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Case Report

When Normal Looks Deceptive: Unexpected Difficult Airway in a Child with Subtle Craniofacial Anomalies

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ABSTRACT

Airway management in pediatric patients with craniofacial anomalies can be unpredictable, particularly when syndromic features are subtle or masked. We report the case of a 2-year-old boy (20 kg) posted for orchidopexy, whose preoperative airway assessment was limited by irritability, and whose dysmorphic features resembled those of his parents, masking suspicion of an underlying syndrome. Induction was carried out uneventfully, but intubation attempts with 4.5 mm and bougie-guided 4.0 mm endotracheal tubes failed. Placement of an i-gel size 2 initially secured ventilation, though progressive hypercarbia ensued, with end-tidal carbon dioxide ($EtCO_2$) rising to 75 mmHg. Video laryngoscopy subsequently revealed a markedly anterior larynx, severe supraglottic edema, and a ranula-like swelling. Administration of hydrocortisone and dexamethasone was followed by successful intubation with a bougie-guided 3.5 mm tube, after which ventilation normalized, and the remainder of anesthesia was uneventful. This case highlights the importance of anticipating hidden syndromic airway challenges, recognizing the limitations of supraglottic devices in the setting of edema, and relying on early video laryngoscopy, smaller tube selection, corticosteroids, and advanced adjuncts to ensure safe outcomes.

Introduction

Difficult airways in children remain a significant concern for anesthesiologists due to anatomical and physiological differences from those in adults.

Subtle syndromic features may go unnoticed, especially when preoperative assessment is limited by irritability or the features resemble those of family members.

We describe a pediatric orchidopexy case complicated by an unanticipated difficult airway, reinforcing the necessity for heightened vigilance during airway management in children.

Case Report

A 2-year-old male child, weighing 20 kg, was planned for orchidopexy. Preoperative airway assessment was limited as the child was extremely irritable, preventing an oral examination.

Although frontal bossing and a depressed nasal bridge were present (Figure 1,2), these features resembled the parents and did not raise suspicion of a syndrome.

Birth history, systemic examination, and routine investigations were normal, and the child was deemed fit for anesthesia.

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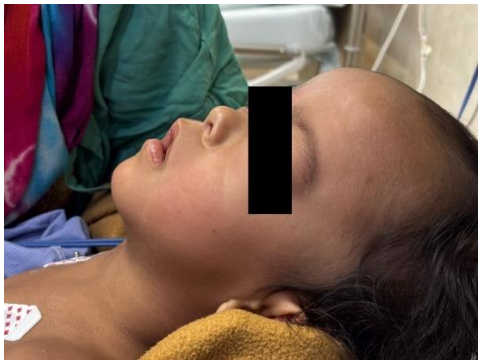

Figure 1- Depressed nasal bridge

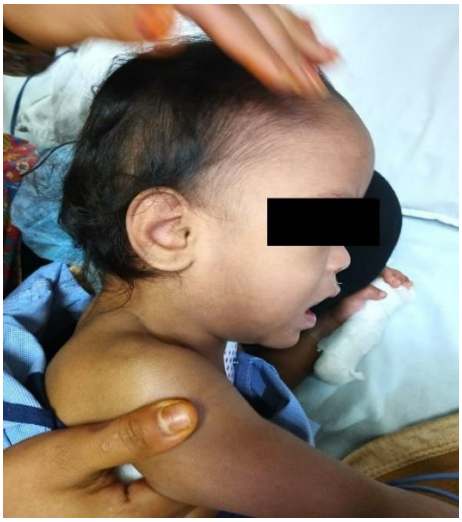

Figure 2- Frontal bossing

In the preoperative area, sedation was given with midazolam 0.02 mg/kg, glycopyrrolate 0.04 mg/kg, and ketamine 1 mg/kg. On shifting to the operating room, standard ASA monitors were attached, and preoxygenation with 100% oxygen was done for 3 minutes. Induction was carried out with fentanyl 2 µg/kg and propofol 2 mg/kg, followed by atracurium 0.5 mg/kg once ventilation was confirmed.

Direct laryngoscopy was attempted after 3 minutes. A 4.5 mm uncuffed endotracheal tube could not be advanced beyond the glottis, and a bougie-guided attempt with a 4.0 mm tube also failed. An i-gel size 2 was then inserted, which provided chest expansion, bilateral air entry, and a satisfactory $EtCO_2$ waveform. Caudal block was planned in the lateral position. However, during the block, $EtCO_2$ escalated to 65 mmHg and further increased to 75 mmHg aftermaking the child supine, despite assisted ventilation with 100% oxygen. Suspecting upper airway pathology, video laryngoscopy was immediately arranged. During laryngoscopy, the larynx was found to be markedly anterior, with gross edema of the epiglottis and vocal cords, leaving little space for tube passage. Additionally, a ranula-like swelling was observed beneath the tongue, which further complicated the airway anatomy (Figure 3). Intravenous hydrocortisone 2 mg/kg and dexamethasone 0.1 mg/kg were given promptly. While preparation for fiberoptic bronchoscopy was underway, another attempt was made with a smaller bougie-guided 3.5 mm uncuffed tube, which was successfully placed. Ventilation improved immediately, with normalization of $EtCO_2$ levels.

Figure 3- The marked arrow shows Ranula

Discussion

This case highlights the unpredictable nature of pediatric airway management, particularly when syndromic features are subtle or overlooked. Preoperative evaluation was limited by the child's irritability, which prevented an oral examination, and the dysmorphic features were mistaken for familial resemblance. Such masking of craniofacial anomalies has been reported in the literature, where syndromic traits only became apparent after intraoperative airway challenges [1-2]. The unexpected finding of a ranula-like swelling further compounded the difficulty. Intraoral lesions such as ranula or cysts can distort airway anatomy, hinder visualization, and narrow the glottic inlet, making intubation especially challenging [3]. The failed attempts with 4.5 mm and 4.0 mm tubes emphasized the need to anticipate downsizing in children with an anteriorly placed larynx or edematous cords [4]. While ventilation with the supraglottic airway (i-gel) was initially adequate, increasing hypercarbia indicated that effective ventilation could not be maintained as airway obstruction or edema worsened. [5-6].

Video laryngoscopy proved extremely useful in this scenario, revealing the anterior larynx, severe edema, and intraoral lesion, which were not appreciated on direct laryngoscopy. Its role in improving visualization and decreasing multiple intubation attempts in pediatric difficult airways is well documented [7]. The prompt

administration of corticosteroids (hydrocortisone and dexamethasone) helped reduce airway oedema,with existing evidence supporting their role in improving laryngeal conditions and reducing post-intubation morbidity [8]. The eventual success with a bougie-guided 3.5 mm tube highlights the fact that smaller-than-expected tubes should always be available in pediatric cases with a difficult airway. It is also recommended that readiness with a range of endotracheal tube sizes and adjuncts such as bougie, video laryngoscope, and fiberoptic bronchoscope are crucial [9].

In summary, this case highlights several key lessons: (1) subtle or masked syndromic features should always raise suspicion of a potentially difficult airway, (2) supraglottic airway devices are useful as a rescue but are not the definitive intubation aids in the presence of obstruction or edema, (3) early use of video laryngoscopy and availability of smaller tubes can be lifesaving, and (4) role of steroids should be considered promptly when airway edema is encountered.

Conclusion

Subtle syndromic features may be masked during preoperative evaluation, leading to unexpected airway difficulty in children. This case emphasizes the importance of vigilance, preparedness with multiple airway adjuncts, and prompt interventions such as video laryngoscopy, steroid administration, and tube downsizing. Awareness of such possibilities is essential for safe pediatric anesthesia practice.

References

[1] Walker RW, Ellwood J. The management of difficult intubation in children. Paediatr Anaesth. 2009; 19 Suppl 1:77-87.

[2] Krishna SG, Bryant JF, Tobias JD. Management of the Difficult Airway in the Pediatric Patient. J Pediatr Intensive Care. 2018; 7(3):115-125.

[3] Zhao YF, Jia Y, Chen XM, Zhang WF. Clinical review of 580 ranulas. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2004;98(3):281-7.

[4] Litman RS. Pediatric airway management and endotracheal intubation. In: Gropper MA, Cohen NH, Eriksson LI, Fleisher LA, Leslie K, Wiener-Kronish JP, editors. Miller's Anaesthesia. 9th ed. Philadelphia: Elsevier; 2020. p. 2689–2712.

[5] Jagannathan N, Sohn LE, Sawardekar A, Gordon J, Langen KE, Anderson K. Elective use of supraglottic airway devices for primary airway management in children with difficult airways. Br J Anaesth. 2014;112(4):742–748.

[6] White MC, Cook TM, Stoddart PA. A critique of elective pediatric supraglottic airway devices. Paediatr Anaesth. 2009;19(Suppl 1):55–65.

[7] Su YC, Chen CC, Lee YK, Lee JY, Lin KJ. Comparison of video laryngoscopes with direct laryngoscopy for tracheal intubation: a meta-analysis of randomised trials. Eur J Anaesthesiol. 2011;28(11):788–795.

[8] Biro P, Schwarzkopf K, Perioperative corticosteroids in paediatric anaesthesia: current evidence and controversies. Curr Opin Anaesthesiol. 2017;30(3):350–357.

[9] Engelhardt T, Weiss M.A child with a difficult airway: what do I do next? Curr Opin Anaesthesiol. 2012;25(3):326–332.