

Report of Open Cholecystectomy in Two Obese Patients with Severe Lung Disease under Awake Thoracic Epidural Anaesthesia

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Abstract

We report 2 cases of cholecystitis and cholelithiasis in patients with obesity, chronic obstructive pulmonary disease, American Society of Anaesthesiologists classification IV, that they were treated with open cholecystectomy. In both cases, successful open cholecystectomy was performed, under thoracic epidural anaesthesia, and the patients recovered uneventfully.

Keywords: Cholecystectomy; Chronic obstructive pulmonary disease

Introduction

Thoracic epidural anaesthesia is commonly used for everyday procedures. After major abdominal surgery, thoracic epidural anaesthesia results in pain free ventilation and increases the abdominal ventilation, resulting in a lower incidence of postoperative complications [1,2]. There is a lack of data in the literature regarding open cholecystectomy being performed under epidural anaesthesia alone, especially in patients who are deemed at high risk for general anaesthesia. In this case report, we describe two cases of awake open cholecystectomy in two high-risk surgical patients performed under thoracic epidural anaesthesia.

Case Report

The patients were 78-years-old and 80 years-old, American Society of Anaesthesiologists classification IV, both male, weighed 105 and 120 Kg respectively. They were admitted to the emergency room with intermittent sharp and dull pain to their right lower quadrant. Their medical history included obesity, decrease cardiac output, chronic obstructive pulmonary disease, dyspneic on minimal exertion, hypertensive and a room oxygen saturation of 87-90% which improved with supplemental oxygen. Axial CT image showed in both cases multiple low-attenuation areas of emphysema. The percentage of predicted FEV1 was 45.6% and 40.8% respectively.

The patients were premedicated with 1 mg of midazolam intravenously before the procedure. Continuous pulse oximetry, blood pressure cuff and electrocardiographic monitoring were performed. The patients were placed in seated position. A nasogastric tube was inserted. For epidural anaesthesia, a midline approach was used under complete aseptic preparation. Local anaesthesia (2% lidocaine 2 ml was injected into the skin. An 18-gauge Tuohy needle was introduced at T11/T12 intervertebral space. The epidural space was identified using the loss of resistance technique and an epidural catheter was passed through the needle. The Aspiration test for subarachnoid and intravascular placement was negative. A test dose of 2% lidocaine 2 ml was administered through the epidural catheter with no change on sensorimotor examination. Epidural anaesthesia was established with 12 ml bupivacaine 0.5% and 0.05 mg Fentanyl. The patients remained hemodynamically stable during the surgery. The surgery was completed in approximately 2 hours. Half an hour before the end of surgery was given 2 mg epidural morphine for postoperative coverage requirements. Postoperative analgesia was satisfactory and the patients remained calm in the postoperative period.

Discussion

The steep head-down position in an anesthetized patient results in atelectasis and sometimes hypoxemia due to decreased functional residual capacity. With induction of anesthesia, the increased central blood volume, cephalad displacement of the diaphragm, and the weight of the abdominal contents impeding diaphragmatic excursion reduces pulmonary vital capacity. As a result of these changes, impedance of the chest wall and lung increases, an effect which is more pronounced in elderly and obese patients [3]. Respiratory failure in morbidly obese patients is associated with greater in-hospital mortality after bariatric surgery [4]. Patients under regional anesthesia usually develop fewer pulmonary complications than those under general anesthesia [5]. Regional block such as low thoracic epidural, spinal, and combined spinal-epidural blocks have been used in patients with relevant medical problems [6-8]. There are several advantages to using regional anesthesia for bariatric surgery in both cases. First, preoperative pulmonary function parameters may be maintained throughout the surgery [9-11]. In contrast, pulmonary function parameters may not return to preoperative levels until the seventh postoperative day in patients receiving general anesthesia [12]. Thoracic epidural anaesthesia and analgesia can decrease the incidence of postoperative morbidity and mortality. Thoracic epidural anaesthesia improves postoperative analgesia, resulting in increased patient satisfaction [13,14]. However, awake thoracic epidural anaesthesia as the sole anaesthetic technique was successfully employed for risk surgical patients with chronic obstructive pulmonary disease undergoing abdominal surgery, regarding postoperative pulmonary infections, better pain relief and faster return of bowel activity.

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