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Case Report

Anesthetic Management of 50-Year-Old Male Patient with Pan-Facial Trauma: Challenges and Considerations

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Panfacial trauma, which involves multiple fractures of the facial bones, presents significant challenges for anesthetic care. These injuries frequently result from high-impact accidents and can compromise the patient's airway, making both intubation and ventilation difficult. The anesthesiologist must navigate obstacles such as facial distortion, bleeding, and limited mouth opening while also taking cervical spine precautions. Successfully managing these cases requires a thorough preoperative assessment and meticulous planning, often necessitating advanced airway techniques. This report details the anesthetic management of a 50-year-old male with panfacial trauma who required reconstructive surgery. It highlights the use of CMAC video laryngoscopy as a dependable method for securing the airway when difficult intubation is anticipated. The report also explains the rationale behind the anesthetic strategies employed and the perioperative challenges that were encountered[1-4]. By presenting this case, the authors aim to enhance the current literature on managing complex airway problems in trauma patients and underscore the importance of tailoring anesthetic plans to individual patient needs. By sharing this experience, we aim to contribute to the existing body of knowledge on managing complex airway scenarios in trauma patients and emphasize the importance of individualized anesthetic planning in such cases.

Pan-facial trauma, involving multiple fractures of the facial bones, presents significant challenges in anesthetic management. These injuries often result from high-impact accidents and can lead to airway compromise, making intubation and ventilation difficult [1]. The anesthesiologist must navigate potential obstacles such as facial distortion, bleeding, and limited mouth opening while maintaining cervical spine precautions. Managing these cases requires a thorough preoperative assessment and careful planning, often necessitating advanced airway techniques [2].

This case report describes the anesthetic management of a 50-year-old male patient with panfacial trauma scheduled for reconstructive surgery. It highlights the use of CMAC video laryngoscopy intubation as a safe and effective technique in securing the airway in a patient with anticipated difficult intubation [3-4]. The report also discusses the rationale behind the anesthetic choices and the perioperative challenges encountered.

By sharing this experience, we aim to contribute to the existing body of knowledge on managing complex airway scenarios in trauma patients and emphasize the importance of individualized anesthetic planning in such cases.

Case Presentation

A 50-year-old male, weighing 100 kg, was admitted to the emergency department after a road traffic accident while under the influence of alcohol. He had a known medical history of diabetes mellitus, hypertension, and a previous episode of paralysis four years earlier. The patient's examination revealed panfacial trauma, multiple rib fractures, liver laceration, pneumocephalus, and mild bilateral hemothorax. His vital signs were stable, but he

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had reduced bilateral air entry. Given his medical history and current state, he was classified as ASA III. The initial airway assessment suggested potential difficulties due to the facial trauma. After attaching monitors and administering premedication, induction was performed using a CMAC video laryngoscope. An 8.5 mm flexometallic endotracheal tube was used for oral intubation. During the subsequent attempt at submental intubation, the patient experienced desaturation, with his SpO2 dropping from 100% to 75%. Bronchospasm was also noted, characterized by a 'shark fin' appearance on the capnography, and his blood pressure increased to 150/100 mmHg. These complications were managed by increasing the depth of anesthesia with a 100 mg bolus of Inj. Propofol, 2 mg of Inj. Vecuronium, and 100 mg of Inj. Hydrocortisone. The patient's saturation was maintained, and the submental intubation was successfully completed. The remainder of the procedure was uneventful.

Following the surgery, the patient was transferred to the SICU while on bag and mask ventilation. Another episode of desaturation occurred during this transfer, with his SpO2 dropping to 80%, which was promptly managed with bag and mask ventilation using 100% O2. His vital signs stabilized over the next 24 hours. He was extubated on postoperative day 1 and kept under observation for one week.

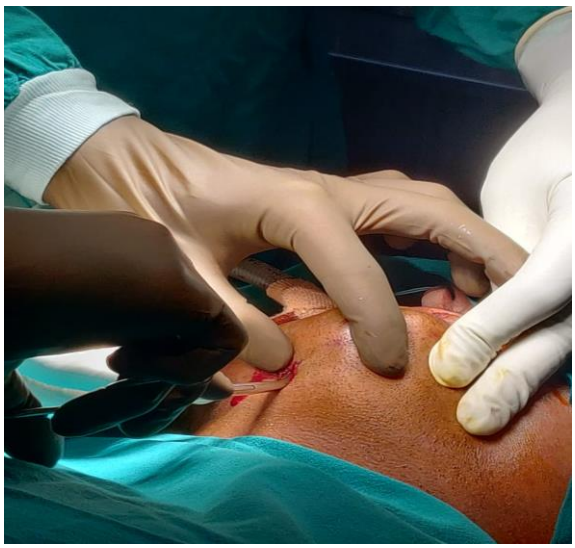

Figure 1- Submental intubation

Discussion

This case demonstrates the numerous challenges in providing anesthetic care to a patient with panfacial trauma, which was further complicated by multiple comorbidities and associated injuries. Airway management is the most critical issue in maxillofacial trauma [1]. In this specific instance, CMAC video laryngoscopy was beneficial for the initial oral intubation. Evidence supports its use in improving first-pass success rates in patients with anticipated airway difficulties [5]. Submental intubation, first reported by Altemir in 1986, is a suitable alternative to tracheostomy when nasal intubation is contraindicated and long-term ventilation is not required [6]. Although generally considered safe, complications like the desaturation and bronchospasm observed in this case have been reported [7]. The prompt recognition and management of these complications were crucial for the good outcome. The episode of bronchospasm, indicated by the characteristic 'shark fin' capnographic pattern, demanded immediate intervention [8]. The management involved deepening anesthesia, administering muscle relaxants, and using corticosteroids an approach that is consistent with current recommendations for intraoperative bronchospasm. The bolus of propofol was particularly relevant due to its bronchodilatory properties [9].

The patient's history of diabetes, hypertension, and prior paralysis further complicated the anesthetic management, requiring thoughtful drug selection and careful hemodynamic control [10]. The decision to transfer the patient to the SICU on bag-mask ventilation rather than immediate extubation was a cautious one, given the intraoperative difficulties. This strategy allowed for close monitoring and gradual weaning, thereby lowering the risk of postoperative respiratory complications [11]. The timing of extubation in trauma patients is crucial. Extubating the patient on postoperative day 1 suggested that the team ensured adequate resolution of airway edema and recovery of airway reflexes before attempting extubation [12]. This careful strategy contributed to the favorable outcome and prevented reintubation, which is associated with significant morbidity and mortality [13].

This case emphasizes the importance of a multidisciplinary approach involving anesthesiologists, surgeons, and critical care specialists working together to ensure optimal patient outcomes [1].

Conclusion

Submental intubation offers anesthesiologists an effective method for securing the airway in complex maxillofacial trauma while preserving an unobstructed surgical field. It can be a safe and practical alternative to tracheostomy in select faciomaxillary procedures, often facilitating a quicker recovery. Any indication of bronchospasm should be promptly recognized and addressed without delay.

This case highlights the critical role of a comprehensive preoperative evaluation, strategic planning, and adaptability to evolving intraoperative conditions when managing patients with extensive maxillofacial trauma and comorbidities. Furthermore, it reinforces the value of

coordinated teamwork among anesthesiologists, surgeons, and intensive care specialists to achieve the best patient outcomes.

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