

Case Report

Open reduction and internal fixation of fracture femur in a patient with severe ankylosing spondylitis utilizing continuous caudal epidural anaesthesia

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ABSTRACT

We describe a patient with severe ankylosing spondylitis scheduled to undergo open reduction and internal fixation. We emphasise on alternative anaesthetic management in view of non-availability of fiberoptic bronchoscope and unwillingness of patient to go to higher centre. Regional (continuous caudal epidural) anesthesia has been used as technique of choice.

Keywords: Ankylosing spondylitis, Caudal, Epidural

INTRODUCTION

Although the difficulty of performing successful neuraxial block in ankylosing spondylitis is generally accepted and some consider regional anesthesia to be contraindicated in these patients, but the possibility of regional anesthesia particularly caudal epidural cannot be precluded, because access to the caudal canal through sacral hiatus is feasible even in long standing disease.^{1,2}

CASE REPORT

A 52 year, 160cm male, American Society of Anesthesiologist III with history of ankylosing spondylitis was posted for open reduction and internal fixation of fracture shaft femur (right). He was taking treatment in the form of nonsteroidal anti-inflammatory drugs and /or steroids intermittently depending upon the severity of his symptoms for the last six years. Presently, he was off the medications for three months. Rest of his history was unremarkable except that he required three pillows to support his head (Figure 1). Physical

examination suggested the presence of severe cervical spondylitis along with thoracolumbar spine involvement. Chest expansion was limited to 2.5 cm and room air oxygen saturation being 94% apart from this CVS and respiratory system was normal. His neck movements were limited with side to side mobility, minimal flexion and negligible extension. His negligible movements were restricted with minimal flexion, negligible extension and side to side mobility. Pertaining to airway assessment, modified mallampati score could not be assessed because of limited mouth opening. Patient was unable to perform upper lip bite test. Interincisor gap and thyromental distance were 3cm and 4cm respectively.

All routine investigations were normal. X-ray cervical spine revealed loss of cervical lordosis. Radiograph of lumbosacral spine showed resorption of the anterior surface of vertebral bodies, posterior joints involvement, calcification and ossification of posterior ligaments.

We opted for combined spinal epidural/ continuous epidural for this patient and the second option being

getting the surgery done under general anesthesia with laryngeal mask airway, because of nonavailability of fiberoptic bronchoscope.



Figure 1: Patient of ankylosing spondylitis.

The patient was premedicated with tablet ranitidine 150mg, tab diazepam 2.5mg the night before and in the morning with a sip of water 2 hours prior to surgery. Patient was shifted to OT with head supported on pillows. Routine monitoring was attached. After preloading with 250 ml of ringer lactate, patient was given left lateral position undercover of 50µg of i.v. fentanyl. Under all aseptic precautions, few attempts of finding epidural space were made using 18 G tuohy needle, but of no use. Even subarachnoid space by median, paramedian and Taylor's approach could not be identified.

The last option was to put the epidural catheter through caudal approach. The sacral canal was entered with 18G tuohy needle and space confirmation was done by whoosh test (injection of air into the caudal epidural space with simultaneous auscultation over the thoracolumbar spine). After negative aspiration for CSF and blood the 18 G epidural catheter was threaded in the space and advanced till 15cm mark, three cc of 1.5% lignocaine with adrenaline (1:200000) was injected through the epidural catheter, without adverse effects. After proper fixation of the catheter the patient was turned supine and 12 ml of 1.5% lignocaine with adrenaline was injected slowly through catheter.

After 15 minutes, sensory block was upto T₁₀ so surgeon was allowed to proceed. Patient was positioned in the left lateral position with supported head and neck. After one hour, infusion of bupivacaine 0.5% started at the rate of 10ml/hr. Surgery lasted for two hours during which patient was oxygenated with ventimask at 4 Lt/min. Patient remained hemodynamically stable throughout the surgery. Intraoperative blood loss was approximately 300ml. At the end of surgery 3mg morphine was injected along with 10ml of 0.125% bupivacaine through the catheter along with i.v. ondansetron 4mg. The catheter was removed at the end of surgery because of poor hygiene. Postoperative period was uneventful.

Patient was on infusion paracetamol eight hourly as per the institution protocol along with second rescue analgesic injection tramadol 2mg/kg, intravenously, whenever required. Patient was comfortable in the postoperative period with no adverse sequelae of technique.

DISCUSSION

Ankylosing spondylitis is a progressive form of autoimmune inflammatory arthritis leading to fusion of vertebrae and sacroiliac joint. Anesthetic consideration includes patient's anesthetic preference, airway maintenance problems, postoperative pain, neurologic sequelae and technical consideration for neuraxial block.¹

Neuraxial blocks are technically difficult, due to difficulty in positioning the patient, obliteration of interspinous space and limited articular mobility.

Taylor's approach has been used successfully in a patient of ankylosing spondylitis with severe lumbosacral deformity posted for percutaneous nephrolithotomy.² Many studies illustrate the efficacy of epidural and combined spinal epidural in these patients.³

Nowadays, ultrasound may also be a useful preoperative assessment tool for assessing the feasibility of central neuraxial blockade when technical difficulty is anticipated.⁴ Caudal approach for epidural catheter placement in AS patient has been reported in few cases.⁵

CONCLUSION

With titrable block, less hemodynamic changes and postoperative analgesia continuous caudal anesthesia remains invaluable option for AS patients, especially when facilities for doppler ultrasound are unavailable. As the technical difficulty of spinal and epidural needle placement via median and paramedian approach is well documented in patients with ankylosing spondylitis and the risks of caudal anesthesia are unlikely, and manageable as compared to general anesthesia. Titrable block, less hemodynamic changes and postoperative analgesia are other useful advantages of continuous epidural block through caudal approach.

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