

Spinal anesthesia is a viable option for emergent laparoscopic procedure in high-risk patients

ABSTRACT

General anesthesia is the gold-standard for laparoscopic procedures. Spinal anesthesia is usually not used and hypotension and impairment of spontaneous breathing are the most feared complications. A 86-year-old patient with a history of stage four chronic obstructive pulmonary disease (FEV1 28%) underwent emergent surgery for acute abdominal pain. A combined spinal-epidural anesthesia was successfully performed, surgery lasted ninety minutes without any surgical difficulties. Patient was discharged from the hospital on the third postoperative day. Our case depicts well how spinal anesthesia may be a viable option for high risk patients undergoing emergent laparoscopic surgery.

Key words: Anesthesia; laparoscopic; spinal anesthesia

Introduction

General anesthesia (GA) is the gold-standard for laparoscopic procedures. However, some concerns could raise when high risk patients with severe comorbidities undergo surgery. SA has been proved to be a safe but without clear advantages procedure in healthy patients during laparoscopic procedures.^[1,2] We are reporting a case of a patient undergoing laparoscopic surgery for acute abdominal pain under spinal anesthesia. To our knowledge, this is the first case of a high risk patient undergoing an emergent surgery under spinal anesthesia.

Case Report

A 86-year-old woman (70 kg, 160 cm) was admitted to the emergency department for acute abdominal pain. A computed tomography was executed showing a ruptured appendix with free abdominal fluid.


She had a history of stage four chronic obstructive pulmonary disease (COPD) (FEV1 28%) and a chronic cor pulmonale. After discussion between surgeon and anesthesiologist, it was decided that a) a laparoscopic approach was desirable in order to avoid a large laparotomic incision necessary to remove the abundant free fluid, and b) a locoregional anesthesia was preferable to avoid pulmonary and weaning complications. In this view, a combined spinal-epidural (CSE) anesthesia was proposed to the patient and a written informed consent was then acquired. On admission to the operating room, the patient was monitored and her vitals recorded: heart rate 80 bpm, non-invasive blood pressure 130/80, Spo2 89%.

Anesthesia was performed at T10-T11 using a CSE set (EpiSpin Lock 18G/27G, Pajunk, Geisingen, Germany). No complication occurred during the procedure, SA was performed with levobupivacaine 0.75% 1.8 mL and sufentanil 5 mcg and the

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epidural catheter was easily placed inside the epidural space for four centimeters, an invasive radial arterial line was then placed.

After five minutes, anesthesia was assessed and judged adequate by pinprick (intermammary line) and surgery started.

Pneumoperitoneum was created at slow speed at 8 mmHg without any discomfort. Surgery lasted ninety minutes without any surgical difficulties.

Patient was sedated with Propofol 1 mg/kg/h during the procedure keeping spontaneous breathing without problems of respiratory acidosis at arterial gas checks. However, noradrenaline 0.2 mcg/kg/min was needed to achieve an adequate blood pressure throughout the procedure but was suspended after 120 minutes since the SA. At the end of procedure, patient was awake and really satisfied from the procedure. Patients was discharged from the hospital on the third postoperative day.

Discussion

GA is the gold standard for laparoscopic procedure. Main concerns regarding SA are the hypotension caused by compression of the inferior vena cava and decreased venous return increased by sympathetic tonus loss and peripheral vasodilation and impairment of spontaneous breathing caused by pneumoperitoneum possibly leading to respiratory acidosis.^[1] Bayrak *et al.*^[3] compared SA and GA for patient with COPD (stage one to three) undergoing laparoscopic cholecystectomy finding out a reduction in pulmonary complications in SA group and a lower discharge time from the hospital without any difference in intraoperative

parameters. In our knowledge this is the first case of a laparoscopic procedure performed under spinal anesthesia in an emergency setting and in a elderly patient with stage four COPD.

Although further studies are necessary to establish safety and advantages over general anesthesia, we believe that our case depicts well how SA may be a viable option. Patient has given her informed consent for the case to be published

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest

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