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Research Article

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Unilateral Horner's Syndrome in a Normal BMI Patient Following Labour Epidural Analgesia: A Case Report

Pritam Hira[1], Ayman Gouda[2], Nilay Chatterjee[3], Samaresh Das[4*], Seikh Maniruzzaman[5]

[1]Speciality Doctor, Anaesthesia, Yeovil District Hospital NHS Foundation Trust, Yeovil BA21 4AT, Somerset, United Kingdom
[2]Speciality Doctor, Anaesthesia, Yeovil District Hospital NHS Foundation Trust, Yeovil BA21 4AT, Somerset, United Kingdom
[3]Consultant Anaesthetist and Pain management, Oxford University Hospital, Oxfordshire, United Kingdom41Consultant
[4]Anaesthetist and Pain management, Buckinghamshire Healthcare NHS Trust, Stoke Madeville Hospital, Aylesbury, United Kingdom
[5]Specialist in Anaesthesia, Medway NHS Foundation Trust, Gillingham, Kent, United Kingdom.

[*]**Address for Correspondence**: Samaresh Das, Consultant Anaesthetist and Pain management, Buckinghamshire Healthcare NHS Trust, Stoke Madeville Hospital, HP21 8AL, Aylesbury, United Kingdom, Tel: +44 07960 532682, E-mail: drsamareshdas @gmail.com

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Abstract

Horner's syndrome is one of the rare complications of lumbar epidural during labour analgesia. This syndrome is usually a sequela of intrathecal anaesthesia, stellate ganglion, cervical or brachial plexus block in anaesthesia, which spontaneously subsides without any permanent neurological deficit. An inadvertent cephalad extension of local anaesthetic used for epidural is implicated in the occurrence of this syndrome. We demonstrate a case report of this unusual syndrome following labour epidural in a 32-year-old woman with a normal BMI without any major medical comorbidity. Timely discontinuation of epidural administration helped to regress her symptoms. A careful assessment was done to rule out a subdural catheter migration and feto-maternal compromise. We discussed different possibilities for the rare consequence and alternative methods to relieve pain while the patient was in active labour.

Keywords: Horner's syndrome, lumbar epidural, labour analgesia.

Introduction

Horner's syndrome is characterised by a constellation of clinical manifestations such as miosis, ptosis and anhidrosis, with or without enophthalmos or facial flushing **(Fig 1).** The most commonly used technique worldwide for labour analgesia is lumbar epidural. Although it is a very safe procedure, however; occasionally rare complications e.g., Horner's syndrome, can occur due to cephaloid migration of local anaesthetic agent.

In this case report, we presented a unilateral Horner's syndrome in a normal BMI patient after three hours of labour epidural analgesia without feto-maternal compromise.

Our case

A 32-year-old parturient (weight 64.6, BMI 25.2), Gravida 1, para 0, requested a labour epidural analgesia in the labour suite. She had mild scoliotic changes in her spine but was otherwise fit and healthy.

After obtaining informed consent, a lumber epidural was performed between L3 and L4 interspace in a single attempt. After placing the catheter (fixed at 10 cm and epidural space from the skin was at 6 cm). After negative aspiration for cerebrospinal fluid and blood, a test dose was given (10 ml, levobupivacaine 0.1% and fentanyl 2mcg/ml was administered. Following the successful test dose, patient-controlled epidural analgesia started using the same concentration at 7 ml/hr and patient-controlled bolus dose 8 ml, lockout period 15 mins for breakthrough pain through CADD-Solis™ PCEA pump (Model No: PB691E) as per the departmental protocol. No immediate complication was noted within the first two hours of labour epidural. She had adequate analgesia.

After three hours, the patient complained of itching, foreign body sensation and redness in the left eye. She was stable haemodynamically and had no complaints of breathing difficulty. We stopped the epidural infusion immediately, again, the catheter was checked with negative aspiration to rule out dural migration. The level of analgesia was checked with cold spray and was found to be at the level of T4 on the right side and T2 on the left side. On further evaluation, we observed mild ptosis in the left eye along with conjunctival hyperaemia and miosis **(Fig 2).** All the clinical symptoms indicated left-sided Horner's syndrome. There was no other weakness around the face or upper limbs. Foetal monitoring was satisfactory throughout the period. We explained here about the rare consequence and reassured her that it would resolve itself. We reduced the epidural dose to 5 ml/ hr and decided to clinician bolus dose under observation, 7 ml every 20 minutes.

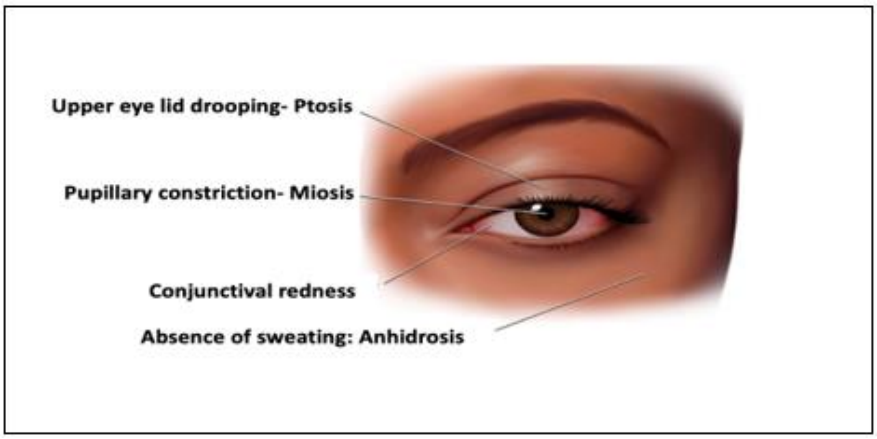

Figure 1: Horner's Syndrome.

Figure 2: Our patient, left-sided Horner's Syndrome.

After one hour, her level of analgesia at the lev of T6 on the left and right side it was T6 level. Her level of analgesia was found satisfactory. We applied artificial tear drops in both eyes after a discussion with the ophthalmologist. Over the next two hours, her left-side eye changes started to resolve. She delivered a healthy baby within the next 5 hours; however, in the last two hours of her labour, she was complaining of pain around 5/10. For the safer side, we did not increase the epidural infusion; rather, we have started remifentanil patient-controlled analgesia (PCA) as per the departmental protocol for labour analgesia. Continuous foetal monitoring was very satisfactory during the PCA period. One hour after the delivery, we removed the epidural catheter after giving a bolus dose of 7 ml. She was discharged from the labour suite, and her left eye gradually became normal over the next 24 hours.

Discussion

A constellation of ophthalmic symptoms like miosis, ptosis, anhidrosis and enophthalmos characterizes Horner's syndrome. It is also associated with facial flushing because of dilation of the vessels due to sympathetic blockade. (2)

Regional anaesthesia-induced Horner's syndrome is more common in the obstetrics population. A review of the literature by D J Chambers et al (1) found that the incidence of Horner's syndrome following lumber epidural for labour analgesia varies between 0.13 to 1.5 %. However, the increase is higher, up to 4%, in the case of epidural anaesthesia for caesarean section.

The syndrome could result from the change in anatomy and physiological conditions of the spine during pregnancy. Anatomical variation predisposes the spread of local anaesthesia cranially in the supine position. (2).

The pressure of the gravid uterus on the inferior vena cava raises intra-abdominal pressure, and eventually, engorgement of epidural veins reduces epidural cavity volume (3). During the active labour process, uterine contractions contribute to propelling the anaesthetic agents' cephalad movement from its epidural entrance region by generating rhythmic waves. Moreover, obesity itself, being a risk factor, also narrows the epidural space.

The presence of lateral and transverse septae in the epidural space is another rare cause for the higher or unilateral spread of an anaesthetic agent when delivered in the lumbar epidural space. (4). Collier CB et all, in their case series, found transverse septum in the epidural space in up to 2% of patients when they performed epidurography (5).

The higher incidence of Horner's syndrome in parturient compared to the general population after epidural analgesia also could be due to increased sensitivity of the nerve fibres because of high progesterone levels during pregnancy (7).

Among other inadvertent migration of epidurally administered anaesthetic agents, subdural injection is postulated as unusually high cephalad spread (6). A case report suggests that as minimum as only 2ml of local anaesthetic through a presumed epidural catheter can cause an unusually high sensory block, which in turn can cause Horner's syndrome (9). It is also

associated with variable motor blockade out-of-proportion sympatholysis, resulting in profound hypotension. (8). Any suspicion of a subdural catheter must be addressed immediately with extreme caution, and the catheter should be removed without any delay, as it may spontaneously rupture through the arachnoid, causing total spinal block, which is life-threatening if unnoticed or left unmanaged (10).

Reported cases of labour epidural-induced Horner's syndrome were most commonly unilateral. The probable reason could be that the patients prefer a lateral decubitus position for a longer time with an acting epidural, and gravity perhaps plays an important role besides other described factors. (1)

Onset time for Horner's syndrome complicated by labour epidural analgesia ranges between 2 to 100 minutes (mean time 25 minutes) following initial drug administration (11). The condition is usually benign and resolves spontaneously (< an hour to several hours, average 215 minutes) (12).

In our case, we observed left-sided Horner's syndrome almost after 180 minutes of the epidural analgesia, which was above the standard onset time mentioned in the previous literature. Before injection of the test dose, we confirmed negative aspiration, and we observed very satisfactory patient response in terms of bilateral equal sensory block after the test dose and initial infusion. When our patient complained of itching, foreign body sensation and redness, there were no hemodynamic compromise or respiratory problems. Continuous foetal monitoring was also found satisfactory. All the features suggest the epidural catheter was in the correct position. We identified the problem in due time and managed it successfully with a lower volume of infusion and clinician-controlled bolus along with remifentanil PCA.

The body weight and BMI in our patient were normal; possible reasons in our patient could be her scoliotic changes in the spine, possible septa in the epidural space or gravity while she was in lateral position while epidural and PCEA were active, which was responsible for cephaloid migration of the medication. We suggested further imaging in terms of MRI to rule out epidural anatomy; however, she refused for the same.

After the incident, we changed our protocol regarding the initial bolus. The initial bolus, which was 10 ml, levobupivacaine 0.1% with fentanyl two mcg/ml, should not be given if the patient has any spinal anatomy changes e.g., scoliosis in this patient. All patients should be explained to report any changes in sensation in their eyes as Horner's syndrome is not very uncommon after labour epidural. In case of any possible complication, other alternatives e.g., remifentanil PCA, should be offered.

Conclusion

Following an epidural for labour analgesia, an incidence of Horner's syndrome is a rare, benign but known complication. We should be very careful if any spinal deformity is encountered. Therefore, an early diagnosis is a key step which potentially averts serious consequences that can cause long-term harm to both the mother and the baby. Although the symptoms are usually self-limiting, appropriate explanation and reassurance are important components to alleviate their anxiety on top of psychological stress related to labour and childbirth. Likewise, close anaesthetic surveillance and timely intervention to modify or withhold epidural with continuing analgesia by other methods are imperative in most of the cases of Horner's syndrome in labouring women. Finally, all staff members involved in the care of these populations in a labour unit should be trained and aware of the situation.

Conflicts of Interests: There are conflicts of interest

Consent: We explained and obtained consent from the patient for publication.

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