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CASE REPORT

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A giant congenital epiglottic cyst in a neonate: a case report

Xiao Deng[1,2], Min Diao[1,2] and Jieshu Zhou[1,2*]

Abstract

Congenital epiglottic cysts, though rare, represent a recognized etiology of upper airway obstruction in neonates and infants. Airway management of large epiglottic cysts presents significant challenges due to the inherent risk of catastrophic airway compromise. We present a case of difficult airway management in a neonate with a giant congenital epiglottic cyst, detailing an effective technique for glottic visualization and successful endotracheal intubation.

Keywords Epiglottic cysts, Neonate, Airway management

Case report

A five-day-old male neonate (gestational age 40 weeks, birth weight 3400 g, vaginal delivery) presented with progressive respiratory distress and feeding intolerance since birth. Physical examination revealed marked suprasternal retractions indicative of upper airway obstruction. Flexible nasopharyngoscopy under local anesthesia demonstrated a massive epiglottic cyst completely obscuring glottic visualization (Fig. 1). The patient was urgently transferred to the operating room for cyst excision under general anesthesia.

Anesthetic induction was achieved with fentanyl (2 mcg/kg) and 3% sevoflurane in 100% oxygen, maintaining spontaneous ventilation. Following establishment of adequate anesthetic depth (end-tidal sevoflurane 1% with loss of eyelash reflex), dexamethasone 1 mg was administered for airway edema prophylaxis. Direct laryngoscopy revealed complete glottic obstruction by the cystic mass. Multiple attempts at visualization using GlideScope video laryngoscopy proved unsuccessful.

A novel cyst decompression technique was subsequently employed. Under direct visualization, the cyst was carefully punctured using a customized needle assembly (16G angiocatheter connected to wall suction) (Fig. 2). Immediate aspiration of cyst contents allowed complete collapse of the cystic structure, enabling clear visualization of vocal cords. A 3.0 cuffed endotracheal tube was successfully placed, followed by maintenance anesthesia with 10 mcg fentanyl and 3% sevoflurane. Definitive surgical management was achieved through CO_2 laser marsupialization via rigid bronchoscopy (Fig. 3). The patient was extubated on postoperative day four and discharged two weeks later without respiratory sequelae. Histopathological examination confirmed a squamous epithelial-lined cyst with minimal inflammatory infiltrate.

*Correspondence:
Jieshu Zhou
jieshuzhou@foxmail.com
[1] Department of Anesthesiology, West China Second University Hospital, Sichuan University, Chengdu 610041, Sichuan, People's Republic of China
[2] Key Laboratory of Birth Defects and Related Diseases of Women and Children, Ministry of Education, Sichuan University, Chengdu, Sichuan, China

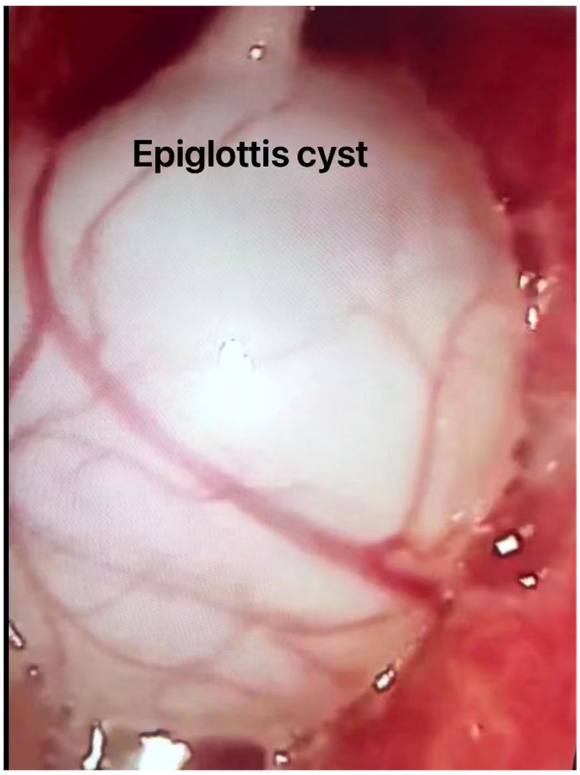

Fig. 1 Epiglottic cyst visualized by direct laryngoscope

Discussion

Congenital epiglottic cysts occur with an estimated incidence of 1.82 per 100,000 live births [1]. These lesions typically manifest in the first postnatal week as progressive airway obstruction, representing a potentially fatal emergency [2]. While advanced imaging modalities (MRI, ultrasonography) can aid diagnosis, direct laryngoscopy remains the gold standard for definitive evaluation [3].

Therapeutic management requires meticulous airway planning, with current literature emphasizing two primary approaches: cyst rupture for immediate airway access [4] versus controlled aspiration to minimize content extravasation [5]. Our case demonstrates the efficacy of controlled decompression using a simple suction-assisted technique. The modified 16G needle apparatus allows simultaneous puncture and immediate content evacuation, significantly reducing the risk of iatrogenic cyst rupture and subsequent airway contamination. The critical technical considerations include maintenance of spontaneous ventilation throughout induction; strategic corticosteroid administration for airway edema mitigation; utilization of video laryngoscopy for optimal visualization and immediate suction availability during cyst puncture.

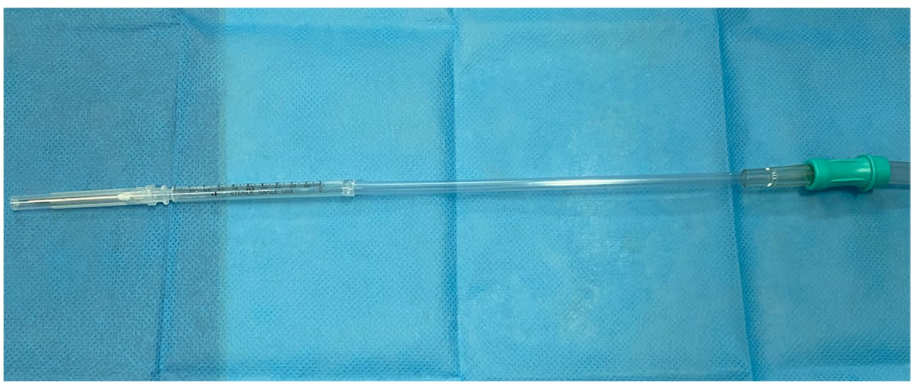

Fig. 2 customized needle assembly (16G angiocatheter connected to wall suction)

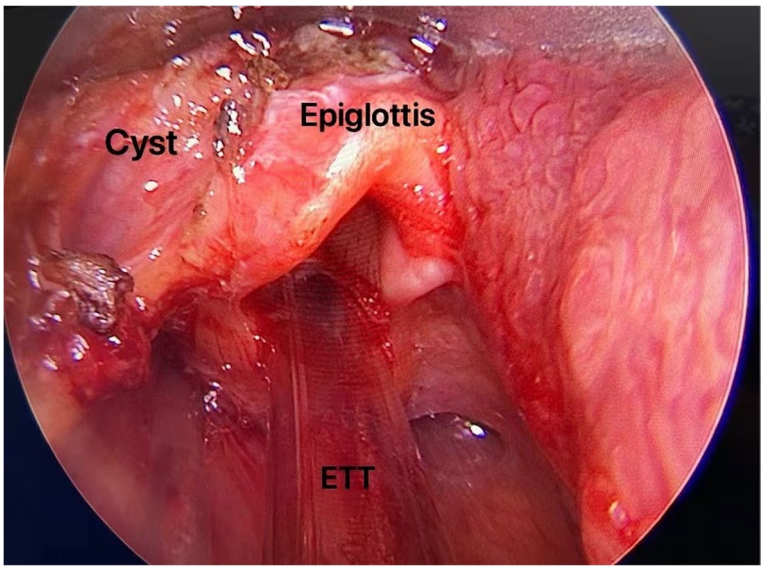

Fig. 3 The view after surgical resection

Conclusion

This case illustrates an effective airway management strategy for giant congenital epiglottic cysts. Controlled cyst decompression using a suction-assisted needle technique under direct visualization provides following several advantages: immediate reduction of mass effect; preservation of glottic visualization; minimization of cyst content spillage and facilitation of definitive surgical intervention.

We advocate for consideration of this technique in neonatal airway emergencies involving obstructive cystic lesions. Preprocedural multidisciplinary coordination between anesthesia, ear-nose-throat (ENT), and neonatal intensive care teams remains essential for optimal outcomes.

Abbreviations

ENT Ear-nose-throat
G Gauge
CO_2 Carbon dioxide
MRI Magnetic resonance imaging

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None.

Clinical trial number

Not applicable.

Authors' contributions

Xiao Deng and Jieshu Zhou prepared the original manuscript, Min Diao and Jieshu Zhou critically revised it. All authors have approved the final version of manuscript and agree to be accountable for all aspects of the work.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

None.

Consent for publication

Verbal consent for publication was obtained from the parents of the patient.

Competing interests

The authors declare no competing interests.

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