



Backed Into A Corner: Awake Tracheostomy in a 3-Year-Old

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BACKGROUND

Awake tracheostomies have been described in the adult population when securing the airway has failed and other methods are inappropriate.¹ Awake tracheostomy in pediatric patients have seldom been described in literature aside from one case report² and anecdotal reports from history. This case report describes the anesthetic considerations of an awake tracheostomy performed on a 3-year-old boy who had previously sustained multi-trauma injuries and failed extubation.

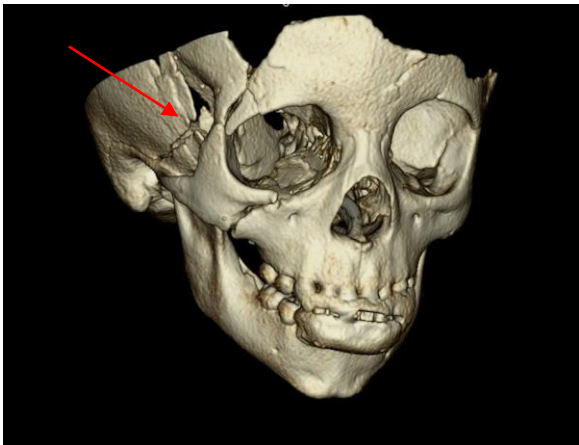


Figure 1. 3D CT Render of Skull Fractures

Case Description

A healthy 3-year-old male presented after a motor vehicle accident with severe traumatic brain injury, depressed skull fractures, and multiple facial fractures. The patient was intubated and underwent emergent decompressive craniectomies and repair of fractures. The patient started having fluid drainage from ears and rhinorrhea that was positive for beta-2-trefferin suggesting a CSF leak. Episodes of neuro-storming or sympathetic storms were noticed that involved jaw clenching to the point of tongue lacerations and edema. An immobile bite block was inserted to protect the tongue. The patient was extubated on hospital day 9 and developed increased work of breathing, inspiratory stridor, inability to manage oropharyngeal secretions, and desaturations. Otolaryngology was consulted for airway evaluation and a joint decision with anesthesiology staff was made to proceed with urgent tracheostomy.

The presence of a rigid bite block, trismus, and jaw clenching prevented suctioning or oropharyngeal airway placement. The recent CSF leak made positive pressure by mask ventilation or blind nasopharyngeal manipulation unsafe. Given the history of intermittent neuro-storming and the success of alpha-2 agonism in decreasing severity of these episodes, IV dexmedetomidine was our first line agent. In terms of airway management, it was felt that the safest possible options were intubating nasally over a flexible fiberoptic bronchoscope or tracheostomy.

In the operating room, with spontaneous ventilation maintained, tracheostomy landmarks were infiltrated with local anesthesia and no anesthetic medications administered. A tracheostomy tube was inserted. After placement of the tube, the patient was sedated with a propofol bolus and 3% sevoflourane inhalation. A dexmedetomidine infusion was initiated and continued on transport to PICU.

CONCLUSION

Awake tracheostomies are generally performed when a patient is considered unsafe to be safely intubated under general anesthesia. Common indications include acute airway obstructions secondary to head and neck neoplasms, specifically pharyngeal and laryngeal tumors, deep neck infection, and bilateral vocal fold paralysis.

We performed an awake tracheostomy on this patient for multiple reasons. Due to the concern for CSF leak, the decision was made to avoid positive pressure ventilation via mask airway at all costs. Furthermore, insertion of a nasopharyngeal airway under flexible bronchoscopic guidance was considered. Use of heliox was considered but the patient's condition deteriorated with episodes of desaturations. The rigid bite block placed by hospital dentistry was not easily dislodged and prevented placement of an oropharyngeal airway.

Communication between the anesthesiology and otolaryngology team were paramount in decision making to formulate a safe yet effective plan.

REFERENCES

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