Case Report

Horner's syndrome and weakness of upper limb after epidural anaesthesia for caesarean section

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Access this article online

Website: www.ijaweb.org

DOI: 10.4103/0019-5049.139012

Quick response code

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ABSTRACT

Horner's syndrome is not rare during labour epidural analgesia or in pregnant patients receiving epidural anaesthesia for caesarean section as thought previously. It occurs due to blockade of sympathetic fibres supplying the eye and face area. Most of the times it is a benign and self-limiting condition; however, it may become a serious systemic manifestation. We present a case where patient had weakness of upper-limb and Horner's syndrome of same side with visual disturbances. These symptoms were transient and resolved spontaneously without any treatment.

Key words: Epidural, Horner's syndrome, labour-analgesia

INTRODUCTION

Epidural analgesia is a common and standard technique for relief of labour pain. It is a safe technique; however, occasional complications like Horner's syndrome may occur.[1] It is a benign condition normally but may also reflect presence of a variety of acute neurological conditions that may require urgent intervention to prevent permanent damage.[2,3] We present report of a patient who developed weakness of right upper-limb and Horner's syndrome during epidural anaesthesia. We discuss possible causes of this coincidental observation which was short lived and did not require further investigation or treatment.

CASE REPORT

A 27-year-old (74 kg, 160 cm) female patient, primigravida with no co-morbid conditions was admitted to labour room in active labour and requested pain relief. Examination revealed adequate pelvis, 3.5 cm cervical dilatation with good effacement (approximately 80%). Epidural analgesia was administered by inserting 18G epidural catheter at L3/L4 interspace in sitting position using loss of resistance to saline technique, and fixing-up the catheter at skin keeping 5 cm in epidural space.[4] After negative aspiration of catheter for blood or cerebrospinal fluid, 3 mL test dose of 0.25% bupivacaine was given.[4] After 5 min when subarachnoid injection was ruled out (sensory or motor effects in lower limbs), 9 mL 0.125% bupivacaine was given and infusion of 0.08% bupivacaine with fentanyl (1.66 μg/mL) was started at the rate of 10 mL/h. Initial visual analogue scale (VAS) score (VAS 0-10, 0 = no pain and 10 maximum pain) was 10/10 and after 20 min it was 5/10 and after 30 min it came down to 3/10. She had good pain relief and progress during next 4 h. During 5th h decision for operative delivery was taken due to signs of foetal distress. Epidural infusion was stopped (after 4 h and 18 min of initiation) and patient was shifted to operation theatre. Oxygen 3 L/min with nasal cannulae was started, monitors for electro cardio-graphy, non-invasive blood pressure and oxygen saturation (oximeter) connected and 16 mL, 2% lignocaine with adrenaline (1:200, 000) was slowly injected through epidural catheter after negative aspiration. After cleaning and draping sensory block level was tested (at 12th min) and incision was given as pinprick sensations were absent till sub-costal margin. On deeper dissection patient complained of pain and

How to cite this article: Jadon A. Horner's syndrome and weakness of upper limb after epidural anaesthesia for caesarean section. Indian J Anaesth 2014;58:464-6.

intravenous ketamine - 25 mg and midazolam - 1 mg were administered and 4 mL lignocaine with adrenaline (1:200,000) was given through epidural catheter. No other supplementation was required and baby delivery was comfortably performed. Neonatal status was satisfactory and paediatrician decided to shift the baby to nursery as per the protocol. Before that when baby was shown to mother, she was unable to hold her baby with her right hand and we noticed congestion, ptosis and miosis on right side. She also complained of blurring of vision and became very anxious and restless due to weakness in her right arm and difficulty in focusing. Power in left upper-limb was normal. Reassurance was provided and intravenous injection of midazolam 2 mg administered for sedation. Vitals remained stable except for two episodes of hypotension (blood pressure - 89/54 mm Hg and 90/50 mm Hg) late in intraoperative period and managed with 6 mg injection mephentermine. After 45 min, at the end of surgery neurologist's opinion was sought. There was tingling sensation on the dorsum of hand but no sensory loss. The power in proximal muscles (arm and forearm) was normal; there was improvement in hand grip with some weakness, vision was normal, anhydrosis of right eye was present, and ptosis in right eye was also improving [Figure 1]. In view of clinical improvement it was decided to continue observation and patient was shifted to post-operative recovery room. The block level tested with pinprick was up to T8 on both sides. In next 30 min all the symptoms recovered completely. Patient was re-examined by neurologist in postoperative ward after 8 h after fully recovery from spinal anaesthesia. Postoperative analgesia was maintained with intravenous injection paracetamol 1 g infusion 8 hourly. Epidural analgesia with bupivacaine and morphine mixture was started after neurological examination was performed. Epidural catheter was kept for 2 days and 3 mL 0.125% bupivacaine and 3 mg morphine was given whenever VAS score was >3. Postoperative course was uneventful except for one episode of vomiting within first 24 h, which was treated by injection ondansetron 4 mg. Patient was advised magnetic resonance imaging to rule out any spinal cause for this event, but she refused due to financial constraints.

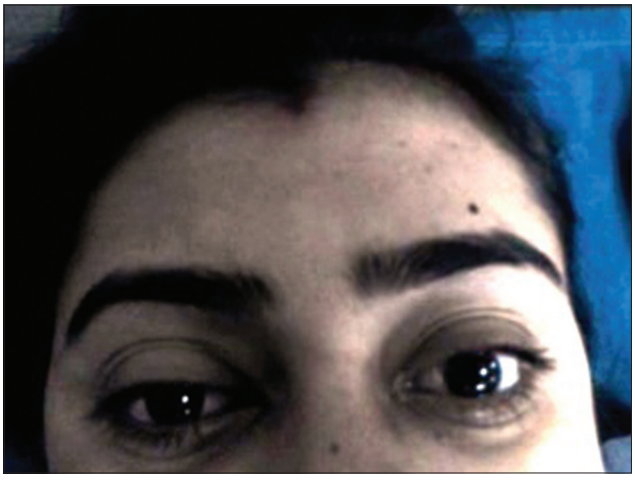

Figure 1: Mild ptosis of right eye; patient recovering from Horner's syndrome

DISCUSSION

Horner's syndrome, a triad of miosis, ptosis, and enophthalmos, occurs when the sympathetic nerve supply to face/eye is interrupted. Sympathetic preganglionic fibres of face and eye originate from the anterior horn cells of C8 and T1, and occasionally as low as T4. These are small fibres and very sensitive to even very low concentration to local anaesthetics. It is easy to understand that large volume of local anaesthetic during epidural anaesthesia can block these fibres and may cause Horner's syndrome.[5] However, Horner's syndrome is not rare and many cases have been reported in labouring mothers given epidural analgesia with low volume and low concentration of local anaesthetics.[6,7] Horner's syndrome associated with epidural is benign; however, it may be an indication of serious medical condition which may require immediate medical or surgical management.[2,3] Horner's syndrome seen with labour epidural analgesia has been reported in association with maternal hypotension, foetal bradycardia and trigeminal nerve palsy due to high sympathetic blockade.[8,9] The cranial nerve involvement is thought to be a more serious consequence than Horner's syndrome alone, because it could signify further cephalad spread of the anaesthetic agent. Finally, cases of recurrent Horner's syndrome and persistent Horner's syndrome requiring eyelid surgery have been described after epidural analgesia as well.[10,11] In the present case, weakness of upper-limb with Horner's syndrome and visual disturbances made us worried. However, all the features were transient, recovered spontaneously and did not require any treatment. The anatomical and physiological changes during pregnancy and labour which favours cephalic spread of local anaesthetics injected in the epidural space may predispose to development of Horner's syndrome. As most of the cases are seen during labour-analgesia and caesarean section it is thought that the gravid uterus increases

the intra abdominal pressure and results in partial occlusion of the inferior vena cava, thus diverting blood through the epidural venous plexus, and lead to a decrease in the epidural space. In the present case combined effect of local anaesthetic through continuous infusion and bolus could be the cause of higher block. Cases of Horner's syndrome during epidural analgesia in labour in spite of not giving any top-up dose has been reported.[12] Weakness in upper arm of same side associated with visual disturbances could also be possible due to high block on one side.[13] Reduced sensation over the left hemi facial region and upper arm has been reported earlier.[14,15] Unilateral Horner's syndrome along with weakness of upper arm on the same side is difficult to explain and presence of midline septum has been suggested as the cause.[16] We could not provide the evidence for the same in our case as patient refused to undergo MRI. Regarding test dose, there is no consensus on the exact nature of the epidural test dose in obstetrics, as no single regimen has been proven to be completely effective as an epidural test dose. For pregnant women, the epinephrine test dose might not be justified when a multiorifice catheter is inserted to induce labour analgesia. We used 3 mL 0.25% bupivacaine without epinephrine as test dose by convention, and use of 3-5 mL of 0.25% bupivacaine is practiced by many specialists.[4,17] One survey also reported use of bupivacaine doses ranging from 3 to 20 mg.[18] However, we agree that test dose per-se has no role in evidence-based practices and every epidural dose is a test dose.

CONCLUSION

Horner's syndrome is not rare after epidural analgesia particularly during labour or caesarean section. Physiological reasons like engorged epidural venous plexus and anatomical factors like midline septum may be responsible in this group of patients. Horner's syndrome is usually benign and self-limiting but may be associated with severe medical conditions and therefore should be investigated if does not resolve spontaneously in few hours.

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Source of Support: Nil, **Conflict of Interest:** None declared