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SUCCESSFUL ANAESTHETIC MANAGEMENT OF CYSTIC HYGROMA IN A NEONATE

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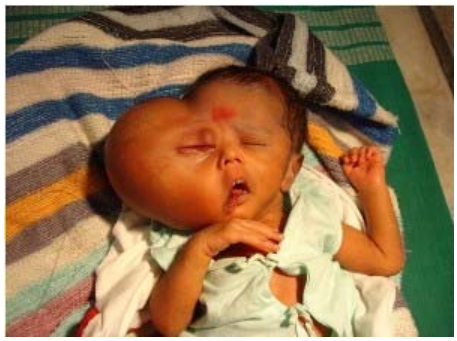
Abstract : Anaesthetic management may be challenging in a neonate with large head and neck mass because these patients have difficulty in intubation and are at risk for sudden complete airway occlusion resulting in hypoventilation and hypoxemia. Here we report a successful anaesthetic management of cystic hygroma in a neonate . A fifteen day old baby presented with large cystic hygroma on the right side of the face and neck. The mass was large enough to disturb swallowing. Surgical removal of the mass was planned. During inhalational induction, there was difficulty in maintaining the airway and also difficulty in intubation was encountered. Postoperatively there was delayed recovery. With apnea monitor baby was observed and extubated after full recovery.

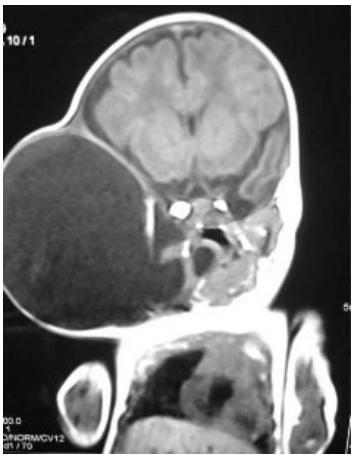
Keyword :cystic hygroma, difficult intubation, apnea monitor, anaesthetic challenges.

INTRODUCTION Cystic hygroma is a benign, soft compressible tumour of the lymphatic system.Head and neck region is the most common site of presentation. 40% of the lesion appear in newborn. Cystic hygroma at the head and neck region may cause tracheal deviation or upper airway obstruction depending on the degree of invasion into the oral cavity, hypopharynx and larynx. Thus anaesthesiologist may have difficulty in securing and maintaining the airway. Further complications like nerve damage, damage to vital structures and safe extubation also need to be considered depending on the invasiveness of surgery.



CASE REPORT A 15 day old baby delivered by ceasarian section presented with progressively

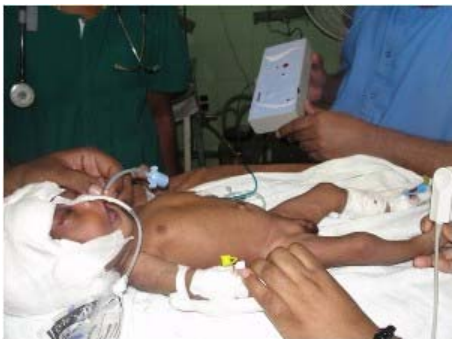
increasing cystic mass on the right side of the face. A diagnosis of cystic hygroma was made and surgical excision was planned. On examination, baby was active, cry and reflexes were good. Respiratory and cardiovascular systems were normal. Blood investigations were within normal limits. MRI showed very large cyctic lesion on the right side of the neck, faciomaxillary region with thinning

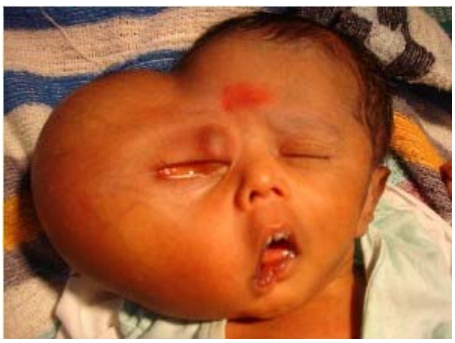


Weight of the baby was 2.5 kg. The baby was assessed under ASA II, duly explaining all the risks to the mother and relatives. In the operating room, pulseoximetry, noninvasive blood pressure, electrocardiography ,precordial stethoscope were connected. Two intravenous access secured. Baby was placed over warm water bag. The baby was preoxygenated with 100% oxygen. Inj.atropine 0.1mg was given intravenously.Since we anticipated difficult intubation, we opted for inhalational induction, so that spontaneous ventilation could be preserved. Induction was done with sevoflurane0.25% with oxygen, initially and Sevoflurane concentration was gradually increased to 4% till the baby was unconscious with regular respiration and loss of abdominal muscle tone. During the first attempt at intubation,even the epiglottis could not be visualized. Meanwhile there was desaturation and hence the baby was mask ventilated again, intubation was attempted after the loss of muscle tone. Intubation was successful in the second attempt with great difficulty, an assistant performing BURP procedure. Baby was intubated with 2.5mm uncuffed endotracheal tube. Endotracheal tube was fixed at 10cm at the left lip, after confirming bilateral air entry.The baby was connected to jackson rees paediatric circuit

Anaesthesia was maintained with 50% nitrous oxide and 50% oxygen with sevoflurane 0.25% and injection fentanyl 5mcg and injection atracurium 1 mg intravenously.Esophageal stethoscope was inserted and further dose of injection atracurium 1 mg was given intravenously in titrated doses. When maintaining anaesthesia, procedure started. Intraoperatively the pulse rate was maintained between 120-160/min and oxygen saturation between 99-100%. Total duration of the surgery was 1 hour 30 minutes. Estimated blood loss was 40 ml and the loss was corrected by infusing 25 ml of crystalloids and 40 ml of whole blood.discharged amount of Urine was 20 ml.After the surgical procedure, baby was warmed with warm towels and after adequate spontaneous respiratory attempts baby was reversed with injection neostigmine

0.1mg and injection atropine 0.1mg intravenously. Though there was adequate spontaneous respiratory attempts with adequate muscle power in the form of moving all the four limbs, there was no spontaneous eye opening and there was minimal response to painful stimuli. Hence the baby was observed with endotracheal tube insitu for 20minutes, during which time the saturation steadily maintained at 97-99%. Apnea monitor was connected and set at 10 secs. After about 20 minutes of observation, the baby spontaneously opened his eyes and was moving all four limbs vigorously and hence the baby was extubated.The delayed recovery could be possibly attributed to opioids or sevoflurane The Baby was then shifted to Neonatal intensive care unit for observation. Postopeartive pain management was by way of paracetamol suppositories The postoperative period was uneventful and the baby was discharged after 10 days.





DISCUSSION Cystic hygroma is otherwise called as cavernous haemangioma. It is a benign congenital malformation of the lymphatic system. Overall incidence is 1 in 12000-16000 livebirths. It arises from the failure of the jugular lymph sacs to join the lymphatic system early in fetal development, resulting in the development of endothelium-lined cystic spaces that eventually compress normal surrounding structures. Possible etiologies: Altered dermal collagen composition Abnormal nuchal lymphogenesis Hemodynamic alterations and cardiac dysfunctions Cystic hygroma is most commonly found in neck, but it also occurs in other sites corresponding to primitive lymph sac location such as axilla, mediastinum, groin, retroperitoneum. Cystic hygroma usually appears during first year of life,but may be present at birth. The most prominent sign is a mass. Size of the mass determines the treatment. Most masses seen at birth gradually increase to attain a bigger size that can cause respiratory obstruction and difficulty in swallowing. Large cysts can cause tracheal compression if extension to the mediastinum occurs. Lesion extending into the floor of the mouth and tongue displace soft tissue posteriorly into the oropharynx causing obstruction of both breathing and swallowing. A sudden increase in size of the cyst, can

be the result of an infection, spontaneous or traumatic haemorrhage into cystic structure. Treatment modalities include repeated aspiration intracystic injection of bleomycin and surgical excision. If the cystic mass is very large, intracystic bleomycin can be done to decrease the size of the mass which will be helpful in excision . The definitve treatment of cystic hygroma is surgical excision.Optimum time for surgery is eighteen months to two years. Surgery is only the curative option in the treatment of cystic hygroma. Anaesthetic implications The size and extent of the mass should be clearly delineated preoperatively in order to know the airway compromise and involvement of soft tissue. In the case reported there was no extension into the floor of the mouth. All cases must have chest x-ray to exclude the presence of intrathoracic lesions. To know the extent of cystic hygroma in mediastenum, further delineation with fluoroscopy, angiography and MRI should be done. Associated birth defects should be noted. All range of paediatric airways including nasal and laryngeal mask airway should be readily available. Emergency cricothyrotomy kits should be available. Induction of anaesthesia may result in cannot intubate cannot ventilate situation. Ideal is to maintain spontaneous ventilation, hence inhalational induction is the technique of choice. Intraoperatively if there is extensive cervical manipulation, Possibility of endobronchial intubation or tube position can be changed, hence it should be carefully monitored. Extubation should be tried after understanding of the size and invasion of the lump and degree of nerve damage of the airway during the surgery.

Conclusion Anaesthesia for extremes of ages is a challenging task.Neonatal Anesthesia ,particularly in a neonate with a large mass in the face and neck with airway compromise could be demanding and needs constant monitoring and vigil on the part of the Anaesthesiologist.In the case reported ,we had difficulty in intubation and also there was delayed recovery, which was successfully managed.

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