

# Ventriculoperitoneal shunt blockage by hydatid cyst

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## ABSTRACT

Ventriculoperitoneal (VP) shunt is one of the commonest procedures done in neurosurgical practice throughout the world. One of the commonest problems after putting the VP shunt is the shunt obstruction, which can be due to varied causes. Shunt obstruction secondary to the parasitic infections is rarely seen. We are presenting a 15-year-old child, a case of operated cerebral hydatid cyst with hydrocephalus. She presented with shunt malfunction after 1 year of surgical excision of the hydatid cyst. Revision of the VP shunt was done and peroperatively, it was found that the shunt tubing was obstructed due to small hydatid cysts. This is the first reported case of VP shunt obstruction by hydatid cyst.

**Key words:** Hydatid, hydrocephalus, shunt

## INTRODUCTION

Intracranial hydatid cysts account for 1-2% of all the infections secondary to *Echinococcus granulosus*. In the brain, hydatid cysts are usually confined to the supratentorial compartment, in the region supplied by middle cerebral artery. The parietal lobe<sup>[1]</sup> is especially involved, as was the case in our patient in which the patient presented with a huge hydatid brain in left frontoparietal area [Figure 1]. Surgical excision is the treatment of choice<sup>[2]</sup> followed by putting the patient on anthelmintics. Intraventricular hydatid disease is a rare entity. In an operated case of hydatid brain with secondary hydrocephalus treated with ventriculoperitoneal (VP) shunt, obstruction of the shunt secondary to small hydatid cysts has never been reported.

## CASE REPORT

We are presenting a 15-year old boy who presented to emergency department with rapid onset of features of raised intracranial pressure (ICP). The patient had been previously operated for hydatid cyst of the left fronto-parietal lobe [Figure 1]. At the primary

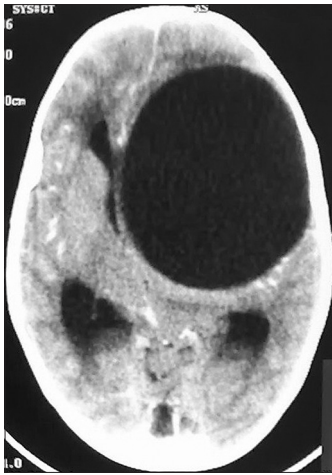
surgery the cyst had ruptured, although the spillage was prevented to a significant extent. One year later, she again came with signs of raised ICP for which a contrast enhanced computerized tomography (CT) scan was done [Figure 2]. The scan revealed intraventricular cyst in right frontal horn and another periventricular hydatid cyst in right temporal horn along with hydrocephalus, so a right-sided ventriculoperitoneal shunt was done. Anticipating shunt may get blocked due to presence of intraventricular cysts, chamber of the shunt (Chhabbra shunt) was cut, and only distal slit valve was kept. Patient improved in the postoperative period. About 6 months later, patient was again admitted with signs of raised ICP and patient was prepared for revision of VP shunt. Intraoperatively, it was found that the shunt was blocked because of multiple small hydatid cysts [Figure 3a and b]. Histopathology confirmed the presence of hydatid cysts. The shunt was removed and new shunt was put in. Patient was again administered albendazole for 1 month. The patient is on regular follow-up and asymptomatic at 6-month follow-up.

## DISCUSSION

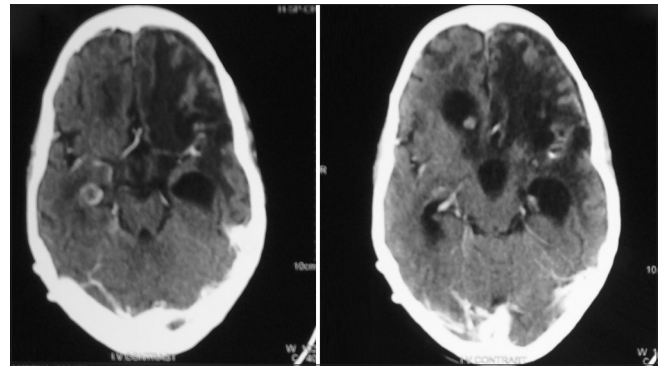
VP shunt is one of the commonest procedures in neurosurgical practice. A significant problem encountered in shunt procedures is infection, with infection rate ranging from 2% to 27%, often with poor outcome. Shunt-associated infections are most frequently (65%) caused by coagulase-negative *Staphylococcus*. Gram-negative bacteria are the next most frequent pathogens, accounting for 19-22% of cases.<sup>[3-7]</sup> These infections are the usual cause of the

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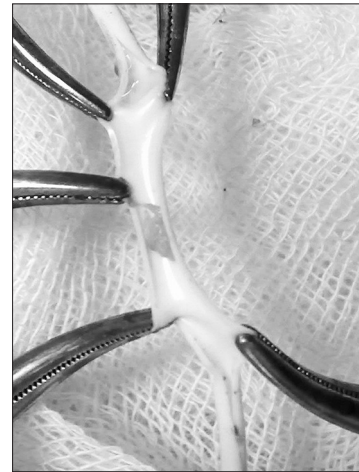
**Figure 1:** CT scan head showing a huge frontoparietal cystic lesion (hydatid cyst) in the brain



**Figure 2:** Contrast CT scan head showing an intraventricular cyst in right frontal horn and another periventricular hydatid cyst in right temporal horn along with hydrocephalus



**Figure 3a:** Small hydatid cyst coming out of the VP shunt



**Figure 3b:** Small hydatid cysts within the VP shunt after slit opening the catheter

shunt obstruction which ultimately leads to revision of the shunt. Other well-known causes of the shunt malfunction are obstruction secondary to multiple adhesions in abdomen, omentum, shunt migration, intraventricular hemorrhage, and sometimes even some parasitic infections like neurocysticercosis can even lead to shunt obstruction.<sup>[8]</sup> We are reporting an operated case of cerebral hydatid with VP shunt *in situ*, presenting with shunt obstruction secondary to small hydatid cysts inside the shunt for which revision of VP shunt was done. The cysts were presumably secondary cysts which had developed secondary to cyst rupture at the primary surgery with protoscolices growing to form the secondary cysts.

Intracranial hydatid cysts are more frequently located in the parenchyma in the supratentorial compartment.<sup>[9]</sup> The other less common sites are skull, cavernous sinus, eye ball, pons, skull, cerebellum, and ventricles. Intraventricular hydatid cyst itself is an

uncommon entity and E Keskil<sup>[10]</sup> reported a case of a 7-year-old girl who had a free-floating, intraventricular hydatid cyst, diagnosed by CT examination inside the enlarged left lateral ventricle of an associated Dandy–Walker malformation. The patient underwent surgery and the cyst was removed.

## CONCLUSION

Though bacterial infection is the most common cause of VP shunt obstruction, but in a patient with hydatid disease of the brain with VP shunt for associated hydrocephalus, the possibility of shunt obstruction secondary to small hydatid cysts itself can be taken into consideration.

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