Ana extrusion of a ventriculoperitoneal shunt catheter

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ABSTRACT

Bowel perforation and spontaneous extrusion of the lower end of the tube through the anal opening is a rare and unusual complication of the ventriculoperitoneal shunt. We report a case of a two-year-old female child who presented to the emergency department when her mother noticed the shunt catheter protruding from her anus four months after shunt placement. The shunt tube was removed and the patient underwent repeat ventriculoperitoneal shunting on the left side two weeks after shunt removal. Removal of the catheter by a less invasive method is advisable in the absence of infection. Exteriorization of the proximal end is recommended as it can be useful to rule out ventriculitis and meningitis and also to assess the dependency on shunt followed by placement of new shunt after control of the infection.

Key words: Bowel perforation; Ventriculoperitoneal shunt; Anal extrusion

INTRODUCTION

Bowel perforation and spontaneous extrusion of the lower end of the tube through the anal opening is a rare and unusual complication of the ventriculoperitoneal shunt with only few cases reported in literature [1-6].

CASE REPORT

A two-year-old female child was brought to the Emergency Department of the Government Medical College and Hospital, Jammu, after her mother noticed a ventriculoperitoneal shunt catheter protruding from her anus. Four months earlier, the child had undergone right ventriculoperitoneal shunt placement for congenital hydrocephalus secondary to aqueductal stenosis without meningomyelocele. The child had intermittent abdominal pain and she was extremely restless and crying inconsolably. The pain was associated with bilious projectile vomiting which was relieved with an antiemetic taken at a local hospital where they had suspected intestinal colic. There was no history of fever. On presentation, her physical examination including abdominal examination was unremarkable. However, on examination of the anal region, the shunt tube was protruding from the anus (Figure 1). Chest and abdominal X-rays were unremarkable; there was no evidence of free gas under diaphragm. The child was taken to the operating room and the shunt tube was exposed at the cranial end and cut, following that the protruding shunt catheter was pulled out from the anus to avoid contamination of the peritoneal cavity and ventricular end was removed from the same cranial incision. The abdominal end was exteriorized and removed after 3 days. The patient received prophylactic intravenous antibiotics (ceftriaxone 500 mg twice daily) for 5 days. The patient became symptomatic from hydrocephalus as she developed headache and vomiting. A repeat CT scan was performed and it showed increase in the size of ventricles. The patient underwent repeat ventriculoperitoneal shunt on the left side two weeks after shunt removal and she was doing
DISCUSSION
The exact pathogenesis of shunt tube-related organ perforation and protrusion though anus is unclear. It has been proposed that continuous mechanical irritation at a fixed point on the bowel surface by the abdominal catheter may induce bowel perforation, causing distal catheter end to pass through the intestines, and exiting through the anus [1, 5, 7, 8]. As probably in the present case, younger patients have weak intestinal wall musculature [5, 9] and stronger peristaltic activity than older patients [9]. The additional continuous water hammer effect of the cerebrospinal fluid pulsations can make the hard tipped distal end catheter (Figure 1) to penetrate the intestinal walls and eventually perforate the viscus [1]. As in the present case, the diagnosis is usually obvious and can be made by visible extrusion of a shunt tube from the anus [1-6, 8, 10-13]. In most patients, there are no abnormal abdominal signs or symptoms [1] as the surrounding fibrous tract forming a pericatheter connective tissue sheath prevents the bowel contents from leaking into the peritoneal cavity [7, 8, 14]. However, ascending infection can lead to meningitis [1]. Early diagnosis and prompt attention is advisable to recognize this complication as ascending infections can cause ventriculitis, meningitis, and ultimately sepsis by migrating intestinal flora through the catheter and its sheath [5]. Removal of the catheter by a less invasive method is advisable in the absence of infection [5]. It is suggested that slight traction should be applied on the shunt tubing to divide it as high as possible at the anal verge and the remaining shunt tube should be removed in a retrograde fashion from a neck [1] or abdominal incision [2]. Exteriorization of the proximal end is useful to rule out ventriculitis and meningitis [1, 5] as well as dependency on shunt followed by placement of new shunt after control of the infection.

Figure 1: Peritoneal end of ventriculoperitoneal shunt protruding from the anus
REFERENCES