



ANAESTHESIA CHALLENGES IN TEMPOROMANDIBULAR JOINT REPLACEMENT WITH GENIOPLASTY IN A PATIENT WITH CONGENITAL TMJ ANKYLOSIS AND ZERO MOUTH OPENING

Anaesthesiology

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ABSTRACT

Temporomandibular joint (TMJ) ankylosis presents a significant anaesthetic challenge due to restricted or zero mouth opening. This case report discusses the comprehensive anaesthesia management of a patient with bilateral TMJ ankylosis and zero mouth opening undergoing TMJ replacement with genioplasty. Awake fiberoptic nasal intubation (AFOI) under remifentanyl sedation, combined with regional airway blocks, ensured a safe perioperative course. This report underscores the critical importance of airway planning and team multidisciplinary management in such high-risk procedures.

KEYWORDS

TMJ ankylosis, fiberoptic intubation, difficult airway, Remifentanyl infusion, target-controlled infusion pump

INTRODUCTION

Congenital temporomandibular joint ankylosis is a very rare condition. TMJ ankylosis is characterized by immobility of the mandible, most often due to trauma, infection, or systemic diseases such as ankylosing spondylitis. The resulting inability to open the mouth poses a significant challenge to anaesthesiologists, especially during airway management for surgeries requiring general anaesthesia. Genioplasty, when performed alongside TMJ replacement, increases the complexity and duration of the procedure, making meticulous perioperative planning essential. Awake fiberoptic nasal intubation is considered the gold standard in managing such airways [1,2].

CASE REPORT

A 24-year-old cachexic, malnourished female weighing 32 kg presented with complete inability to open the mouth secondary to congenital bilateral TMJ ankylosis. The surgical plan involved bilateral TMJ replacement followed by genioplasty.

Preoperative Assessment

Mallampati Score: Not assessable

Mouth opening: 0 mm

Neck Movement: Mildly restricted

Airway Imaging: Showed bony fusion at TMJ

The patient received one unit of PRBC one day prior to surgery as preoperative haemoglobin was 8.4 g/dL. In addition to standard investigations, serum calcium, phosphorus, vitamin D, and albumin were found to be on the borderline lower side, for which correction was initiated one week preoperatively.

Anaesthetic Plan And Course

High-risk consent including postoperative ICU care and ventilatory requirement was taken. Adequate blood products were reserved and NBM status confirmed. Two wide-bore IV lines were secured.

Airway preparation included nebulisation with 4% lignocaine (3 mL), nasal decongestion with oxymetazoline drops, and glycopyrrolate 140 mcg IV. Monitoring included ASA standard monitors and temperature probe. High-flow nasal oxygen was started at 4 L/min. Midazolam 0.5 mg IV was given as premedication.

Remifentanyl infusion (1 mg/50 mL) was initiated at 20 mcg/mL with a plasma concentration of 2 ng/mL using TCI pump. Ramsay sedation score achieved was 3. Bilateral Superior laryngeal Nerve and transtracheal blocks were administered with 2% lignocaine (2 mL each). Awake fiberoptic nasal intubation was attempted with a 6.5 mm ID ETT but was unsuccessful. A 6.0 mm ID ETT was passed via the left nostril and fixed at 26 cm. Correct placement was confirmed with fiberoptic visualization, auscultation, and EtCO₂ appearance.

Induction was done with propofol 60 mg and atracurium 25 mg IV.

Maintenance included sevoflurane (0.2–2%) with oxygen:air (2:2), and atracurium infusion (250 mg/50 mL at 3 mL/hr). ABG-guided correction with sodium bicarbonate (25 mL) was administered intraoperatively.

Intraoperatively, 2 units PRBC and 4 units FFP were transfused. Calcium gluconate 8 mL in 100 mL NS and furosemide 5 mg IV were administered. Antibiotics were given as per protocol. Total IV fluid: 3510 mL. Blood loss: ~1650 mL. Urine output: 950 mL. HGT was monitored 2-hourly. Throat pack was placed once mouth opening was achieved and removed postoperatively.

The surgery lasted approximately 16 hours. The patient was shifted to ICU intubated, sedated, and paralysed. She was extubated uneventfully after 24 hours of postoperative care.

DISCUSSION

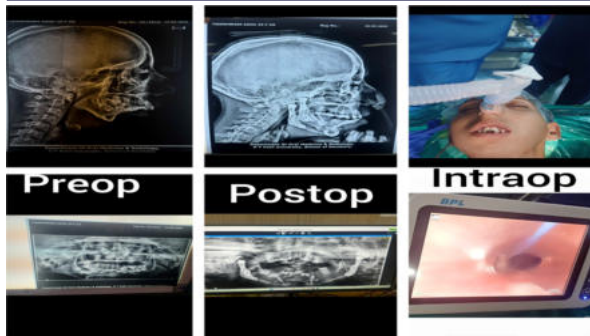
Airway management in patients with zero mouth opening remains one of the most formidable anaesthetic challenges. Awake fiberoptic intubation allows spontaneous ventilation, minimizing the risk of hypoxia. Remifentanyl, delivered via TCI pump, provides titratable sedation while maintaining respiratory drive. Regional airway blocks reduce discomfort and reflexes during fiberoptic instrumentation.

Hypothermia, a critical risk in long-duration surgeries, was successfully avoided by continuous temperature monitoring. Additional challenges included the patient's poor nutritional status, which influenced anaesthetic drug dosing and required meticulous intraoperative management. This case emphasizes the importance of thorough preoperative optimization, team coordination, and advanced airway planning in high-risk maxillofacial cases.

CONCLUSION

In congenital TMJ ankylosis with zero mouth opening, awake fiberoptic nasal intubation under remifentanyl sedation remains the safest method for airway management. Regional airway blocks further enhance safety. Optimal outcomes depend on multidisciplinary planning, patient optimization, and vigilant intraoperative care.





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