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Anaesthetic management of thyroglossal duct cyst causing respiratory distress in an Infant - A case report

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ABSTRACT

There are various causes of possible upper airway obstruction in infants. Particularly, large cysts on the base of tongue may cause severe airway obstruction by a mass effect on the hypo pharynx and by displacing the epiglottis of these basal lingual cysts, thyroglossal duct cyst is rare but occasionally its remnants can be found at the base of the tongue. We report successful management of paediatric airway in a two month old infant with a thyroglossal duct cyst scheduled for cyst excision.

INTRODUCTION

Thyroglossal cysts arise from a persistent epithelial tract, the thyroglossal duct, formed with the descent of the thyroid from the foramen caecum to its final position in the front of the neck. The duct so formed can give rise to sinuses, fistulae, or cysts.[1]

The main risk associated with these lesions is progressive enlargement leading to death from upper airway obstruction.[2]

We report successful management of paediatric airway in a two month old infant with a thyroglossal duct cyst scheduled for cyst excision.

CASE REPORT

Two month old male baby presented with inability to gain weight since birth. Mother had uneventful antenatal history and child delivered at term by normal vaginal delivery. From day 6 of life baby developed audible stridor. Baby had recurrent episodes of cough with expectoration and difficulty in feeding present. On examination, child's weight was 3.15 kgs and had tachypnea with respiratory rate 40-45 per minute. Intercostal and suprasternal in-drawing present. Bilateral air entry was reduced and crepitations were present all over the lung fields. Inspiratory stridor was present. Hence initially suspected to be laryngomalacia, but after investigations diagnosed as thyroglossal duct cyst. CT neck reported as thin walled cystic lesion at the level of base of tongue measuring 18X18X15 mms extending inferiorly causing significant narrowing of air column posteriorly. Routine haematological tests were normal and echocardiogram did not reveal any cardiac anomaly. Infant was started on formula feeds along with breast milk through Ryle's tube to quantify the feed. Baby gained weight to 3.57 Kg in one week and was posted for cyst excision.

Child was taken for surgery under general anaesthesia after explaining the risk involved due to difficult airway and possible need for postoperative mechanical ventilation. Preoperatively Sp02 on room air was 89-90%. Child was shifted to operating room with 24 G IV cannula in situ on dorsum of left hand and premedicated with atropine 0.1 mg IV. Pre induction monitors connected were precordial stethoscope, ECG and pulseoximeter. Child was preoxygenated with 100% Oxygen and 2% Sevoflurane initially and then 4% when the child was deeply anaesthesised, laryngoscopy was done with Miller blade and base of the tongue with a mass seen, epiglottis was not visualized. Once the mass was pushed away with laryngoscope blade, epiglottis was visualized and was falling on glottic opening. After adequate external pressure posterior third of cords seen trachea was intubated with 3.0 mm endotracheal tube. Tube placement was secured after confirmation by auscultating bilateral equal air entry. Child was maintained on N2O 50% and O2 50% with intermittent Sevoflurane 1% along with Inj Fentanyl 7.5 mcg and Injection atracurium 1.8mg initially and 0 .25mg intermittently.

At the end of surgery (Fig 1) which lasted for 150 minutes, reversal of neuromuscular blockade was achieved with Inj

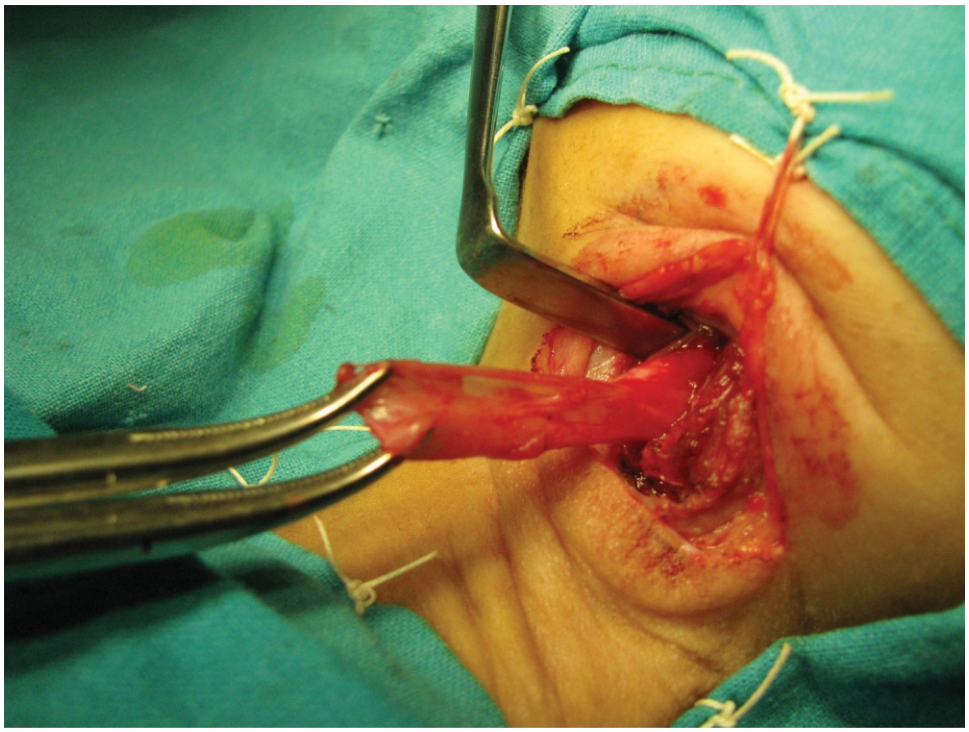

Fig 1. Photograph showing Thyroglossal duct cyst

Neostigmine 0.2mg and Inj Atropine 0.08 mg. On achieving adequate respiration and motor power child was given a trial of extubation. Though immediately after extubation the retraction at suprasternal notch and intercostal region persisted, bilateral air entry was good. Child was closely monitored with oxygen supplementation for an hour in the operating room. Child maintained Spo2 99- 100% with oxygen mask at 4 litres/min. Then the child was shifted to Paediatric Intensive Care Unit, where humidified oxygen was supplemented through oxygen hood and closely monitored for another 24 hours. After that oxygen disconnected and Spo2 was maintained at 95% on room air. Oral feeds started on day 4 and child was discharged from the hospital on day 6 with body weight 3.65 kg.

DISCUSSION

Unique anatomical features of neonatal upper airway make laryngoscopy and intubation difficult. The presence of local abnormalities further adds to the difficulty. In all cases of compromised and difficult airway, [3] it is mandatory to preserve the spontaneous respiration while securing the airway. In our case, the child was maintained on spontaneous breathing till the endotracheal tube was secured.

Awake intubation remains the most appropriate technique in infants with anticipated difficult tracheal intubation where rapid control of airway is essential. Compromise of the airway implies [4] partial obstruction to airflow and constant threat to the total obstruction if relaxation of the muscles of the upper airway narrows the air passages. In this case child had difficult intubation as the mass was coming in the way of visualization of vocal cords.

A pre-operative thyroid scan should be done to rule out any ectopic thyroid. [5] In this case, we did only the thyroid function test postoperatively, which was normal. There was inspiratory stridor and chest wall retraction in this infant which mimics laryngomalacia.

Laryngeal CT scan is an important investigation in differentiating laryngomalacia and lingual thyroglossal duct cyst.[6]

CONCLUSION

Successful management of neonatal and paediatric difficult airway is a multifaceted challenge to the anaesthetist, to be approached with caution, adequate preparation confidence to face the unanticipated problems.

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