

NEURAXIAL ANESTHESIA FOR CESAREAN DELIVERY IN A PATIENT WITH ACHONDROPLASIA

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Achondroplasia and Obstetric Anesthesia

- Achondroplasia is the most common form of skeletal dysplasia, characterized by disproportionate short stature and abnormal spinal anatomy
- Patients may require Cesarean delivery due to cephalopelvic disproportion

General Anesthesia Considerations

- Potential difficult airway due to midface hypoplasia, macroglossia, and limited atlanto-occipital extension
- Restricted cervical spine mobility and potential for foramen magnum stenosis

Neuraxial Anesthesia Considerations

- Distorted spinal anatomy: lumbar lordosis, scoliosis, and shortened pedicles
- Narrowed epidural and intrathecal spaces → unpredictable spread of local anesthetic
- Difficulty identifying surface landmarks → increased risk of failed or traumatic placement

Role of Ultrasound

- Improves identification of midline and intervertebral spaces
- May reduce number of attempts and procedural complications

Case Presentation

Patient Characteristics

- 20-year-old primigravida with achondroplasia presented for primary Cesarean delivery
- Height: 116.8 cm; Weight: 69.9 kg; BMI: 51.17 kg/m²; Airway exam: Mallampati II, limited neck mobility
- No significant comorbidities; history notable for prior failed lumbar puncture

Anesthetic Planning

- Decision to proceed with neuraxial technique given airway considerations after thorough discussion
- Preprocedural ultrasound used to identify landmarks

Intraoperative Course

- Multiple attempts for combined spinal–epidural at L3–L4 without CSF return
- Epidural catheter successfully placed after confirmation of loss of resistance
- Additional spinal attempt anesthesia at L4–L5 unsuccessful

Epidural Management and Outcome

- Incremental dosing with lidocaine–epinephrine–bicarbonate solution (15 mL total)
- Gradual development of dense bilateral sensory block to T6. Cesarean delivery completed without complications.

Postoperative Course

- Epidural morphine administered for analgesia
- Uneventful recovery in PACU. Discharged on postoperative day two.

Discussion

Neuraxial anesthesia remains a viable option in patients with achondroplasia

Importance of Preoperative Planning

- Detailed airway assessment is critical given potential difficulty with general anesthesia
- Shared decision-making with the patient regarding anesthetic approach
- Preparation for rapid conversion to general anesthesia if needed

Utility of Ultrasound Guidance

- Enhances success in identifying anatomical landmarks in challenging patients
- May decrease number of attempts and improve procedural safety

Epidural as a Reliable Alternative

- Epidural anesthesia allows controlled, incremental dosing
- Reduces risk of high or total spinal block in anatomically abnormal spines

Clinical Implications

- Multidisciplinary planning (anesthesia, obstetrics) is essential
- Individualized anesthetic approach based on anatomy and prior history
- Growing evidence supports neuraxial techniques over routine general anesthesia in this population