Reminder of important clinical lesson

Horner's syndrome with epidural anaesthesia

Rowena Sharma,¹ Jayanta Chatterjee,² Keith Edmonds³¹ Department of Obstetrics and Gynaecology, St Mary's Hospital, London, UK² Department of Obstetrics and Gynaecology, Imperial College, London, UK³ Department of Obstetrics and Gynaecology, Imperial NHS Trust, London, UK

Correspondence to Jayanta Chatterjee, j.chatterjee@imperial.ac.uk

Summary

A 29-year-old woman, primigravida, had labour induced for post-maturity following an uncomplicated antenatal course. She requested an epidural prior to commencement of syntocinon. This was administered in the sitting position without complication. The midwife noted drooping of the right eyelid of the patient 6.5 h following insertion of the epidural. Blood pressure and CTG remained reassuring. The obstetric anaesthetist reviewed the labouring woman and noted a right-sided ptosis as well as the right cheek being flushed and dry. There was no motor block and sensation in T1/T2/S3/S4 was intact. Horner's syndrome was diagnosed and anaesthetic review was recommended prior to further top-ups. The patient progressed well in the second stage of labour and did not require further top-ups and gave birth to a healthy male infant. Horner's syndrome resolved within 4 h following delivery and the postpartum period was uncomplicated.

BACKGROUND

This is an important case because epidural anaesthesia is commonly used in obstetrics and it is important for all staff caring for women in labour to recognise associated complications. Understanding conditions such as Horner's syndrome allows women in labour to be reassured about the clinical situation and enables staff to be vigilant regarding potential adverse outcomes.

CASE PRESENTATION

A 29-year-old primigravida had labour induced for post-maturity. She was 41 weeks pregnant and had had an uncomplicated antenatal course. Following prostaglandin induction, she presented in early labour requesting an epidural prior to commencement of a syntocinon infusion.

This was administered, while the patient was sitting, with a 16G Tuohy needle between vertebral levels L4 and L5 and was successful on the first attempt. A 27G Whitaker needle was used to 5 cm and epidural catheter passed to 9 cm without complication and an initial dose of 1 ml of 0.25% bupivacaine and 15 g of fentanyl was injected. The epidural initially appeared to be working well; however, following two top-ups of 15 ml of 0.1% bupivacaine with 2 g/ml of fentanyl, the patient was still experiencing pain and, hence, a further top up of 0.25% bupivacaine was given by the anaesthetist.

The midwife noticed drooping of the right eyelid 6.5 h after the epidural was administered. The patient was reviewed by the anaesthetist who noted a right-sided ptosis and miosis as well as the right cheek being flushed and dry. Blood pressure was 120/70 and heart rate was 80 bpm. Sensation tested with ethyl chloride at levels T1/T2/S3/S4 appeared intact and no motor block was present. The CTG remained reassuring. It was noted that the signs were most noticeable following epidural top-up and were seen to resolve as the epidural wore off. It was explained to the

patient that the symptoms of inability to fully open eye on the affected along with facial flushing and loss of sweating were Horner's syndrome secondary to epidural blockade. The patient was 9 cm dilated and the anaesthetist recommended anaesthetic review prior to further top-ups. The patient did not require further analgesia and continued to progress well to the second stage of labour. She gave birth to a healthy male infant weighing 4.06 kg with APGARs of 9 at 1 min and 10 at 5 min. Horner's syndrome resolved within 4 h following delivery and the postpartum period was uncomplicated.

DISCUSSION

Using a PubMed search of 'Horner's syndrome + epidural', limiting it to humans and in English we were able to find 56 reported cases.

Epidural anaesthesia is commonly used in obstetrics and Horner's syndrome has been observed as a rare complication. Horner's syndrome is characterised by the combination of miosis (small pupil), partial ptosis, anhydrosis and enophthalmus.^{1 2} Facial flushing due to dilation of vessels on the affected side can also occur. It is caused by the disruption of ipsilateral sympathetic fibres supplying the head, including innervation to the levator palpebrae, conjunctiva, pupil and face,³ and can occur along any part of this innervation. Horner's syndrome, mainly unilateral, is most commonly acquired due to underlying pathology; however, it can also be congenital or iatrogenic. There does not appear to be an increased likelihood of developing Horner's syndrome according to the anaesthetic agent or dose used.

Horner's syndrome, associated with epidural anaesthesia, appears to be most commonly seen in women requiring an epidural during labour or for a caesarean section.⁴ The condition was first described in 1972 by Kepes⁵ and the reported incidence is thought to be between 0.4% and 4%.^{5 6} There is a spectrum in the severity of symptoms of

Horner's syndrome; hence, it has been thought that subtle changes can often be missed. Indeed, one study demonstrated an incidence of Horner's syndrome in 75% of pregnant women receiving epidurals when specifically observing for such signs.⁷ Cranial nerve palsies have been reported as potential complications of epidural anaesthesia in obstetric patients, particularly if a dural puncture has occurred.⁸ In such cases, sensory deficits are often observed and associated signs, such as hypotension and apnoea, can also be present.

Horner's syndrome is thought to be due to the cephalad spread of local anaesthetic causing interruption to the sympathetic chain of neurones at C8-T1 prior to entering the superior cervical ganglion.⁵

It has been documented in the literature that Horner's syndrome with epidural is more likely to occur in the pregnant patient rather than the non-pregnant patient due to the physiological and anatomical changes that can occur during pregnancy; hence, a number of reasons contributing to Horner's syndrome have been postulated. Due to raised intra-abdominal pressures and epidural venous engorgement, the space surrounding the dura itself has less room and is also thought to be less compliant.³ Blood is diverted from the inferior vena cava through the epidural venous plexuses due to compression of the gravid uterus; hence, further reducing this epidural space.⁹ Furthermore, pressures within the epidural space can be raised during uterine contractions, which further facilitate the spread of the anaesthetic.⁵

It is thought that sympathetic fibres have a high affinity for local anaesthetics, which may explain why the symptoms can occur without sensory blockade.¹⁰ In our reported case, Horner's syndrome was experienced, without altered sensation, on the right side of the labouring woman's face. This asymmetry may be due to her position when receiving the epidural and top-ups, the position of the epidural catheter or perhaps due to asymmetric anatomical and physiological changes that can occur during pregnancy. Fortunately Horner's syndrome does not appear to be associated with hypotension, which itself could have consequences for both mother and baby.⁹ In our reported case, maternal blood pressure was maintained and CTG remained reassuring.

Symptoms usually resolve with time; studies have shown this can range from a few minutes to several hours with a mean time of 215 min.³ As was observed in our reported case, the patient's symptoms were most noticeable following epidural top-ups and improved as the anaesthetic levels decreased. Our patient did not require further top ups was completely asymptomatic following 4 h after delivery of her healthy male infant.

Recognition of the development of Horner's syndrome is important for all those involved in the care of obstetric patients. Although very rare, the signs and symptoms can be distressing for the labouring woman. The condition

usually follows a relatively benign course and knowledge of this is important for reassurance.

However, symptoms and signs of Horner's syndrome can also indicate a rising sympathetic blockade that can very rarely result in respiratory arrest. Continuation of regional anaesthesia is possible in the presence of Horner's syndrome, but anaesthetic vigilance is of the utmost importance. If impending respiratory arrest is suspected, it is prudent to stop any further top-ups and choose an alternative form of analgesia. It must also be noted that unresolving Horner's syndrome in labouring women warrants further investigation as other serious causes must be excluded, such as pancoast tumours or thoracic aortic aneurysms. Investigations would include chest x-ray, CT/MRI of the thorax and abdomen, angiography and carotid ultrasound to diagnose the underlying cause.

Learning points

- ▶ Epidural anaesthesia is commonly used in obstetrics.
- ▶ It is important for staff caring for women in labour to recognise potential complications such as Horner's syndrome.
- ▶ Although usually benign, symptoms and signs can indicate more serious complications such as respiratory arrest; hence, vigilance of such symptoms is crucial.

Competing interests None.

Patient consent Patient/guardian consent was obtained for publication.

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