

## CASE REPORT

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### SUBMENTAL INTUBATION WITH FLEXIBLE BRONCOSCOPE IN PANFACIAL FRACTURE REDUCTION

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**ABSTRACT:** Anaesthesia for panfacial fracture reduction is a challenge to anaesthetist. Oral and nasal intubation makes good reduction difficult for the surgeon. Tracheostomy carries high risk. Submental intubation would be the better alternative for short term airway management. Using flexible bronchoscope makes even difficult intubations successful.

**KEYWORDS:** Submental intubation, flexible bronchoscope, panfacial fractures.

**INTRODUCTION:** Panfacial fractures involve the skull base, nose, maxilla and mandible. These patients need early open reduction and rigid internal fixation. The biggest challenge in these patients for an anaesthetist is maintaining airway without interfering with the surgeon. Most patients need maxillo-mandibular fixation for adequate reconstruction. Oral intubation is not possible in these cases. Naso endotracheal intubation is contravertial. Cricothyrotomy or tracheostomy are the traditional airway control methods. Submental intubation is an alternative to tracheostomy for shorter airway control. Traditionally submental intubation is done with rigid laryngoscope. However in many patients with mandibular fractures tracheal intubation with rigid laryngoscope would be difficult due to trismus, oedema and altered oral anatomy. Using flexible bronchoscope in these patients would lead to successful tracheal intubation. This can be diverted to submental route later with ease.

**CASE REPORT:** Four patients who had sustained fracture of maxilla, nasal bones and mandible after road traffic accident were posted for open reduction and internal fixation. Maxillomandibular fixation was a must in these patients. Nasal or oral endotracheal tube was not feasible for good reduction. Submental intubation was considered as an alternative to tracheostomy. Because of oedema and trismus rigid laryngoscope could not be used in these patient. Hence patients were intubated orally, awake with flexible bronchoscope with a flexometallic endotracheal tube. Patients were anaesthetised with propofol, atracurium and isoflurane. Submental region was painted and draped. With 2% lignocaine with adrenaline the incision site was infiltrated. Incision of 1.5 cms were made in the midline posterior to inferior border of mandible.

A curved artery forceps was passed through the submental incision and then through subcutaneous layer, platysma, mylohyoid muscle, sub mucosa and oral mucosa. After entering oral cavity incision was extended parallel to gingiva. Curved artery forceps is opened to widen the passage. The tube connector was removed. With the help of forceps the tube is pulled out of the submental incision and the connector is fixed back. To prevent tube displacement from the larynx, the tube is manually supported in the oral cavity while passing through the passage. After passing the tube through the passage, its position is confirmed by auscultation and capnography. Tube fixed with stay sutures. All four patients were extubated immediately after the procedure. One patient

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had superficial infection in the submental wound, which healed with antibiotics. The other three patients had no complication.

**DISCUSSION:** The present techniques for reduction of panfacial fractures require a field free from intubation tube for good results. This makes airway management a great challenge to anaesthetist. Maxillo-mandibular fixation cannot be done with orotracheal tubes. Nasotracheal tube is not advised in patients with nasal bone fractures as it will be difficult to reduce nasal bones with tube in the nose.<sup>1</sup> Risks of tracheostomy for short term airway management is very high though it is the traditional method.<sup>2</sup> Retromolar intubation and nasal tube switch techniques are other options which are cumbersome and time consuming. Submental intubation is the next alternative.

Sir Hernandez Altemir in 1986 first introduced submental route for tracheal intubation. This route was more comfortable for the surgeons as they have enough space for reduction and fixation of midfacial and panfacial fractures.<sup>3</sup> The main complication of this procedure is partial dislodgement of submental tube down into right main bronchus. Extreme care was taken to prevent this with help of skin sutures and circumferential adhesive tapes. Bleeding from the wound, skin infection, arterial desaturation during conversion of oral tube into submental tube, damage to submandibular and submaxillary gland, damage to lingual nerve, fistula formation and scarring are the other complications. However scar of submental intubation is better accepted by patients than tracheostomy scar.<sup>4</sup>

Mandibular fractures are associated with trismus, distortion of oral anatomy and oedema. This makes intubation with direct laryngoscope difficult. Using flexible bronchoscope makes awake intubation possible. Flexible bronchoscope has suction port to clear secretions and blood and port for injection of topical anaesthetics. Patient can be intubated orally. After intubation diverting the tube to submental route gives wider access to the surgeon.<sup>5</sup>

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Picture of submental intubation

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