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CYSTIC HYGROMA AND ANAESTHETIC CHALLENGES: A CASE REPORT

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ABSTRACT

Cystic hygroma is a benign tumor without potential malignancy. They are also called cavernous heamangioma and are histologically benign congenital tumour of lymphatic origin. For anaesthesia of these patients, an anaesthesiologist should be prepared for various circumstances that may arise with respect to management of the respiratory tract. Even an anatomically normal respiratory tract is susceptible to upper airway obstruction and respiratory distress and hypoxia can easily take place. We report successful anaesthetic management of 6 month old child with cystic hygroma.

Key words: Cystic hygroma, Anaesthetic Management.

INTRODUCTION

Cystic hygroma is a transilluminating, painless, soft and benign tumor composed of various sizes of cystic lumps. It results from obstruction between the lymphatic and venous pathways, commonly, which leads to accumulation of lymph in the jugular lymphatic sacs in the nuchal region. Treatment is surgical excision under general anaesthesia either one or multistage resections [1-5]. For anaesthesia of these patients, an anesthesiologist should be prepared for various circumstances that may arise with respect to management of the respiratory tract. Even an anatomically normal respiratory tract is susceptible to upper airway obstruction and respiratory distress and hypoxia can easily take place.

Case Report

6-month-old male child weighing 5 kg presented with a swelling on the right side of her neck. The swelling was small in size when noticed at birth, which progressed gradually. Examination revealed swelling on the right side of the neck, which was cystic and non-tender. The skin over the swelling looked normal with no local rise of temperature. Cervical ultrasonography performed revealed a multiseptate and cystic lump in right posterior triangle of neck. Computerized tomography (CT) of the head and neck revealed multiple fluid-filled loculi that circled the neck with mild compression and deviation of the trachea to the right (Figure 1).

On arrival in the operation room, monitoring included noninvasive blood pressure monitoring, electrocardiography and pulse oxymetry. The child was premedicated with intravenous (IV) atropine 70 mcg. A shoulder roll was used to keep the child at optimal laryngoscopic position as the child had a larger occiput compared with the rest of the body. Respiration was assisted by using a facemask and setting the fresh gas flow at 6 L/min and oxygen concentration at 100%, while maintaining spontaneous ventilation. Sevoflurane concentration was gradually increased until the inspiratory concentration became 6%. After achieving appropriate level of anaesthesia a straight blade laryngoscope was

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inserted for intubation but larynx could not be visualized in the first attempt because of inadequate external laryngeal manipulation. The child was ventilated with mask and a second attempt of laryngoscopy was made. A second anaesthesiologist applied optimal external laryngeal manipulation. This time the glottis could be seen and the trachea was successfully intubated with uncuffed endotracheal tube (ETT) size 4.0 mm, and it was fixed at 11cm mark after confirming bilateral equal air entry on auscultation (Figure 2). Anaesthesia was maintained with 60% nitrous oxide in oxygen with controlled ventilation with Jackson Rees modification of Ayre's T piece. Inj. Fentanyl 10 mcg and Inj. atracurium 5 mg was administered and supplemental doses 0.1 mg/kg were used as and when necessary. Blood loss throughout the surgery was calculated to be about 80 ml and was replaced. All the vital signs were stable in the intra-operative period. At the end of surgery, the child was reversed with Inj. Neostigmine 0.05 kg/kg and Atropine 0.01 mg/kg and was successfully extubated.

Figure 1. Computerized tomography (CT) of the head and neck revealed multiple fluid-filled loculi that circled the neck with mild compression and deviation of the trachea to the right

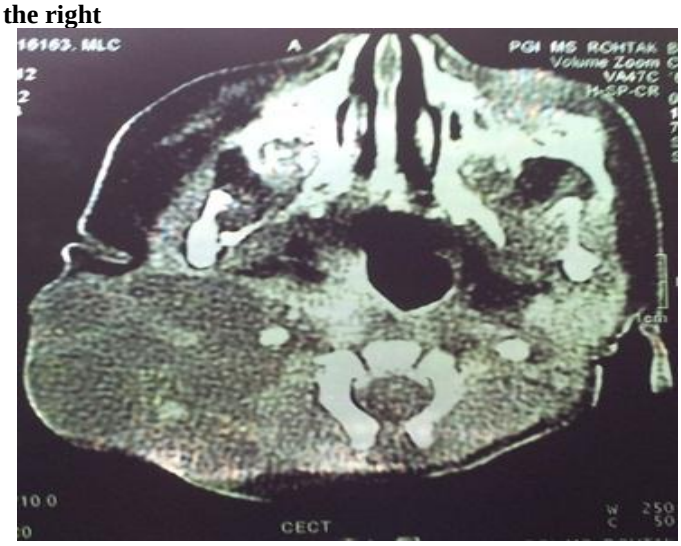

Figure 2. The child was ventilated with mask and applied optimal external laryngeal manipulation, the trachea was successfully intubated with uncuffed endotracheal tube (ETT) size 4.0 mm, and it was fixed at 11cm mark after confirming bilateral equal air entry on auscultation

DISCUSSION AND CONCLUSION

Cystic hygroma is a benign tumor without potential malignancy. They are also called cavernous heamangioma and are histologically benign congenital tumour of lymphatic origin. Endothelial membranes sprouting embryonically sequestered lymph vessels form fimbillae that penetrate into surrounding normal tissues, canalizing and producing large multiloculated cysts filled with serous secretions. These lymphatic tumors progressively enlarged without any pain or tenderness and are often noticed in the neck. They can present as symptomatic or asymptomatic mediastinal masses. They can result in upper and lower airway compression, as well as superior vena caval obstruction. Applicable treatments include continued observation, repetitive suction, injection of curing agent into the lump, radiation therapy and radio frequency treatment. However, the only ultimate treatment method is surgical removal [1-5].

In preoperative evaluation the size and extent of the neck mass should be defined carefully in an effort to detect the potential for airway compromise and to avoid soft tissue trauma during intubation. Inspiratory stridor suggests supraglottic obstruction, while expiratory stridor is associated with subglottic/intrathoracic obstruction. All cases must have CT scan of neck and thorax to know the extent of involvement of the mass. The main consideration for anaesthetist is securing the airway during anaesthesia. Intubation should be carried out under general anaesthesia or deep sedation, and it is preferable to maintain spontaneous ventilation until trachea is successfully intubated [6,7]. Inhalation anaesthetic is preferred and favored more in infants, therefore in this case, sevoflurane was gradually inhaled to induce loss of consciousness, maintaining spontaneous ventilation

The next consideration is about airway maintenance during surgery. Considering the surgical position of hyperextension, the possibility of accidental extubation of the endotracheal tube or endobronchial intubation should always be considered. The location of this mass close to main vessels of neck is also a problem. Accidental damage to them can be life threatening and anaesthesiologist should always arrange adequate amount of blood prior to start of surgery.

To conclude airway management in cystic hygroma is a challenge to the anaesthetist. The key to successful management lies in detailed preoperative

evaluation, smooth inhalation induction with endotracheal intubation without the use of muscle relaxant, anticipation of possible postoperative complications and determination of extubation time.

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