

Review Article

Cystic Hygroma... Difficult Airway Anaesthetic Management

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Abstract: Significant differences exist between airways of the neonate and the adults. Anaesthetic management of airway may be challenging in neonates and young infants with large neck masses like cystic hygroma because these patients are at risk for sudden complete airway occlusion resulting in hypoventilation and hypoxemia. Cystic hygroma are benign, but can be disfiguring. It is a condition which usually affects children. Treatment is surgical excision under general anaesthesia either one or multistage resections.

Keywords: Cystic Hygroma Anaesthesia Complete Airway Occlusion.

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INTRODUCTION

Cystic hygroma is a benign tumour composed of large lymph containing cysts. Lymphangiomas of head and neck region frequently present challenges to the anaesthesiologists due to extension in the neck, airway and thorax. These complex problems are posed by virtue of the lymphangiomas the more severe anaesthesia extension into the pharynx or thorax, hemorrhage during resection. We describe the difficulties encountered in intubation and postoperative care of the patient.

PREOPERATIVE EVALUATION

A 5 month old baby girl weighing 6kg presented with a swelling on the right side of the neck. The swelling was small in size when noticed at birth, which progressed gradually to the present size.

On Examination: Revealed a swelling on the right side of the neck sized 8cm*8cm, extending from the angle of the mandible to the clavicle.

On General Examination: Vitals were stable .child is tachypnoeic.

Pre-operative evaluation: of respiratory and cardiovascular system were normal.

Routine investigations: Like complete blood count, renal and liver function tests were all within normal limits.

Chest x-ray was done to exclude the presence of chest infection and intrathoracic extension of the tumour,

CT scan of head and neck revealed multiple fluid filled loculi that encircled on the right side of the neck with mild compression and deviation of trachea towards left side.

USG and FNAC; showed features of cystic hygroma.

PREOPERATIVE EVALUATION

The size and extent of the neck masses should be defined carefully in an effort to detect the potential for airway compromise and the avoid soft tissue trauma during intubation. In the absence of respiratory distress, cough, tachypnea, retraction and stridor, physical examination should be made for thoracic and oral extension of the mass. All cases must have chest x-ray to exclude the presence of intrathoracic lesions. Although the child is diagnosed at birth, the lesion is located in the anterior cervical triangle, are not associated with the other birth anomalies, and generally do not require emergent surgical resection.

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PREPARATION

In the preoperative preparation of the patient informed consent about the risks involved should be discussed with the parents. If the tumour interfered with the swallowing because of extension to the mouth, the child may be malnourished or dehydrated, so intravenous therapy is required before taking up child for surgery. A full range of pediatric airways, including nasal and laryngeal mask airways should be available, as should a full range of laryngoscopes including straight and curved blade types and the McCoy laryngoscope. Expert assistance is necessary. The facility of the emergency tracheal access should be immediately available. A surgeon should stand by during induction to do tracheostomy if required.

PERIOPERATIVE MANAGEMENT

As cystic hygroma presents with difficult airway challenge to the anaesthesiologist, a difficult airway cart was kept ready. The child was preoxygenated and premedicated with intravenous glycopyrrolate (0.06mg) and intravenous midazolam, while oxygen was supplemented via a facemask. A shoulder roll was used to keep the child at optimal laryngoscopic position as the child had a large occiput compared with the rest of the body. Because a large tongue in the child could obstruct the airway after induction, an inhalational induction was considered, the child was induced with sevoflurane in oxygen. The Larynx could not be visualised in the first attempt. Laryngoscopy was tried again and this time glottis could be seen. At second attempt with the help of bougie trachea was successfully intubated with uncuffed endotracheal tube size 4.0mm, and it was fixed, maintained on O₂, N₂O, IPPV and sevoflurane, Inj.fentanyl 10mcg and Inj. Atracurium 2mg was administered and supplemental dose of 0.1mg/kg were used as and when necessary. Mass was removed in total (with the help of radiologist to delineate from surrounding vital structures). All the vital signs were stable in the intraoperative period. In view of possible collapse of trachea and obstruction of airflow, it was decided not to extubate in view of difficulties faced during intubation. The child was shifted to the Neonatal intensive care unit and was extubated on the second postoperative day after adequate respiratory efforts, cry and movements.

DISCUSSION

Cystic hygroma, also called cavernous hemangioma, is a historically benign congenital tumour of the lymphatic origin. The most prominent sign of cystic hygroma is presence of a mass. Interference with

normal breathing and swallowing are the symptoms to appear. The prime consideration in managing this case is securing the airway, secondly its about airway maintenance during surgery. The principal behind safe induction of anaesthesia in the difficult airway is the maintenance of spontaneous ventilation. A gaseous induction using 100% oxygen with either sevoflurane or halothane would be the better choice of induction. The aim is to attain a plane of anaesthesia which is deep enough to allow laryngoscopy. If the airway becomes obstructed following loss of consciousness, it can be improved by turning the patient into the lateral or even semi prone position. A nasal airway can be used at this early stage, and is better tolerated than oropharyngeal airway. It may be difficult to obtain adequate depth of anaesthesia for laryngoscopy because of obstructed airway. Excessively high intrathoracic pressure and a high PEEP can impede the thoracic duct flow both by direct pressure on the duct and venous hypertension.

COMPLICATION

Supraglottic odema can be prevented and treated by dexamethasone. The wound may be drained to prevent postoperative obstruction of upper airway because of hematoma formation. Reactionary odema can develop in the first few hours postoperatively and necessitate emergency tracheostomy. The management of tracheostomy is always difficult and is worse when an emergency tracheostomy has been made.

CONCLUSION

Because of the airway irregularities due to mass effect, it can present as an airway obstruction and challenge to the anaesthetist. One should plan to extubate the child post operatively after good respiratory efforts, cry and movements in view of the difficult airway and possible airway collapse postoperatively.

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