**Monitorização, Equipamento e Computadores (Monitoring, Equipment and Computers)**

**Título:** Anesthetic implications of laparoscopy surgery in a patient with ventriculoperitoneal shunt

**Autores:** Bárbara Alves, Lígia Vieira, Cláudia Pereira, Carla Silva, José Pedro Assunção

**Instituições:** Centro Hospitalar Tondela Viseu

**Área Terapêutica/Tema:** Monitorização, Equipamento e Computadores (Monitoring, Equipment and Computers)

**Resumo:**

Introduction: Hydrocephalus patients have now a longer survival due to advances in surgery and in ventriculoperitoneal (VP) shunt's technology. Thereby, the likelihood that a VP shunt patient presents for emergent or elective surgery has become greater. Although there is no absolute contraindication for laparoscopy in VP shunt patients, the risk of raised intracranial pressure (ICP) shouldn't be neglected. We report the anesthetic management of a VP shunt patient submitted to laparoscopic appendectomy and discuss the anesthetic considerations of this condition.

Case report: 58-yo man, ASA III, presented for urgent appendectomy (acute appendicitis). His medical history included a secondary hydrocephalus (subarachnoid spontaneous hemorrhage) with VP shunt insertion 10 years ago. The patient did not present any neurologic deficits or signs of raised ICP since then. Before surgery the abdominal localization and funcionality of the shunt were confirmed by echography. The best surgical approach and potential complications were discussed between anesthesiologists and surgeons, who decided to proceed to a laparoscopic appendectomy. Standard ASA monitoring plus bispectral index and neuromuscular monitoring were instituted and rapid sequence induction with rocuronium was performed. Anesthesia was maintained with air/sevoflurane mixture. Normocapnia was maintained under pressure controlled ventilation. CO2 was inflated slowly and the achieved intra-abdominal pressure was lower than 10mmHg. Trocars were inserted carefully and the distal extremity of the VP shunt was maintained far from the operating area. Operating table was maintained with low degree Trendelenburg position. The patient remained haemodynamic stable and the VP shunt was functional after 50 min of surgery. The time the patient remained in PACU was uneventful, no neurologic complications occured and the patient was discharged home seven days after surgery.

Discussion: Laparoscopic appendectomy is the best surgical approach for acute appendicitis. The presence of a VP shunt is associated with complications, namely raising ICP and pneumocephalus despite the unidirectional valve. The time of insufflation of CO2 is critical. The ventilatory parameters should be adjusted to maintain normocapnia and a moderate to deep neuromuscular block should be promoted. Some measures can avoid complications such as an imaging exam to localize the catheter, maintaining pneumoperitoneum pressures under 15 mmHg for no longer than 3 hours and ICP monitoring. The majority of cases described in literature claim that the procedure is safe, yet so far, there are no guidelines for perioperatory management of patients with VP shunts presenting for abdominal surgery.

Contribution topic: Reviewing the literature, we found that laparoscopy is safe in VP shunts, as long suitable monitoring is assured during the perioperative period.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_