

Migration of Ventriculoperitoneal Shunt to Scrotum via Patent Processus Vaginalis

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ABSTRACT

Hydrocephalus in children is either treated by ventriculoperitoneal shunt or Endoscopic third ventriculostomy (ETV) depending upon specific factors pertaining to clinical and radiological diagnosis. There are many complications of ventriculoperitoneal shunt and migration of peritoneal to scrotum, anal canal, urinary bladder has been reported. The intra abdominal complications are managed by a combined team work of neurosurgeon and Pediatric surgeon.

We have reported a case in which patient was diagnosed as congenital hydrocephalus with a lumbar myelomeningocele one year back, Right sided ventriculoperitoneal shunt was passed initially followed by lumbar myelomeningocele repair. Now patient was presented by parents with scrotal swelling, clinical examination and shunt series X-rays showed migration of lower end of ventriculoperitoneal shunt to scrotum, pediatric surgeon was consulted in same institution, a single incision at right inguinal ligament was used to replace the migrated catheter into abdomen and hernia repair.

Key Words: Ventriculoperitoneal shunt, Scrotal migration, Post-operative shunt complications.

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INTRODUCTION

Congenital hydrocephalus are either treated by either endoscopic third ventriculostomy (ETV) or ventriculoperitoneal shunt (VPS). The decision to provide a specific treatment option depends on clinical and radiological factors. Ventriculoperitoneal shunt has a ventricular catheter and a peritoneal catheter. There are two methods of putting in peritoneal catheter either via an open incision or closed trocar manner. Raised intraventricular pressure causes cerebrospinal fluid (CSF) to leak into peritoneal cavity via shunt tubing. CSF along with peritoneal fluid is absorbed into systemic circulation.

Complications commonly encountered are gut perforation with peritonitis¹, abdominal pseudocyst², extrusion via umbilicus³, cardiac migration⁴, oral extension⁵, stomach perforation⁶, perforation of urinary bladder⁷, CSF fistula at cervical area⁸, pulmonary vessels migration⁹, CSF galactorrhea due to breast migration^{10,11}, CSF collection in thorax due to diaphragm erosion^{12,13}. Peritoneal catheter migration to scrotum is a rare complication. It has not been reported locally and internationally, so we compiled this complication here.

REPORT

Informed consent was obtained from Parents of patient. A one year old male child was brought to neurosurgery out patient department of Lady

Reading Hospital Peshawar. The Presenting complaint of mother was swelling of scrotum of child, noted by her when she was changing his diaper. Regarding his past history. He was diagnosed as case of congenital Hydrocephalus and a lumbar myelomeningocele just after his birth, so Right sided ventriculoperitoneal shunt was placed in. This was followed by lumbar myelomeningocele repair after two months.

Clinically, patient was lethargic with GCS 12/15 and pupils were equally reactive to light bilaterally. The VP shunt catheter was palpable under the skin in neck and torso regions. Occipitofrontal circumference (OFC) was 47cm (normal for his age). Abdomen was soft with surgical scar mark on right side. On inguinal examination, there was an inguinoscrotal swelling on right side, swelling was reducible and a loop of catheter was palpable. He had deformities of lower limbs bilaterally. His vital signs and initial labs studies including complete blood count were normal. CT scan of brain showed enlarged ventricles. A shunt series showed catheter coiled in the right inguinal & scrotal region.

Patient was admitted in department of neurosurgery, Lady Reading Hospital Peshawar. Pediatric surgeons were also consulted, so child was operated in department of neurosurgery by combined team of neurosurgeon and pediatric surgeon. A small inguinal incision was given just above the inguinal ligament on right side. Underlying dissection was done, Hernia sac identified, this was opened and shunt catheter was found as content within the sac. Ventriculoperitoneal shunt was replaced in abdominal cavity via deep inguinal ring and CSF was aspirated from scrotum, Hernia sac was

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transfixed and excised so patent process vaginalis was closed. Wound was closed in layers. Aseptic dressing done.



PIC 1. (Showing one year old child with scar marks of previous right VP shunt on scalp and abdomen)



PIC 2. Showing Right sided InguinoScrotal swelling



PIC 3. SHUNT SERIES XRAY

DISCUSSION

In children, Patent processus vaginalis is responsible for migration of peritoneal catheter to scrotum. The processus vaginalis forms in both genders during embryologic development, as an evagination of the peritoneum occurs at the inguinal canal. In males, at 28 weeks gestation, the testes have migrated from the posterior abdomen to the deep inguinal ring, and by 32 weeks the testes enter the scrotum. In females, the round ligament of the uterus passes through the inguinal canal and terminates in the labia majorus. When the communication between the abdomen and the scrotum or labia fails to close, a PPV exists.

Recommended ideal treatment of inguinal hernia in children is herniotomy. Years ago it was a common practice to explore contralateral inguinal area too for possible PPV during unilateral inguinal hernia repair in children¹⁴. It has now become standard practice to evaluate for a PPV on the contralateral side via laparoscopy, thus avoiding exploration. When the hernia sac is isolated, it is opened and a laparoscopic port inserted, thus gaining access to the peritoneal cavity. Pneumoperitoneum is achieved, and an angled laparoscopic scope is used to visualize the contralateral side. When a PPV is present, it presents as an opening in the peritoneum at the deep inguinal ring.

In our case Patent processus vaginalis (PPV) allowed migration of peritoneal catheter into scrotum, which has surrounded testicle from all around. This is a rare phenomenon and can be prevented by prompt diagnosis of PPV at the time of VP shunt placement. This can be done via laparoscopy through a transverse para umbilical incision, which is used later on for placement of ventricular catheter inside abdomen. This is followed by repair of inguinal hernia if a patent processus vaginalis is found in the same setting.

CONCLUSION

Migration of Ventriculoperitoneal catheter to scrotum is a rare complication. Migrated catheter to scrotum needs replacement as soon as possible. It can result in testicular injury and shunt malfunction due to defective absorption of CSF. Pediatric surgeon should also be consulted in such cases.

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