

Laparoscopic Cholecystectomy in a Patient with a Ventriculo-Peritoneal Shunt: A Case Report

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DOI: <https://doi.org/10.36347/sajs.2026.v12i03.014>

| Received: 05.02.2026 | Accepted: 16.03.2026 | Published: 26.03.2026

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Abstract

Case Report

Laparoscopic cholecystectomy is currently the standard treatment for symptomatic gallstones. However, performing it in patients with a ventriculoperitoneal shunt raises concerns related to pneumoperitoneum, which can result in neurological, infectious, or mechanical complications. We report the case of a patient with a ventriculoperitoneal shunt who underwent surgery in our department in order to highlight the various possible complications and the precautions that must be taken.

Keywords: Laparoscopic cholecystectomy, Gallstone disease, Ventriculo-peritoneal shunt, Pneumoperitoneum, Surgical complications.

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INTRODUCTION

Ventriculo-peritoneal (VP) shunts are the standard treatment for chronic hydrocephalus. The presence of a VP shunt in patients scheduled for laparoscopic cholecystectomy represents a special clinical situation requiring specific precautions. Visceral surgeons must take care to avoid complications that may have serious consequences.

OBJECTIVE

We report the case of a patient with a VP shunt who underwent laparoscopic cholecystectomy in our department, in order to highlight potential complications and specific precautions to consider in this context.

CASE REPORT

A 47-year-old female patient with a history of three cesarean and a ventriculo peritoneal shunt for intracranial hypertension, secondary to hydrocephalus. She was admitted for incidentally discovered gallstones on abdominal ultrasound.

Clinical examination: was normal.

Laboratory tests: was normal.

Abdominal ultrasound: gallbladder with multiple stones and thin wall; splenic cyst without septa or endocystic vegetations consistent with a simple cyst; no intrahepatic or extrahepatic biliary dilation.

Abdominal CT scan: distal tip of VP shunt visible in the pelvis, coursing between intestinal loops.

The patient underwent laparoscopic cholecystectomy, following all recommended preventive measures for VP shunt carriers. Postoperative course was uneventful.

Histopathology: consistent with cholelithiasis.

DISCUSSION

Hydrocephalus is characterized by a disorder of cerebrospinal fluid (CSF) circulation, leading to ventricular enlargement.

VP shunting is the routine surgical treatment, involving drainage of CSF from the ventricles to the peritoneal cavity, where it is resorbed. It consists of:

- Proximal catheter (ventricular drain) inserted into the lateral ventricle via a trephination in the parieto-occipital region.
- Valve system regulating CSF flow under the skin.
- Distal catheter (peritoneal drain) tunneled subcutaneously and placed into the peritoneum through a mini-laparotomy or trocar.

Laparoscopic abdominal surgery in patients with a VP shunt carries a significant risk of mechanical and infectious complications, especially if performed soon after shunt placement.

Potential complications include:

Neurological:

- Increased intracranial pressure (ICP) due to elevated intra-abdominal pressure from pneumoperitoneum. Insufflation pressure of 15 mmHg can raise ICP to 32 cm H₂O (normal <20 cm H₂O). Modern unidirectional valves help mitigate this risk.

Infectious:

- Contamination of the peritoneal catheter may lead to peritoneal irritation, vomiting, reflex ileus, or shunt infection with proximal manifestations such as meningitis or increased ICP.

Mechanical:

- Accidental injury to the peritoneal catheter during trocar placement.
- Disconnection, migration, or kinking of the peritoneal catheter.
- Obstruction of the catheter due to altered CSF flow gradient from pneumoperitoneum.

Theoretical risk of intracranial gas reflux : rare with modern valves, may cause pneumocephalus.

Preventive measures:

- Low-pressure pneumoperitoneum (10–12 mmHg).
- Preoperative mapping of the shunt path.
- Appropriate antibiotic prophylaxis.
- Minimal manipulation of the VP shunt.
- Close postoperative neurological monitoring for early signs of shunt dysfunction or increased ICP.

In our case, no neurological or infectious complications were observed, confirming the feasibility

and safety of laparoscopic cholecystectomy when precautions are followed.

CONCLUSION

With strict adherence to preventive measures, laparoscopic cholecystectomy can be safely performed in patients with VP shunts.

Standardization of perioperative protocols in this population merits further discussion.

REFERENCES

1. Archive of the Department of Visceral Surgery, Ion Tofail Hospital, Morocco.
2. Hammill CW, Au T, Wong LL. Laparoscopic cholecystectomy in a patient with a ventriculoperitoneal shunt. *Hawaii Med J*. 2010 ;69 :103-104.
3. Jackman SV, Weingart JD, Kinsman SL, *et al*., Laparoscopic surgery in patients with ventriculoperitoneal shunts. *Surg Endosc*. [Year];[Volume]: [Pages]. (Veuillez compléter L'année, volume et pages)
4. Collure DW, Bumpers HL, Luchette FA, Weaver WL, Hoover
5. EL. Laparoscopic cholecystectomy in patients with ventriculoperitoneal (VP) shunts. *Surg Endosc*. 1995 ;9(4):409-410.
6. Mohamed SA, Mohamed AR. Safety of laparoscopy in patients with ventriculoperitoneal shunts. Department of Surgery, University of Wales, Cardiff, UK; Department of General Surgery, National Guard Hospital, Al Madinah, Saudi Arabia.