CASE REPORT

Shunt in scrotum: unusual complication in operated cases of hydrocephalus

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SUMMARY

Shunt surgeries in patients with hydrocephalus are associated with morbidity and mortality. The most common problems are shunt obstruction and malfunction. We described a case of shunt migration into the scrotal sac masquerading as scrotal swelling. Shunt repositioning along with posterior wall repair and herniotomy was performed.

BACKGROUND

Hydrocephalus in children requiring shunt procedures is very common. Apart from the morbidity associated with hydrocephalus, shunt surgeries have their own complications which are very well described in the literature. Migration of the distal end of the shunt through the processus vaginalis into the scrotum is an unusual complication which is rarely encountered. We present a case from our hydrocephalus clinic with a late complication of shunt migration.

CASE PRESENTATION

A 5-year-old male child, a follow-up case of congenital aqueductal stenosis who underwent right ventriculoperitoneal shunt at the age of 18 months, presented with swelling in the bilateral inguinoscrotal region for the last 9 days. On examination, cough impulse was present on the left side but not on the right. The left scrotum was enlarged (figure 1) and a tube-like structure could be felt in the left scrotum. The swelling was reducible. External genital examination showed a meatus at the tip, a dorsal hooded prepuce and a stretched penile length of 3.5 cm. Neuronal examination was normal with no focal neurological deficit. Head circumference was normal for age. No sign of shunt obstruction was seen.

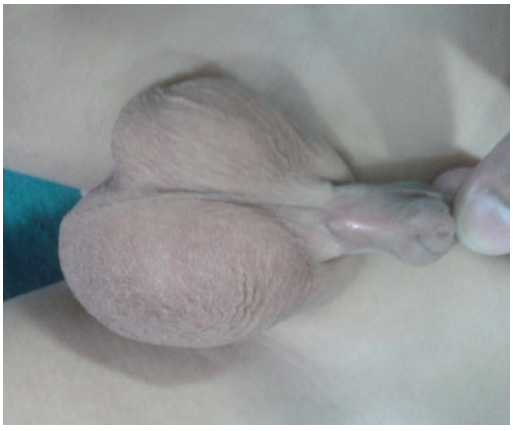

Figure 1 Clinical photograph showing enlarged left scrotum and normal external genitalia.

INVESTIGATIONS

X-rays of the neck, chest, abdomen and pelvis were conducted which showed an intact ventriculoperitoneal shunt with extension of the peritoneal end into the left scrotum. Haemogram and serum electrolytes conducted before surgery were within normal limits.

TREATMENT

On left inguinal exploration, a hernia sac containing the shunt catheter (figure 2A) was found. The hernia sac was opened and the peritoneal end of the shunt (figure 2B) was repositioned in the peritoneal cavity. The hernia sac was transfixed with a 4–0 vicryl suture and repair of the posterior wall on the left side was performed. Then a right side herniotomy was conducted.

OUTCOME AND FOLLOW-UP

The child was discharged after observation for 48 h for signs of shunt obstruction. Currently, the child is 7 years of age and at the last follow-up 3 months ago, was asymptomatic and doing well.

DISCUSSION

The most common surgery performed worldwide for hydrocephalus is ventriculoperitoneal shunt.[1] Shunt is performed to divert the cerebrospinal fluid (CSF) from dilated ventricles to the peritoneal cavity from where CSF is absorbed. Apart from the morbidity associated with hydrocephalus, shunt surgeries have their own complications which are well known.[2–6] The reported incidence of shunt-related abdominal complication is 10–30%.[7] Various authors have reported migration of the distal end of the peritoneal catheter into the scrotum through a patent processus vaginalis.[5 8–11] The processus vaginalis may remain patent until 1 year of life in 50–60% cases and until 2 years of life in 40% of cases.[3] Rowe *et al*[12] have explained the aetiology of peritoneal catheter migration, which has been universally accepted over the years by various authors.[13] Peritoneal cavity distension due to draining CSF also prevents the obliteration of the processus vaginalis as reported by Ho *et al*[14] and Ozveren *et al*.[15] Our patient is a male child with a patent processus vaginalis either congenital or because of peritoneal CSF drainage. In our case, right-sided ventriculoperitoneal shunt was performed. We do not know whether the side has something to do with shunt

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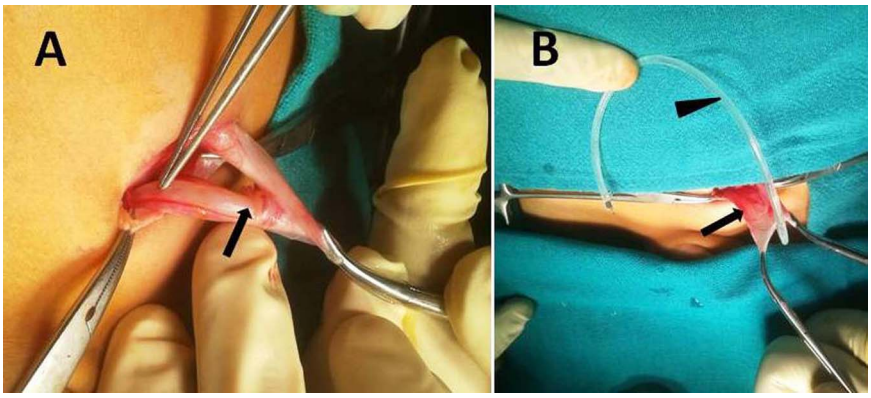

Figure 2 (A) Intraoperative photograph showing hernia sac with the shunt inside (arrow). (B) Intraoperative photograph showing opened hernia sac (arrow) and the peritoneal end of the shunt (arrow head).

migration as there is no such report in the literature comparing the two. We used a Chabbra medium pressure ventriculoperitoneal shunt in our case. Shunt migration can occur either as an early or a late complication. Ozveren *et al*[15] have reported shunt migration within 24 h, while the average length of time reported in other series was 6.8 months.[3] In our case, the time interval was 42 months. The patient is registered in our hydrocephalus clinic and is being closely followed-up.

Learning points

- Hernia in an operated case of hydrocephalus with ventriculoperitoneal shunt should be addressed with the utmost urgency.
- There is a possibility of shunt malfunction due to migration of the shunt into the scrotal sac and this may lead to secondary hydrocele and its sequelae.
- When such a complication is encountered in hydrocephalus patients with a ventriculoperitoneal shunt, bilateral herniotomy is the norm and the patient should be observed for signs of shunt obstruction in the postoperative and follow-up periods.

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