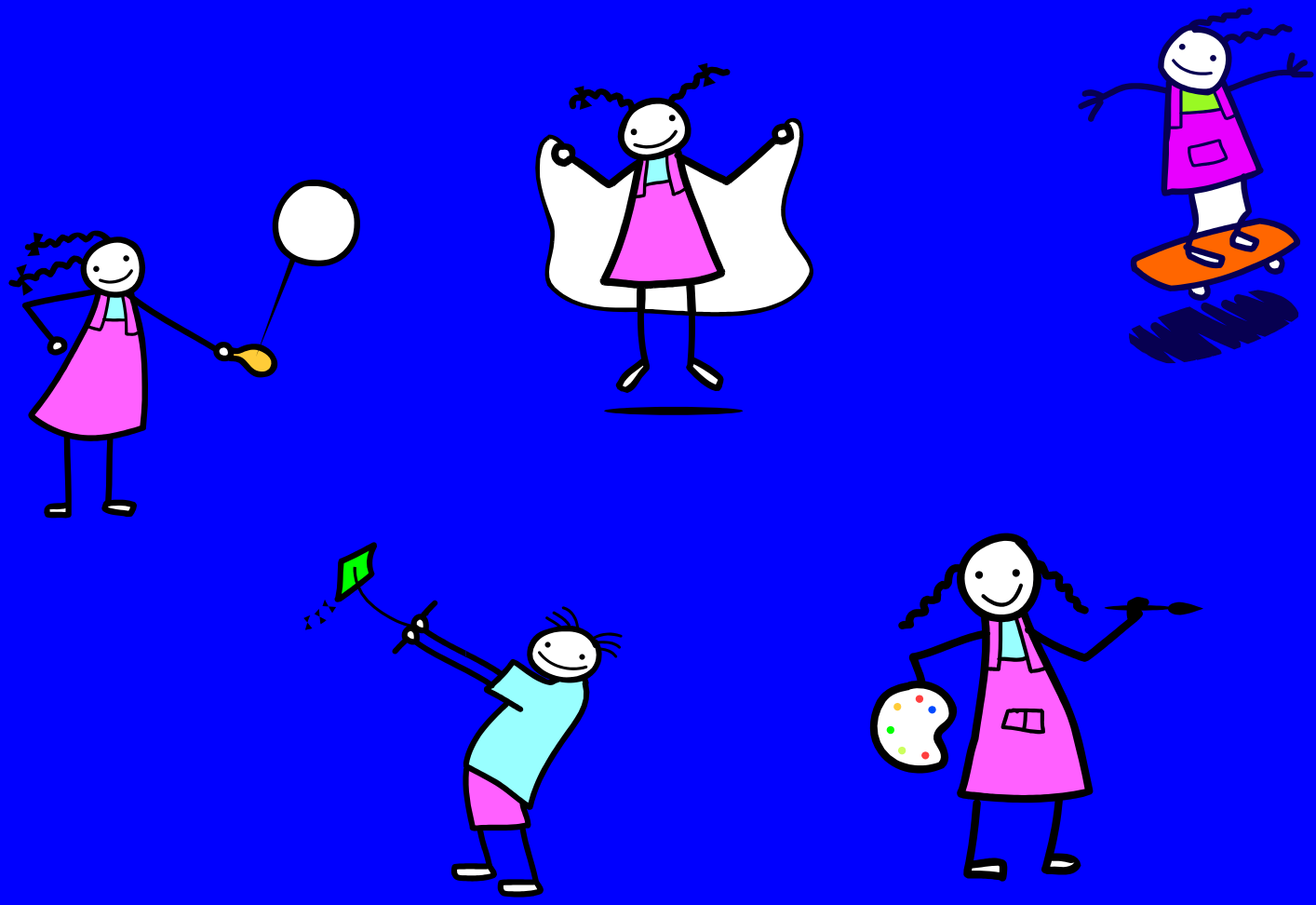
Stridor in children

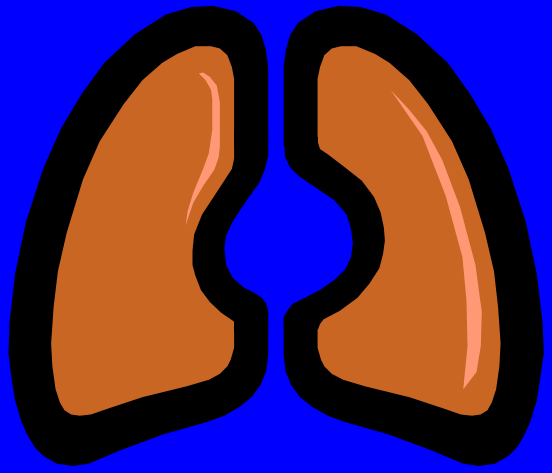


Paediatric Airway

- Large tongue, prominent occiput
- Low muscle tone
- Epiglottis long, stiff, horizontal
- Anterior larynx
- Short trachea, narrowest at cricoid
- chest wall compliant, lung not compliant
- Low FRC, TLC. High VO2.

What level is the problem?

Upper?



Lower?

Or both?

Is it upper or lower?

- **Upper**
- Stridor, cough
- Obstruction
- + accessory muscles (paradoxical)

- **Lower**
- Cough, wheeze
- No obstruction
- +/- accessory muscles (not paradoxical)

How are they breathing?

1. Rate: too fast, too slow, not at all
2. Rhythm: regular, irregular
3. Pattern: inspiratory, expiratory,biphasic
4. Effort: accessory muscle use
5. Level of problem: Upper: larynx, cricoid, trachea

   Lower: alveolar

Upper Airway

- Obstruction
- Management
- Conditions:
  - Croup
  - epiglottitis
  - tracheitis
  - Retropharyngeal abscess

Causes of Stridor

- Intrinsic airway lesion :
  - hemangiomata, cysts, webs
- abnormal airway development:
  - tracheal stenosis
- Extrinsic compression:
  - vascular rings or slings, lymphangiomatous lesions, mediastinal tumors
- Abnormal communication between airway and esophagus: laryngotracheal clefts, tracheoesophageal fistulae,
- tracheobronchomalacia.
- Acquired
  - tracheal stenosis
  - Infective
  - Foreign body

Upper Airway Obstruction

This is an emergency!

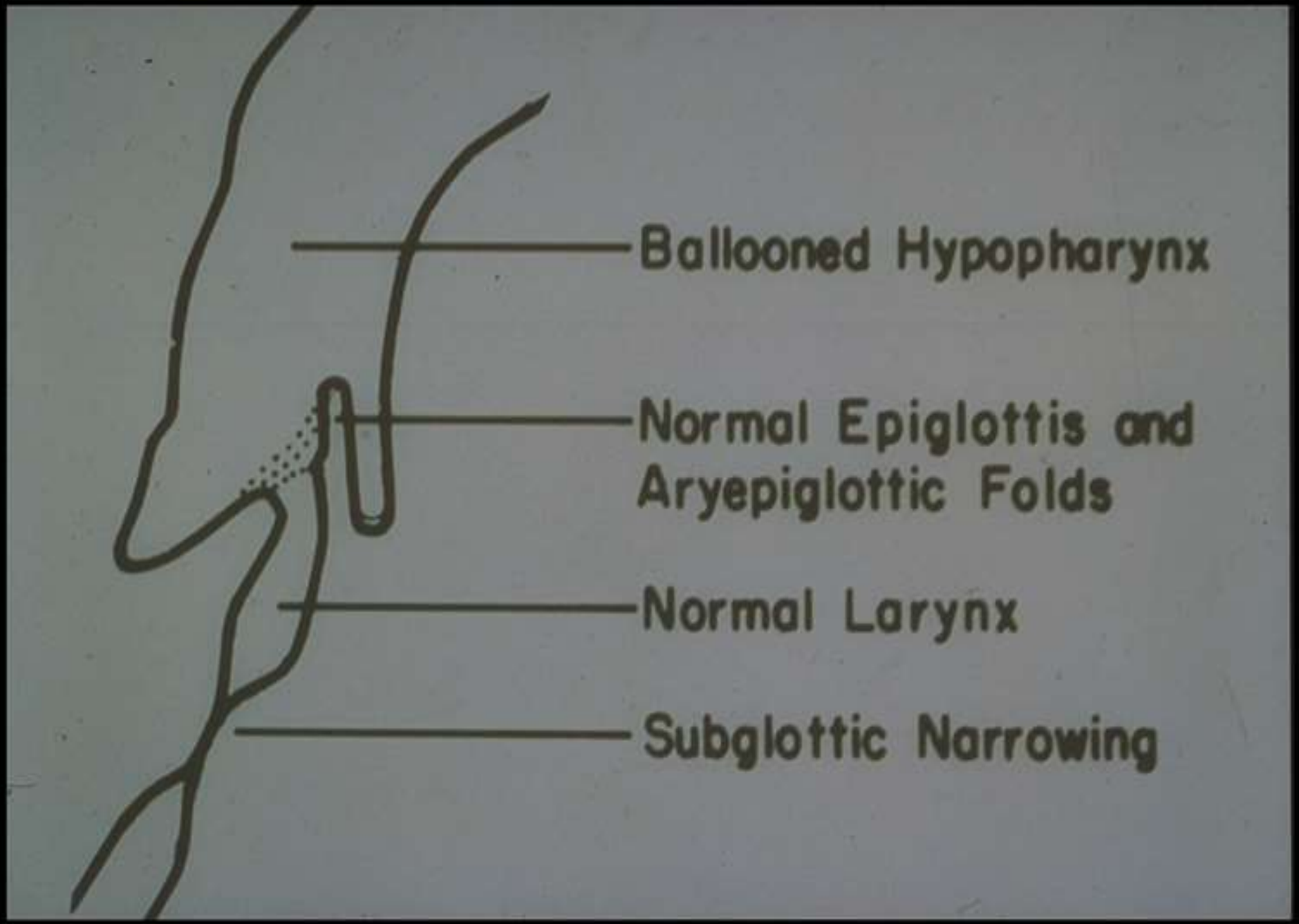
LISTEN: the pitch gives a clue
LOOK: at effort: how bad is it?
ACT: immediately

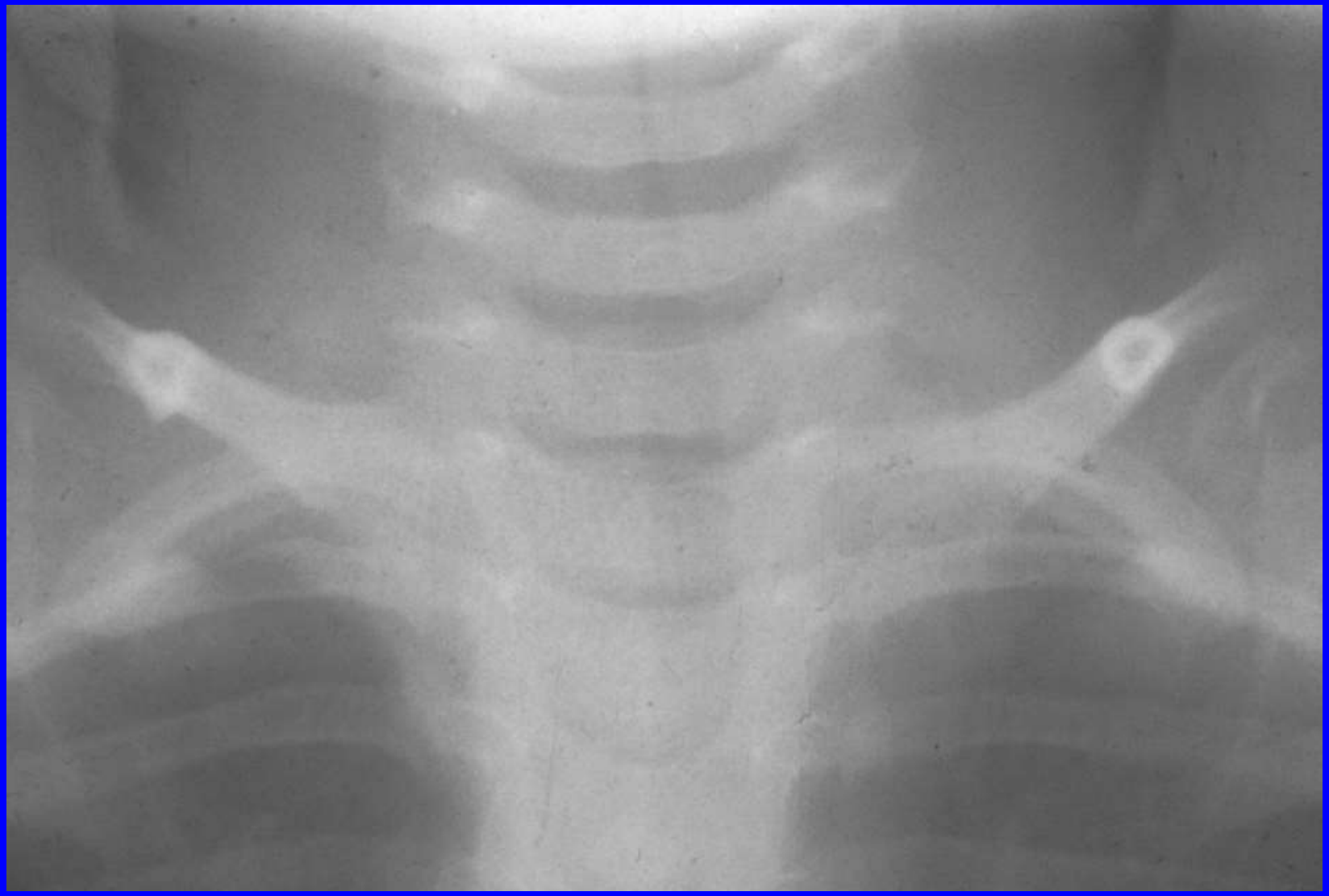
Management of Upper Airway Obstruction

- Keep child calm
- Don’t look in mouth
- Call for help
- Secure airway

Croup

Age:	3 mths - 3 years
Etiology:	Viral (parainfluenza)
Prodrome:	URTI
Onset:	Gradual
Clinical	Stridor / barking Non-toxic Worse at night


Ballooned Hypopharynx
Normal Epiglottis and
Aryepiglottic Folds
Normal Larynx
Subglottic Narrowing

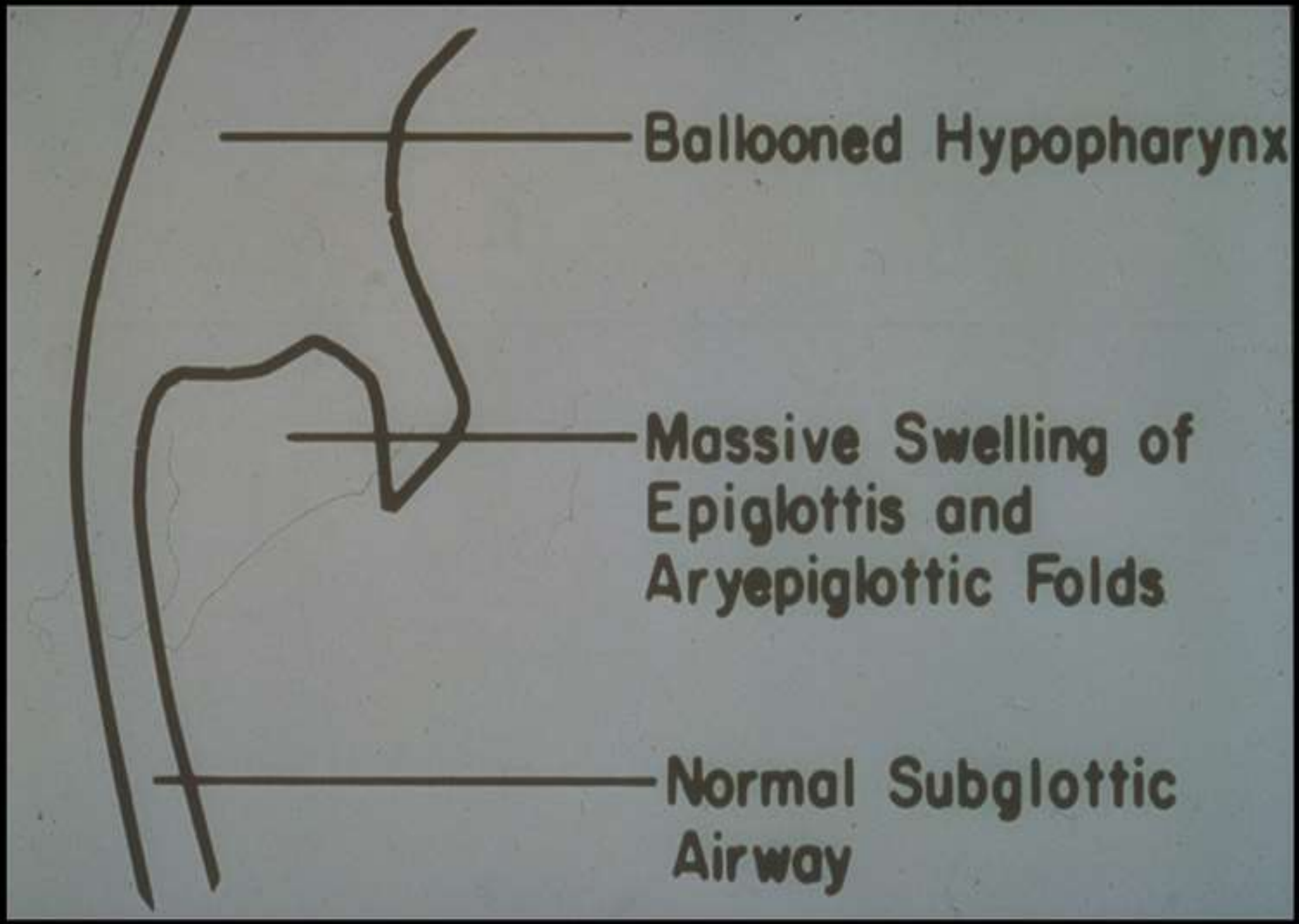


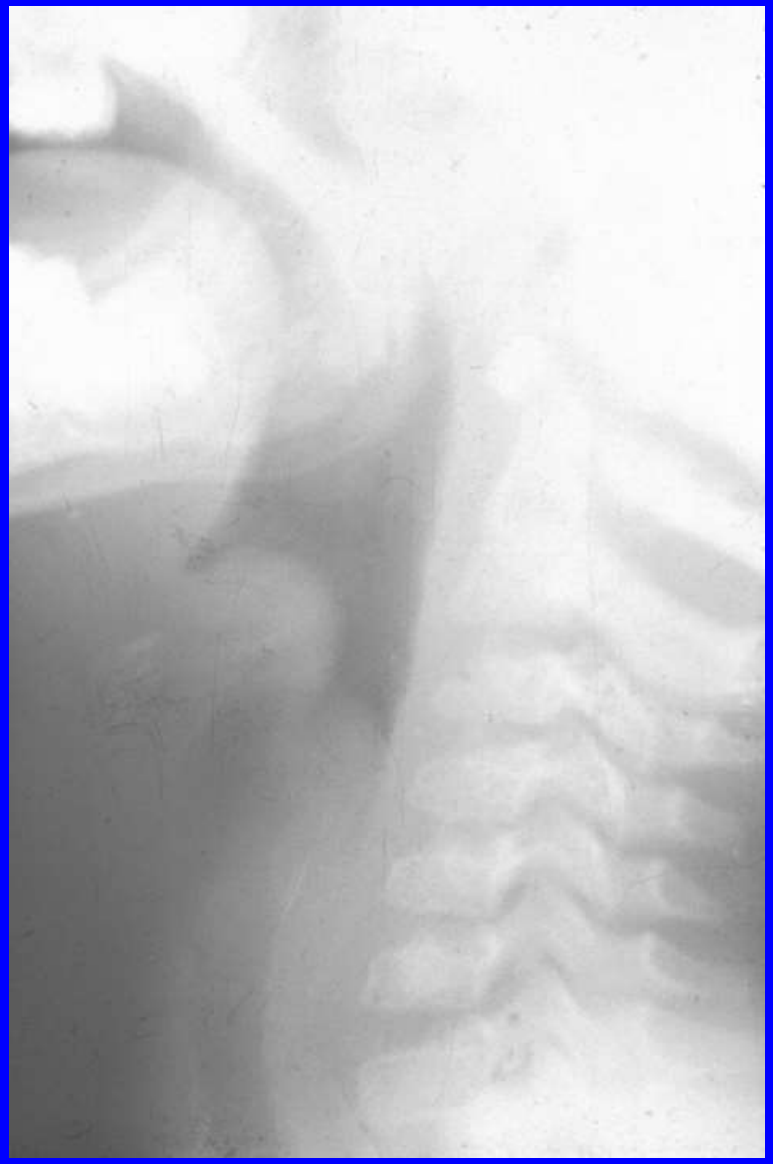
Management of Croup

- Nebulized Adrenaline
- Dexamethasone
- Supportive

Epiglottitis

Age:	1-8 years (peak 3-5 years)
Etiology:	(H. Influenza), S Pneumonia
Prodrome:	URTI
Onset:	Rapid, 4-12 hours
Clinical Symptoms:	Toxic
	Drooling/ dysphagia
	Inspiratory stridor (or silent!)


Ballooned Hypopharynx
Massive Swelling of Epiglottis and Aryepiglottic Folds
Normal Subglottic Airway



Management of Epiglottitis

- Gas induction / intubate
- Antibiotics
- Swedish nose

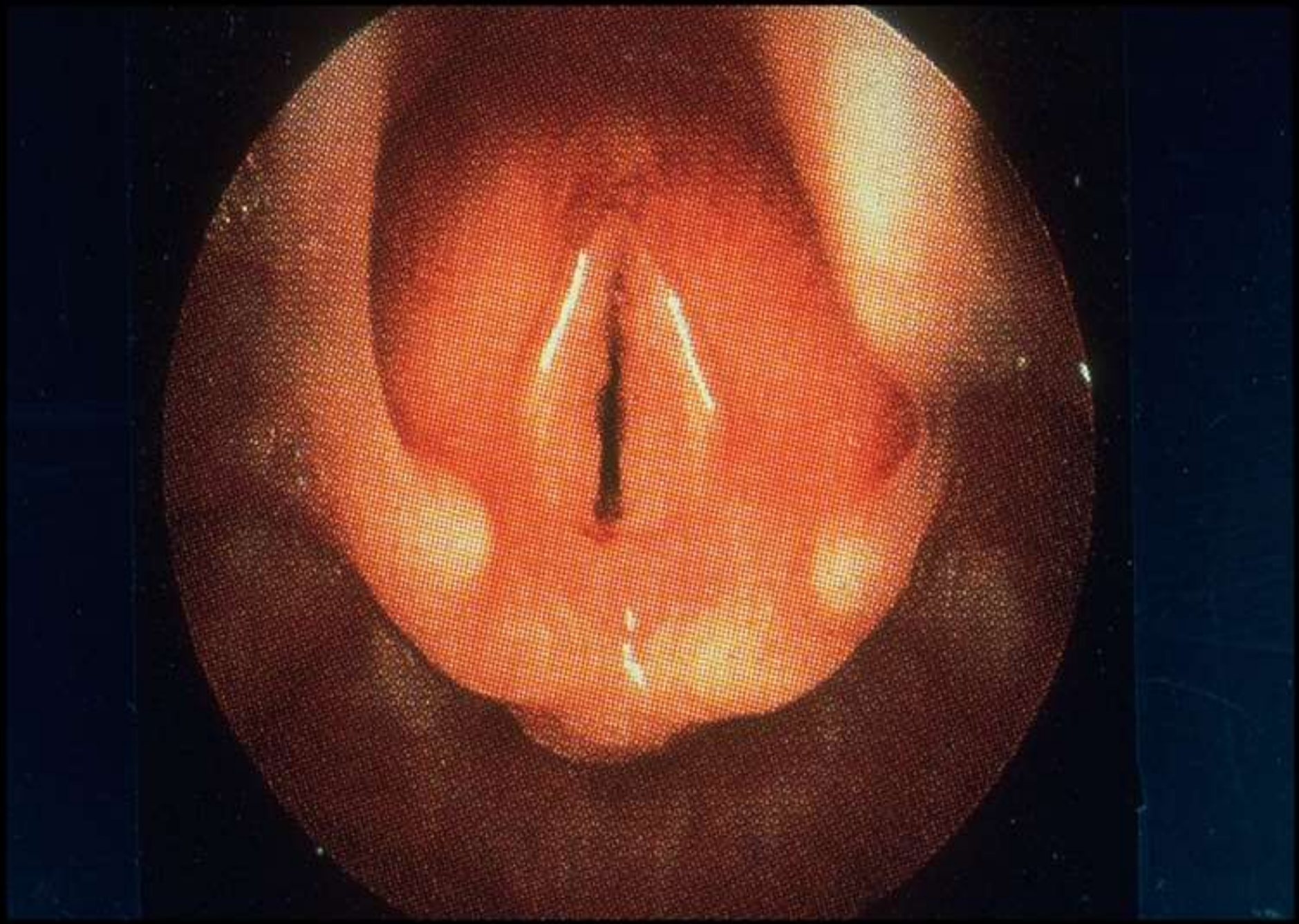
WHICH IS IT?

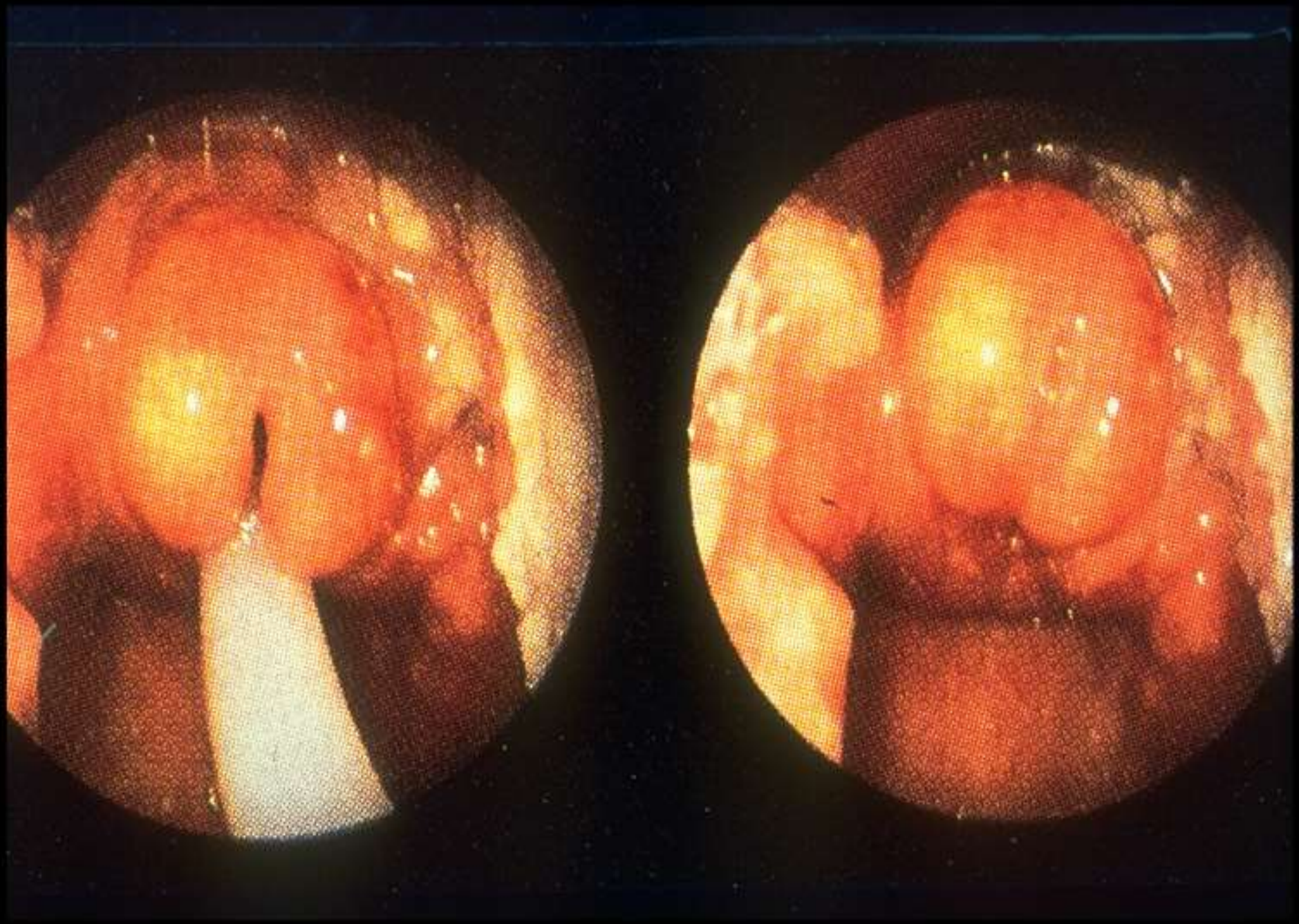
CROUP

- Gradual onset
- Subglottic
- “barking” cough
- Lying or sitting
- No drooling
- Non toxic

EPIGLOTTITIS

- Rapid onset
- Supraglottic
- No cough
- Sitting
- Drooling
- Toxic, anxious



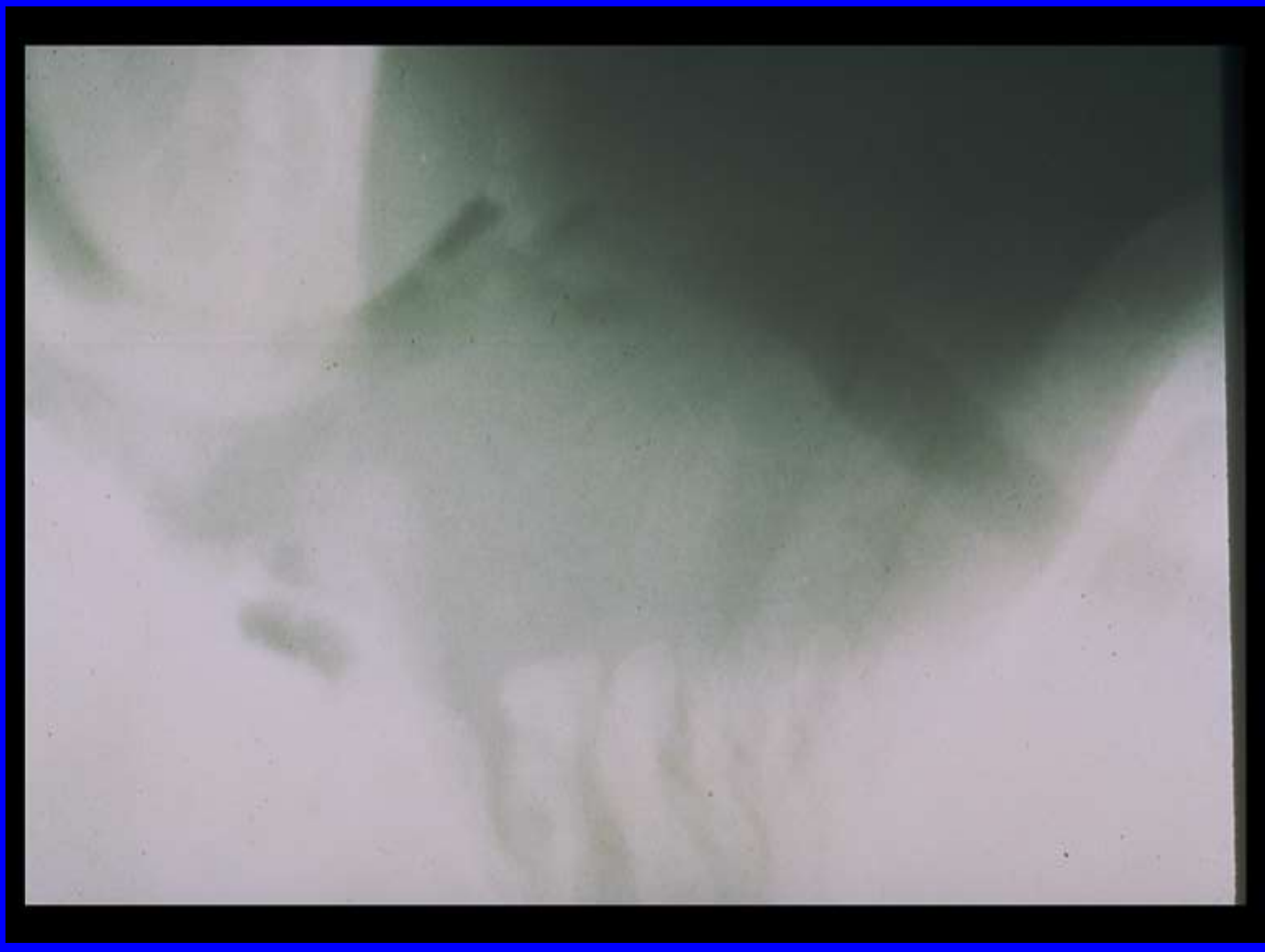


Bacterial tracheitis

- Acute onset may follow URTI
- Toxic; Strep, Staph, Hib
- Stridor
- Barking cough or silent

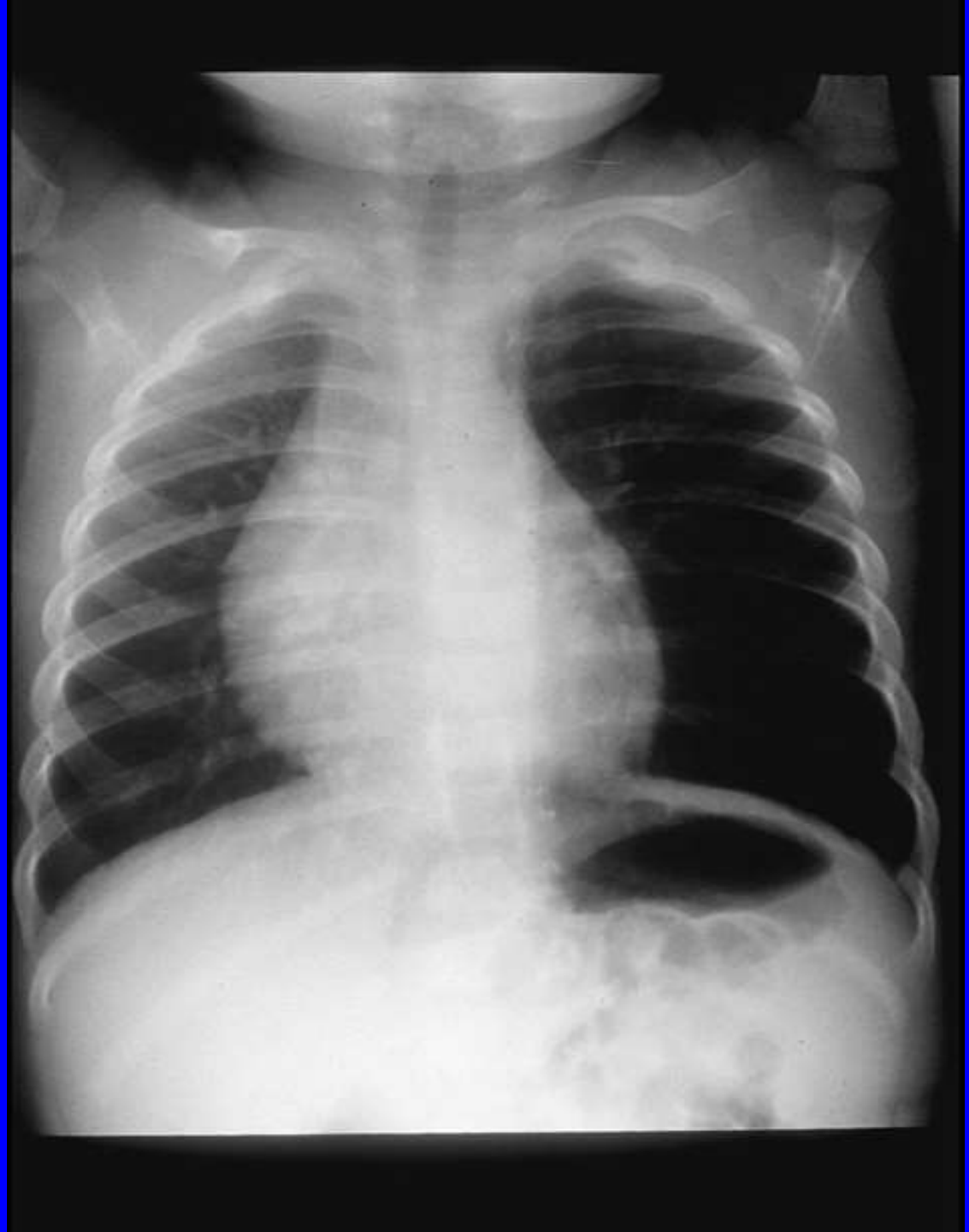
Retropharyngeal Abscess

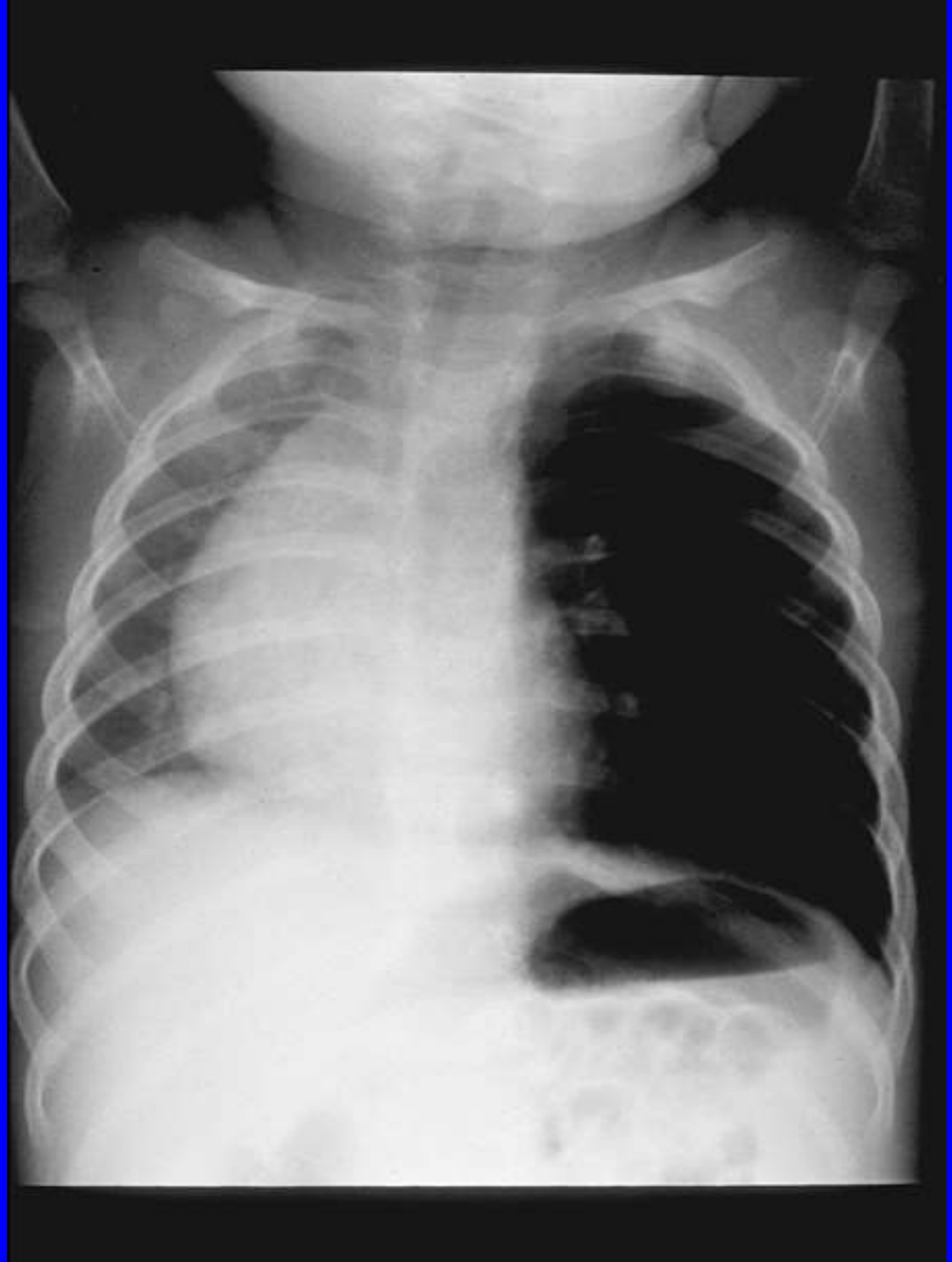
- Insidious onset
- Stridor
- Drool
- Toxic with stiff neck
- Spread



Foreign body

- Age: 2 years or sibling
- Sudden onset in well child
- History of choking
- Stridor depending on level obstruction
- Ball valve effect on CXR





Management foreign body

- Clear airway
  - retrieve if able
  - push object down bronchus
- Bronchoscopy and removal

Tracheomalacia

- Bronchoscopy/Bronchogram best for dynamic changes
- Dynamic CT used more frequently
- Often need CPAP till grow
- Facemask: less invasive, impairs face growth
- Tracheostomy: worsens malacia
- Surgery

Summary

- Assess well:
  - Are they sick?
  - What and where is the problem?
- First principles
  - What do I need to do about it?
- Primum non nocere
  - Hands off

Questions?