Persistent Lower-Extremity Paresthesia after Epidural Anesthesia in a Pediatric Patient with Charcot-Marie-Tooth Disease

Bryan Brindeiro MD, Jennifer Dillow MD
University of New Mexico Children’s Hospital, Division of Pediatric Anesthesia

Introduction

•Charcot-Marie-Tooth Disease (CMT) is part of a spectrum of disorders associated with abnormal myelin production and neuronal structure and function. Diagnosis is often delayed as findings are typically mild and nonspecific. Patients often present with foot deformities or gait disturbances.
•There is a lack of data demonstrating safety, or morbidity, of neuraxial or regional anesthesia in patients with CMT, though safe use has been described in case reports.

Case Presentation

• A 32 kg, 11-year-old male presented for left pelvic osteotomy and proximal femur osteotomy.
• PMH: Charcot-Marie-Tooth Disease, Sensory Integration Disorder, Hip Dysplasia
• Following an uneventful induction and intubation, an epidural catheter was placed via midline approach using LOR at L4.
  - Epidural boluses of 0.25% Bupivacaine + Epi given in divided doses (total 10 mL)
  - Infusion of Ropivacaine 0.15% + Morphine 15 mcg/mL continued post-operatively

POD #1:

• Patient complaining of poorly controlled pain.
• Examination revealed unilateral sensory block of RLE (non-operative side).
• Epidural bolus of LA was given with no change in sensory block or pain control.
• Catheter was removed later on POD #1

POD #2:

• RLE numbness and weakness continued, persisted for several days before gradually improving.
• Patient was discharged on POD #4

POD #6:

• APS notified for onset of severe RLE paresthesia and weakness in the right ankle.
• Pain unrelieved by narcotics
• Referral to neurology

POD #7:

• Readmission due to intractable neuropathic pain at plantar aspect of the right foot (non-surgical side)
• MRI of spine obtained urgently: normal findings and no evidence of myelopathy.
• Aggressive multi-disciplinary approach to pain instituted with inpatient rehabilitation: PT, OT, psychiatry, hypnotherapy, myofascial therapy, and multiple trials of medications.
• Discharged after 1 month on gabapentin and fluoxetine with improved, but continued neuropathic pain of his right foot.
• At his 5 month follow-up, his pain had completely resolved

Discussion

• Use of neuraxial or regional anesthesia in patients with preexisting neurological disorders is relatively contraindicated and controversial.
• Data from large trials supporting use of neuraxial anesthesia in patients with CMT does not exist.
• Safe use of neuraxial techniques have been published in several case reports.
• Prolongation of epidural block reported in one patient

• Unilateral epidural block in this patient suggests close proximity of catheter tip to nerve roots, possibly paravertebral
• Chronic segmental thoracic neuropathic pain after use of continuous paravertebral block has been reported.
• In an unpublished case series, PNBS were utilized in 27 patients with CMT undergoing foot/ankle surgery without complications.
• Only 1 patient with clinical evidence of change in neurological exam

• Neuronal demyelination and pathological structural changes in CMT may potentiate neurotoxic effects of local anesthetics
• Patients with CMT may be more susceptible to prolonged neural blockade and neuropathy.
• Clearly, further investigation into the safety of regional and neuraxial anesthetic techniques is required in this patient population

References