

Ultrasound assisted epidural analgesia and anaesthesia for labour pain and Caesarean section in an obese patient with chronic ankylosing spondylitis

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Citation

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Abstract

Managing a case of severely affected ankylosing spondylitis is a great challenge for the anaesthetist, as it possesses lots of problems associated with it. Airway management and neuraxial procedure may prove to be technically difficult. Use of neuraxial block in a patient with chronic Ankylosing spondylitis is controversial. We describe the anaesthetic management by epidural analgesia and anaesthesia of a patient with Ankylosing spondylitis for labour pain and Caesarean section. The use of ultrasound for epidural placement during labor and C-section significantly reduced the number of failures in all patients and improved the ease of the procedure in obese patients. (1)(2) We suggest that an obese patient with chronic Ankylosing spondylitis and obscure anatomical landmarks may be successfully managed by epidural analgesia and anaesthesia for labour pain and Caesarean section using ultrasound scan of the spinal column.

INTRODUCTION

Ankylosing spondylitis (AS) is a form of chronic inflammation of the spine and the sacroiliac joints that causes pain and stiffness in and around the spine. Over time, chronic spinal inflammation (spondylitis) can lead to a complete cementing together (fusion) of the vertebrae (Ankylosis) that leads to loss of mobility of the spine.

Women with ankylosing spondylitis in general have healthy babies and they carry them to full term. There was no difference in the rate of natural abortion or stillbirth than would be expected in women without ankylosing spondylitis.

However, Caesarean section was performed more often than among women without AS. AS was reported as the reason for caesarean section. (4)

CASE REPORT

A 39-yr-old primigravida of 38 weeks gestation was admitted to a maternity unit with symptoms of early labour and draining pinkish liquor. Internal examination revealed that she was 2 cm cervically dilated. She weighed 130 kg and was 160 cm tall.

On booking it was noticed that she had elevated blood pressure as well as raised urinary protein (+1). She had never

suffered from any pre-eclampsia symptoms.

She had had a 21-year history of ankylosing spondylitis. She was treated intermittently according to her symptoms with nonsteroidal anti-inflammatory drugs (NSAIDs) until she reached 35 weeks gestation.

Discontinuation of her NSAIDs treatment resulted in experiencing more discomfort through severe pain in her neck, spine, ribs and pelvis.

She had poor exercise tolerance, and often sleeps in a more upright position.

The patient attended the anaesthetic assessment clinic prior for her admission.

Physical examination revealed a mouth with full set of teeth, good mouth opening, restricted neck movement (side to side, flexion and extension – merely 5-10 degrees) with normal temporomandibular function. Her Mallampatti grade was II. The thyromental and hyomental distances were within normal limits.

On palpation it was difficult to feel the spinous process to determine the entry point for epidural.

Previous X-rays revealed a loss of lumbar lordosis,

kyphoscoliosis in the cervical and thoracic region with apparently normal intervertebral space.

An anaesthetic plan was outlined for pain relief during labour and in the event of a caesarean section being required.

Entonox was tried for the early stage of labour but was discontinued due to nauseating symptoms that the patient experienced. A total dose of 200mg of Pethidine had resulted in very little improvement in her experience of labour pain.

The patient refused to have Remifentanyl Patient-controlled Analgesia, as she was concerned about the affect it might have on her breathing. An option of an epidural anaesthesia for labour pain relief was accepted.

Paramedian sagittal ultrasound scanning of the spinal column starting at the crease between the buttocks and moving the probe cephalad and slightly angled toward the midline had shown the characteristic picket-fence pattern of the spinous processes.

The midline and the entry point were identified at the level of L3–4 vertebrae but it was difficult to recognise ligamentum flavum.

In sitting position and under aseptic consideration, 10mls of 1% lignocaine was infiltrated into the skin and subcutaneous tissues.

By using Doughty's technique, 16G Tuohy needle and loss of resistance to normal saline 0.9%, the epidural space was located at a distance of 11 cm depth on the first attempt.

An epidural catheter was threaded to 15 cm of length. Good pain relief was obtained through the first and second stage of labour. Augmenting the labour with intravenous syntocinon infusion failed. An emergency caesarean section commenced after an epidural top up with 20 mls of 2% lignocaine with 1:200000 adrenaline and bicarbonate.

A sensory block was achieved to T6 level to cold and touch on both sides.

A healthy baby weighing 3750g was delivered by caesarean section

DISCUSSION

AS is a painful, progressive, rheumatic disease. It mainly affects the spine but it can also affect other joints, tendons and ligaments. Other areas, such as the eyes, lungs, bowel, skin and heart can also be involved.

Ankylosing means fusing together. Spondylitis means inflammation of the spine. Both words are Greek in origin. So, AS describes the condition by which some or all of the joints and bones of the spine fuse together. Entire fusing of the spine is unusual. Many people will only have partial fusion, sometimes limited to the pelvic bones. (6)

AS may affect the rib joints and the muscles between the ribs making breathing, sneezing or coughing painful. As a result, the lungs fail to become fully ventilated. (6)

In more severe cases of AS the chest wall may become quite fixed and affect air entry in and out of the lungs. Large meals and smoking will increase the effort of breathing.

However, the medical management of the disease has improved with the use of anti-tumour necrosis factor- α agents.

Both airway management and neuraxial access may prove to be difficult.

Regional anaesthesia is a valuable option if the site of surgery is appropriate. Although, it may be technically difficult, due to calcification of interspinous ligaments, formation of bony bridges between the vertebrae, or ankylosis of the vertebral column with restriction in lumbar flexion.(8)

Continuous improvement, increased affordability and as practitioners develop expertise with ultrasound imaging. This technique will have an expanded role in guiding obstetric anaesthesia procedures. (3)

Spinal anaesthesia both by midline and paramedian approach has been used for perineal and lower limb surgery of patients with AS with a success rate of 76.2%. Epidural anaesthesia may also be successful but with high failure rate. (7)

The trend has been to deal with the airway challenge, and avoid neuraxial anaesthesia. In many cases this may lead to unnecessarily denying the patient neuraxial anaesthesia. (7)

Pregnancy has no major effect on ankylosing spondylitis symptoms except for iritis and non-spinal arthritis. In both these, people felt fewer symptoms when pregnant. (4)

Women who had active disease before pregnancy were more likely to have a flare after the birth of their child. (4)

NSAID's should be avoided in the last 6 weeks of pregnancy as there is a risk of the baby having bleeding and an

increased risk of premature constriction of the ductus arteriosus.(5)

After discussion with gynaecologists and the patient about the potential risks and benefits of general anaesthesia (in case of emergency) compared with regional anaesthesia in this case, it was decided to set up an epidural initially for labour pain relief which we may benefit from it in case of emergency.

We achieved our goal by simple epidural technique guided by ultrasound imaging which helped identifying the anatomical landmarks and the epidural space at the first attempt, since multiple punctures increase the risk of postdural puncture headache, epidural haematoma and neural trauma.

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