SA Journal of Child Health

CASE REPORT

# Migration of the peritoneal catheter of a ventriculoperitoneal shunt into the scrotum

**Mahesh Gupta, Naseeb C Digra, Narendra Sharma, Subhash Goyal, Amit Agrawal**

*Department of Surgery, MM Institute of Medical Sciences and Research, MULLANA, (Distt - Ambala), Haryana, India*
**Mahesh Gupta,** MS, DMAS, FMAS
**Subhash Goyal,** MS, MAMS, FAIS, FICS
**Amit Agrawal,** MCh (Neurosurgery)

*Department of Surgery, Government Medical College, Jammu, India*
**Naseeb C Digra,** MS, MCh (Pediatric Surgery)

*Department of Radiodiagnosis, Government Medical College, Jammu, India*
**Narendra Sharma,** MD

***Corresponding author:*** *Mahesh Gupta (gm982003@yahoo.co.in)*

Ventricular shunt is a well-established modality in the management of hydrocephalus. However, it can be associated with numerous complications and disastrous consequences. The reported incidence of intra-abdominal complications in infants and children after ventriculoperitoneal (VP) shunt procedures is about 24% and most of these patients present with abdominal signs and/or intracranial sepsis. In this article we report on a 2-year-old boy who presented with swelling in the right inguino-scrotal region. Imaging showed migration of the peritoneal catheter into the right scrotum.

*S Afr J CH* 2012;6(3):93-94. DOI:10.7196/SAJCH.386

Ventriculoperitoneal (VP) shunt is a well-established modality in the management of hydrocephalus. However, it can be associated with numerous complications and disastrous consequences.[1-4] The reported incidence of intra-abdominal complications in infants and children following VP shunt procedures in the literature is about 24%[5,6] and most of these patients present with abdominal signs and/or intracranial sepsis.[6] In this article we report such a case and review the relevant literature.

A 2-year-old boy presented with swelling in the right inguino-scrotal region for the last 15 days. He had undergone right VP shunt procedure for congenital hydrocephalus at the age of 6 months. The swelling was not associated with pain or fever or features of intestinal obstruction. On examination a swelling was noted in the right scrotal region especially on straining and crying. Cough impulse was present. There were no features of shunt malfunction. An X-ray of the abdomen and pelvis showed that the peritoneal end of the shunt was extending into the scrotum (Fig. 1). The patient was operated, and a reduction in the hernial sac containing a VP shunt was done by means of a herniotomy. The patient is currently asymptomatic and doing well at follow-up.

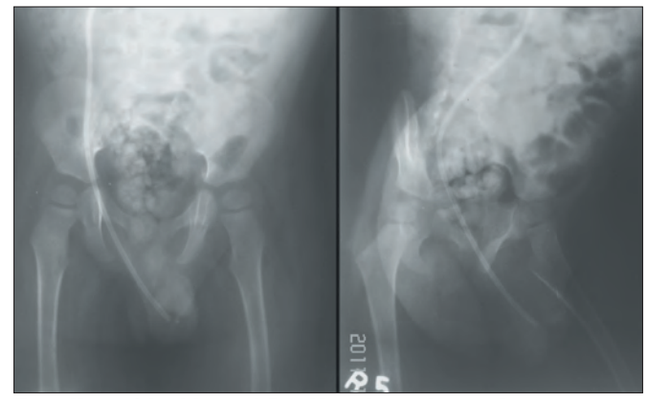

***Fig. 1. X-ray of the abdomen A-P and lateral view showing shunt migration into the right scrotum.***

## Discussion

Herniation of the peritoneal catheter of the VP shunt into the scrotum is a rare phenomenon with only few case reports in the literature.[2,5,7-13] It has been emphasised that the development of scrotal swelling or hydrocoele in a child with a VP shunt should raise the possibility of a shunt complication.[14] An explanation of the migration of the peritoneal catheter is difficult but migration of the peritoneal catheter into the scrotum tends to occur in younger children because of the higher incidence of an unobliterated processus vaginalis and smaller volume of the peritoneal cavity in these patients.[2,10,11,13,15-17] Further increased abdominal pressure due to cerebrospinal fluid infusion in the peritoneal cavity through the shunt system may prevent obliteration of the processus vaginalis[5,14,18] and chronic catheter irritation and fluid flow from the tubing may be responsible for the scrotal swelling.[10] Prompt surgical repair of the hernia and repositioning of the peritoneal catheter is recommended as there is increased risk of incarceration in infancy.[5,7,18,19] Although contralateral groin exploration is advised in infants with VP shunt because of the likelihood of patent processus vaginalis in infancy, and the high bilaterality rate (75 - 80%),[7] in older children it may not be appropriate as by this time is has been obliterated.

As reported in the literature, migration of the peritoneal catheter into the scrotum in our patient was due to a patent processus vaginalis and an additional effect on increased intra-abdominal pressure.[17]

## References


1. Danismend N, Kuday C. Unusual complication of ventriculoperitoneal shunt. Neurosurg 1988;22(4):798.
2. Redman JF, Seibert JJ. Abdominal and genitourinary complications following ventriculoperitoneal shunts. J Urol 1978;119(2):295-297.
3. Vuyyuru S, Ravuri SR, Tandra VR, Panigrahi MK. Anal extrusion of a ventriculoperitoneal shunt tube: Endoscopic removal. J Pediatr Neurosci 2009;4(2):124-126.
4. Agarwal A, Kakani A. Shunt malfunction due to proximal migration and subcutaneous coiling of a peritoneal catheter. J Neurosci Rural Pract 2010;1:120-121.
5. Ho CC, Jamaludin WJ, Goh EH, Singam P, Zainuddin ZM. Scrotal mass: a rare complication of ventriculoperitoneal shunt. Acta Medica (Hradec Kralove) 2011;54(2):81-82.
6. Grosfeld JL, Cooney DR, Smith J, Campbell RL. Intra-abdominal complications following ventriculoperitoneal shunt procedures. Pediatrics. 1974;54(6):791-796.
7. Grosfeld JL, Cooney DR. Inguinal hernia after ventriculoperitoneal shunt for hydrocephalus. J Pediatr Surg 1974;9(3):311-315.
8. Agarwal T, Pandey S, Niranjan A, Jain V, Mishra S, Agarwal V. Unusual complication of ventriculoperitoneal shunt surgery. J Pediatr Neurosci 2009;4(2):122-123.
9. Clarnette TD, Lam SK, Hutson JM. Ventriculo-peritoneal shunts in children reveal the natural history of closure of the processus vaginalis. J Pediatr Surg 1998;33(3):413-416.
10. Bristow DL, Buntain WL, James HL. Ventriculoperitoneal (VP) shunt migration causing an acute scrotum: a case report of Doppler evaluation. J Pediatr Surg 1978;13(6):538-539.
11. Ramani PS. Extrusion of abdominal catheter of ventriculoperitoneal shunt into the scrotum. Case report. J Neurosurg 1974;40(6):772-773.
12. Fukamachi A, Wada H, Toyoda O, Wakao T, Kawafuchi J. Migration or extrusion of shunt catheters. Acta Neurochir (Wien) 1982;64(1-2):159-166.
13. Fuwa I, Matsukado Y, Itoyama Y, Yokota A. Migration of a dissected peritoneal shunt catheter into the scrotum. Brain Dev 1984;6(3):336-338.
14. Ozveren MF, Kazez A, Cetin H, Ziyal IM. Migration of the abdominal catheter of a ventriculoperitoneal shunt into the scrotum – case report. Neurol Med Chir (Tokyo) 1999;39(4):313-315.
15. Levey SH, Cooper P, Schiffman D. Simulated testicular torsion in a neonate. Complication of ventriculoperitoneal shunt. Urology 1977;9(2):174-176.
16. Oktem IS, Akdemir H, Koc K, et al. Migration of abdominal catheter of ventriculoperitoneal shunt into the scrotum. Acta Neurochir (Wien) 1998;140(2):167-170.
17. Kita D, Hayashi Y, Kinoshita M, Ohama K, Hamada J. Scrotal migration of the peritoneal catheter of a ventriculoperitoneal shunt in a 5-year-old male. Case report. Neurol Med Chir (Tokyo) 2010;50(12):1122-1125.
18. Rowe MI, Copelson LW, Clatworthy HW. The patent processus vaginalis and the inguinal hernia. J Pediatr Surg 1969;4(1):102-107.
19. Crofford MJ, Balsam D. Scrotal migration of ventriculoperitoneal shunts. AJR Am J Roentgenol 1983;141(2):369-371.