Umbilical discharge, a rare symptom of infected ventriculo-peritoneal shunt

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Introduction

Hydrocephalus is a condition where the ventricles of the brain enlarge due to failure of proper cerebrospinal fluid (CSF) circulation. It is of two types, communicating and non-communicating. Ventriculo-peritoneal (VP) shunt is one of the preferred treatments for hydrocephalus. Common complications are shunt obstruction and shunt infection, but spontaneous extrusion of the peritoneal shunt via the natural orifice has also been reported. Abdominal complications are also known to occur after VP shunt, like peritoneal pseudocyst, formation of fistula and discharge from sites other than surgical incision sites[1-4].

Case report

A 1-year-old girl, born of a non-consanguineous marriage, via normal vaginal delivery, with normal perinatal events, was brought by her mother complaining of a discharge from the umbilicus of 3 months duration. At 2 months of age, she had one episode of seizure and was diagnosed to have obstructive hydrocephalus. VP shunt was inserted and since then she was relatively well.

Patient was healthy 3 months back and her mother first noticed an umbilical discharge and the child was seen by a local doctor. Discharge stopped after taking oral medication for 15 days. Now, since last 8 days, mother noticed an umbilical discharge with no other complaints and it was pus-like, non-foul smelling and non-blood stained. On examination, her vital functions were stable. On systemic examination, abdomen was soft and non-tender with pus like discharge noted from the umbilicus. Central nervous system examination showed full anterior fontanelle and increased tone in lower limbs.

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Ultrasound scan of the abdomen did not reveal any fluid collection. Thinking of a complication related to the VP shunt, Contrast Enhanced Computer Tomography (CECT) of the abdomen was done and it showed an enhancing collection on the right side of the urinary bladder, adjacent to the distal end of the VP shunt and a hypodense collection in the peri-umbilical area. Exploratory laparotomy was done and abscess was removed; sinus tract was adherent to VP shunt and posterior aspect of urinary bladder. Sinus tract was separated from VP shunt and posterior abdominal wall. During the procedure VP shunt was found to be blocked and was removed. Patient was discharged later without any postoperative complications.

Discussion

There have been a number of reports of spontaneous extrusion of the peritoneal end of the VP shunt, per oral and per anal extrusions being the most common sites. Rarer sites are through the intact chest wall or abdominal wall or the umbilicus[1-3]. The spontaneous extrusion of the distal end of the shunt is related to its ability to perforate any intra-abdominal hollow viscus and occasionally the anterior abdominal wall itself. The constant pressure of the tip of the catheter on the skin or the viscera causes local inflammation and a strong fibrotic reaction surrounding the distal end, ultimately eroding its surface. The perforation is usually asymptomatic and spontaneous appearance of the catheter from an orifice brings attention to the problem[4].

The earliest reported case of spontaneous umbilical fistula was in 1973 by Adoleye A[4]. Vankipuram S, *et al*[5] and Mohindra S, *et al*[6] noted five possible causes of such a complication viz. anatomical weakness, umbilical abscess, persistent umbilical vein, perivisceritis, and persistent urachal remnant while adding abnormally patent inter-coelomic communication as a cause in their case. In our case, the discharge sinus tract was identified which adhered to VP shunt and posterior aspect of urinary bladder along with collection of free fluid in peri-umbilical area and right side of urinary bladder adjacent to distal end of VP shunt. Birbilis T, *et al*[2] and Dagtekin A, *et al*[3] presented cases with extrusion of the peritoneal catheters through the intact abdominal wall which were treated with shunt revisions. We are reporting this case so that such a rare presentation of complications of V-P shunt should be kept in mind and managed appropriately.

References

1. Silva Neto AR, Bezerra MJ, Farias MC, Câmara RL. Unusual extrusion of ventriculo-peritoneal shunt. *Acta Neurochir* (Wien) 2011; **153**: 203– 4 https://doi.org/10.1007/s00701-010-0797-0 PMid: 20842511

2. Birbilis T, Theodoropoulou E, Matis G. Spontaneous externalization of peritoneal catheter through the abdominal wall in a patient with hydrocephalus: A case report. *Cases Journal* 2009; **2**: 6898. https://doi.org/10.4076/1757-1626-2-6898 PMid: 19918555 PMCid: PMC276932

3. Dagtekin A, Karabag H, Avcı E, Naycı A, Bagdatoglu C. A rare complication with ventriculo-peritoneal shunt in paediatric cases. *Ege Journal of Medicine* 2011; **50**: 65–8.

4. Adeloye A. Spontaneous extrusion of the abdominal tube through the umbilicus complicating peritoneal shunt for hydrocephalus. Case report. *Journal of Neurosurgery* 1973; **38**: 758–60. https://doi.org/10.3171/jns.1973.38.6.0758 PMid: 4710655

5. Vankipuram S, Jaiswal S, Jaiswal M, Bajaj A, Chandra A, Ojha BK. Spontaneous umbilical CSF fistula due to migration of the peritoneal end of VP shunt: A case report and review of pathogenesis. *Journal of Pediatric Neurosciences* 2017; **12**(3): 285-7. https://doi.org/10.4103/jpn.JPN_47_17 PMid: 29204210 PMCid: PMC5696672

6. Mohindra S, Singla N, Gupta R, Gupta SK. CSF fistula through the umbilicus following a shunt surgery: A case report and literature review. *Pediatric Neurosurgery* 2007; **43**: 396–8. doi: 10.1159/000106389. https://doi.org/10.1159/000106389 PMid: 17786005