Case Report

Severe Laryngomalacia - A case report

Sanyogita V Naik[1], Ujjwala B Khairmode[2], Padmanabha D V[3*]

[1]Professor and HOD, [2]Associate Professor, [3]JR III, Department of Anaesthesiology, Government Medical College, Miraj, Maharashtra, INDIA.
Email: dvpadmanabha@gmail.com

Abstract

Laryngomalacia – "Soft Larynx" is the common cause of stridor in infancy, in which the soft, immature cartilage of the upper larynx collapses inwards during inhalation ,causing airway obstruction . We report a case of severe Laryngomalacia with inspiratory stridor diagnosed by clinical examination ,investigations , confirmed by endoscopy and fibre-optic laryngoscopy and treated surgically.

Key Word: Neonatal, Severe laryngomalacia, endoscopy, aryepiglottopexy, general anaesthesia.

[*]**Address for Correspondence:**
Dr. Padmanabha D V, Department of Anaesthesiology, Government Medical College, Miraj, Maharashtra, INDIA.
Email: dvpadmanabha@gmail.com
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INTRODUCTION

Laryngomalacia is a congenital softening of the tissues of the larynx above the vocal cords. This is the most common cause of noisy breathing in infancy (high – pitched squeaking noise on inhalation).The laryngeal structure is malformed andfloppy,causing the tissues to fall over the airway opening and partially block it.It is diagnosed by medical history, clinical examination, investigations like X ray chest and neck, CT scan and confirmed by endoscopy, flexible laryngoscopy. This case was a severe laryngomalacia with inspiratory stridor and significant neck and chest wall muscles retractions with breathing, significant blue spells during crying and required oxygen supplementation for breathing and for maintaining oxygen saturation above 95%.

CASE REPORT

15 days old female baby, weight -2.5 Kg, with inspiratory stridor since birth .It was a full term normal vaginal delivery, delivered outside and referred to Miraj Medical College for further management. Baby was continuously oxygenated by hood.

On examination: patient had Inspiratory stridor with significant neck and chest wall muscles retractions during respiration. Patient had feeding difficulties, henceryle's tube feeding was done. During crying patient had episodes of Intermittent blue spells .and patient required oxygen supplementation to maintain oxygen saturation above 95%. No other congenital anomalies noted. On auscultation -CVS- heart sound were normal with heart rate 130/min. R S- Bilateral crepitations and added sounds were present. Investigations revealed– haemoglobin of -13.5 gm%, WBC- 10,000/mm,serum electrolytes- WNL ,Serum creatinine- 0.6mg and BUL-16mg ,serum calcium- 9.7mg%. ECG tracing was within normal limits.

Chest x ray showed consolidation patch on right side and haziness on both sides, **CT neck and chest**- consolidation over right basal segment and left lower lobe with thickening of B/L aryepiglottic fold and supraglottic larynx. To confirm the diagnosis endoscopy and fibre optic laryngoscopy was done- under general anaesthesia- it showed Omega shaped epiglottis. Procedure was uneventful. Patient was nebulized before induction of anaesthesia.

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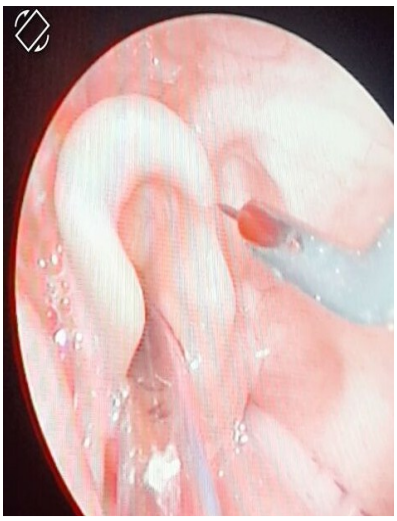

Figure 1

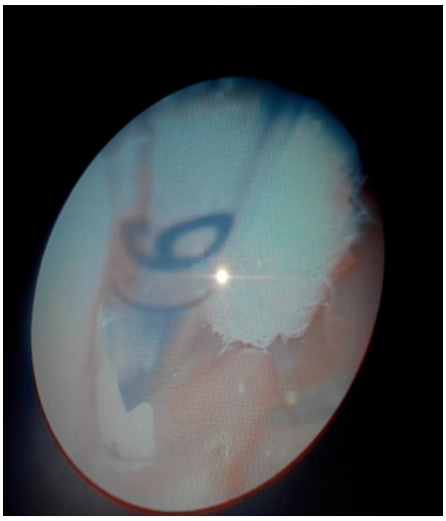

Figure 2

Legend
Figure 1: Showing omega shaped epiglottis.
Figure 2: showing patties around the laryngeal inlet.

After 2 days of diagnostic laryngoscopy-patient was posted for definitive surgical procedure- i.e. aryepiglottopexy. patient was taken with high risk and tracheostomy consent. Procedure was done under general anaesthesia—baby was nebulized and was continuous lyoxygenated, saturation was 95% before induction. Baby was pre-medicated with iv inj Glycopyrolate 12µg, iv inj dexamethasone-0.6 mg, iv inj hydrocortisone-6mg. All essential monitors were attached –ECG-normal tracing with heart rate-140/min,Sp02- 99% with oxygen by mask. Anaesthesia was induced by ivinj Ketamine -6mg +4 mg, after confirming ventilation, inj succinylcholine-2mg /kg given and following IPPV baby was intubated with 3mm ID uncuffed portex endotracheal tube smoothly in first attempt. After confirming equal bilateral air entry, tube was fixed on left side first. Per rectal paracetamol suppository was kept for Perioperative analgesia. Wet, squeezed patties were kept around the endotracheal tube at laryngeal inlet to prevent spillage of any secretions. Anaesthesia was maintained by oxygen with sevoflurane and muscle relaxant inj vecuronium. After releasing the right sided aryepiglottic fold, ETT was fixed on right side to release left sided aryepiglottic fold. It was done by using Radiofrequency probe without damaging any cartilage. patient was not reversed and kept intubated as it was decided to put patient on ventilatory support for atleast 48-72 hours. It was mandatory, to prevent airway obstruction by injured, oedematous aryepiglottic folds, so with the tube baby was shifted to NICU. Patient was under assist-control mode for 12 hrs and after that weaned smoothly. Meanwhile baby was treated with high doses of Steroids and antibiotics to reduce oedema .steroid doses were tapered off after 3rd day of surgery. On CPAP mode for 24 hours baby was maintaining saturation 99%, air entry was improved, soextubation was done. There was no stridor, respiration was good and patient was maintaining saturation above 95% .patient was kept on intermittent oxygen support by venti mask for 2 days and without oxygen for 5 days under observation in NICU. After 13th day of surgery patient was discharged, that time patient's air entry was cleared, she was pink and maintaining saturation 98-99%.

DISCUSSION

It is one of the most common laryngeal congenital disease in infancy. There is evidence that some cases may be inherited. In infantile laryngomalacia, the supraglotticlarynx (the part above the vocal cords) is tightly curled, with a short band holding the cartilage shield in the front (the epiglottis)tightly to the mobile cartilage in the backto the larynx (the arytenoids). These bands are knows as the aryepiglotticfolds, they create the movements that opens and closes the vocal cords for phonation. The shortened aryepiglottic folds cause the epiglottis to be curled on itself. This is the well known "Omega shaped" epiglottis in the laryngomalacia. It often gets worse when the infant is on his or her back , because the floppy tissues can fall over the airway opening more easily in this position , so it is better to keep baby in lateral or prone position. Laryngomalacia is categorised in three groups –mild ,moderate and severe type

Mild laryngomalacia: Infants having noisy breathing without any complications.patients usually outgrow the stridor by 12-18 months of age.

Moderate laryngomalacia: Noisy breathing with some problems like vomiting , feeding difficulties ,air way obstruction .Gastric –oesopageal reflux that needstreatment .patient usually outgrow the stridor by 12-18 months of age.

In both categories, it is important to watch for complications.

Severe laryngomalacia- In this category surgical management is often required to reduce degree of symptoms and any complications.

Signs and symptoms: Life threatening apnea, Significant blue spells, Failure to thrive with feeding difficulties, Significant chest wall and neck muscles retractions with breathing, Requires oxygen to breathe, Heart and lungs problems as a chronic oxygen deprivation, and infections because of aspiration.

Surgical procedure-Supraaryglottoplasty: The unneeded floppy tissue of the larynx is trimmed. Sometimes patient may need tracheostomy before operation, so tracheostomy consent is important .After intubation pharyngeal pack is not physible in these type of cases, but to put wet, squeezed patties with thread around the laryngeal inlet, is mandatory to prevent aspiration .

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