

Case Report

Laparoscopic Colectomy under Spinal Anesthesia: Case Report

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Introduction and Importance

Laparoscopic procedures have revolutionized surgical approaches, yet they have traditionally necessitated General Anesthesia (GA). This case report presents a compelling instance of a laparoscopic colectomy performed under spinal anesthesia, offering insights into the feasibility and potential advantages of this alternative approach.

Almost all anesthesiologists prefer doing general anesthesia for patients undergoing laparoscopic operations to have good control over respiratory and cardiovascular changes during the operation.

Recently, Regional Anesthesia (RA) has emerged as a comparable option to General Anesthesia (GA) in laparoscopic surgeries.

Case Presentation

A 77-year-old female, with a history of thyroid carcinoma, underwent a laparoscopic right colectomy under spinal anesthesia due to prior thyroid surgery. The procedure, lasting 1 hour and 32 minutes, proceeded without complications, with subsequent six-month follow-ups revealing no postoperative issues.

The history of the patient was total thyroidectomy with partial tracheal resection because of papillary carcinoma of the thyroid.

The patient fasting, Asa2, Sedation was given, oxygen given via mask with a reservoir in the operation room the patient was placed in a prone position, and spinal anesthesia started.

At the start of the anesthesia, the patient received IV fluids, IV analgesics, IV fentanyl, IV midazolam, IV epinephrine, IV dexmedetomidine, spinal fentanyl, and preventive antibiotics.

At the start of the surgery, we were given IV midazolam, IV fentanyl, spinal lignocaine hydrochloride, and epidural fentanyl.

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Citation: Sneineh MA (2025) Laparoscopic Colectomy under Spinal Anesthesia: Case Report. J Surg Curr Trend Innov 9: 63.

Received: May 26, 2025; **Accepted:** June 06, 2025; **Published:** June 13, 2025

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The surgery took 1 hour and 32 minutes.

The operative course was without complications.

After the operation there were no postoperative complications, at six months of follow-up there were no complications.

Clinical Discussion

Laparoscopic procedures rely on creating pneumoperitoneum through intra-peritoneal carbon dioxide insufflation. This technique can induce respiratory, cardiovascular, renal, and neurologic changes. Inferior vena cava compression due to increased Intra-Abdominal Pressure (IAP) results in alterations in venous return and resistance, often accompanied by oliguria. However, upon release of pneumoperitoneum or pneumoretroperitoneum, renal function and urine output typically normalize without long-term sequelae, even in patients with pre-existing renal disease [1].

The intraperitoneal insufflation of carbon dioxide during laparoscopic procedures is associated with increased mean arterial pressure and systemic vascular resistance [2]. Changes in cardiovascular function manifest as an immediate decrease in cardiac index and an increase in mean arterial blood pressure and systemic vascular resistance. Although partial restoration of cardiac index and resistance occurs shortly after insufflation, blood pressure and heart rate remain stable. These changes result from the interaction between increased abdominal pressure, neurohumoral responses, and absorbed CO₂. Pulmonary function alterations include reduced compliance without significant changes in PaO₂, potentially affecting tissue oxygenation due to reduced O₂ delivery. Maintaining normocarbia is challenging due to abdominal distention reducing pulmonary compliance and CO₂ absorption. The complex pathophysiological state induced by CO₂ pneumoperitoneum mirrors that seen in patients with chronic heart failure [3,4].

Regional Anesthesia (RA) offers several advantages in laparoscopic surgery, including reduced emesis, postoperative pain, and shorter hospital stays, leading to improved patient satisfaction and overall safety [5]. Evidence suggests that RA, particularly spinal anesthesia, in awake patients undergoing laparoscopy may result in fewer changes in respiratory mechanics and arterial blood gases. Despite its potential challenges compared to general anesthesia, such as higher technical difficulty, spinal anesthesia is associated with fewer post-surgical anesthesia-related side effects. Additionally, spinal anesthesia in laparoscopic procedures may require lower analgesic requirements post-operation [6,7].

Conclusion

The utilization of spinal anesthesia in laparoscopic colectomy, as evidenced by this case report, underscores its potential as a viable alternative to GA. Nevertheless, comprehensive research is imperative to ascertain the safety, efficacy, and broader applicability of regional anesthesia in major laparoscopic surgeries.

Statements

- Ethics approval is not required, institution name: Shaare Zedek Medical Center.
- Author Guarantor: Dr Midhat Abu Sneineh written informed consent was obtained from the patient for publication and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.
- The work has been reported in line with the SCARE criteria.

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