

# Labor analgesia for a parturient with neurofibromatosis type 1 involving the lumbosacral spine

Lauren Crosby Zawierucha MD MSc, Gregory Ginsburg MD, Brinda Kamdar MD, Emily Naoum MD

## Background

- Neurofibromatosis Type 1 (NF1) is a hereditary disorder which can cause tumors in multiple organ systems.
- Tumors may increase in size during pregnancy.
- The safety data for neuraxial anesthesia in NF1 is limited.
- Key considerations for neuraxial anesthesia: spinal and intracranial tumors.
- Potential complications: dural puncture in the presence of increased intracranial pressure or direct needle trauma to a spinal or extradural neurofibroma.



## Clinical Case

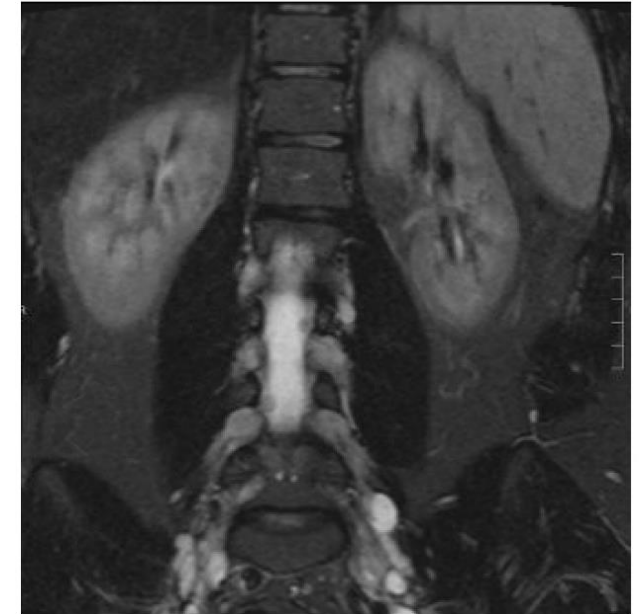
30-year-old G2P0 seen as pre-anesthesia consult due to a history of NF1.

- Bilateral L1-S1 plexiform neurofibroma, otherwise asymptomatic.
- Uncomplicated pregnancy.

Initially not offered neuraxial anesthesia due to perceived risk. After multidisciplinary discussion, a plan was made for ultrasound-guided low thoracic epidural for labor analgesia.

She presented in labor at 39 weeks gestational age.

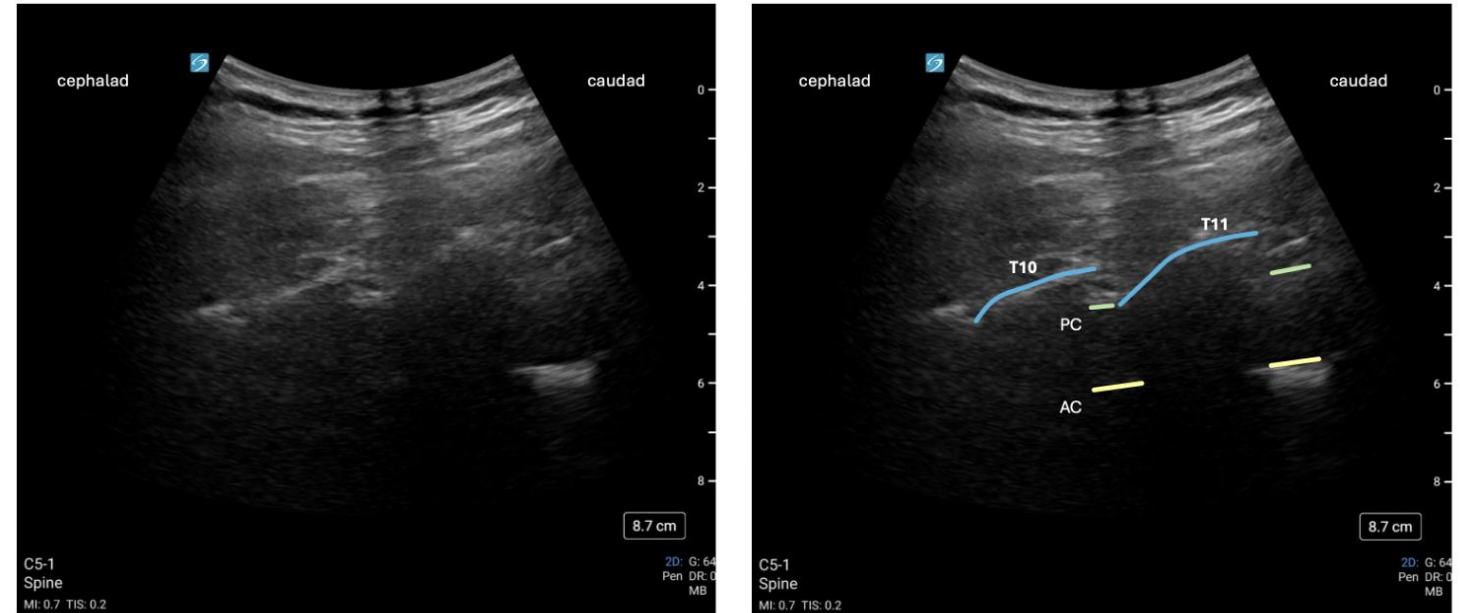
- Ultrasound was used to identify the T10-11 interspace for epidural.
- Required one top-up bolus during 15 hours of labor. No pain with delivery.



**Figure 1.** MRI lumbar spine at 11 weeks gestational age, demonstrating bilateral L1-S1 plexiform neurofibroma.

## Teaching Points

- NF1 warrants thorough pre-evaluation by obstetric anesthesia.
- Antenatal imaging is recommended to help guide interventions and facilitate safe neuraxial placement.
- Multidisciplinary discussion and shared decision-making with the patient can help facilitate a positive birth experience.



**Figure 2.** Parasagittal interlaminar (oblique) ultrasound image of thoracic spine at T10-11  
PC = posterior complex, AC = anterior complex

1. Grange CS SS. Miscellaneous Skeletal and Connective Tissue Disorders. In: Gambling DR et al. Obstetric Anesthesia and Uncommon Disorders. 3rd ed. Cambridge, UK: Cambridge University Press; 2024.
2. Terry AR et al. Neurofibromatosis type 1 and pregnancy complications: a population-based study. Am J Obstet Gynecol. 2013.
3. Galvan JM et al. Usefulness of intrapartum magnetic resonance imaging for a parturient with neurofibromatosis type 1 during induction of labor for preeclampsia. Proc (Bayl Univ Med Cent). 2018.