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## **A rare complication of ventriculoperitoneal shunt: Cholecystitis with gall stones**

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## CASE REPORT

## A rare complication of ventriculoperitoneal shunt: Cholecystitis with gall stones

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### Abstract:

Ventriculoperitoneal (VP) shunt insertion may cause abdominal complications such as shunt infection or intra-abdominal adhesion. Cholecystitis or cholelithiasis associated with VP shunt have been reported very rarely. In this case report, we present a patient having a significant inflammation of gall bladder with multiple stones, forming a conglomerated mass with neighboring organs. A distal end of a VP shunt was inside of the conglomeration.

**Keywords:** Ventriculoperitoneal shunt; cholecystitis; cholelithiasis; children

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### Introduction

Ventriculoperitoneal Shunt (VP shunt) is a well known treatment modality for hydrocephaly in children. Although it works well in most of the patients, it may cause some abdominal complications with a range of 5 to 47 % [1]. Inguinal hernia, hydrocele, abdominal pseudocysts, peritonitis due to shunt infection, intra-abdominal adhesions, spontaneous knotting of the catheter, migration and perforation of the catheter to the visceral organs could be observed as complications [2-4]. In this case report, we present an unusual complication of ventriculoperitoneal shunt causing acute cholecystitis with multiple gall stones.

### Case report

A twelve years old girl was admitted with severe abdominal pain and vomiting. She was born with myelomeningocele localized at 2<sup>th</sup> and 3<sup>th</sup> thoracic vertebra and had been operated in the early days of her life for both myelomeningocele and hydrocephalus. She had been operated 9 times for VP shunt from the birth to 6 years of age. She had no complaints of neurological symptoms or any evidence of new deficit. In her last admission, we found tenderness and rebound on the right upper quadrant of abdomen. Abdominal ultrasound showed a gall bladder having a thickened wall and multiple large stones inside. A maximum diameter of the stones was 10 mm. Laparotomy showed a conglomerated mass formed by gall bladder, liver, stomach and colon. A non-functioning distal end of the VP shunt neighbouring

the inflamed gall bladder was found in the conglomerated mass. The gall bladder and organs forming conglomeration were edematous, inflamed and highly adhesive to each other (Figure 1).

Due to severe inflammation and adhesion, cholecystectomy could not be done. The shunt was removed, stones were extracted with cholecystostomy and external drainage was performed (Figure 2-4). The shunt was not functional, so that no new VP shunt was inserted. *Peptostreptococcus sp.* was grown in the specimen obtained from the operation area. Cholecystectomy was done 6 months later and she did well after the second operation.

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**Figure 1.** Edematous, inflamed and highly adhesive gall bladder and neighboring organs



**Figure 2.** The VP Shunt located in the conglomerated mass was removed



**Figure 3.** Cholecystotomy performed in inflamed gall bladder for stone removal



**Figure 4.** Extracted gall bladder stones

### Discussion

Complications of VP shunts causing acute abdominal finding or abdominal discomfort such as abdominal pseudocysts, peritonitis due to shunt infection, intra-abdominal adhesions, migration and perforation of viscus by the catheter were reported up to now [2-5]. Pyogenic liver abscess and rarely subphrenic abscess following VP shunt infection have also been reported [6, 7]. It seems that shunt infections have a role in intraabdominal complications. In our case, peptostreptococcus sp. was grown from the specimen of the conglomerated mass.

Cholelithiasis is rarely seen in children. It may occur in patients with hemolytic anemia, long term TPN infusion, extended resection of small bowel, prolonged antibiotic treatment, such as cephalosporins administration. In our case, there was no risk factor mentioned above.

VP shunt related gall bladder pathologies were very rarely reported. Cholecystitis evolved as a shunt infection in a 3 year old boy who was operated for anaplastic ependymoma and cholelithiasis after the 11<sup>th</sup> year of ventriculo-cholecystic shunt in a patient with meningomyelocele are the two cases found in the literature [8,9]. A significant cholecystitis together with cholelithiasis related to VP shunt has not been reported yet.

During abdominal exploration in our patient, we found a conglomerated mass around a thickened and inflamed gall bladder. Non-functioning VP shunt catheter was passing through this conglomeration near by the inflamed gall bladder. Our surgical findings may suggest that a long term presence of a non-functioning catheter near by the gall bladder caused a foreign body reaction and evoked dysmotility and inflammation in this area. VP shunt infection might also be considered as a factor contributing cholecystitis and cholelithiasis in a conglomerated mass.

## References

1. Esposito C, Porreca A, Gangemi M, Garipoli V, De Pasquale M. The use of laparoscopy in the diagnosis and treatment of abdominal complications of ventriculo-peritoneal shunts in children. *Pediatr Surg Int* 1998;13:352-4
2. Di Rocco C, Massimi L, Tamburrini G. Shunts vs endoscopic third ventriculostomy in infants: are there different types and/or rates of complications? A review. *Childs Nerv Syst* 2006;22:1573-89
3. Enge lhard HH, Miller FB. Abdominal pain resulting from cerebrospinal fluid pseudocyst and cholelithiasis. *South Med J* 1992;85:1851-2
4. Grosfeld JL, Cooney JL, Smith J, Campbell RL. Intraabdominal complications following ventriculoperitonealshunt procedures. *Pediatrics* 1974;54:791-6
5. Kariyattil R, Steinbok P, Singhai A, Cochrane D (2007) Ascites and abdominal pseudocysts following ventriculoperitoneal shunt surgery: variations on the same theme . *J Neurosurg* 106(5 Suppl Pediatrics):350 - 353
6. Borkar SA, Kasilwal MK, Mahapatra AK. Intrahepatic abscess complicating ventriculoperitoneal shunt. *J Pediatr Neurosci* 2007;2:16-7
7. Huang LT, Cheng CC, Shih TT, Ko SF, Lui CC. Pyogenic liver abscess complicating a ventriculoperitoneal shunt. *Pediatr Surg Int* 1998;13:6-7
8. Martinez-lage JF, Vallejo OG, Lopez-Guerrero AL and et al. Acute cholecystitis complicating ventriculoperitoneal shunting: report of a case and review of the literature. *Childs Nerv Syst* 2008;24:777-9
9. Surfield GA, Klein RL. Case report of symptomatic cholelithiasis after ventricular cholecystic shunt. *Journal of Pediatric Surgery* 2006;41, 1933-4