Successful Thoracic Segmental Spinal Epidural Anesthesia in a High-Risk Septic Laparoscopic Cholecystectomy Patient with Parkinson's Disease – Case Report.

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ABSTRACT

Patients with Parkinson's disease present unique challenges in the perioperative setting due to their neurodegenerative condition, which can affect motor function and autonomic control. This case report describes the management of a 75-year-old hypertensive male with Parkinson's disease who was admitted with altered consciousness, suspected sepsis, and a ruptured septic gallbladder requiring urgent laparoscopic cholecystectomy and umbilical hernia repair. The patient was treated with combined segmental spinal epidural anesthesia, allowing for anaesthesia and effective pain control while minimizing hemodynamic and airway risks associated with general anesthesia. Initial resuscitation included non-invasive ventilation and low-dose noradrenaline support to stabilize blood pressure and oxygen saturation. The anesthesia plan prioritized regional techniques, which facilitated a smooth intraoperative course and maintained the patient's hemodynamic stability. Postoperatively, the patient required intravenous fluids and antibiotics, and by day two, noradrenaline support was discontinued. The epidural catheter was removed on day three, with the patient showing steady recovery progress. The continued use of antiparkinsonian medications throughout the perioperative period further contributed to favorable outcomes. After eight days in the hospital, the patient was discharged in stable condition. This case underscores the potential benefits of using segmental spinal anesthesia in high-risk surgical scenarios, particularly for elderly patients with complex medical histories. It supports existing literature that advocates for regional anesthesia as a viable alternative to general anesthesia in similar cases, warranting further studies to validate these findings in diverse patient populations.

KEYWORDS: emergency, laparoscopy, cholecystectomy, anaesthesia, spinal, thoracic

Introduction:

Patients with Parkinson's disease often pose unique challenges in the perioperative setting. Their neurodegenerative condition can affect motor function, autonomic control, and stress response.

Surgical procedures for these patients require careful consideration of their disease traits, existing health issues, and potential complications. The relationship between Parkinson's disease and surgical results is especially important in older populations, where age-related changes can increase the risks of sepsis and other perioperative issues.

Sepsis is a serious condition that worsens the complications associated with surgery. It involves a body-wide inflammatory reaction to infection, which can cause multiple organ failure, especially in older adults. When dealing with severe issues like gallbladder rupture, quick surgical action is critical, as timely care can greatly improve results and lower the chance of serious complications.

Anesthesiologists encounter extra challenges when treating patients with Parkinson's disease. These patients often take dopaminergic medications that affect autonomic function and complicate anesthetic management. Regional anesthesia, such as segmental spinal anesthesia, presents several benefits in these cases. It can deliver effective pain relief while reducing blood pressure changes linked to general anesthesia. Segmental spinal anesthesia provides targeted pain management while allowing the patient to stay awake and recover faster, making it ideal for frail patients and those with altered mental states.[1-5]

This case report highlights a 75-year-old patient with Parkinson's disease who came in with sepsis and a bowel obstruction. The patient was successfully managed with a combined segmental spinal epidural anesthetic approach during laparoscopic surgery. The details of anesthetic management and patient care regarding Parkinson's disease and sepsis are essential for improving perioperative results.

Case Report:

A 75-year-old patient known hypertensive with Parkinsons disease was admitted with decreased level of consciousness in a hospital of South India. There was a history of fever two days ago. There was no history, of either abdominal pain or cough. On examination, patient was drowsy but responds to pain by moving all four limbs. The heart rate was 110/ minute with a blood pressure of 80/ 50 mm Hg. The cardiorespiratory systems were normal with minimal conducted sounds. The abdomen was slightly distended with decreased bowel sounds. A clinical diagnosis of possible sepsis with gut obstruction was diagnosed. A low dose noradrenaline was started (0.05mic/kg/minute). The oxygen saturation was 88 % on room air. The blood gases showed normal pH with hypoxia. The total count was 33000 with a normal platelet count and coagulation profile. The liver function tests were normal. The blood urea was 57 mg% with a serum creatinine of 2.3; the electrolytes were normal. The patient was started on NIV with 40 % FiO2 after which the conducted sounds disappeared to get saturation coming to normal. The conscious status became better, was able to respond to oral commands with blood pressure coming up to 110/70 mmHg. Hence any invasive ventilation was deferred. The CT scan of abdomen showed ruptured septic gall bladder with unobstructed umbilical hernia. A receding mouth with Mallampati score of IV was found. A high risk informed consent was taken and anaesthesia plan was to try a combined segmental spinal epidural and if in case of any adverse event, a controlled general anaesthesia as plan B was kept in mind. A combined thoracic spinal epidural was administered in T8-9 and T9-10 spaces respectively. In spinal subarachnoid space, 2 ml of bupivacaine with 25 micrograms of fentanyl was given. The level was around T4 above. Laparoscopic cholecystectomy with open umbilical hernia repair was done. (figures 1, 2) the patient was continued on ryles tube aspiration and intravenous fluids with epidural top ups were given for two days till there was definite bowel sounds. Inj, meropenem and metronidazole were given.

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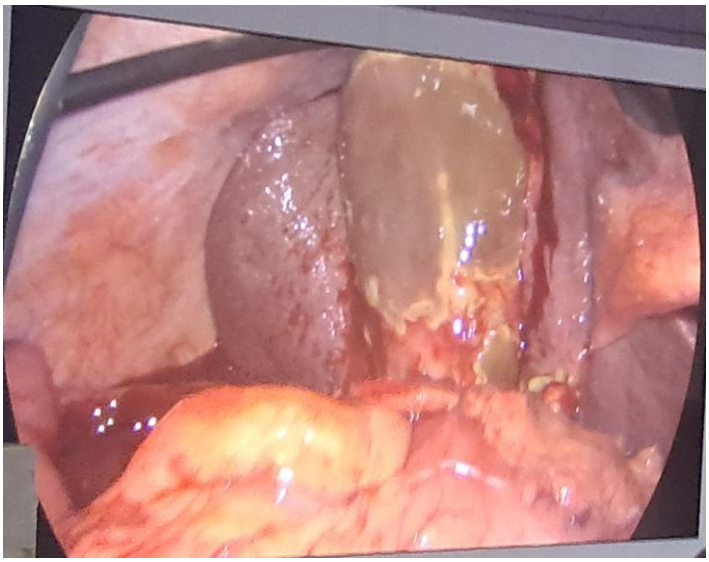

Figure 1 with septic gall bladder

Figure 2 with sutured umbilical hernia with ports

Later, sips of water was switched over to oral diet over a period of 6 -7 days postoperatively. The epidural catheter was removed on day 3. The hemodynamics were stable in the perioperative period and the noradrenaline support was withdrawn on post operative day2. The antiparkinsons drugs were continued throughout the perioperative period. He was discharged on day eight with antiparkinsons drug

Discussion:

This case report shows how combined segmental spinal epidural anesthesia worked well for a 75-year-old patient with Parkinson's disease who needed an urgent laparoscopic cholecystectomy due to a ruptured septic gallbladder. Based on existing literature,our experience provides valuable comparisons and insights into the effectiveness and safety of segmental spinal anesthesia (SSA) in similar surgical settings.

Some studies highlight the successful use of spinal anesthesia in patients with significant co morbid illnesses , pointing out the benefits of regional techniques. Our case supports these findings. Segmental spinal anesthesia decreased the risks related to general anesthesia, especially for older patients with complex medical histories like Parkinson's disease, which can impact respiratory function.

Statistical data from one study shows high effectiveness and safety of thoracic segmental spinal anesthesia in elective laparoscopic cholecystectomy, with minimal conversions to general anesthesia. Similarly, we avoided general anesthesia in our case, opting for spinal anesthesia instead. This approach helped maintain hemodynamic stability and supported a smooth recovery after surgery. Additionally, discussants in another study noted the manageable incidence of complications with spinal anesthesia. In our case, even with the patient's critical condition, perioperative hemodynamics remained stable. This demonstrates that spinal anesthesia can be a viable option for high-risk patients. Our case differs slightly from those in another study, which focused on spinal anesthesia in healthy patients. It highlighted the challenges of using anesthesia in frail or complicated cases. This underscores the importance of timely assessments and customized anesthesia plans, especially for elderly patients or those with neurodegenerative conditions.[6-10]

In conclusion, our case supports the growing evidence for using segmental spinal anesthesia in laparoscopic cholecystectomy for patients with various health issues. It highlights its potential as a preferred method to avoid the risks associated with general anesthesia. Future studies could examine larger groups to further confirm the benefits and complications of this approach in diverse patient populations.

Conclusion:

This case report highlights the successful use of combined segmental spinal epidural anesthesia in a frail 75-year-old patient with Parkinson's disease. The patient underwent urgent laparoscopic cholecystectomy due to a ruptured septic gallbladder. Using regional anesthesia in this high-risk group showed effective hemodynamic stability. It also reduced the complications commonly linked to general anesthesia and helped with a smoother recovery after surgery. Our findings match what the existing literature states. They suggest that segmental spinal anesthesia can be a good option for managing elderly patients with complicated medical histories. More research is needed to further examine its effectiveness and safety across different patient groups.

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Patient consent – Yes

There is no conflict of interest.

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