

Thoracic Epidural Blockade In An Elderly With Achalasia Due To Scleroderma For Thoracotomy, Esophageal Myotomy And Cystotomy-Capitonnage

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Citation

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Abstract

A 82-year-old man was hospitalized for achalasia unresponsive to pneumatic dilations. Preoperative CT imaging revealed the dilated esophagus in addition to multiple left lung hydatid cysts. The present case describes the perioperative anesthetic management of a patient with achalasia due to scleroderma undergoing continuous thoracic epidural blockade using 10 mL of Bupivacaine 0.5% + 50µgr Fentanyl combined with 1.5 % Sevoflurane in % 60 Air + 40 % Oxygen without neuromuscular blockade and without intravenous opioids for left thoracotomy, myotomy and cystotomy-capitonnage for cysts were carried out at the same session. This anesthetic technique provided good intra-operative relaxation followed by an uneventful recovery and eliminated the need for other postoperative analgesics.

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INTRODUCTION

Scleroderma (systemic sclerosis) is a chronic, systemic disease that targets the skin, lungs, heart, gastrointestinal tract, kidney and musculoskeletal system. The disorder is characterized by three features: 1-tissue fibrosis, 2- small blood vessel vasculopathy, 3- a specific autoimmune response associated with autoantibodies. It may cause delay in wound improvement. Scleroderma is classified into two major subsets which are distinguished by the extend of skin thickening limited and diffuse cutaneous scleroderma. The CREST syndrome is an acronym for subcutaneous calcinosis, Raynold's phenomenon, esophageal dysfunction, sclerodactyly and telangiectasia that is anticentromere antibodies (Fredrick M.W., 2000). In this article we report a case with achalasia due to scleroderma and multiple left lung hydatid cysts which we performed thoracic epidural blockade in combination with general anesthesia with air-oxygen, and sevoflurane without neuromuscular blockade and without intravenous opioids.

CASE REPORT

A 83-yr-old, 59-kg, 165-cm, male patient was hospitalized for achalasia unresponsive to pneumatic dilations. In his

preoperative evaluation he has received 2 times local anesthesia for cataract and 1 time spinal anesthesia for benign prostate hypertrophy. He has past pulmonary tuberculosis story. In physical examination there was excessive weight loss, restrictiveness in mouth, telangiectasis in nose and evident sclerodactyly in hands. Abnormal laboratory findings have been given below.

Hb:9.9g/dL, Hct:31%, Sedimentation:73mm/h. ENA screening:Scl-70(positive), ANA: (positive).

He had a forced vital capacity of (FEV1) 2 L. Arterial Blood Gases were: pH:7.5 PO₂: 95.0 mmHg PCO₂: 38.5 mmHg.

CT imaging revealed the dilated esophagus in addition to multiple left lung hydatid cysts.

Echocardiography: Minimal pericardial effusion.

The patient was transported to the operating room in a semi-upright position with supplemental oxygen. His pulse 88/minute, his blood pressure 124/76 mmHg and his peripheral O₂ saturation was 92 %. Premedication was limited to 1 mg intravenous Midazolam in the operating room. Under appropriate monitoring and after determining T11-12 epidural space using loss of resistance technique, 10 ml of Bupivacaine 0.5% + 50µgr Fentanyl was administered epidurally; an epidural catheter was also inserted before

anesthesia induction. After preoxygenation, manual ventilation was tested with 50 mg Ketamin + 50 mg Propofol. Laryngoscopy was performed with 50 mg Ketamin + 50 mg Propofol without using a muscle relaxant and preserving superficial respiration. Tracheal intubation was performed by 39F left-sided double-lumen tube. Intubation was checked and ventilation was successful. Anesthesia was maintained by with 1.5 % Sevoflurane in % 60 Air + 40 % Oxygen without neuromuscular blockade and without intravenous opioids.

Intraoperatively, blood pressure ranged between 105/65 mmHg and 110/60 mmHg, heart rate ranged between 75 and 87 bpm. Arterial blood gases were within normal limits. The duration of surgery was 4.5 h. The patient was underwent left thoracotomy and myotomy for achalasia and the cystotomy-capitonnage for cysts were carried out at the same session.

On completion of surgery the Sevoflurane were discontinued. Twenty minutes after discontinuation of anesthesia, the patient started to breathe spontaneously, to respond to painful stimuli, and to buck on the tube. The patient was extubated and transferred, as fully awake and cooperative, to the intensive care unit (ICU) to provide postoperative analgesia via thoracic epidural catheter and monitor closely a further time postoperatively. He did not report pain or awareness during surgery. Spontaneous ventilation and coughing reflex were adequate. Arterial blood gases were within normal limits. The combination of Bupivacaine 0.0625% and Fentanyl 0.0002% was used through thoracic epidural catheter at the rate of 4 ml hourly. The patient did not complain of muscle weakness and was able to perform respiratory physiotherapy exercises. Pain relief was assessed every 3 hours on a visual analog scale ranging from 0 (no pain) to 10 (unbearable pain). The collected scores during the first 24 hours were between 0 and 2. In the ICU, his blood pressure and heart rate were normal limits during the first 24 hours. The patient maintained spontaneous breathing easily with a good arterial blood gases. The patient was discharged from the intensive care unit on day 3., and from the hospital on day 9. Postoperative period was uneventful and no recurrence was seen in a period of 6 months.

DISCUSSION

Scleroderma is a connective tissue disease which involves skin, lung, gastrointestinal system and kidneys. It is an autoimmune disorder and causes vascular damage especially

in capilleries and small arterias (Fredrick M.W., 2000).

Achalasia and scleroderma account for the majority of surgical procedures performed for motility disorders. Achalasia usually occurs as an isolated finding while scleroderma is part of a generalized collagen – vascular disorders.

The anesthesiologist should understand these complex pathophysiological processes so as to minimize potential risks, including aspiration and other pulmonary complications. In addition, the potential for reduced renal function and intraoperative hypothermia-induced vasospasm must be considered (Benumof J.L. and Alfery D.D,2000).

Regardless of the procedures, the major anesthetic consideration for patients with esophageal disease is the risk of pulmonary aspiration (D'Eramo C. et al., 1986). Dyspnea on exertion may also be prominent when chronic aspiration results in pulmonary fibrosis. Patients may additionally present with anemia and weight loss. Patients with scleroderma should be evaluated for involvement of other organs, especially the kidneys, heart and lungs; Raynaud's phenomena is also common.

Consideration should be given to administering metoclopramide, an H2 bloker, or parietal cell, proton-pump inhibitor preoperatively; awake nasogastric suctioning may also be helpful in decreasing the risk of aspiration. The patient should be transported to the operating room in a semi-upright position with supplemental oxygen. Anxiety was prevented providing sedation with midazolam before anesthesia induction.

The goal should be a smooth induction maintaining spontaneous ventilation and hemodynamic stability. We used intravenous Ketamine and was provided greater hemodynamic stability in our patient with reduced cardiac output. With the patient in a semi-upright position a rapid-sequence induction with cricoid pressure has used. Minimal intravenous opioid use is recommended, again to allow early postoperative extubation. And, more importantly, we provided an effective analgesia in both intraoperative and postoperative period with epidural block. Although usually in most cases the risk of aspiration likely diminished following surgery, patients should generally be extubated only when fully awake.

The anaesthetist should be aware of the difficulty in opening mouth wide enough for laryngoscopy and intubation, the

possibility that cardiopulmonary changes may be present and the probability of lesions in oesophagus, bowel, kidneys, skin and joints (Upadhyaya M. et al., 2002).

However, there have not been yet any reports on epidural anesthesia in combination with sevofurane anesthesia without neuromuscular blockade and intravenous opioids for left thoracotomy, myotomy and the cystotomy-capitonnage in achalasia due to scleroderma in the publications (Kozian A. et al., 2005; Greengrass R.A. et al., 2003; Roberts J.G. et al., 2002; Bailey A.R. et al., 1999; Wilkes N.J. et al., 1999; Gelfand M.D. and Christie D.L., 1979; Clifford D.H. et al., 1977). This currently described anesthetic technique avoids muscle relaxants and provides an excellent intubating and operating conditions with effective analgesia into the postoperative period, preserves the function of diaphragm and allows earlier extubation. Non-relaxant techniques are a recognised method of anesthesia in achalasia due to scleroderma. Thoracic epidural analgesia is ideal in this situation because of its potent intravenous analgesic effects, the ability to the risks of respiratory failure or aspiration despite surgery lasting and aspiration of retained food in the esophagus at the time of induction of anesthesia and perforation of the esophageal mucosa are the most common operative complications (Creagh-Barry P. et al., 1988). In addition, the avoidance of potent volatile techniques reduced the risk of postoperative nausea. Having demonstrated on the first occasion the safety of the technique, we were able to avoid the delays associated with the need for critical care facilities. In this case, we report a new anesthetic management of a patient with achalasia due to scleroderma for left thoracotomy, myotomy and cystotomy-capitonnage non-relaxant and non-intravenous analgesic with thoracic epidural blockade to provide analgesia in both intraoperative and postoperative period. This afforded excellent control of heart rate and pressor responses during surgery allowed early return of spontaneous ventilation and extubation within twenty minutes after discontinuation of anesthesia.

Advantages and disadvantages of this approach versus relaxant and volatile techniques are discussed with particular reference to preservation of neuromuscular function. After surgery these patients have an increased risk of pulmonary complications. In general, especially in thoracic surgery patients in whom ventilation difficulty expected postoperatively, we changed the perioperative anesthesiological procedure using inhalation with Sevoflurane and epidural patient-controlled analgesia in the

first two days after surgery. This management allows a fast extubation and improves lung function postoperatively. Since the sclerodermic patients having thoracic surgery tend to respiratory complications, postoperative analgesia in these is more important than in the others.

In addition, in our case, we performed epidural anesthesia with reduced doses of Bupivacaine to avoid high blood levels. Similarly, the safe and successful use of thoracic epidural blockade with Bupivacaine for intraoperative anesthesia and postoperative analgesia for thoracotomy, myotomy and the cystotomy-capitonnage in achalasia due to scleroderma has been reported recently.

In conclusion, the addition of thoracic epidural anesthesia to Sevoflurane based inhalation may be a suitable technique for thoracic surgery in achalasia due to sclerodermic patients. It can provide a smooth anesthesia course and a rapid recovery, with hemodynamic stability, and also having pain-free postoperatively. In addition, the anesthesia without neuromuscular blockade and non-intravenous opioids has provided a shorter recovery time.

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