Today's Topic

CONGENITAL ANOMALIES OF LARYNX & STRIDOR

Presented by-

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Congenital lesions of larynx

Congenital lesions of larynx are:

- Laryngomalacia
- Congenital vocal cord paralysis
- Congenital subglottic stenosis
- Laryngeal web
- Subglottic haemangioma
- Laryngo-oesophageal cleft
- Laryngocele
- Laryngeal cyst

Laryngomalacia
(Congenital laryngeal stridor)

It is the most common congenital abnormality of the larynx.

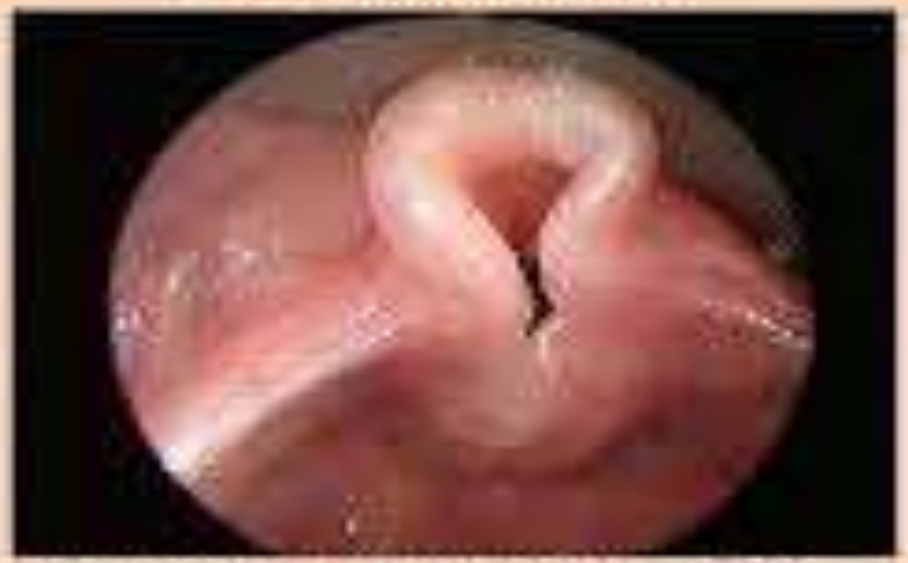
- It is characterized by excessive flaccidity of the supraglottic larynx which is sucked in during inspiration producing stridor and sometimes cyanosis.
- Stridor is increased on crying but subsides on placing the child in prone position; cry is normal.
- The condition manifests at birth or soon after and usually disappears by 2 years of age.
- Direct laryngoscopy shows elongated epiglittis, curled upon itself (omega-shaped), floppy aryepiglottic folds and prominent arytenoids.

Laryngomalacia (cont.)

LARYNGOMALACIA

Normal larynx

Omega shaped larynx (Laryngomalacia)



Laryngomalacia presents with inspiratory stridor which worsens with supine position, crying & feeding & improves in prone position.

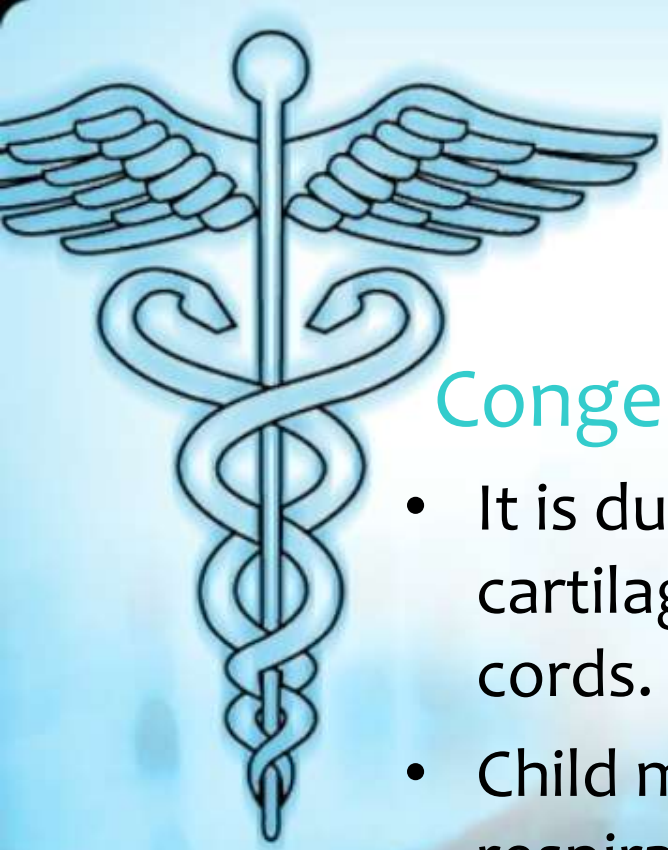
Laryngomalacia (cont.)

Treatment:

- Reassurance
- Antibiotcs- for URTI.
- Tracheostomy may be needed for severe stridor or failure to thrive.
- Excision of surplus supraglottic mucosa (Epiglottoplasty) has been reported to be effective

Congenital vocal cord paralysis:

- It results from birth trauma when recurrent laryngeal nerve is stretched during breech or forceps delivery
- Can also result from anomalies of the central nervous system.

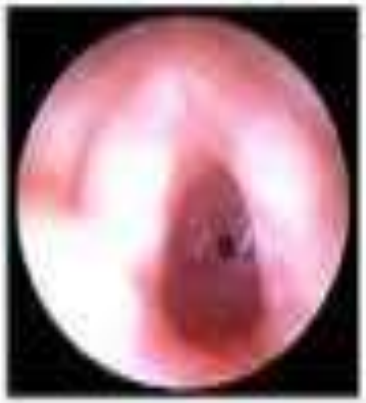


Congenital subglottic stenosis:

- It is due to abnormal thickening of cricoid cartilage or fibrous tissue seen below the vocal cords.
- Child may remain asymptomatic till upper respiratory infection causes dyspnoea and stridor.
- Cry is normal as in laryngomalacia.
- Diagnosis is made when subglottic diameter is less than 4 mm in full-term neanata. (Normal 4.5-5.5 mm)

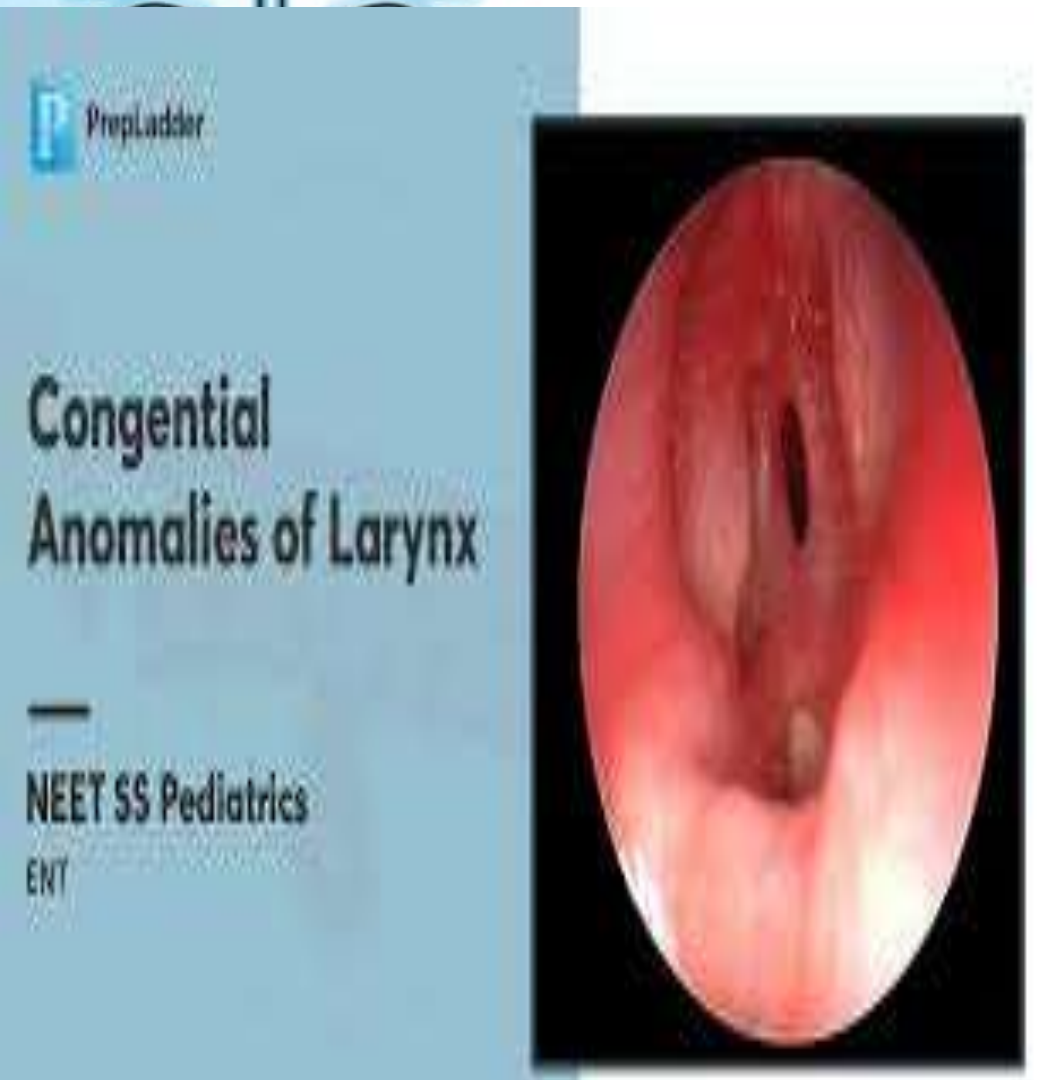
CONGENITAL SUBGLOTTIC STENOSIS:

- Due to defective canalization of cricoid cartilage and/or conus elasticus, resulting in a small, elliptical, thickened cricoid and/or excessive submucosal soft tissue.
- Third most common congenital anomaly of larynx
- Milder degrees of stenosis present as inspiratory or biphasic stridor as child becomes older and more active, or as recurrent 'croup'



- Many cases of congenital stenosis improve as the larynx grows but some may require surgery

Laryngeal web



Laryngeal web:

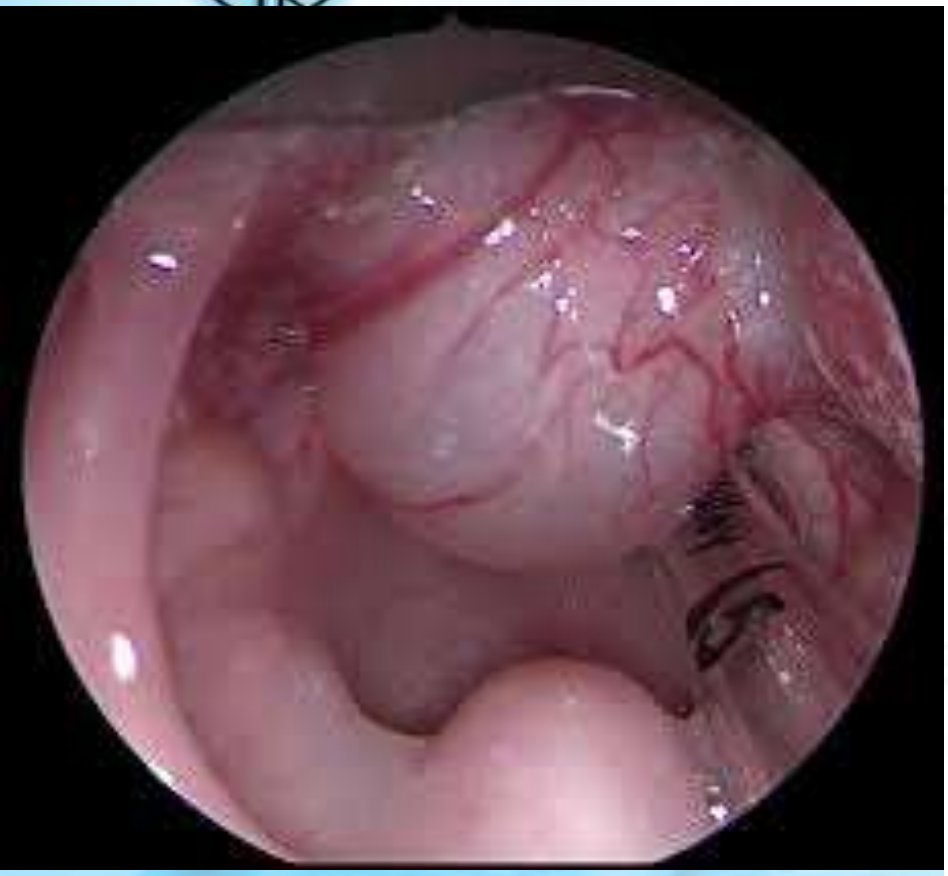
- It is due to incomplete recanalisation of larynx.
- Mostly, the web is seen between the vocal cords and has a concave posterior margin.
- Presents as airway obstruction, weak cry or aphonia dating from birth.

Laryngeal web

Treatment:

- Treatment depends on the thickness of the web
- Thin web - cut with a knife or CO_2 laser.
- Thick ones - excision via laryngofissure and placement of a silicon keel and subsequent dilatations.

Laryngeal cyst & Subglottic haemangioma



SUBGLOTTIC HEMANGIOMA:

- Capillary hamartoma which enlarges rapidly up to age of about one year and then involutes slowly
- Gradually increasing stridor, peak at 6 wks
- Life threatening as it lies in narrowest part of airway
- 50% mortality if untreated

- **Endoscopy:**
- Compressible, pear-shaped red swelling in the subglottis on one side

STRIDOR:

- Stridor is noisy respiration produced by turbulent air flow through the narrowed air passage.
- It may be heard during inspiration, expiration or both.

TYPES OF STRIDOR

1. **Inspiratory** stridor is produced due to obstruction of supraglottis or pharynx. e.g. acute retropharyngeal abscess, laryngomalacia.

2. **Expiratory** stridor is produced due to obstruction of thoracic trachea, primary and secondary bronchi, e.g. bronchial F.B, tracheal stenosis.

3. **Biphasic** stridor is seen in lesions of glottis, subglottis and cervical trachea. e.g. larymgeal papilloma, vocal cord paralysis and subglottic stanosis.

Causes of stridor

- *Stridor may arise from lessions of nose, tongue, mandible, pharynx, larynx or trachea and bronchi.*
- *Common causes of stridor in infants and children are:*

A) Congenital-

- ✓ Laryngomalacia
- ✓ Laryngeal web
- ✓ Subglottic stenosis
- ✓ Cleft Laryngocele
- ✓ Vocal cord paralysis
- ✓ Haemangioma

Causes of stridor (cont.)

B) Acquired-

a) Afebrile :

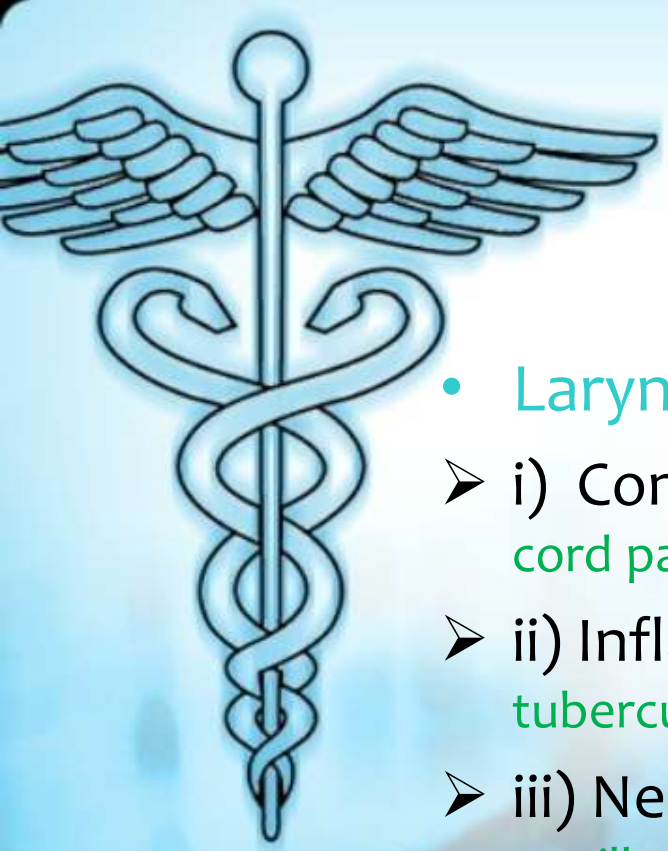
- Papillomatosis
- Injury
- Foreign body
- Laryngeal oedema
- Adenotonsillar hypertrophy.

b) Febrile:

- Epiglottitis
- Acute laryngitis
- Laryngo-tracheitis
- Diphtheria
- Retropharyngeal abscess
- Peritonsillar abscess

Causes of stridor

- Nose – Choanal atresia in neworn
- Throat – Macroglossia, haemangioma or lymphangioma ,dermoid at base of tongue, lingual thyroid.
- Mandible – Micrognathia.
- Pharynx – Congenital dermoid, adenotonsollar hypertrophy, retropharyngeal abscess, tumors.



- Larynx –

- i) Congenital- Laryngeal web, laryngomalacia, cysts, vocal cord paralysis, subglottic stenosis.
- ii) Inflammatory- Epiglottiti, laryngotracheitis, diphtheria, tuberculosis.
- iii) Neaplastic –Haemangioma, juvenile multiple papillomas, carcinoma in adult.
- iv) Traumatic –Laryngeal injury, foreign bodies, oedema following endoscopy or prolonged intubation.
- v) Neurogenic –laryngeal paralysis due to acquired lesions.
- vi) Miscellaneous- tetanus, tetany

- Trachea and bronchi-

➢ Congenital- Atresia, stenosis,tracheomalacia.

➢ Inflammatory- Tracheobronchitis.

➢ Neaplastic- Tumors of trachea.

➢ Traumatic – Foreing body, tracheal stenosis following prolonged intubation or tracheostomy.

- Lesions outside respiratory tract:

- Congenital –Vascular rings, oesophagial atresia, tracheo-oesophagial fistula, congenital goitre, cystic hydroma.
- Inflammatory – Retropharyngeal and retro-oesophageal abscess.
- Traumatic – FB oesophagus.
- Neoplastic – Masses in neck.

Management of stridor

A) History:

- Stridor is a physical sign and not a disease.
- Attempt should always be made to discover the cause.

a) Time of onset- whether cause is congenital or acquired.

b) Mode of onset- sudden onset (FB, oedema) or gradual and progressive onset (laryngomalacia, subglottic haemangioma, juvenile papillmas) .

c) Duration- short (FB, oedema, infections), long (laryngomalacia, laryngeal stenosis, subglottic haemangioma).

d) Relation to feeding- aspiration in laryngeal paralysis. oesophageal atresia, FB oesophagus.

e) Cyanotic spells- need for airway maintenance

f) H/O any F.B. aspiration or ingestion-

g) Laryngeal trauma- blunt injury to larynx, intubation, endoscopy.

Management of stridor

B) Physical examination:

- Stridor is always associated with respiratory distress (there may be recession in suprasternal notch, sternum, intercostal spaces and epigastrium during inspiratory efforts)
- Note whether stridor is inspiratory, expiratory or biphasic which indicates the probable site of obstruction.
- Associated fever indicates infective conditions. e.g. acute laryngitis, Epiglottitis, laryngotracheobronchitis.
- Examination of nose, tongue, jaw, pharynx and larynx can exclude local pathology in these areas.
- In adults, indirect laryngoscopy can be done easily while infants and children require direct laryngoscopy.

Management of stridor (cont.)

C) Radiography:

- X-ray chest & soft tissue neck both A/P and L/V
- Fluoroscopy to see chest movements both during inspiration and expiration.
- Tomography of chest for mediastinal mass.
- Angiography, if aberrant vessels are suspected.
- C T scan.

Management of stridor (cont.)

D) Direct laryngoscopy without anesthesia:

- A quick direct laryngoscopy can be done in infant and small children without anesthesia.
- Resuscitative measures and tracheostomy tray should be made available.
- Direct laryngoscopy also gives opportunity to see if intubation will be possible or tracheostomy will be required for further examination.

Management of stridor (cont.)

E) Direct laryngoscopy, broncoscopy, Oesophagoscopy under G A.

- Bronchoscopy is done first to find out any obstruction in the air passage.
- After bronchoscopy detailed examination of the larynx and oesophagus can be done.
- Larynx should again be examined when patient is coming out of anaesthesia and the tube has been removed to see active movements of vocal cords to exclude larybgeal paralysis.

Treatment:

Once the diagnosis has been made, treatment of exact cause can be planned.


Thank you
All