

# Laparoscopic herniotomy under regional anaesthesia

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This case report is of a laparoscopic herniotomy, performed under combined spinal- epidural (CSE) anaesthesia in a patient with acute exacerbation of bronchial asthma (BA).

**Keywords:** Laparoscopic herniotomy, regional anaesthesia, bronchial asthma

## Introduction

Laparoscopic techniques have rapidly increased in popularity due to the multiple benefits associated with much smaller incisions compared to traditional open techniques<sup>1</sup>. General anaesthesia(GA) with endotracheal intubation, muscle relaxation and controlled ventilation is considered the safest technique of anaesthesia. This protects the airway against pulmonary aspiration, controls CO<sub>2</sub> and aids surgical exposure<sup>2</sup>. The following case describes anaesthetic management of a laparoscopic herniotomy done under combined spinal-epidural anaesthesia(CSE) in a patient with recent acute exacerbation of bronchial asthma(BA).

## Case history

Fifty two year old Mr. AS, a diagnosed patient with bronchial asthma and hypertension was admitted to General Hospital of Mannar, complaining of pain in the right groin for one day. He was diagnosed to have a right inguinal hernia about three months back. He had no nausea, vomiting or altered bowel habits and the surgeon planned for a laparoscopic herniotomy and repair.

He gets moderate, frequent episodes of BA and the last episode appeared one week back following an upper respiratory tract infection. On admission he was on steroid and bronchodilator inhalation and was mildly

dyspnoeic. He was on losartan sodium 25mg twice daily for hypertension.

Past surgical history and allergic history were uneventful. He was a smoker and an alcoholic. On examination he was dyspnoeic, afebrile and not pale. Respiratory rate was 18 breaths/min. There were rhonchi over both lung fields. No crepitations were detected. Cardiovascular system examination was normal with blood pressure of 150/90mmHg. Abdominal examination revealed an irreducible hernia in right inguinal region without signs of intestinal obstruction.

Though the case warranted postponement based on need for control of recent acute exacerbation of BA, surgeon was keen to proceed. This was due to poor compliance of the patient and the risk of intestinal obstruction. So we planned to proceed under CSE.

Preoperative optimization was done with nebulisation with salbutamol three times per day and continuation of antihypertensive drugs till morning of surgery. Procedure was explained to the patient with the problems and the benefits and consent for surgery and anaesthesia was taken. Ranitidine and metoclopramide was given as acid aspiration prophylaxis.

CSE anaesthesia was performed at L3-L4 interspace level under strict aseptic technique. 0.5% hyperbaric bupivacaine 2.75 ml with 12.5 micrograms of fentanyl was given to the subarachnoid space. Patient was positioned carefully to achieve a sensory level of T6. Preoperative SpO<sub>2</sub> was 95% on air. Oxygen 4L/min was given via the face mask during surgery and SpO<sub>2</sub> was maintained between 96-98%. PR, BP, SpO<sub>2</sub> and ECG were monitored continuously and maintained within normal range. Patient was comfortable lying down supine with slight head down tilt. Verbal contact was maintained throughout the surgery. He complained of abdominal discomfort during gas insufflations, which surgeon managed to control by lowering the insufflation rate.

Surgery lasted 90 minutes without complications. Patient was observed in the recovery area for half an hour and sent to the ward. He was kept in propped up position and oxygen, nebulisation with salbutamol and chest physiotherapy were continued.

Epidural top ups were given twice postoperatively with 6ml of 0.1% bupivacaine and 2micrograms/ml of fentanyl. Following day he was comfortable and epidural catheter was removed. He was discharged from the hospital with regular dose of paracetamol for pain relief and with advice to continue antihypertensive and bronchodilator treatment.

### **Discussion**

Laparoscopic surgery for a patient with pulmonary disease is a challenge for the anaesthetist. Creation of the pneumoperitoneum is the main problem which causes pulmonary complications. Pneumoperitoneum reduces functional residual capacity and pulmonary compliance and increases airway pressure and ventilation/perfusion (V/Q) mismatch<sup>3</sup> which is difficult for the conscious patient with

respiratory disease to tolerate. This is the reason for use of GA in laparoscopic surgeries so that the patient's ventilation can be controlled. A sensory level of T<sub>4</sub> – T<sub>6</sub> with CSE anaesthesia avoids the above mentioned problems.

One other complication of laparoscopic abdominal surgery without GA is that the abdominal wall relaxation is inadequate to allow visualization of the abdominal contents<sup>4</sup>. Sensory level of T4-T6 will provide adequate abdominal wall relaxation.

The patients can be awakened and oriented shortly after cessation of modern anaesthetic drugs following GA. But these agents do not facilitate postoperative analgesia or an emesis free recovery, two important problems associated with laparoscopic surgery<sup>5</sup>. These are not seen with regional anaesthesia(RA) and especially post-operative pain is treated with epidural top ups. However the scope of the RA depends on the creativeness of the surgeon and the anaesthesiologist and the patient acceptance<sup>5</sup>. So, the ability of the patient to withstand intraoperative complications should be assessed preoperatively.

### **Conclusion**

Laparoscopic surgeries can be performed under RA with careful achievement of adequate sensory level in co-operative patients and with the co-operative surgeon.

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