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**Case Report**

# Unusual Migration of the Distal Catheter of a Ventriculoperitoneal Shunt into the Vagina

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**Abstract**

Ventriculoperitoneal (VP) shunt is one of the most common pediatric neurosurgical procedures. It has various complications that may have serious consequences such as shunt dysfunction, and unusual migration. Although, migration of shunt catheter to bladder, heart, umbilicus, rectum, pulmonary artery, and stomach has been reported, migration to vagina is a rare one.

In this report we present a 16-month-old girl in whom VP shunt catheter was found in vagina. We will also describe the mechanism by which the VP shunt migrated to vagina.

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**Keywords** ● Ventriculoperitoneal shunt ● hydrocephalus ● vagina

## Introduction

Ventriculoperitoneal (VP) shunt is the most common procedures for treatment of hydrocephalus. It has various complications such as infection, shunt dysfunction, shunt obstruction, and shunt migration.[1] One of the rare complications of VP shunt is migration to other sites. Migration to bladder,[2] heart,[3] umbilicus,[4] rectum,[5] pulmonary artery,[6] stomach,[7] and anus has been reported, while migration to vagina is reported by us for the first time. Unusual migration can be confirmed using radioisotope examination or by fluoroscopically guided injection of iodinated contrast material into the shunt reservoir.[8]

## Case Presentation

The patient was a 16-month-old girl who was brought to Nemazee hospital affiliated to Shiraz University of Medical Sciences in Shiraz, south of Iran with complaint of protrusion of a foreign body from her vagina for 2 weeks (figure 1).
Clinical examination showed paraplegia, an enlarged head with circumference of 51cm. Anterior fontanel was not tense but sunset eyes (both eyes see downward with inability to upward eye motion) were present.

A urologist visited her and presence of the catheter in vagina was confirmed. She had been operated with the diagnosis of myelomeningocele and hydrocephalus at the age of 4 months by a neurosurgeon in another center. The procedure included VP shunt insertion and repairing of the myelomeningocele. The patient was referred to us after 6 months of operation because of shunt infection with the clinical manifestation of redness and bulging along the shunt tract in cervical region. CSF culture revealed staph. DNase (Neg), sensitive to chloramphenicol, gentamicin, cephalexin, ciprofloxacin, and erythromycin. Treatment was started with external drainage

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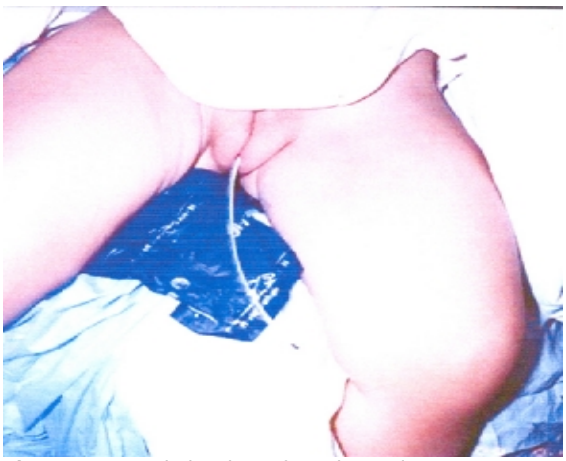

**Figure 1:** Protruded catheter from the vagina

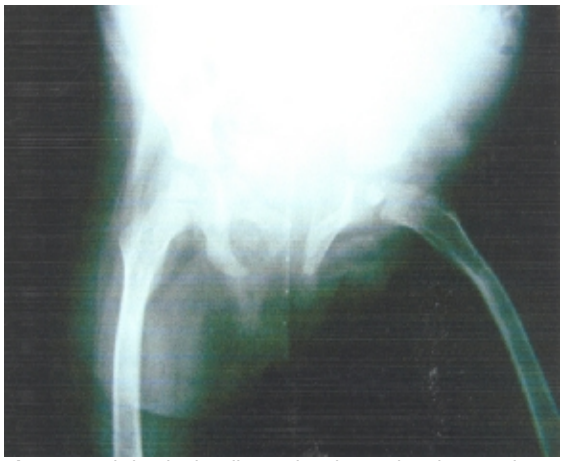

**Figure 2:** Abdominal radiography shows the shunt catheter

and appropriate antibiotic therapy. A new VP shunt was placed at the end of the treatment course.

After 6 months the patient was brought to us because of unusual migration of distal catheter of shunt into the vagina (figure 2).

Abdominal sonography showed a tube-like structure in right side of the abdomen and in posterior aspect of bladder that extended down to cul-de-sac even to the vagina. No free fluid or fluid collection was seen around the catheter and in the abdominal and pelvic cavity.

## Discussion

Fracture or migration of the VP shunt catheter is usually due to the subcutaneous adhesion of the distal tubing mostly in a growing child, aging of the shunt material, and shunt infection.[9]

Although most complications can be prevented by better management and surgical techniques, late complications appear to be partly related to aging of the shunt material sufficient to tear small lymphatic vessels and adjusted blood vessel of abdomen.[9] Another hypothesis is abdominal compression after closure of myelomeningocele that could be resulted in liver compression, leading to raised intraportal pressure and resulting in weeping of chyle from the gastrointestinal tract.

The abnormal fluid accumulation may lead to infection, or dysfunction at long term.[10] The most probable reason for the complication is peritoneal perforation because of the local ischemia or adhesions. Migration of catheter into vagina through fallopian tube is not possible in our patient. Sonography did also confirm it.

In our opinion, infection and the lengths of the distal catheter could lead to focal ischemia that resulted in unusual migration to vaginal wall in our patient. It seems that meticulous technique and good sanitation measures during shunt insertion would improve VP shunt issues.

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