

Case Report: Cystic Hygroma in an Adult, a Dilemma of Difficult Intubation

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Abstract- Cystic hygroma is benign tumor usually present in the neonate or in early infancy. Swelling usually occurs in neck and may involve the parotid, submandibular area, tongue and floor of mouth. It is a common condition in pediatric age group. But very rare in adult patients^[1]. Cystic hygroma is a real challenge to the anesthetic in regard to airway management when presents in cervical region because tumor can extent from mouth to thoracic region^[2]. Huge neck swelling revealed a dilemma of difficult intubation, but all neck swelling are not always difficult to intubate. In our both the cases the swelling was huge but we have intubated under general anesthesia with the help of mackintosh laryngoscope.

Index Terms- Cystic hygroma, neck swelling, intubation, general anesthesia.

I. CASE REPORT

Case no. 1
A 60 yrs. male presented to general surgery department in King George Medical University, Lucknow, with chief complain of swelling in the neck since 10 years initially it was approximately 2x2 cm in size which suddenly increase to present size 15 x 14 cm within 5 month of duration. Swelling was extending mandible to sternum. Patient had no complained of respiratory distress & difficulty in swallowing. Patients did not give any history of upper respiratory tract infection or trauma. On examination margins of swelling were well define, swelling was mobile non tender, non-pulsatile, non-compressible, cystic in consistency, fluctuant. Tans illumination test was positive and there was no bruit on auscultation. There was no tracheal deviation and venous engorgement. Patient was admitted to general surgery ward and proper workup was done. Thyroid functions were normal. USG, CT Scan, MRI, Aspiration of cystic fluid done and send for histo-pathological examination. X-chest and neck was normal. CT scan showed normal placed thyroid gland with cystic mass in front of neck. X-ray chest and neck, CT scan chest and neck showed no mediastinal extension and tracheal compression. Cystic hygroma was confirmed and planned for surgical excision.

Pre anesthetic checkup was done. Airway was assessed. Mallampatti grade was I. extension of neck was 30°, flexion of neck was not fully possible, sternal distance cannot be assessed. Indirect laryngoscopy was done showing mobile vocal cords. Informed written and oral consent was taken. Next day patient was transfer to operation theater. A trolley for anticipated

difficult intubation was prepared, expert anesthetic was present in the operation theater was present, surgeon was also present. All ASA monitors were attached. Patient was pre medicated with 0.2 mg Glycopyrrolate, 1 mg Medazolam, 50 mcg Fentanyl was given. Patient was induced with inj. Propofol. After giving propofol bag and mask ventilation was possible. Inj. Succinyl choline was given with the help of mackintosh laryngoscope we have successfully intubated the patient. ET Tube was confirm with EtCO₂ and auscultation method inj. Vecuronium was given ET tube was secured; patient was maintained on oxygen nitrous and isoflurane. After excision intra operative period was uneventful patient was reversed with neostigmine and Glycopyrrolate. Patient was successfully extubated and shifted to post-operative care unit and observed for 24 hours. Surgical Excision was performed successfully histopathology revealed cystic lymphangioma. Post-operative period was uneventful.



Fig.1: A huge neck swelling

Case report-2

A 22 years old female patient presented with an asymptomatic swelling involving left site of neck for since five & half month reported in general surgery department of King George's Medical University, Lucknow, India. Swelling was small in size initially swelling was small in size, which gradually increased to size of 11cm x 13cm extended from submandibular area to clavicle of left side. There was no previous history of

upper respiratory tract infection or trauma. All margins were well defined, swelling was non tender, mobile, non-pulsatile, cystic in consistency, non-compressible, fluctuant. Trans-illumination test was positive and no bruit was on auscultation. No tracheal deviation and venous engorgement. There was no history of respiratory distress and dysphagia. Patient was admitted to hospital and workup of patient was done, an ultra sound scan was carried out which revealed a septated cystic swelling, multi-loculated of 6cm x 3cm in size in whole length of left sternocleidomastoid muscle, CT scan was done showed no tracheal deviation mediastinal extension, MRI of neck was done, which revealed a 11.5cm x 13.7cm mass, margin for smooth, extending from root of neck to submandibular gland deep to left sternocleidomastoid muscle, and lateral to major arteries and veins of neck. Fine needle aspiration cytology revealed clear lymphoid fluid. X- ray chest showed no tracheal deviation , constrictionandmediastinal extension. CT scan showed no tracheal deviation. Cystic hygroma was diagnosis patient was planned for surgical excision.

II. ANESTHETIC MANAGEMENT

Pre anesthetic checkup was done patients mouth opening was 3 fingers. Mallapatti grade was I, neck extension was 90 degree flexion was 18 degree. Sterno mental distance was 12.5 cm. indirect laryngoscopy was done, showed mobile vocal cords USG, CT Scan, MRI does not showed any tracheal deviation, tracheal compression, mediastinal extension. In the operation theatre all monitors were attached and trolley for anticipated difficult intubation was prepared, Patient was pre oxygenated with 100% oxygen for 3 minutes. Patient was pre medicated with 0.2 mg glycopyrolate, 50 mcg fentanyl, and 1 mg midazolam. Inj propofol was given ventilation was possible with bag and mask, sch was given 50mg .laryngoscopy was done; Patient was incubated without any difficulty with the help of Mc coy no.3 laryngoscope blade. Patient was maintained on oxygen and nitrous oxide, and vecuronium. After surgery patient was extubated after reversal with neostigmine and glycopyrolate. Patient was shifted post-operative care unit and observed for post-operative complications. Patient has recovered fully without any post-operative complication. After 24 hour patient was shifted to general surgery ward.



Fig. 2: A large swelling in neck region



Fig 3: X-ray neck showing no tracheal compression



Fig.4: CT scan showing large cystic swelling showing fluid inside it



Fig.5: Huge Cyst after excision
DISCUSSION

Cystic hygroma is a benign congenital malformation of the lymphatic system which occur as a result of sequestration or obstruction of developing lymph vessels. This condition is approximately 50-60% appear before the end of 1st year of life, & 80-90% before the end of 2nd year of life^[2, 3]. Cystic hygroma is a one of the deferential diagnosis of swelling in neck commonly well recognized in pediatric age group patient^[5]. But it is a very rare condition seen in adults & uncommon deferential diagnosis of swelling in neck in adulthood. As sac has no communication with lymphatic by the time swelling appears, the lymph is absorbed and is replace by thin watery fluid (mucus) secreted by endothelium hence it is called hydrocoele of neck.

Differential diagnosis of cervical masses are like Inclusion cyst (sublingual and submandibular salivary cysts), thyroglossal duct cyst, congenital vascular malformation, branchial cleft cyst, cystic hygroma, laryngocele, teratoma bronchogenic cyst., bacterial lymphadenitis, mycobacteria tuberculosis, viral lymphadenitis, haemangioma, lymphangioma, thyroid nodule or goiter, parathyroid adenoma, lipoma, fibroma, neurofibroma, sebaceous cyst, aneurysm, salivary gland tumor, metastatic carcinoma, sarcoma, or melanoma in a lymph node, lymphoma, carotid body tumor, glomus jugular tumor, soft tissue, bone, or cartilage sarcoma, primary major salivary gland tumor, malignant melanoma, adnexal carcinoma of the skin, thyroid cancer, parathyroid cancer, direct extension of a head and neck neoplasm into the neck, histiocytosis/plasmocytoma, Carcinoid^[6]

Cystic hygroma is soft, cystic, fluctuant, partially compressible swelling. Lymphangioma is a multilocular swelling consisting aggregation of multiple cysts. These cysts may intercommunicate and sometimes may insinuate between muscle planes, hence it gives the sign of compressibility. However complete reducibility is not a feature. The swelling is brilliantly trans illuminant because it contains clear fluid. Due to infiltrative nature, it may extend to anterior part of neck, cross the midline, may reach in check, mediastinum, axilla and rarely involve brachial plexuses, recurrent laryngeal nerve^[7, 8].

Surgical excision is the treatment of choice. All loculi or cysts should be removed. Careful search has to be made for extension of lymphangioma through the muscle planes so as to avoid recurrence. Surgical sequels are incomplete excision, neural injury persistent lymph odema, lymphocele, lymphorrhoea^[9,10] Sclerotherapy was being used earlier but tissue planes are distorted. Thus injection is not favored at present^[11, 12]. Aspiration of hygromas is useful only to decompress when they are compromising the airway. Lymphangiomas are radio resistant so radiation therapy is avoided.

Cystic hygroma is a challenge to an anesthetic because it can extend from mouth to mediastinum because of this airway management and post-operative period is difficult to manage. Post operatively patient can present with respiratory distress. So to avoid complications a proper pre anesthetic checkup, airway assessment, arrangement of difficult airway cart should be done. An expert anesthetic, surgeon should be present inside the operation theater at the time of intubation. A planned program for intubation should be prepared. Vigilant monitoring during intra op and post-op should be done.^[2]

Pre operatively history and examination for respiratory distress cough tachypnea retraction inspiratory or expiratory stridor should be ruled out. Inspiratory stridor is due to

supraglottic obstruction and expiratory stridor is due to sub glotic or intra thoracic obstruction, size and extend of neck mass should be carefully define intra thoracic extension should be ruled out with the help of X-ray and CT scan. Pre operatively a written and informed consent should be taken and risks should be discuses with the patient^[2].

Proper airway assessment should be done. mouth opening should be at least II large finger breadths in adults, nasal patency should be check, teeth should be examine, temporal mandibular joint should be examine for any restricted movements, thyromental length should be more than 6 cm, mallampatti grade are usually associated with easy intubation. Any sign for difficult ventilation should be recognize like presence of beard lack of teeth, history of snoring should be rule out, atlanto-occipital joint extension should be measure, >35° is normal, sternomental distance <12 cm is associated with difficult intubation inter-incisor distance <3.8 cm predicts difficult airway. Lateral cervical x-ray, cervical film is needed with head in neutral position for effective madibular length atlanto-occipital gap, anterior and posterior depth of the mandible, C1-C2 gap. Fluoroscopy for cord mobility, tracheomalacia, UGS for assessment of anterior mediasternal mass, deferential diagnosis of mass, cyst in neck, abscess, lymphadenopathy, cellulitis, CT scan and MRI for any congenital anomalies, vascular airway compression, video optical intubation stylets for proper visualization of glottis and aids in intubation^[2].

Difficult airway cart should be available full range of nasal and oral airways, laryngeal mask airways laryngoscope, cricothyrotomy kit should be available, an expert anesthetic should be present inside the OT at the time of induction for help. A surgeon should be present at the time of induction for tracheostomy if needed. Pre medication with glycoparrolate in a dose of 0.005 – 0.01 mg/kg/body weight should be given for drying the secretion^[17].

Awake intubation should be planned if difficult airway is assessed. The principle behind is safe induction of anesthesia and maintenance of spontaneous ventilation if difficult airway is predicted, tracheostomy is always difficult to performed and troublesome if performed in emergency. Fiber optic is first choice for intubation, it can be performed via oral or nasal route with or without help of oral, nasopharyngeal or laryngeal mask airway, if fiber optic is not available awake blind intubation is preferred. For emergency Cricothyrotomy or tracheostomy should be prepared^[17].

Although in our case, there was a huge neck swelling, which is an indication of difficult intubation. In our case, all other parameters of airway assessment for laryngoscopy and intubation were normal. There was no tracheal compression, tracheal deviation and mediastinal extension. The swelling was filled with fluid which was not causing any tracheal compression. We have decided to intubate this patient under general anesthesia with full preparation of difficult airway management. We have successfully intubated both the patients under general anesthesia with McIntosh laryngoscope. Intra operative period and post-operative period was uneventful. Patients fully recovered and discharged.

III. CONCLUSION

Cystic hygroma is a rare lesion in adulthood. It is a great challenge to anesthetist. For proper management and to avoid complications proper pre-operative evaluation, informed consent, proper workup should be done. To avoid morbidity and mortality proper airway management with the help of experienced anesthetist should be done. Difficult airway cart should be ready; surgeon should be available for emergency tracheostomy. Cystic hygroma when presenting as a large neck swelling is not always difficult to intubate. It is a dilemma of difficult intubation when presenting as a large swelling.

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