

# Laparoscopic Cholecystectomy in Patients with Lumbar Peritoneal and Ventriculoperitoneal Shunt

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**Abstract:** Cerebral shunt placement to drain CSF from brain is the standard treatment of hydrocephalus. Many of these patients may require laparoscopic surgeries for various reasons. Hence, it is imperative to know anaesthetic implications of these shunts in patient posted for laparoscopic surgeries.

**Keywords:** Cerebral shunts, laparoscopic surgery, general anaesthesia

## 1. Case report

**Case 1:** A 39-year-old female, American Society of Anesthesiologists (ASA) 1 with history of Lumbar peritoneal shunting for Benign Intracranial Hypertension posted for Laparoscopic Cholecystectomy.

**Case 2:** A 70-year-old female ASA 2 with Type 2 Diabetes on Oral Hypoglycemic Agents (OHA) with history of Ventriculoperitoneal shunting for hydrocephalus posted for laparoscopic cholecystectomy.

Neurosurgery clearance was taken for both the patients before taking them in the operating room and the proper functioning of the shunt ensured. Patients were fasted for 8 hours and written informed consent was taken after explaining the due risk of intraoperative raised intracranial hypertension by the pneumo-peritoneum. Antibiotic prophylaxis was given before starting the surgery. Standard protocol was followed for the induction of anaesthesia. The insufflation pressure was maintained at 10mm Hg during surgery. The vitals were maintained near the baseline values and EtCO<sub>2</sub> was kept between 30 – 35 mm Hg. There was no incidence of intraoperative bradycardia, hypertension, or desaturation. Intraoperative and postoperative period was uneventful and the patient was neurologically stable.

## 2. Discussion

Anaesthetic concerns in patients with shunts in-situ posted for laparoscopic surgeries are –

- 1) Neurosurgery consultation should be sought during pre-anaesthetic check up to determine the functional status of the shunt, status of primary pathology and to rule out raised intracranial pressure (ICP).<sup>1</sup>
- 2) Vigilant monitoring as there is increased risk of raised ICP due to pneumoperitoneum intraoperatively. Intraoperative ultrasound guided IOP monitoring was done as it may warn rise in ICP due to pneumoperitoneum intraoperatively.
- 3) There is increased risk of perioperative shunt blockage, air embolism, chest emphysema, shunt infection and shunt failure. Lumbo-peritoneal shunts were reported to have a higher revision rates and other shunt-related complications.<sup>2</sup> To prevent this many surgeons clamped

CSF shunts intraoperatively. However, with the advent of modern shunt systems with no reflow-valves, chances of retrograde insufflation by CO<sub>2</sub> during laparoscopy has decreased considerably.<sup>3</sup>

- 4) Nitrous oxide should be avoided to prevent the development of iatrogenic tension pneumocephalus.

## 3. Conclusion

Cerebral shunts should not be a contraindication for laparoscopic surgery. However, it requires meticulous preoperative assessment and vigilant perioperative monitoring.

## References

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