

## **Transverse Myelitis Following Epidural Analgesia in an Adolescent**

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**Introduction:** We report transverse myelitis following epidural analgesia in an adolescent male. This complication has not been previously reported. The intraoperative and postoperative courses will be discussed, and potential contributory factors for this complication will be considered.

**Case Report:** A 14 year old, 67 kg male was transferred to our hospital for management of a draining tibial wound, 7 months after a serious auto-pedestrian accident in another country. His original injuries included a pelvic fracture with bladder rupture, an open tib-fib fracture with a compartment syndrome requiring fasciotomies, and a closed head injury resulting in hydrocephalus and a seizure disorder. Medications included enalapril for hypertension, Phenytoin and Valproic acid for seizures. At the time of transfer, he was awake and speaking his native language, but was reported to have some cognitive deficits; bowel and bladder function were normal. He was non-wt.-bearing on his left leg, but was ambulatory with a walker or cane. Although medical and surgical therapy was ineffective at eradicating the chronic osteomyelitis for 2 ½ months, he was afebrile for more than 7 days preceding surgery. He came to the OR for removal of indwelling hardware, excision of the infected distal tibia, application of an Ilizarov frame, and rotational soleus flap for skin coverage. He was anesthetized with Propofol, Rocuronium, Isoflurane, and nitrous oxide. An epidural catheter was placed without difficulty at L4-5, and a loading dose of Ropivacaine 0.2% 15 ml + fentanyl 100 mcg was administered incrementally. Two hours later, an additional 5 ml of ropivacaine was given prior to starting a continuous infusion of Ropivacaine 0.2% + fentanyl 2 mcg/ml at 16 ml/hr. The procedure lasted nearly 6 hrs: the patient received 4500 ml of crystalloid and one unit of packed red blood cells for an estimated blood loss of 800 ml. His systolic blood pressure ranged between 75 and 100 systolic after the epidural. At the end of the procedure, he was taken to PACU, where he had no complaints of pain.

**On postoperative days 1 through 3,** he complained of N&V, and was febrile. His epidural site was not erythematous, and had no drainage. He had no pain, and had a dense sensory and motor block at T10. On POD 2, the infusion was changed to Ropivacaine 0.1% + fentanyl 2 mcg/ml at 14 ml/hr. On POD 3, he received 2 units of pRBC for a Hgb of 7.7 g/dl. On POD 4, the epidural infusion was stopped, and the patient received oral hydrocodone. The epidural catheter was removed without incident, and there was no drainage or fluctuance at the site. Nine hours after discontinuation of the epidural, he had no sensory or motor function below T10. A lumbar puncture revealed an elevated CSF protein of 586, a WBC count of 259, no RBC, and a normal glucose level; bacterial cultures of the fluid revealed no growth. He was started on high dose steroids. A CT myelogram revealed swelling of the cord, but no mass lesions, evidence of epidural blood, or infection. An MRI was delayed because of concern about the components of his Ilizarov frame. An MRI was obtained on the POD 6 after removal of ferrous components of the Ilizarov. The MRI showed an increased signal starting at T7 down through the conus, with the entire cord involved from T10 distally, consistent with acute transverse myelitis. There were no mass lesions or hemorrhage, no bony abnormalities or disruptions.

**Clinical followup:** The patient received 10 days of high dose steroids. He had no recovery below T10 in the 3 months preceding his transfer to a rehabilitation facility in another city.

**DISCUSSION:** Diagnostic criteria for Acute Transverse Myelitis (ATM) include the acute onset of bilateral sensory, motor, and autonomic dysfunction, with a clearly defined sensory level; the CSF shows an elevated protein level and pleocytosis. Extra-axial compression of the cord must be excluded. A rapid rate of progression is an ominous sign; similarly, the onset and speed of recovery are predictive of final outcome. ATM is rare in children; the most common causes include multiple sclerosis and infectious or parainfectious conditions, including Coxsackie virus, mumps, V.zoster, CMV, Echovirus, influenza, EBV, HIV, mycoplasma, Lyme disease, post-vaccination (influenza, Hep B, smallpox), and autoimmune disorders.

This patient had no evidence of these conditions, despite scrutiny by the ID Service. Traumatic injuries and ischemic myelopathies are also reported in the literature, but there are no reported associations with epidural analgesia. We believe that the intensity of his motor block was under-appreciated at the time of assessment, in part because of a language and cultural barrier that made repeated exams difficult. The possibility of an undiagnosed infection cannot be excluded. We believe that the patient's intraoperative blood pressure relative to his preoperative hypertension may have played a role in this complication.

### **REFERENCES:**

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