

IMAGES IN HOSPITAL MEDICINE

Early identification of the difficult airway from orbital deformity

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CASE:

We report an adult patient presenting for surgery with hidden marked orbital exenteration (Figures 1, 2). The patient had history of resected left orbital neoplasm that remained concealed under an eye patch during preoperative physical examination and presentation to the operating room. Face mask ventilation proved impossible after anesthetic induction. Removal of the eye patch revealed a large facial orbital floor defect from exenteration of the orbit floor and the patient immediately underwent endotracheal intubation. Following the procedure, postoperative respiratory insufficiency required additional airway support. Emergent placement of a laryngeal mask airway provided adequate ventilation.

DISCUSSION

Defects in the facial orbit may cause challenging airway management events after induction of anesthesia. These defects result from neoplastic disorders or trauma requiring exenteration of the facial orbit.¹ The extent of orbital injury can be missed in the preoperative assessment due to incomplete review of medical records, history or exam, concealment of visible defects, or realistic prostheses. Undetected transorbital airways provide challenges to the anesthesiologist by

hindering mask ventilation, thereby precipitating hypoxia and difficult airway scenarios.

Eye enucleation is usually not problematic, but exenteration of the facial orbit may create a difficult airway situation. Complete examination of all orbital deformities in the setting of prior orbital surgery or trauma can provide a safeguard against an unexpected difficult ventilation scenario. We recommend a review of medical imaging or physical examination, including the orbit, for a patient with prior orbital surgery when preparing for intubation.

If there is discovery of airway-penetrating facial orbit defects in patients after induction of anesthesia or in a scenario requiring emergency airway support, the airway may be managed by immediate endotracheal intubation or placement of laryngeal mask airway. Mask ventilation of patients with these defects can be difficult or impossible due to the orbital orifice.^{2,3} In some circumstances, orbital exenteration may provide glottic visualization for transorbital endotracheal intubation.^{4,5} Preoperative evaluation of ophthalmic and orbital deformities can be overlooked but it remains an important component to the patient evaluation for those performing advanced airway support.

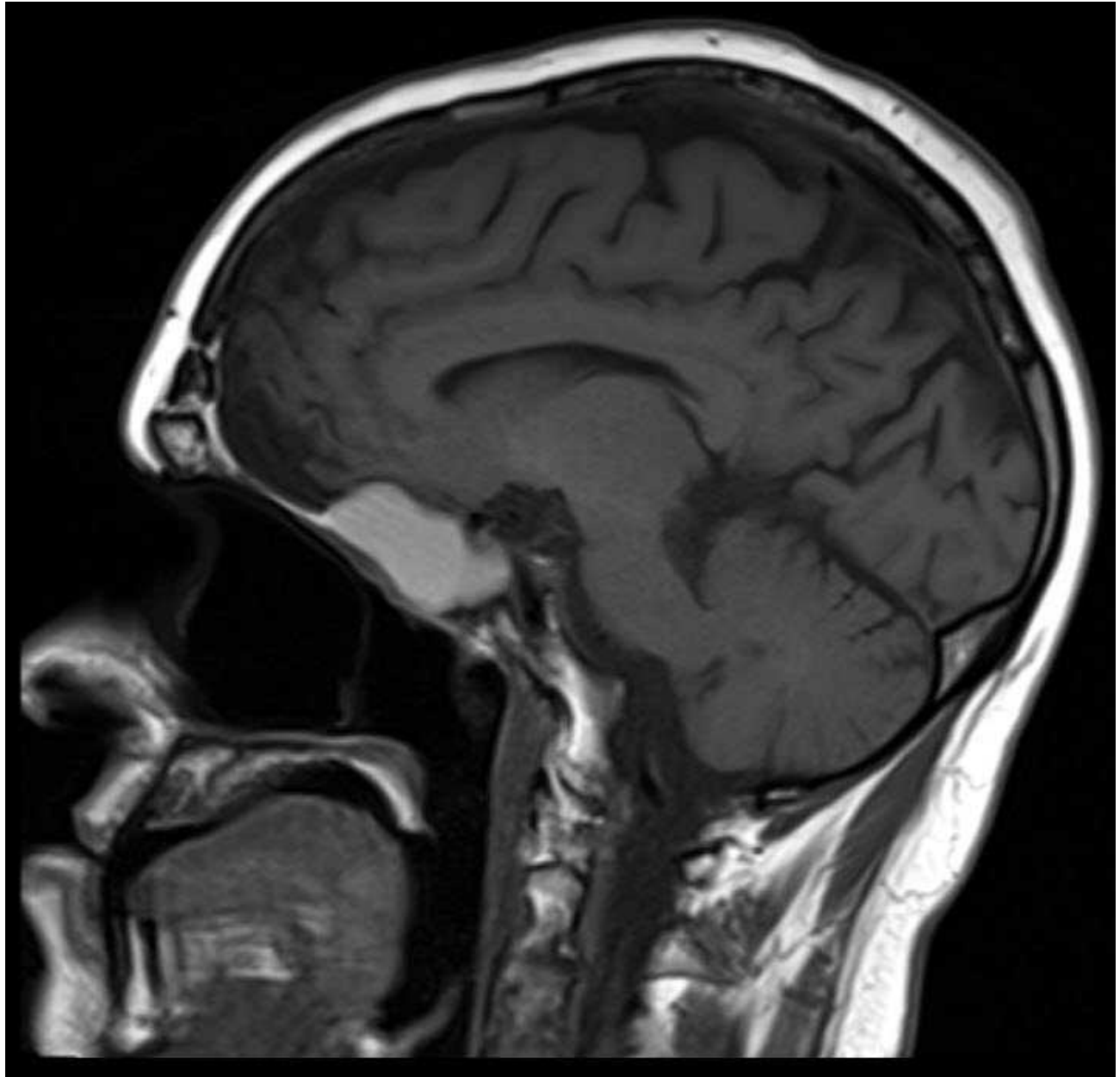


Figure 1: Parasagittal T1-weighted magnetic resonance image of the head showing a large exenteration of the left facial orbit with an airway-penetrating orbital floor defect



Figure 2: Axial section of computed tomography image without contrast of facial bone and soft tissue showing a large exenteration of the left facial orbit with an airway-penetrating orbital floor defect

Notes

Potential conflicts of interest: Authors declare no conflicts of interest.

References

1. Kesting MR, Koerdt S, Rommel N, Mücke T, Wolff KD, Nobis CP, et al. Classification of orbital exenteration and reconstruction. *J Craniomaxillofac Surg.* 2017;45(4):467-73.
2. Shamshery C, Kannaujia A, Srivastava D. Post orbit exenteration cases: A “red flag” for airway management. *J Clin Anesth.* 2016;32:72-4.
3. Horishita R, Kayashima K. Failed mask ventilation due to air leakage around the orbit in a patient with a history of radical maxillofacial surgery with orbital exenteration. *Turk J Anaesthesiol Reanim.* 2016;44(6):317-19.
4. Sander M, Lehmann C, Djamchidi C, Haake K, Spies CD, Kox WJ. Fiberoptic transorbital intubation: Alternative for tracheotomy in patients after exenteration of the orbit. *Anesthesiology.* 2002;97(6):1647.
5. Sheehan W, Wilde C. Transorbital endotracheal intubation in a case of severe facial trauma. *Resuscitation.* 2011;82(3):2