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Case Report

Cystic Hygroma: An Anesthesiologist Challenge

Pritam Jadhav*, Dilip Chavan, Mahesh Thorat

Department of Pediatric Anesthesiology, Jupiter Hospital, Thane, Maharashtra, India

ABSTRACT

Cystic hygroma is a lymphatic origin, benign variety of congenital lymphangioma presents with huge swellings at locations like cervico-facial region, below tongue, axilla, groin and mediastinum. Occasionally these swellings may appear in liver, spleen, kidney and intestine. Difficulty in feeding, respiratory distress, inspiratory stridor and cosmetic reasons are the indications of the complete surgical excision. Airway management is a difficult task once these patients are posted for surgery. This case report focuses on difficulties encountered for preoperative, intra-opeartive management and management of airway in these patients.

Keywords: Cystic hygroma; Lymphangioma; Difficult airway; Surgical excision; Videolaryngoscopy

LEARNING POINTS

1. Avoid premedication as these patient are prone for apnea because of compromised airway.
2. Do check mask ventilation before induction by using inhalational anesthetic agent like sevoflurane.
3. Do check videolaryngoscopy to visualise oral cavity and vocal cords.
4. Avoid oral trauma during intubation as cystic hygroma has extension in oral cavity which can get easily ruptured.
5. Avoid muscle relaxant during induction and keep patient on spontaneous ventilation till intubation.

INTRODUCTION

Cystic hygroma is a large lymph containing cyst in cervico-facial regions so it's been an anesthestic challenge for airway management. Lyphangiomas are classified as capillary, cavernous and cystic lymphangiomas and based on the size of the cyst contained as microcystic,macrocystic and mixed [1-3].

The proposed mechanism for pathophysiology of cystic hygroma is these lesions are believed to originate from sequestration of lymphatic tissue from lymphatic sac during development of lymphatico-venous sacs. The sequestrated tissue fails to communicate with remainder of lymphatic or venous system and dilation of this sequestrated lymphatic tissue results in cystic lesions [4,5].

Newborn infants are difficult to intubate, and the success ratio of intubation is only 60 on the first attempt. In addition, because newborn infants are prone for early development of hypoxia, it is recommended to limit the intubation duration to less than 20 s [6,7].

CASE REPORT

A 7 month old baby weighing 5 kg presented with huge venolymphatic malformation on right>left side of neck in submandibular, submental and lateral cervical region. There were complaints of difficulty in feeding, respiratory distress and fever. The swelling was measuring approximately 10×15 cm extending from side and angle of mandible up-to clavicle and undersurface of tongue pushing the tongue up-words. The child was treated with oral antibiotics and antipyretics. Child is posted for complete surgical excision.

Preoperative evaluation

Size and extent of the swelling should be defined carefully by using radiological modalities. Difficult mask ventilation can be a possibility because of huge swelling and restricted neck movements. Since the swelling is extended to undersurface of tongue there is potential for airway compromise and trauma during intubation. Routine CBC, chest X-ray, MRI head and neck and USG was done. Blood was cross matched and reserved. Informed consent for anesthesia taken after explaining difficult airway and complications.

Preparation

Before shifting the patient inside the operating room all the investigations are checked again. Difficult airway cart, tracheostomy tubes and instruments, fibreoptic bronchoscope kept

Correspondence to: Dr. Pritam Jadhav, Department of Pediatric Anesthesiology, Jupiter Hospital, Thane, Maharashtra, India, Tel: 09145638988; E-mail: dr.pritamjadhav20@gmail.com

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ready inside the operating room. Standard monitors like ECG, pulse oximeter, ETCO2 monitor and non invasive blood pressure cuff were attached. Baseline SPO2 and blood pressures were recorded. As a premedication glycopyrrolate 20 mcg was given. After topical anesthesia using 2% lignocaine and inhalational anesthetic sevoflurane check bag and mask ventilation and check videolaryngoscopy done, which showed epiglottis with cystic swellings in oral area and oropharynx and one small opening of cystic hygroma in oropharynx.

Induction of anesthesia

With results of check videolaryngoscopy (Figures 1 and 2) we proceeded with sevoflurane and checked for adequacy of mask ventilation. After confirming mask ventilation we proceeded with 0.5 mg per kg atracurium and 1.5 mcg per kg of fentanyl. With the help of assistant to open the mouth and lift the swelling, Macintosh blade 1 videolaryngoscope was introduced inside the mouth and oral intubation was successfully performed at first attempt using 4mm uncuffed endotracheal tube. Tube position was confirmed with EtCO2 graph and bilateral air entry on auscultation of chest.

Anesthesia was maintained with sevoflurane and oxygen with controlled ventilation. Intermittent atracurium boluses of 1 mg given whenever necessary. During intraoperative period there was one hypotension episode because of fluid shift with blood pressure of 50/30 which was managed by blood transfusion. Cyst excised completely with blood loss of approximately 40 ml. Child was electively ventilated for 4 days in view of possible airway edema and infection. There were episodes of oral bleed in postoperative period. On postoperative day 5 children was extubated with no airway complications. Patient is kept on high flow nasal cannula with oxygen at 2 litres for 1 day. Culture which was sent from operation theatre came positive for Escherichia Coli. Patient received Meropenem and Amikacin antibiotics as sensitivity report came positive for same.

Figure 1: Videolaryngoscopy image.

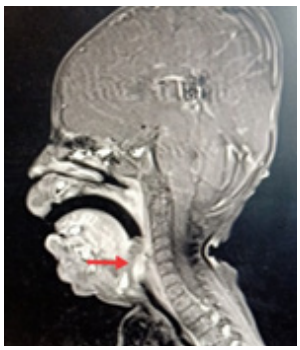

Figure 2: CT-Scan head and neck.

DISCUSSION AND CONCLUSION

General anesthesia causes loss of muscle tone which aggravates the pressure effect of cystic hygroma leading to airway obstruction and thus inhalational induction with spontaneous ventilation is the preferred technique for management of difficult pediatric airway. To avoid potential airway complications like airway distortion, sudden loss of airway and rupture of cystic swelling like cystic hygroma, nature of the cystic swelling and co-ordination between anesthesiologist and surgeon is required. In such case awake intubation is a good option if the cystic hygroma is non-infective. In infected cystic hygroma there is chance of rupture due to struggle during awake intubation. In post-operative care prolonging extubation is equally important for preventing airway related complication. The wound must be drained enough to prevent airway obstruction because of hematoma formation. Tracheostomy under local anesthesia is another option,but was not considered in this case because of distorted anatomical landmark. Fiber-optic intubation performed using thin bronchoscope over 3.5mm tracheal tube is considerable option since this technique can be performed through laryngeal mask airway directly via oral route. Laryngeal mask airway insertion in such a case can be difficult because of extension of tumour into oral cavity and below tongue, so fibre-optic intubation did not attempted in this case.

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