RECTAL EXTRUSION OF VENTRICULOPERITONEAL SHUNT WITHOUT ABDOMINAL SIGNS : Case Report and Review of the Literature

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Gazi Medical Journal 6 : 199-202, 1995

SUMMARY : *Extrusion of the catheter through the anal canal is a rare complication of ventriculoperitoneal (VP) shunts. Available literature revealed 4 more cases of extruded VP catheters from the anus; other than this case.*

Key Words : *Ventriculoperitoneal Shunt, Shunt Complications, Hydrocephalus, Infants.*

INTRODUCTION

The most common and current treatment modality of hydrocephalus is ventriculoperitoneal (VP) shunt. Although it is a relatively simple procedure with good results, complications are not rare.

Among the abdominal complications of the VP shunt, peritouneal pseudo cysts (6, 26), mesenteric pseudo tumour (13), inguinal hernia and hydrocele (8, 17, 20), small bowel, colon, gall bladder, rectum, urinary bladder and vaginal perforations (4, 5, 11, 19, 23, 25, 26) and migration of the catheter to the thorax with consequent pleural effusion (3, 11, 15, 25) are frequently encountered in paediatric surgery (2, 9, 11, 13, 14, 22, 26).

A considerably high incidence of intraabdominal complications of VP shunt (24 %) has been reported in infants and children (12). On the contrary, intestinal perforation is rare (0.1-0.6 %) (2, 5, 9, 14, 22, 26). Wilson and Bertan reported the first case of intestinal perforation due to a lumboperitoneal shunt catheter in 1966 (12, 26, 27)

In this report, we present a case of anal extrusion of the VP shunt catheter.

CASE REPORT

The neurosurgery Department admitted an 8-month-old girl with the complaint of VP shunt catheter extrusion from the anus. From the history, we learned that the catheter was placed 6 months previously.

Abdominal examination including rectal examination revealed nothing unusual. There was no hyperaemia along the subcutaneous catheter tunnel and were unable to detect the catheter during rectosigmoidoscopy. However, barium enema showed the catheter in the sigmoid colon (Fig. 1). A few days later, we observed the catheter extruding from the anus of the child (Fig. 2).

A laparotomy through a Pfannenstiel incision revealed the catheter entering the peritoneal cavity from the right lower quadrant and after some distance in the peritoneal cavity perforating the sigmoid colon 10 centimetres proximal to the peritoneal reflection (Fig. 3). A well-defined fistulous tract aro-

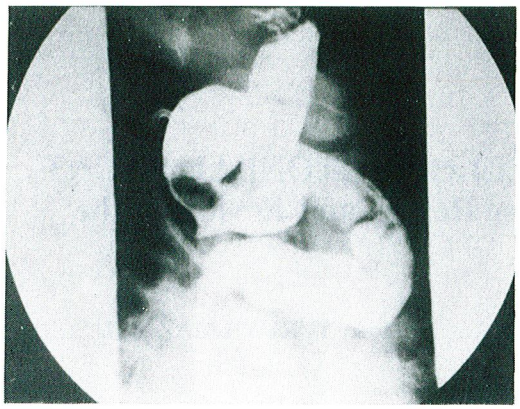

Fig - 1 : Barium enema showing the VP shunt catheter within the large bowel lumen.

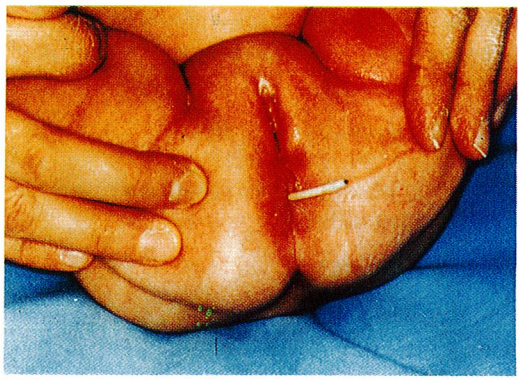

Fig - 2 : VP shunt catheter extruded from the baby's anus is demonstrated.

und the intraperitoneal portion of the catheter was noted. The catheter at was cut its entrance point into the peritoneal cavity and removed by pulling it out of the anus. The fistulous tract was then traced and excised from its point of entry into the sigmoid colon and closed primarily with non-absorbable sutures. The postoperative period was uneventful.

DISCUSSION

In a brief review of cases of intestinal perforations due to VP shunt catheters, 17.9 % overall mortality in a total of 39 cases, including the present case, is noted (1, 3, 5, 7, 9, 11, 12, 16, 18, 21-27) (Table 1). Of these cases, only 6 were reported to have

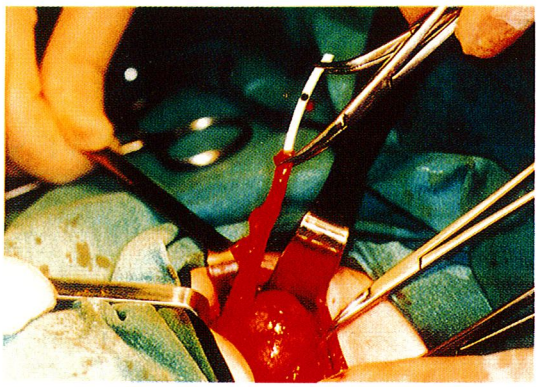

Fig - 3 : Note the well defined fistulous tract around the intraperitoneal portion of the catheter and the entrance site into the sigmoid colon. The catheter was pulled out of the anus. Then, the fistulous tract excised and closed primarily.

signs of peritonitis (22, 26). Available literature revealed 4 more cases of VP shunt catheter extrusions from the anus; other than the one we are reporting (4, 5, 11, 12).

The diagnosis of colonic perforation in VP shunt patients is not difficult when the catheter extrudes from the anus as in our patient (22, 25). It is noted that cerebrospinal fluid irritation can lead to long lasting diarrhoea of unknown origin in some patients (10, 22, 26). Hence, as diarrhoea of unknown origin is encountered after VP shunt insertion, the probability that the catheter might have entered the intestinal lumen should be consideret. It is also reported that in patients with chronic constipation the distal end of the catheter could be obliterated resulting in progress of the hydrocephalus (13, 26).

There is not yet a satisfactory explanation of how the catheter leads to intestinal perforation (3, 12). In cases reported the catheters extruded from the anus a long time after placement (2, 3, 5, 9, 10, 14, 26). This observation supports the explanation that the catheter erodes the bowel wall in time and after perforating and entering the lumen, advances in the bowel by peristalsis in the distal direction and extrudes from the anus (3, 5, 10, 12).

Review of the reported cases showed that of 38, 19 had a percutaneous approach and 11 had laparotomy. Snow et al, proposed percutaneous removal of the catheter in cases with no acute abdominal

Author	Case	Peritoneal sign	Treatment	Follow-up
Wilson[27] 1966	2	1/2	1 laparotomy 1 pcr*	1/2
Rubin[21] 1972	2	0/2	autopsy	2/2 dead
Sells[24] 1973	1	1/1	laparotomy	1/1 dead
Grosfeld[9] 1974	5	1/5	1 laparotomy 4 pcr	1/5 dead
Giuffre[7] 1975	1	0/1	pcr	1/1 alive
Schulhof[23] 1975	7	2/7	3 laparotomy 4 pcr	1/7 dead
Azimi[5] 1976	2	?	2 laparotomy	2/2 alive
Murtaugh[18] 1980	3	1/3	?	3/3 alive
Rush[22] 1982	2	0/2	?	2/2 alive
Agha[3] 1983	1	0/1	?	1/1 alive
Abu-Dalu[1] 1983	3	0/3	1 laparotomy 2 pcr	3/3 alive
McComb[16] 1983	3	?	3 pcr	3/3 alive
Arico[4] 1985	1	0/1	laparotomy	alive
Snow[26] 1986	2	0/1	1 laparotomy 1 pcr	2/2 alive
Sharma[25] 1988	1	0/1	pcr	1/1 alive
Jamjoom[12] 1990	1	0/1	pcr	1/1 alive
İpekoglu[11] 1992	1	0/1	1 laparotomy	1/1 dead
Başaklar et al	1	0/1	1 laparotomy	1/1 alive
TOTAL	39		18 pcr 12 laparotomy 6 ? 2 autopsy	7 exitus 32 alive

Table I : Intestinal perforation due to VP shunt catheter : Summary of the brief literature review (* pcr : percutaneous removal) (Modified from. Snow RB, Lavyne MH, Fraser RAR : Colonic perforation by ventriculoperitoneal shunts. Surg Neurol 25 : 173-177, 1986).

signs and symptoms (14, 25, 26). However the appropriate mode of therapy should be determined in close relationship with the patient's clinical condition (10, 22, 26). As others, we recommend primary closure of the perforation site, because percutaneous removal of the catheter has some disadvantages such as peritonitis due to spontaneous fistul duct formation , increased intraluminal pressures during gastro-enteritis or the causes, probable volvulus or internal herniation around and underneath the tract (25, 26).

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