

Anaesthetic Management of Achondroplasia Case Posted for Open Cystolithotomy Surgery: A Case Report

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Abstract: *Achondroplasia is the most common cause of disproportionate dwarfism. The anesthetic considerations include potential airway difficulties, cervical spine instability and difficulties during regional anesthesia.*

Keywords: Achondroplasia, Difficult airway management, Anesthetic considerations

1. Introduction

Achondroplasia is the most common cause of disproportionate dwarfism, the incidence of which is 1.5 per 10,000 live births. The basic defect is a decrease in the rate of endochondral ossification, that when coupled with normal periosteal bone formation produces short and tubular bones.

The anesthetic management includes difficulty airway management, difficulty in regional anesthesia.

2. Case Report

We report a case of 37 years old male came with chief complaint of difficulty in passage of urine. He was diagnosed with Achondroplasia with CKD, Neurogenic bladder, vesical calculus and was posted for open cystolithotomy surgery under Spinal anesthesia.

In past history, patient had undergone surgery for lower limb under spinal anesthesia 10 years back.

3. On Examination

- Patient is conscious and coherent
- Height – 133cms, Weight – 31kgs
- PR – 88/min,
- BP – 110/70 mmhg
- CVS – S₁S₂ heard, no added sounds present
- RS – b/l equal air entry present
- CNS – no focal neurological deficit present

Airway Examination:

- Mouth opening – inadequate < 2cms
- MPG – grade IV
- Dentition – edentulous
- TMD - <6cms
- Cervical Spine flexion and extension restricted
- Lumbar spine – crowding of intervertebral spaces present

Investigations

- CBC :- Hb – 14.4g%, TC – 5,700, PLT- 1.9 lakhs
- RFT :- B.Urea – 42, S.Creatinine – 2.32
- LFT :- normal
- S.electrolytes :- normal
- ECG :- WNL
- 2D ECHO: EF – 60%, concentric LVH, normal LV systolic function, no RWMA.
- USG KUB: b/l small kidneys with renal parenchymal changes, vesical calculus of size 2.9cms, renal cortical cysts
- CYSTOSCOPY: bladder calculus of 3 cm noted with trabeculations.

Anaesthetic Management

After taking written and informed consent, pt was shifted to ot, multichannel monitor with NIBP, SPO₂, ECG are connected and baseline vitals were noted. 18G iv cannula secured and iv fluids were started. Under strict aseptic preparations, in sitting position subarachnoid block was tried in L₃ – L₄ space in both median and paramedian approach, in these approaches only bone is contacted so Taylor's approach was tried. For Taylor's approach bilateral posterior superior iliac spine were palpated and at L₅ -S₁ interspace the needle is inserted in a cephalomedial direction after flow of CSF 3ml of 0.5% hyperbaric bupivacaine is given the block was successful with adequate sensory and motor effects. Intraoperatively patient vitals were monitored and stable.

4. Discussion

In achondroplasia the main challenge to the anesthetist is airway management and difficulty in neuraxial technique. Facial features like large protruding forehead, short maxilla, flat nose, large tongue may cause difficulty in mask ventilation. As difficulty in regional anesthesia were expected from the examination, we tried spinal anesthesia in median and paramedian approach but it is not successful so we tried Taylor's approach. Taylor's approach is successful but we also arranged for general anesthesia as difficulty in

regional anesthesia is expected. We prepared difficulty airway chart with video laryngoscope and fiberoptical tracheal intubation.

5. Conclusion

Here we managed the case with spinal anesthesia using Taylor's approach as there is overcrowding of intervertebral spaces present and we also arranged for general anesthesia as neuraxial technique was difficult in these patients. We arranged difficult airway equipment chart and smaller size endotracheal tube than expected for endotracheal intubation.

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