

LETTER TO THE EDITOR

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# Management of a giant cystic hygroma with restricted neck extension in a child with pediatric King Vision® video laryngoscope

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Sir

Cystic hygroma, a type of lymphangioma, is a benign congenital malformation of the lymphatic system that commonly involves the cervical and facial regions (Fonkalsrud 2006).

Anesthetic management of huge cystic hygroma excision poses considerable challenge because of the involvement of the airway and intraoperative blood loss (Mirza et al. 2010). We describe the successful management of a child having restricted neck extension due to huge cystic hygroma involving the neck and chest after obtaining a written consent from the child's parents.

An 18-month-old child, which was diagnosed and with a known case of cystic hygroma antenatally involving the neck and chest, was admitted for surgical excision of the tumor. The child received bleomycin sclerotherapy twice but the tumor failed to regress. Two days before the elective surgery, embolization of the tumor was done under sedation to reduce the blood loss. Preoperative examination showed a large 15 × 15 cm cystic fluctuant mass in the right anterior chest wall extending into the right axilla and neck with restricted neck extension (Fig. 1). A consent informing the high risk was obtained from the parents. Difficult laryngoscopy was anticipated in view of limited neck extension caused by the huge mass and hence difficult airway cart was kept ready. Due to the nonavailability of a pediatric fiberoptic bronchoscope, our plan was to manage the airway with a pediatric King Vision® video laryngoscope. A 24-G IV cannula was secured preoperatively in the left hand. Induction was done with sevoflurane and oxygen after pre-oxygenating with 100% oxygen. Mask ventilation was

adequate and after achieving adequate depth of anesthesia, laryngoscopy was done with King Vision® video laryngoscope size 1 blade and intubated with #3.5 uncuffed endotracheal tube with a Cormack-Lehane grading 3a. Anesthesia was maintained with oxygen and air with sevoflurane, fentanyl, and atracurium boluses. After excision of the mass, the raw area was covered with split thickness graft taken from the child and the father by the plastic surgery team. Intraoperative blood loss was 500 ml and we transfused 400 ml of packed red blood cells and 150 ml of fresh frozen plasma. In view of the prolonged surgery (16 h), the child was electively ventilated in the pediatric intensive care unit (PICU) and was extubated 24 h later.

Complete surgical excision is the preferred treatment modality for cystic hygroma, though other modalities such as sclerotherapy and radio frequency ablation may produce variable results (Mirza et al. 2010). Our patient had an antenatal diagnosis and though the parents were advised about the surgical treatment at the earliest, they refused to give consent for the surgery. The tumor progressively increased its size and debilitated the child's growth and development making him bedridden and finally the parents gave consent. Because of the enormity of the size and involvement of the neck and chest, we anticipated a difficult airway and massive intraoperative blood loss. King Vision® video laryngoscope can be a useful and safe alternative to pediatric fiberoptic bronchoscope in this type of case when there is restricted neck extension due to a large mass involving the side of the neck and chest. Maintenance of a spontaneous ventilation remains the most crucial step. Cystic hygroma can infiltrate the underlying structures and can cause significant blood loss during complete excision

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**Fig. 1** An 18-month-old child having restricted neck extension due to huge cystic hygroma involving the neck and chest

(Esmaeili et al. 2009). Adequate crossmatched blood products should be available intraoperatively. A meticulously planned strategy for securing the airway and emphasis on fluid management and good postoperative care is the crux of anesthetic management of cystic hygroma. King Vision® video laryngoscope can be useful in these scenarios.

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#### Consent to participate

Written consent obtained from child's parents.

#### Authors' contributions

GS was responsible for the manuscript preparation, manuscript editing, literature search, and intellectual content. SLG contributed to the manuscript review and intellectual content. DC was responsible for the manuscript preparation and literature search. All authors read and approved the final manuscript.

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#### Consent for publication

Consent was obtained from the child's parents.

#### Competing interests

The authors declare that they have no competing interests.

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#### References

- Esmaeili MR, Razvi SS, Harofteh HR, Tabatabaai SM (2009) Cystic hygroma: anaesthetic considerations and review. *J Res Med Sci* 14:191–195
- Fonkalsrud EW (2006) Lymphatic disorders. In: Grosfeld JL, O'Neill JA Jr, Coran AG, Fonkalsrud EW, Caldamone AA (eds) *Pediatric surgery*, 6th edn. Mosby Elsevier, Chicago, pp 2137–2145
- Mirza B, Ijaz L, Saleem M, Sharif M, Sheikh A (2010) Cystic hygroma: an overview. *J Cutan Aesthet Surg [serial online]* 3:139–144 Cited 2019 Jun 27

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