

CASE REPORT

Abrar A. Wani · Altaf Ramzan · M. A. Wani

Protrusion of a peritoneal catheter through the umblicus: an unusual complication of a ventriculoperitoneal shunt

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Abstract Protrusion of a ventriculoperitoneal (VP) shunt through the umblicus is one of the rare complications of shunt insertion reported in the medical literature. One such case is presented here in a child in whom a VP shunt had been placed for congenital hydrocephalus.

Keywords Ventriculoperitoneal shunt · Hydrocephalus · Umblicus · Migration

Introduction

Migration of the distal tip of a ventriculoperitoneal (VP) shunt to a variety of sites has been reported in the literature, and with migration, shunt function may become compromised because of altered absorption of the cerebrospinal fluid (CSF) or blocking of the catheter by adjacent structures. One of the rare sites of migration is extrusion through the umblicus.

Case report

A 18-month-old female was admitted with a history of low-grade fever, restlessness, and abdominal pain. She had undergone VP shunt insertion 6 months before for congenital hydrocephalus. Until 3 days prior to admission she was apparently well, and then developed abdominal pain and fever. She was given an antispasmodic and antipyretic with no significant benefit. The parents noted the presence of the shunt at the umblicus (Fig. 1). Cranial ultrasound (US) revealed dilated ventricles. Computed tomography of the head was advised, but the parents could not afford it.

A. A. Wani · A. Ramzan · M. A. Wani
Department of Neurosurgery,
Sher-i-Kashmir Institute of Medical Sciences,
Soura, Srinagar, India

A. A. Wani (✉)
P.O. Box 974,
G.P.O., Srinagar,
J & K, India

Broad-spectrum antibiotics controlled the fever, and at surgery the cranial end of the shunt contained pus and was sent for culture. The abdominal end could not be pulled out completely. A mini-laparotomy was done and the shunt was found entangled in adhesions along the inner aspect of the umblicus, which were carefully broken to free the shunt. A new VP shunt was put in after 2 weeks and the patient's condition improved. Postoperative US revealed that the size of the ventricles had decreased.

Discussion

Complications following VP shunts occur in many patients, and more than one-half require shunt revision [1]. The most common complications are infection of the shunt [2, 3] and malfunction due to blockage, disconnection, migration, or equipment failure. Various abdominal complications have also been reported, and the patient may present with an acute abdomen [4], perforation of the bowel [5], or peritonitis [6], which can be due to viscus perforation. In many cases no perforation is seen [4], and many patients have gram-negative ventriculitis as well [7]. Some present with intestinal obstruction [8], inguinal hernia [9], ascites [10], CSF-enteric fistula [10], inflammatory pseudotumor of the mesentery [11], omental cyst [12], intrahepatic abscess [13], perforation of the bladder [14], pseudocyst [15, 16], umbilical fistula [17], ureteric obstruction [18], or volvulus [19].



Fig. 1 Distal end of shunt protruding through umblicus

Besides these abdominal complications, some cases of shunt malfunction due to migration have been reported in the literature, including to the scrotum [20], internal jugular vein [21], mouth [22], vagina [23], intestine [24], chest [25], liver [26], and anus [27]. There has been one case report of spontaneous extrusion of a shunt catheter through the umbilicus [28]. Since in our case, at the time of mini-laparotomy the shunt was entangled in adhesions beneath the umbilicus, the probable cause of extrusion was constant pressure on the undersurface of the umbilicus.

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