

Neuraxial Labor Analgesia and Transverse Myelitis (TM)



BACKGROUND

- Spinal cord disease causing focal inflammation and demyelination (in 1-8 new cases/million/year)
- Etiology may be idiopathic, autoimmune,¹ heavy metal toxicity, or post infectious
- Onset time varies greatly (hours to weeks); Symptoms include unilateral or bilateral² sensory-motor deficits and/or autonomic impairment below the level of the lesion
- **TM diagnosis requires exclusion of cord compression by gadolinium enhanced spinal MRI³**
- Symptomatic treatment includes high dose steroids,⁴ with plasma exchange for non-responders⁵
- Variable outcomes have been reported; Recovery depends upon early diagnosis and treatment; Prognosis depends upon age and disease severity

REFERENCES

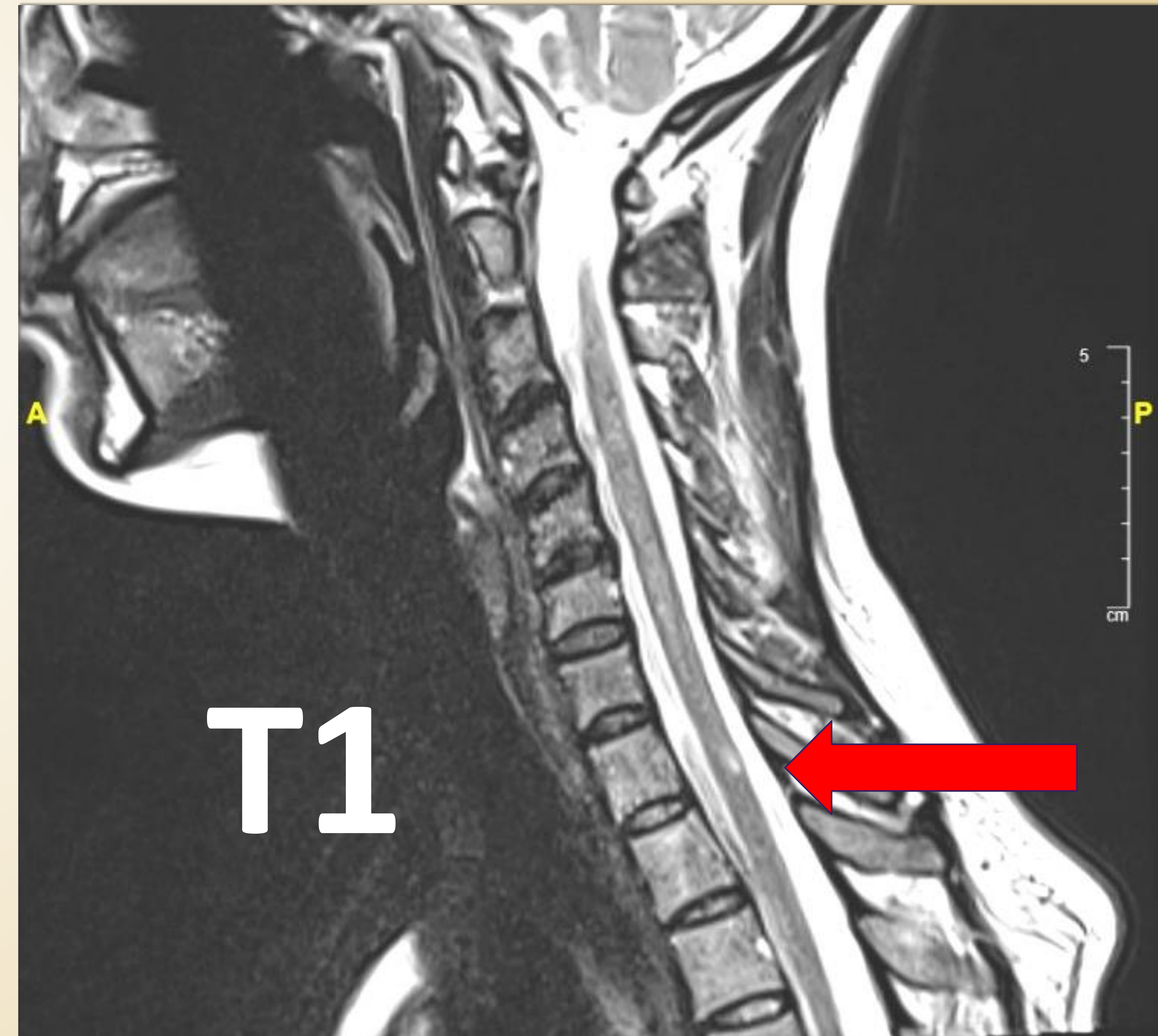
1. Frohman EM, Wingerchuk DM. Transverse myelitis. *New England Journal of Medicine*. 2010 Aug 5; 363(6):564-72.
2. Transverse Myelitis Consortium Working Group. Proposed diagnostic criteria and nosology of acute transverse myelitis. *Neurology* 2002; 59:499-505.
3. Berger JR, Cambi F, Di Rocco A, Farace J. Overview to approach to the patient with noncompressive myelopathy. *Continuum* (Minneap Minn). 2005;11(11):13-24.
4. Krishnan C, Kaplin AI, Pardo CA, and Kerr DA, Keswani SC. Demyelinating disorders: update on transverse myelitis. *Curr Neurol Neurosci Rep*. 2006; 6(3):236-243.
5. Cortese I, Chaudhry V, So YT, et al. Evidence-based guideline update: plasmapheresis in neurologic disorders: report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology*. 2011 Jan 18;76(3):294-300.

Fouzia Khalid, MBBS; Emily Dinges, MD; Laurent Bollag MD

Department Of Anesthesiology & Pain Medicine, University of Washington, Seattle, WA

CASE

- Previously healthy 33 yo G3P0 at 18 weeks, developed back pain and BLE paresthesia to T4 level over 5 days
- No motor weakness, cranial nerve palsies, or bowel or bladder dysfunction
- Non-contrast MRI revealed a demyelinating cord lesion at T1-T2 and absent brain pathology
- CSF showed inflammatory changes (oligoclonal bands)
- IV steroid therapy initiated, PO steroids and PT continued for 4 weeks
- Partial recovery: mild hypoesthesia of legs with normal strength and reflexes
- OBA High Risk Clinic visit at 36 wks; Extensive pro and con discussion and review of the literature; Patient expressed a strong desire for NSVD with neuraxial labor analgesia
- Mild numbness of BLE continued, she felt much better than the initial presentation
- IOL at 39 wks; L4-L5 epidural placement uneventful; Maintained with our standard bupivacaine 0.0625% + fentanyl 2 mcg/ml PIEB 10 ml every 45 min with PCEA; Delivery was uneventful; Discharged home on PPD 2
- At 6 weeks post-partum she reported no changes (legs remained feeling numb after hot showers)
- A repeat MRI with contrast showed no changes



T1

W

- DISCUSSION
- The literature consists of 8 case reports, summarized in the table including 1 labor and 2 CD epidurals, 1 spinal (CD), 1 sedation for CD, and 4 general anesthetics (3 CD and 1 cerclage); One epidural was placed in a patient with acute TM
 - Many authors feel that neuraxial labor analgesia is contraindicated in acute TM as it may worsen the disease, while no information is provided about neuraxial in the sub-acute phase
 - Our TM case had a *high* T1-T2 lesion; She successfully received an epidural labor analgesia and had no worsening of symptoms or radiographic (MRI) imaging at 6 wks post-partum
 - We opted for an epidural instead of a CSE to avoid potentially high local anesthetic concentrations to minimize LA toxicity to the spinal cord
 - There is a high incidence of autonomic dysreflexia in TM patients and hypotension and bradycardia management needs to be anticipated

- CONCLUSION
- Choice of anesthesia depends disease acuity, spinal lesion location, delivery plan, and patient consent
 - Labor analgesia methods minimizing LA exposure to the cord may be safely provided with proper counseling regarding the risks and benefits
 - Multidisciplinary delivery planning including Neurology is recommended

Author	Year	Spinal Level of TM	Duration of Symptoms	Main Symptoms	Mode of Delivery	Choice of Anesthesia	Medications Used	Reported Complications
Gunaydin ¹⁹	2001	C5-T4	1 month	Hypoesthesia below T6	Cesarean Delivery	Epidural	Bupivacaine 0.5%, Fentanyl 50 mcg	None
Massey ²⁰	2010	Lower Thoracic	6 years	Muscle weakness below waist	Cervical Cerclage	General	Succinylcholine	Increased muscle weakness
					Vaginal Delivery	Epidural	Bupivacaine 0.125% + Fentanyl 2 mcg/ml	None
Walsh ²¹	2010	C2-C5	1 week	Generalized weakness	Cesarean Delivery	General	Rocuronium 60 mg	Slow recovery, able to stand after 2 weeks
Hayes ²²	2010	Not Reported	27 years	Wheelchair-bound, No sensation below T9	Cesarean Delivery	General	Rocuronium 1.2 mg/kg	Prolonged neuromuscular blockade
Ferrer ²³	2011	Not Reported	24 years	Wheelchair-bound	Cesarean Delivery	Spinal	Bupivacaine 0.75%_(1.5 ml) + Fentanyl 25 mcg	None
Chang ²⁴	2018	C2-T1	12 months	Occasional muscle spasms	Vaginal Delivery	Epidural	Ropivacaine 0.15% + Fentanyl 2.5 mcg/ml	None
Hunter ²⁵	2018	T7-8, 10-11	3 weeks	Paraplegia, loss of sensation below T4	Cesarean Delivery	General	Propofol 1.5 mg/kg Rocuronium 1.2 mg/kg	New onset of paresthesia at T4 level
Sexena ²⁶	2019	C3-T2	18 months	Quadriparesis, absent reflexes	Cesarean Delivery	Sedation	Ketamine 20 mg divided doses	None