stridor

STRIDOR:

- obstruction of airway outside chest cavity
- high pitces
- more on inspiration

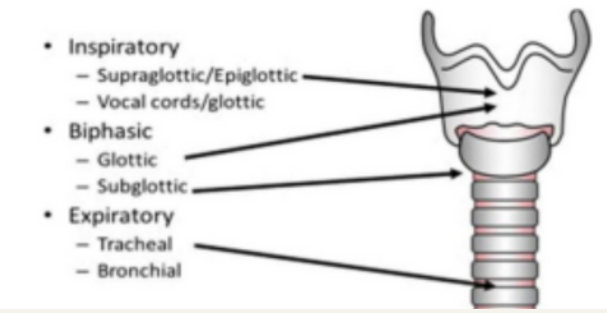
VS

WHEEZE

- obstruction of LRT
- continues, whistling sound
- more on expiration

TYPES

inspiratory	above glottis
expiratory	lower trachea
biphasic	glottic/subglottic



STRIDOR

ACUTE

- Laryngotracheobronchitis (croup)
- epiglottitis
- Bacterial tracheitis
- Retropharyngial abscess

CHRONIC

- Laryngomalacia
- Tracheomalacia

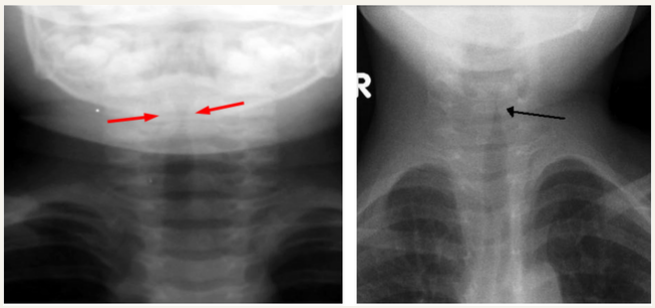
ACUTE

1. Croup

- m.c.c of acute stridor in children
- m.c.c parainfluenza virus
- 6m–6y (peak at 2)
- M:F= 3:2.4
- usually preceded by URTIA
- low-grade fever, barking cough, inspiratory stridor, hoarseness then develop
- Symptoms are characteristically worse at night and are aggravated by agitation and crying.
- **M**anagement: ABC
  –if hypoxic–suction&O2
  – give systemic steroid, nebulizers, adrenaline

i**mp note:** keep the child for at least 4 hours, if recurrent give 2nd dose of adrenaline and admit!

STEEPLE SIGN

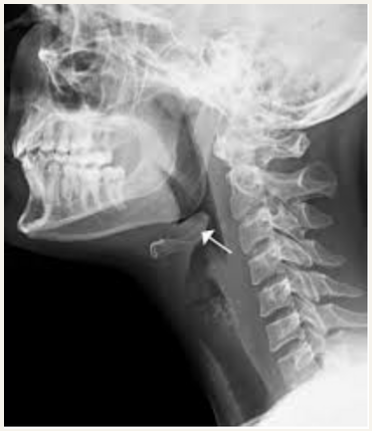


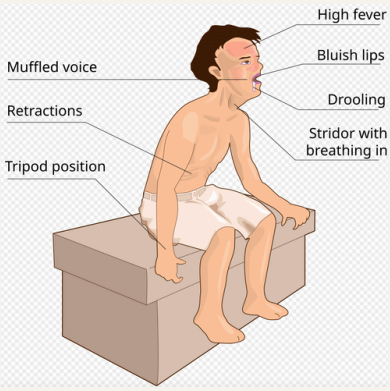
2. Epiglottitis

- True medical emergency
- Haemophilus influenza type B (less cases–vaccine)
- 2–7y (peak at 3)
- M:F = 3:2
- An edematous, cherry red epiglottis, visualized in a controlled environment, is the hallmark of epiglottitis
- Characterized by an abrupt onset of high fever(40), toxicity, agitation, stridor, dyspnea, muffled voice, dysphagia and drooling. (Tripod position) Older child leans forward, open mouth, protruded tongue. (Very sick child)

IMP note: Don't examine the child! Call ENT & anesthesia, take to theater!

THUMB SIGN





3. Bacterial Tracheitis

- Staph.aureus
- younger than 3y
- usually peceded by URTI
- The patient then becomes seriously ill with high fever, toxicity and respiratory distress.

4. Retropharyngeal abscess

- Complication of bacterial pharyngitis
- Younger than 6 years
- Abrupt onset of high fever, difficulty swallowing , refusing to feed , sore throat , hyperextension of the neck, and respiratory distress.
- signs: bulge from the neck, deviated uvula

CHRONIC

1. Laryngomalacia

- m.c.c of chronic stridor in children younger than 2 years
- M:F 2:1
- due to an intrinsic defect or delayed maturation of supporting structures of the larynx
- The airway is partially obstructed during inspiration by the prolapse of the flaccid epiglottis, arytenoids and aryepiglottic folds
- The inspiratory stridor is usually worse when the child is in a supine position, when crying or agitated, or when an upper respiratory tract infection occurs
- Usually up to 2 years resolves spontaneously

2.Tracheomalacia

- Characterized by abnormal tracheal collapse secondary to inadequate cartilaginous and myoelastic elements supporting the trachea.
- Tracheal narrowing occurs with expiration and causes stridor.
- The stridor may not be present at birth but appears insidiously after the first weeks of life.
- The stridor is usually aggravated by respiratory tract infections and agitation.

VOCAL CORD PARALYSIS

1. Unilateral

- occurs more on the **left side** because of longer course of recurrent laryngeal nerve--more vulnerable to injury
- causes: birth trauma, trauma during thoracic surgery or compression by mediastinal masses of cardiac, pulmonary, esophageal, thyroid or lymphoid origin
- stridor is biphasic--the infant's cry is weak and feeble; however, there is usually no respiratory distress.

2. Bilateral

- associated with **CNS** problems (perinatal asphyxia, cerebral hemorrhage, hydrocephalus, bulbar injury and Arnold-Chiari malformation)
- injury by direct trauma from endotracheal intubation or during deep airway suction.
- stridor is biphasic-the voice is usually of good quality, but there is marked respiratory distress

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Clinical Evaluation

Historical Information in the Evaluation of Stridor in Children

HISTORICAL DATA	*POSSIBLE ETIOLOGY*
Age of onset	
Birth	Vocal cord paralysis, congenital lesions such as choanal atresia, laryngeal web and vascular ring
4 to 6 weeks	Laryngomalacia
1 to 4 years	Croup, epiglottitis, foreign body aspiration
Chronicity	
Acute onset	Foreign body aspiration, infections such as croup and epiglottitis
Long duration	Structural lesion such as laryngomalacia, laryngeal web or laryngotracheal stenosis

Precipitating Factors

Worsening with straining or crying	Laryngomalacia, subglottic hemangioma
Worsening in a supine position	Laryngomalacia, tracheomalacia, macroglossia, micrognathia
Worsening at night	Viral or spasmodic croup
Worsening with feeding	Tracheoesophageal fistula, tracheomalacia, neurologic disorder, vascular compression
Antecedent upper respiratory tract infection	Croup, bacterial tracheitis
Choking	Foreign body aspiration, tracheoesophageal fistula

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Associated symptoms	
Barking cough	Croup
Brassy cough	Tracheal lesion
Drooling	Epiglottitis, foreign body in esophagus, retropharyngeal or peritonsillar abscess
Weak cry	Laryngeal anomaly or neuromuscular disorder
Muffled cry	Supraglottic lesion
Hoarseness	Croup, vocal cord paralysis
Snoring	Adenoidal or tonsillar hypertrophy
Dysphagia	Supraglottic lesion

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Past health	
Endotracheal intubation	Vocal cord paralysis, laryngotracheal stenosis
Birth trauma, perinatal asphyxia, cardiac problem	Vocal cord paralysis
Atopy	Angioneurotic edema, spasmodic croup
Family history	
Down syndrome	Down syndrome
Hypothyroidism	Hypothyroidism

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Physical Examination Findings in the Evaluation of Stridor in Children

PHYSICAL FINDINGS	*POSSIBLE ETIOLOGY*
General	
Cyanosis	Cardiac disorder, hypoventilation with hypoxia
Fever	Underlying infection
Toxicity	Epiglottitis
Tachycardia	Cardiac failure
Bradycardia	Hypothyroidism
Quality of stridor	
Inspiratory stridor	Obstruction above glottis
Expiratory stridor	Obstruction at or below lower trachea
Biphasic stridor	Glottic or subglottic lesion

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Position of the child	
Hyperextension of the neck	Extrinsic obstruction at or above larynx
Leaning over, drooling	Epiglottitis
Lessening of stridor in prone position	Laryngomalacia

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Chest findings	
Prolonged inspiratory phase	Laryngeal obstruction
Prolonged expiratory phase	Tracheal obstruction
Unilateral decreased air entry	Foreign body in ipsilateral bronchus

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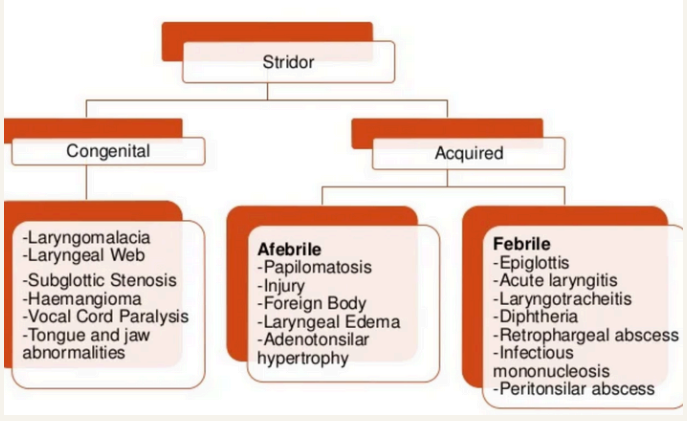
Associated signs	
Arrhythmias, significant heart murmurs, abnormal heart sounds	Structural heart disease
Cutaneous hemangiomas	*Subglottic hemangioma*
Peripheral neuropathy	Vocal cord paralysis
Urticaria/angioneurotic edema	Angioneurotic edema

Diagnostic Studies

- **AP & Lateral CXR** :views of the neck are useful in the assessment of adenoidal and tonsillar size, epiglottic size and shape, retropharyngeal profile and subglottic and tracheal anatomy.
- detection of radio-opaque foreign body and concomitant pulmonary disease.
- **Barium swallow** is a useful method if vascular compression or GERD is suspected. Gastrografin should be used as the contrast medium if tracheoesophageal fistula is suspected.:
- **Bronchoscopy/ flexible or rigid:** Airway malacia
- **CT neck and chest**



Raneem Osama

اذكروني بدعوه حلوه