in traperitoneal tube and hernioraphy. One diagnostic laparoscopy was performed in a peritoneal irritation syndrome, which found only CSF ascites. There were no conversions to open surgery. The overall mortality was of 5.88% and postoperative morbidity was of 11.76%. In 7 patients operated for abscesses, peritonitis, pseudocysts, and CSF ascites the shunting system was converted in to a ventriculocardiac shunt. Abdominal complication following VP shunt can be successfully performed laparoscopically. Abdominal surgery required, in selected cases, the repositioning of the distal catheter, frequently as a ventriculocardiac shunt. There are abdominal complications with no indication of surgery, like peritoneal irritation syndrome and CSF ascites. Free– disease interval varies from days (peritoneal irritation syndrome, abscesses) to month–years (pseudocyst, ascites), according to type of complication.

CONCLUSION

The most common complication of VP shunt was Shunt disconnection with intraperitoneal distal catheter migration.

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