



Diagnosing a Noisy Breather: Stridor in children

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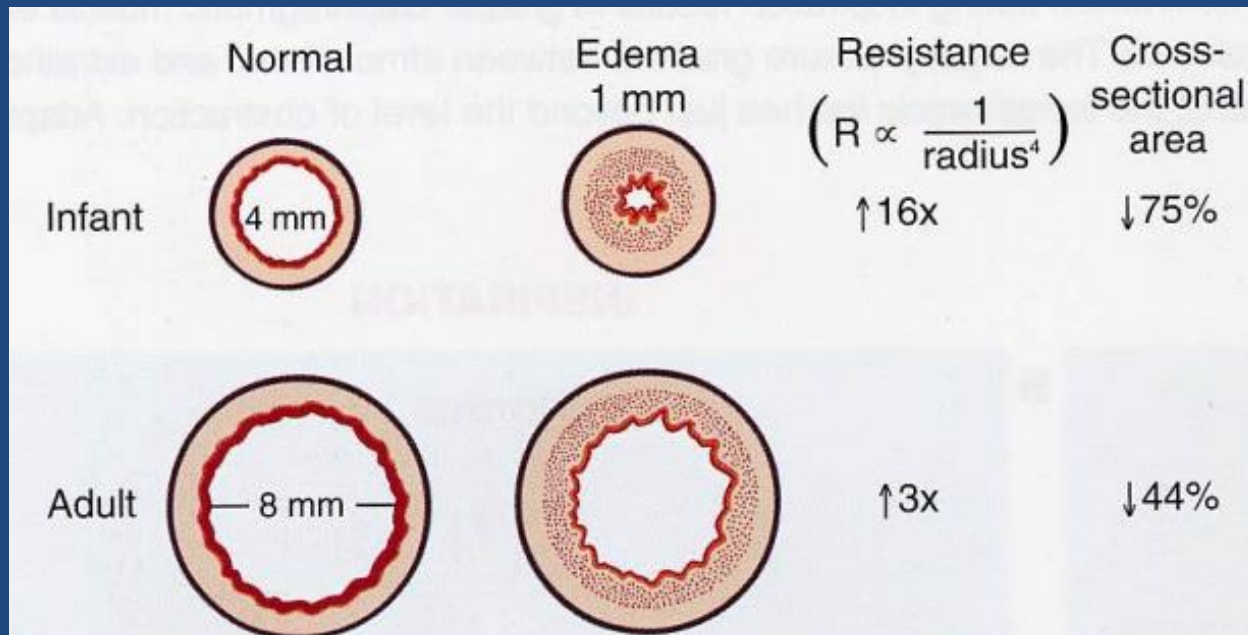
Pediatric pulmonologist

Stridor:

- Definition
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- "A high-pitched sound produced by turbulent airflow through a partially obstructed airway at the level of the supraglottis, glottis, subglottis, or trachea.
- Stridor breathing is not in and of itself a diagnosis, but rather is a symptom or sign that points to a specific airway disorder.

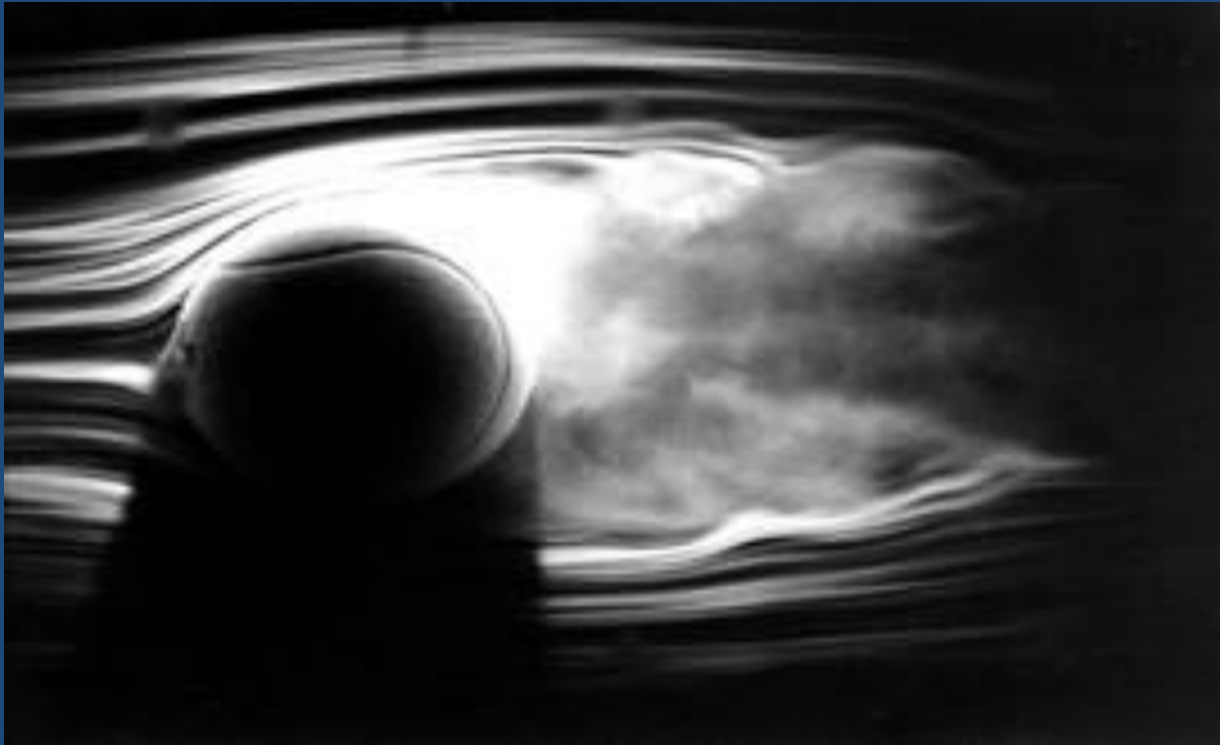
Airway Resistance

- **Poiseuille's law:** flow varies inversely with radius to the 4th power
- Small decreases in radius (croup, subglottic stenosis) lead to big increases in resistance



Airway Resistance

Turbulent flow increases resistance

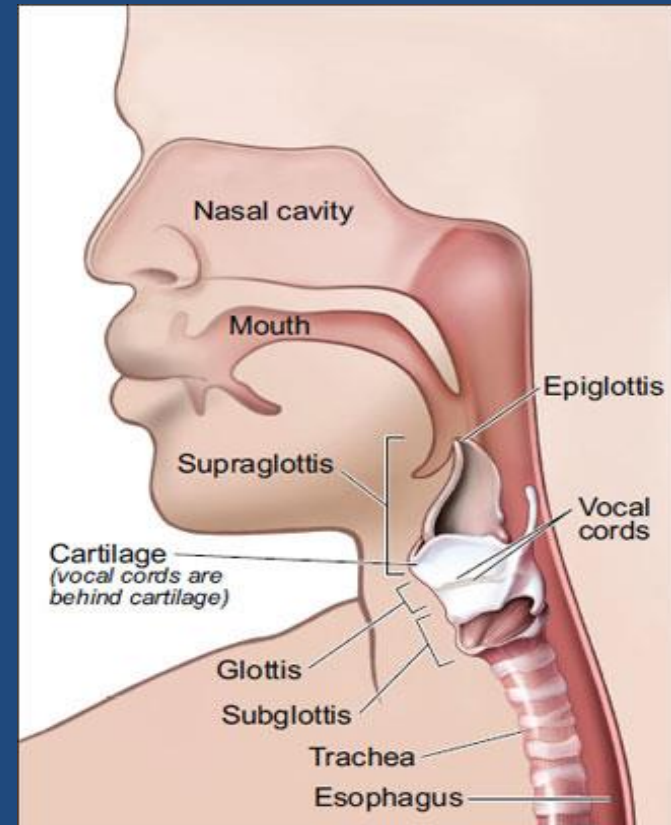


Definitions & Anatomic Divisions

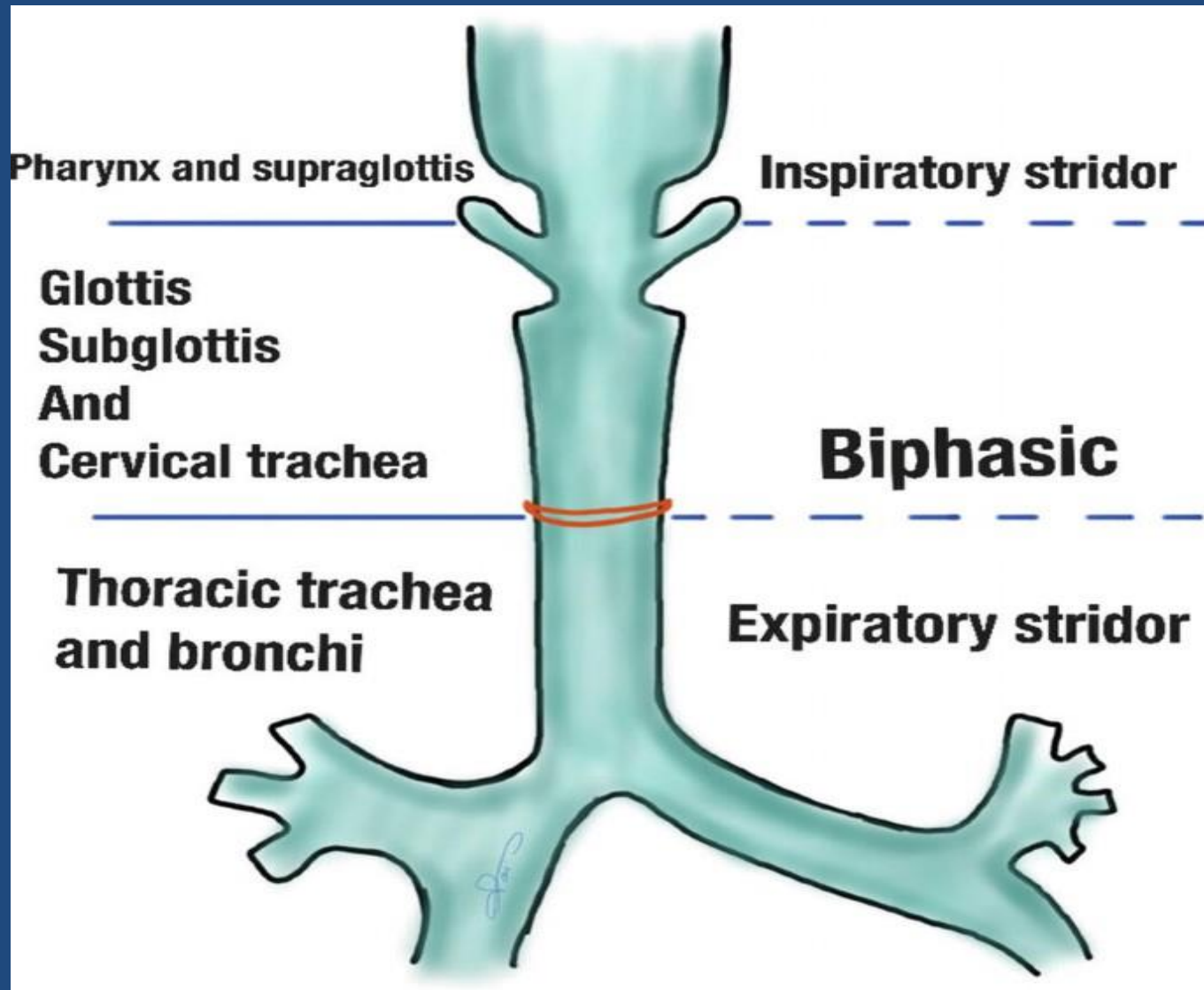
Stertor = snoring = nasal/pharyngeal airway

Stridor = upper airway (Supraglottis, glottis, subglottis, trachea)

Wheezing = lower airway (bronchi)



Anatomic Divisions



Characterizing the Problem

- Birth/intubation history
- Associated Findings
 - Apneas/Cyanotic Episodes
 - Voice changes
 - Reflux
 - Aspiration

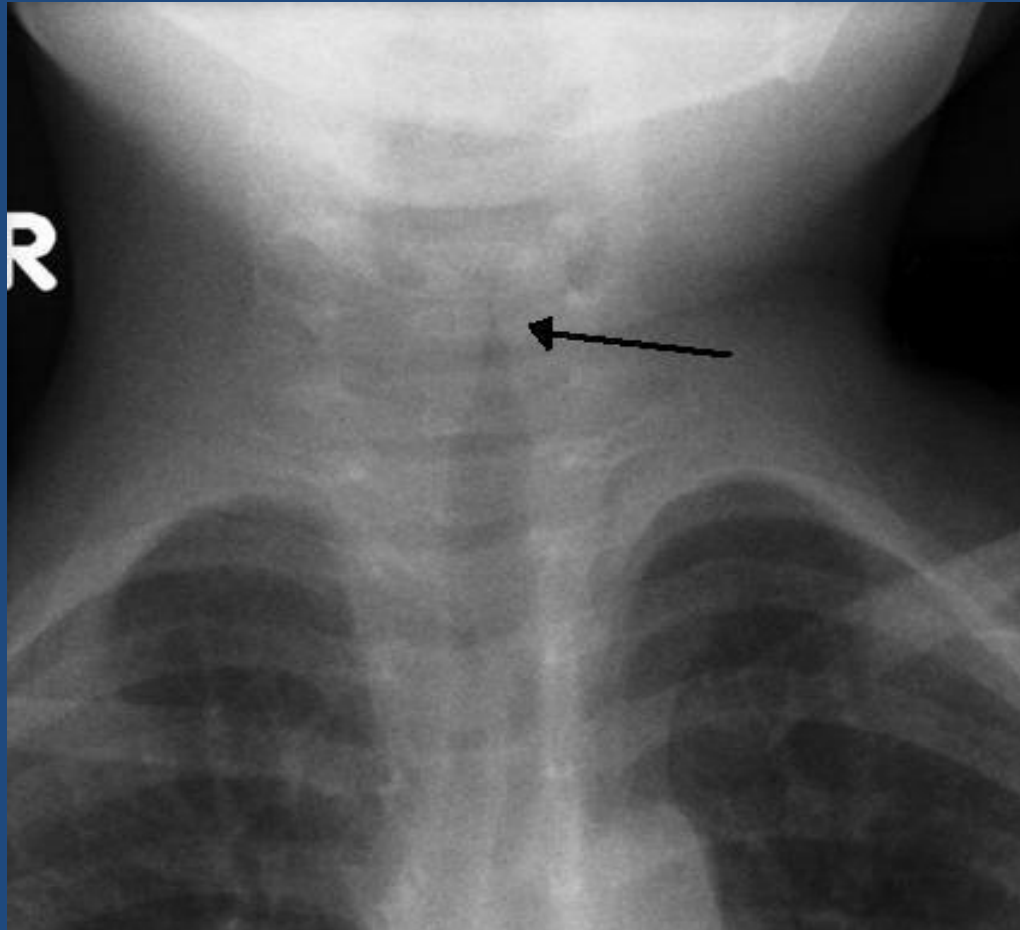
Characterizing the Problem

- Age at onset: congenital, acquired
- Onset: gradual, worsening, abrupt
- Severity: respiratory distress, increased WOB, retractions
- Timing: With feeds? Constant?
Positional?

Physical Findings

- Retractions, tachypnea, distress
- Nature of stridor – Gives an idea for anatomic site of obstruction
 - Inspiratory: Supraglottic
 - Biphasic: Glottic/subglottic/fixed tracheal
 - Expiratory: Tracheobronchial

Airway Film



	Supraglottic	Glottic	Subglottic/Tracheal
Acute	Foreign body	Foreign body	Foreign body
	Epiglottitis	Trauma	Laryngotracheitis (croup) Bacterial tracheitis
Chronic	Craniofacial anomalies	Vocal fold paralysis	Subglottic stenosis
	Laryngomalacia	Intubation granuloma	Subglottic cyst
	Recurrent Respiratory Papillomatosis	Laryngeal web	Hemangioma
	Vallecular cyst	Partial laryngeal atresia	Vascular ring/sling
	Hypotonia/Neurogenic dysfunction		Complete tracheal rings
			Extrinsic compression

Mild

Occasional/positional stridor

Mild feeding symptoms

Moderate

Persistent stridor

Mild retractions
Slow weight gain

Severe

Constant stridor

Deep retractions/pectus deformity
Hypoxia
Apneic/Cyanotic spells
Failure to thrive
Cor pulmonale



موفق باشيد