Case Study: Horner’s syndrome in the child following thoracic epidural analgesia: A Review Of 2 Cases

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Horner’s Syndrome (HS) as a complication of regional anesthesia has rarely been reported in children\(^1,2,3\). We report two cases of HS post thoracic epidural in patients undergoing thoracotomy for Congenital Cystic Adenomatoid Malformation (CCAM) excision.

CASE 1: 17 month 10 kg ASA II Hispanic male underwent a right middle lobectomy for CCAM type II. An 18G catheter was placed 8cm into the T8-T9 epidural space. After 5ml intra-operative bolus (bupivacaine 0.25% with epinephrine 1:200,000) a continuous infusion (bupivacaine 0.1% with 2mcg.ml\(^{-1}\) fentanyl) was started at 2.5ml.h\(^{-1}\) (0.25mg·kg\(^{-1}\)·h\(^{-1}\)) and postoperatively increased to 3ml.hr\(^{-1}\) (0.3mg·kg\(^{-1}\)·h\(^{-1}\)). Pruritus was treated with a naloxone infusion. Seventeen hours later the epidural infusion was decreased to 2.5ml.h\(^{-1}\) for right upper limb weakness that recovered within 4 hours. Approximately 24 hours post-operatively right Horner’s syndrome was noticed with no sedation or other motor or sensory dysfunction. The parents were reassured and the epidural infusion was continued for 68 hours. One hour after the epidural infusion was stopped, the right eye returned to normal and the patient was discharged home later without any untoward sequelae.

CASE 2: A 12 week 5.2 kg ASA 1 Caucasian girl underwent left lower lobectomy for CCAM type I diagnosed \textit{in utero}. Prior to surgery a 19G catheter was placed 4.5cm into the T7-T8 epidural space. Two hours intra-operatively a continuous (bupivacaine 0.1% with fentanyl 2mcg.ml\(^{-1}\)) infusion was started at 0.7ml.h\(^{-1}\) (0.13mg·kg\(^{-1}\)·h\(^{-1}\)). Twenty-seven hours post-operatively the infant developed right ptosis and miosis but had no other motor or sensory dysfunction, did not appear sedated and was comfortable. The epidural infusion was continued unaltered for 46 hours after reassuring the parents. The signs resolved two hours after discontinuing the epidural and the child was discharged home on the 2\(^{nd}\) post-operative day.

Discussion:
Horner’s syndrome following epidural blockade is a benign complication with reported incidence of 2.6% in children\(^3\). These two cases of HS were the only ones seen by us among 173 epidurals, 99 of which were thoracic, performed over the last 18 months (1.2%). We believe they are more common but signs may be missed as they are not specifically looked for and bilateral signs are difficult to detect. The timing of first presentation, both cases developed signs 24-36 hours post-operatively, might be related to neurokinetics of local anesthetics. B fibers (sympathetic pre-ganglionic) are more sensitive to bupivacaine, which may produce sympathetic blockade without sensori-motor blockade\(^4\). The length of catheter could also contribute to blockade of higher segments but the catheter tip position is difficult to predict. The amount of drug infused may be more important as both cases resolved soon after the infusion was discontinued. Others have also reported this\(^1,2,3\).

We therefore suggest:
- Reassurance of parents and child
- Analgesia is more relevant than recovery from HS
- Following the decision-making algorithm to manage benign complications of epidurals (Figure 1)

• Need for consensus regarding route, placement confirmation and length of catheter insertion

Although HS is a benign complication of epidurals, persisting signs after discontinuing the epidural should be investigated and other causes ruled out.
Algorithm for managing Horner’s Syndrome post-epidural

Thoracic epidural

Horner’s syndrome

Look for

• Weakness
• Bradycardia

Check catheter migration

Assess rate

Decrease rate maintaining analgesia

Reposition or withdraw catheter

Reassess

Improves

Persist

Decrease rate

Follow up

Confirm absence of Horner’s syndrome post removal of catheter

Alternate Pain management plan

References: