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Airway management in a submandibularly extended masseter abscess patient with awake fiberoptic intubation

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Abstract

Background: Tracheal intubation is the gold standard for securing the airway and is a core skill for every anaesthetist. While typically performed after induction of anaesthesia, certain clinical scenarios such as deep neck infections or abscesses with airway distortion necessitate an awake approach. Untreated odontogenic infections may extend into deep neck spaces such as the submandibular or submental region, causing trismus, tissue oedema, and restricted airway access, making conventional intubation risky due to potential abscess rupture and aspiration.

Objectives: To present a case of successful airway management in a patient with a submandibular abscess using awake fiberoptic intubation and to emphasize its value as a safe and effective approach for anticipated difficult airways.

Methodology: A 46-year-old female presented with fever, progressive facial swelling, trismus, and dysphagia for one week. Preoperative airway assessment revealed restricted mouth opening (2 cm), short neck, and limited extension. Under conscious sedation and airway blocks, nasal fiberoptic bronchoscope-guided intubation was performed with 7.0 mm flexometallic endotracheal tube after adequate topical anaesthesia using lignocaine and oxymetazoline for nasal decongestion. General anaesthesia was maintained with O₂, N₂O, sevoflurane, and atracurium.

Results: The patient was successfully intubated with minimal discomfort, and surgery for incision and drainage was completed uneventfully. Postoperative recovery was smooth with no evidence of airway trauma, aspiration, or stridor.

Conclusion: Awake fiberoptic intubation remains the gold standard technique for managing patients with anticipated difficult airways, especially in cases of deep neck infections. Proper preoperative preparation, adequate topical anaesthesia, effective communication, and teamwork are essential for ensuring patient safety and optimal outcomes.

Keywords: Awake fiberoptic intubation, difficult airway, submandibular abscess, anaesthesia management, airway blocks, deep neck infection, trismus, airway safety.

Introduction

Tracheal intubation, which is the gold standard for securing the airway, is a core skill every anaesthetist should know and is done after induction of anaesthesia (Raval *et al.*, 2012) ^[9] However, some circumstances, like deep neck infections with a difficult airway, demand an awake approach in which skilful airway management is necessary.

Untreated dental caries may spread in the bone and the spaces, like the submandibular, submental, retropharyngeal, or lateral pharyngeal spaces, which may lead to deep neck infections. Restricted temporomandibular joint mobility with trismus may occur in severe cases, and pharyngeal, laryngeal oedema may occur, which causes narrowing and may cause a difficult airway (Ludwig Angina, 2025) ^[10].

A major threat is that there is a chance of rupture of an abscess intraorally during intubation, and aspiration also may occur. We present a case of a masseter abscess extending submandibularly, with an anticipated difficult airway, posted for incision and drainage, and was successfully intubated by awake fiberoptic intubation.

Case report

A 46-year-old female with complaints of fever, progressive facial swelling, redness, severe pain, and dysphagia since 1 week.

No other comorbidities

- No h/o drug allergies.
- Examination
- General examination
- Moderately built and nourished
- Airway examination
- Restricted mouth opening
- Inter-incisor distance: 2 cm
- short neck
- Mallampati grading could not be assessed.
- Thyromental distance: 5 cm.
- Neck extension was restricted due to pain.
- Systemic examination: Normal
- Blood investigations, ECG, and Chest X-ray were within normal limits.

Plan of Anaesthesia

Under conscious sedation and airway blocks, nasal fibreoptic bronchoscope guided intubation and GA with controlled mechanical ventilation.

The patient was informed about awake fibre-optic ET intubation and general anaesthesia.

High-risk-informed and written consent for anaesthesia, surgery, and emergency tracheostomy, the need for post-op ventilatory support was considered.

NPO orders were given.

Pre-op preparation: IV access was secured with an 18-G cannula, and IV fluids were started. All standard monitors were connected. Nebulization with 2 ml of 4% Lignocaine, installation of 0.1% oxymetazoline nasal drops was given half an hour before surgery for decongestion.

The posterior pharyngeal wall was sprayed with 5 puffs of 10% lignocaine spray.

- **Pre-medication:** Inj. Ranitidine 50 mg IV, Inj. Ondansetron 4mg iv, Inj. Glycopyrrolate 0.2 mg IV was given.
- **Intra-operative:** airway blocks with 2% Lignocaine were done.

Pre-oxygenation with 100% O₂-5 mins

Intubated with a 7.0 mm flexometallic ET tube through the right nostril using an adult fibre optic bronchoscope and confirmed with EtCO₂, later Inj. Propofol 2 mg/kg & Inj. Atracurium 0.5 mg/kg given.

Maintenance with O₂ + N₂O + sevoflurane + Inj. Atracurium 0.1 mg/kg (I.V.) and intermittent positive pressure ventilation. Surgery was completed in 1hr 30 minutes.

Return of spontaneous respiratory efforts and obeying commands was checked, and after attaining, reversal was done with Inj. Neostigmine (0.05 mg/kg) + glycopyrrolate (0.008 mg/kg) I.V.

Extubation was carried out with smooth emergence. Post extubation was monitored for any stridor or any respiratory distress. The procedure and the recovery were uneventful.

Discussion**The causes of difficult intubation in this case are:**

- Limitation of oropharyngeal space.
- Decrease in pharyngeal space.
- Restricted neck movement.
- Reduction in submandibular compliance.

Options available for intubation in this case are

- Awake fibre-optic intubation.
- Laryngeal mask airway.
- Intubation laryngeal mask airway.
- Retrograde intubation.
- Blind nasal intubation.
- Tracheostomy.

Fibre-optic intubation is the gold standard in this case, as there is a risk of abscess rupture and aspiration compared to other methods.

Visualisation of the glottis and ET tube insertion can be done better by fibreoptic intubation.



Fig 1: Clinical presentation



Fig 2: Awake fibreoptic intubation setup

Conclusion

The gold standard for a difficult airway is fibreoptic intubation, and it is safe and effective in patients with a difficult airway.

Additional skills, Proper preoperative preparation, intraoperative planning teamwork are always necessary for a successful outcome.

Conflict of Interest

Not available

Financial Support

Not available

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