

Stridor/Snoring/OSAS

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Stridor/Stertor

- Noisy breathing = airway obstruction
- ALWAYS THINK WHAT'S CAUSING IT!

Introduction

- Stertor=Snoring
 - Caused by obstruction of airway above the larynx
 - Vibration in tissues of nasopharynx, oropharynx or soft palate
 - Rough, unmusical
- Stridor
 - Due to obstruction in the larynx, trachea or bronchi

Stridor:

- Harsh, high-pitched, crowing noise during inspiration- larynx/ supraglottis obstruction
- Stridor of lower pitch with snoring + excessive secretions- pharynx/ nasopharynx
- Inspiratory+ expiratory stridor with prolonged low-pitched expiration- trachea/ bronchi

Grading of Stridor:

- Grade I : Inspiratory stridor
- Grade II : Expiratory stridor
- Grade III : Inspiratory + expiratory stridor with pulsus paradoxus
- Grade IV : Respiratory arrest

Associated signs and symptoms

- Dyspnoea
 - Severity of one reflects severity of the other
 - Signs of respiratory embarrassment
 - Nasal flaring
 - Accessory muscles
 - Cyanosis
 - Indrawing of soft tissues
 - Tracheal tug
 - Beware of signs in neonate and small infant

Associated signs and symptoms *(continued)*

- Cough
 - Harsh and barking
 - Subglottic inflammation/tracheal compression
- Hoarseness
 - Speech or crying
 - Vocal cord pathology

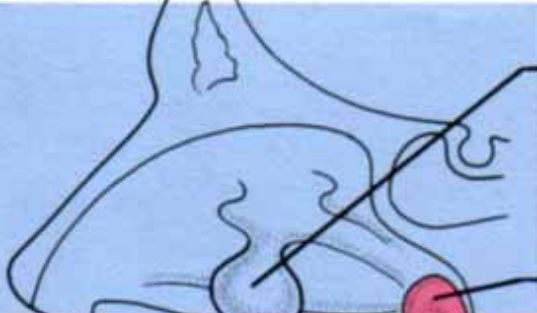
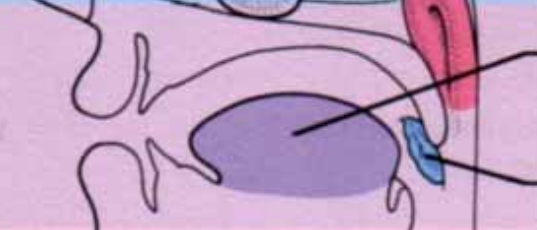

Associated signs and symptoms *(continued)*

- Deglutition and respiration
 - Share common pathway: oropharynx
 - Disorders of the one may interfere with the other
 - Stridor/Stertor often increase during feeding
 - Infants often noted to be poor or slow feeders

General features: Stridor

- Always a symptom or a sign; never a diagnosis or a disease
- History and physical examination will indicate problem areas
- Endoscopy will confirm final diagnosis

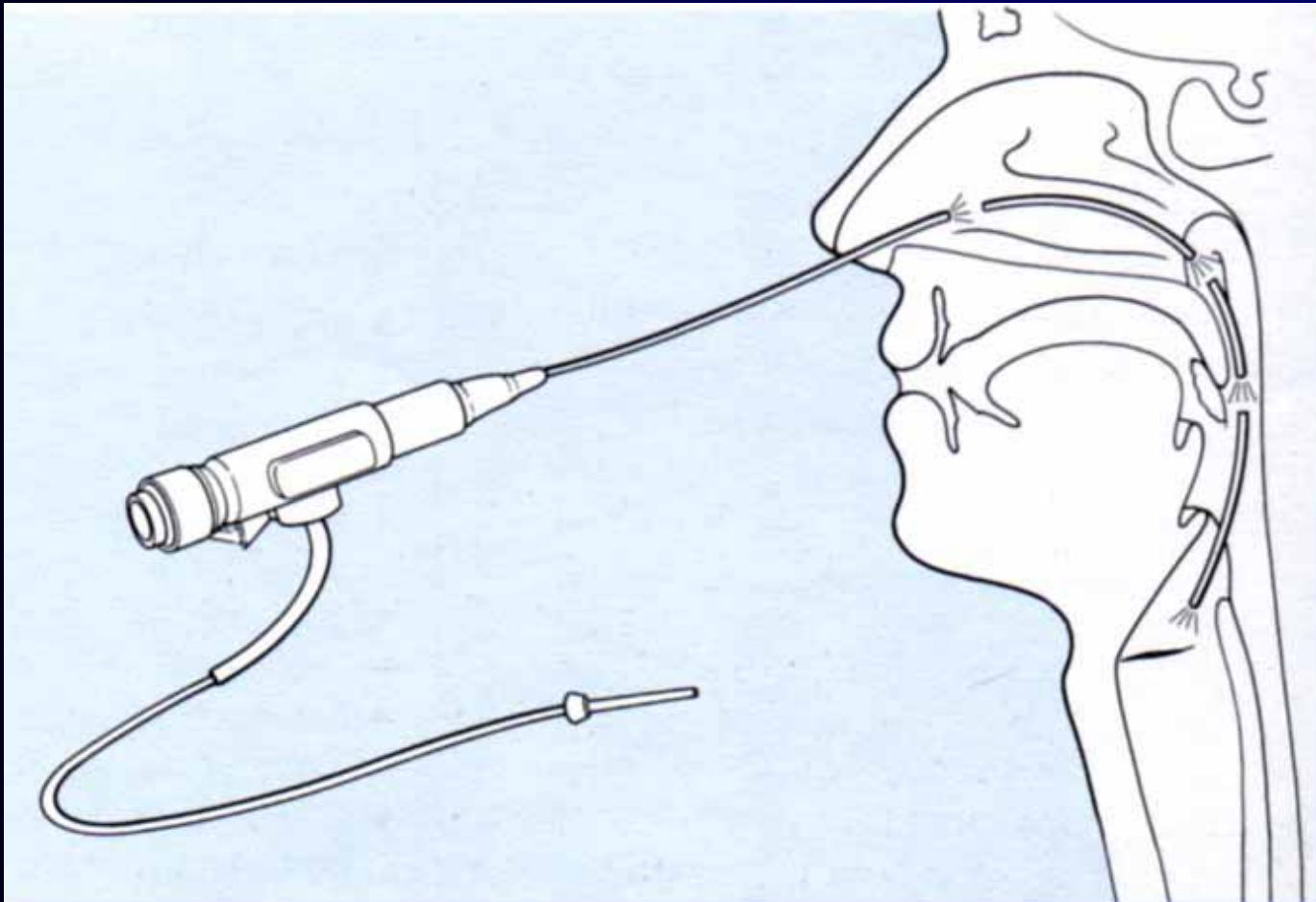
History and physical examination *(continued)*

Sites of obstruction		Causes of obstruction
Nose/nasopharynx		Nasal polyps Grossly deflected nasal septum Adenoids
Oropharynx/velopharynx		Macroglossia (absolute or relative) Soft palate Tonsils
Laryngotrachea		Obstructive lesions (e.g. tumour, cysts)

Special investigations *(continued)*

- Endoscopy
 - Gold standard
- Evaluate nasal passages, nasopharynx, oropharynx, larynx and trachea
- General anaesthetic if required
- Decide on treatment

Special investigations *(continued)*



Endoscopy



Causes and classification

- Adult
- Children
- Neonatal

Causes: Adult

- Malignancy
 - Nasopharynx, oropharynx, larynx
- Laryngeal trauma
 - Post intubation
- Acute laryngitis
- Supraglottitis/epiglottitis

Causes: Examples *(continued)*

- Malignancy
 - Usually slow in onset
 - Progressive
 - Associated symptoms
 - Hoarseness
 - Dysphagia/odynophagia
 - Associated signs
 - Neck mass

Causes: Children *(continued)*

- Laryngotracheobronchitis (Croup)
- Epiglottitis
- Foreign body
- Trauma
 - Post intubation
- Retropharyngeal abscess
- Laryngeal papillomata

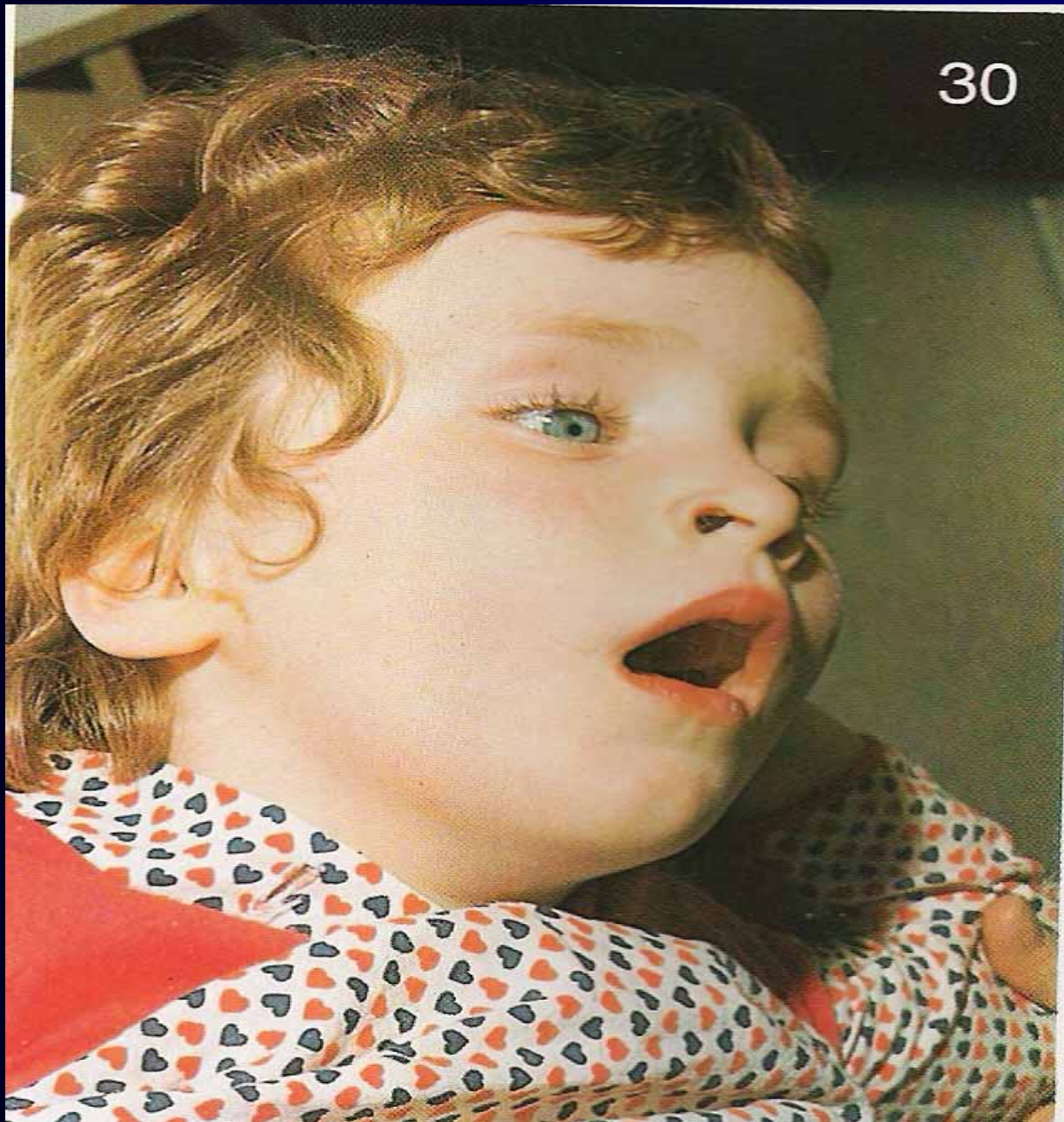
Differentiating features

	Acute epiglottitis	Acute laryngotracheobronchitis
site	Mainly above vocal cords	Mainly below vocal cords
organism	Bacterial	Viral
incidence	rare	40 × as common
age	Commonest 2-6 years	Commonest 6 months - 3 years
progress	dangerously rapid	usually less rapid
position	must sit up	can lie on back
cough	none, or sharp	croupy, like a seal
stridor	inspiratory	biphasic
colour	ashen pale, or grey	may be cyanotic
breathing	slow, keeps still	rapid, struggles for breath
blood count	leucocytosis	normal or raised white cell count, lymphocytes predominant
X-ray	thumb-like shadow of epiglottitis	finger-like shadow of epiglottitis
recurrence	rare	quite frequent
behaviour	keeps very still and concentrates on breathing	tends to be restless

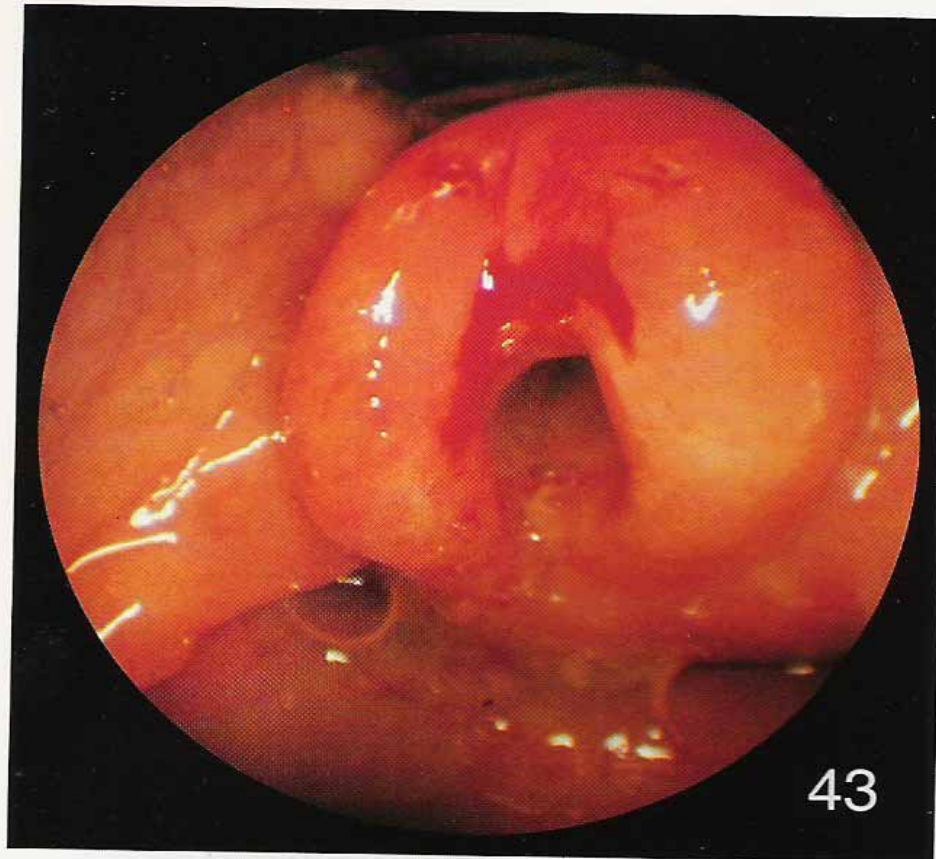
Causes: Examples

- Laryngotracheobronchitis (Croup)
 - Viral infection
 - 6 months - 3 years
 - Pyrexia, barking cough
 - Stridor: Grade I-IV
- Treatment
 - Hospitalisation
 - Oxygen and adrenaline nebulisation
 - Intubation in severe cases

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Epiglottitis



Causes: Examples *(continued)*

- Epiglottitis
 - Haemophilus influenza Group B
 - 3 years - 7 years
 - Pyrexia, severe sore throat
 - Stridor
 - Dribbling, breathing with raised chin, open mouth
 - Cherry red epiglottitis

Causes: Examples *(continued)*

- Treatment
 - Emergency
 - IVI antibiotics
 - Needs intubation
 - Small tube
 - Extubation within 48 hours

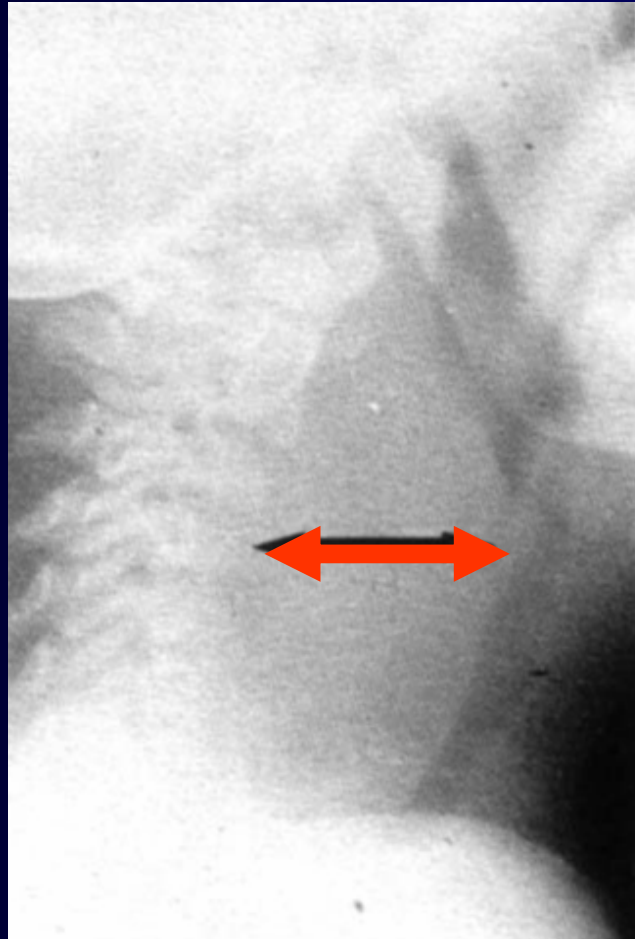
Foreign body



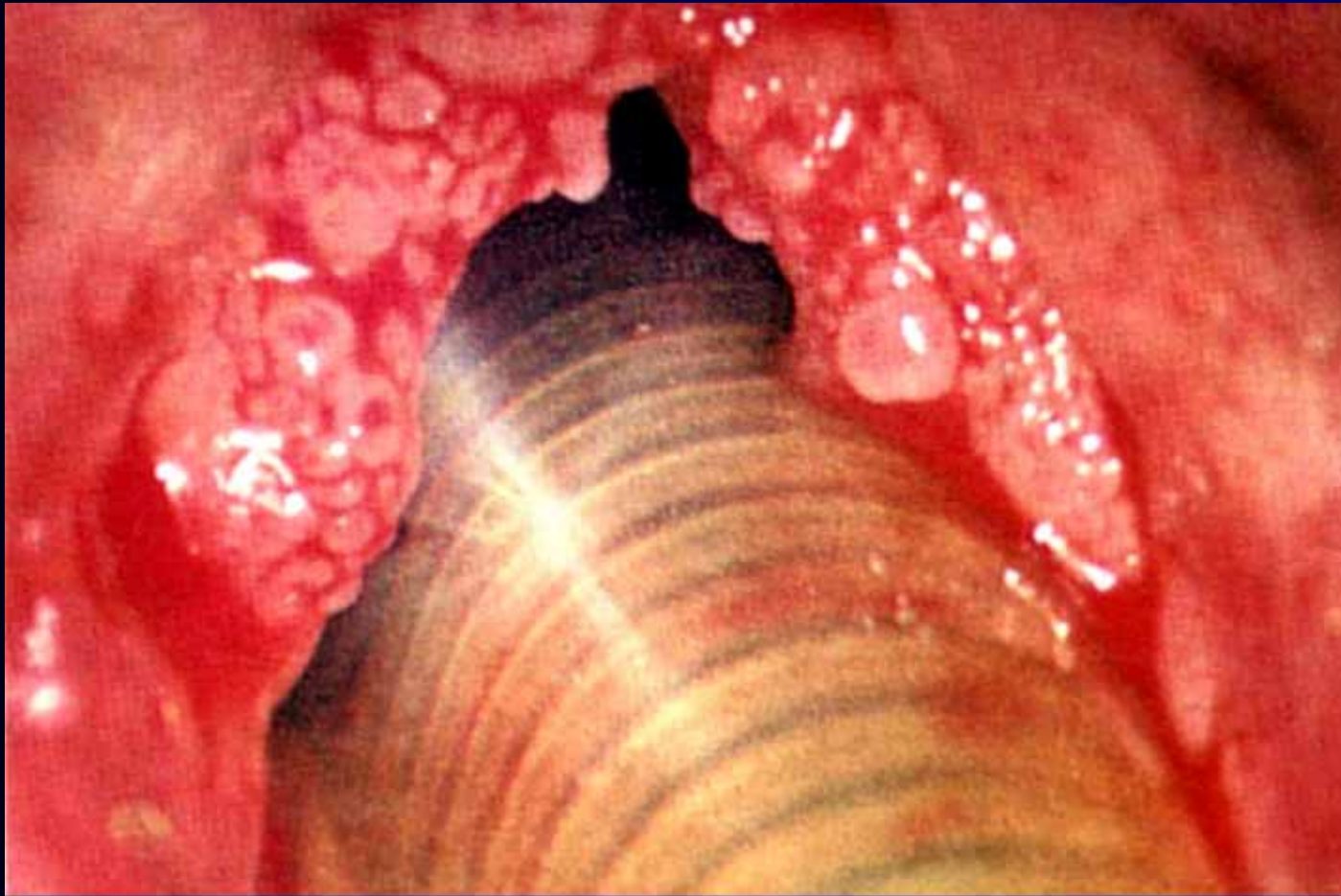
Prolonged intubation



Causes: Children *(continued)*



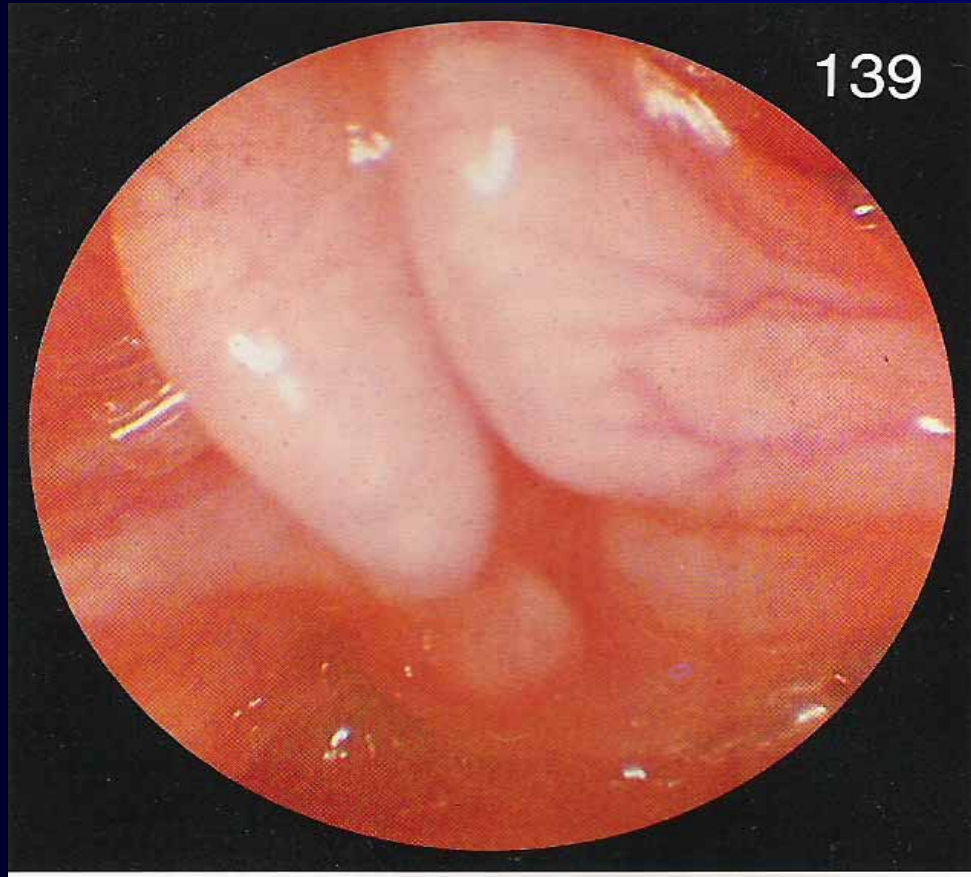
Causes: Children *(continued)*



Causes: Neonatal

- Laryngomalacia
- Congenital tumors, cysts
- Webs
- Subglottic stenosis
- Vocal cord paralysis

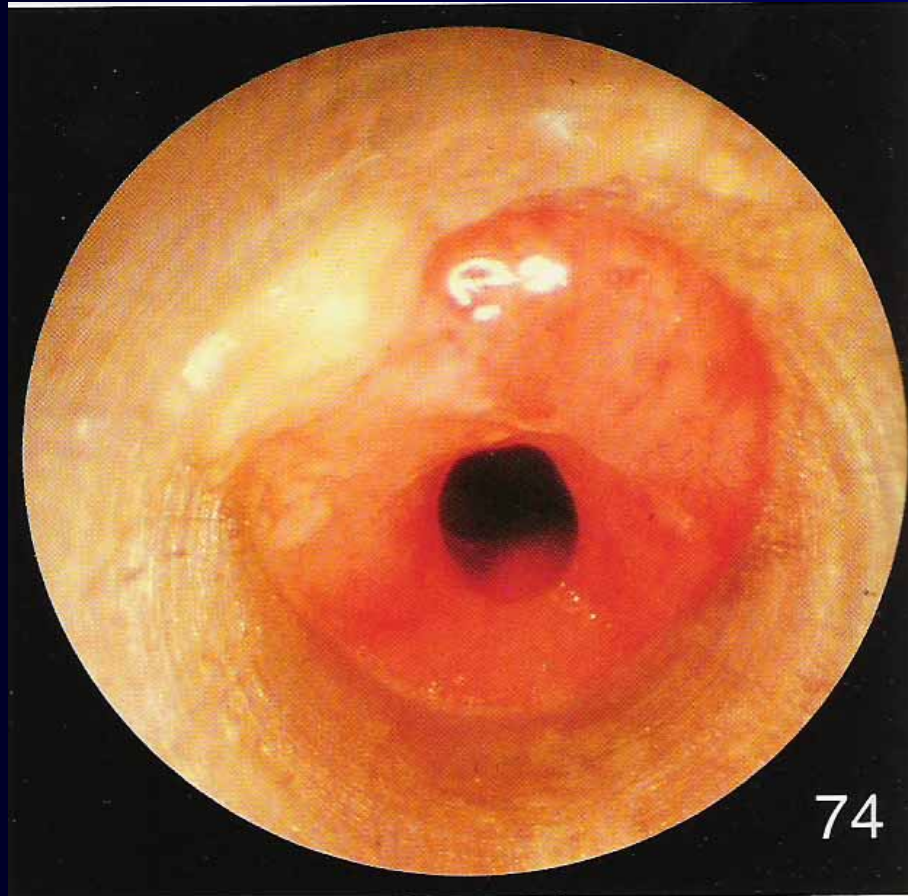
Laryngomalacia



Causes: Examples *(continued)*

- Laryngomalacia
 - Weak supraglottic framework
 - Self-limiting; resolves at 3 years
- Subglottic stenosis
 - Congenital or acquired
 - Beware after intubation
 - May need tracheostomy

Stenosis



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Laryngeal web



Obstructive sleep apnoea syndrome (OSAS)

- Definitions
 - Apnoea
 - Cessation of airflow at nostrils for 10 seconds or longer
 - Apnoea index
 - Number of apnoeas per hour of sleep
 - Hypopnoea
 - Reduction in airflow associated with desaturation
 - Sleep apnoea syndrome
 - 5 or more apnoeic episodes during a hour sleep

Risk factors of OSAS

- Obesity
- Male + age
- Anatomical facial abN –nasal obstruction
 - adenotonsillar hypertrophy
 - macroglossia
 - micrognathia/retrognathia
- Family history
- Sedatives + alcohol
- Smoking

Clinical features

- Sleep fragmentation
- Daytime fatigue
- Morning headache
- Daytime somnolence
- MVA
- Poor job performance
- Depression + family discord

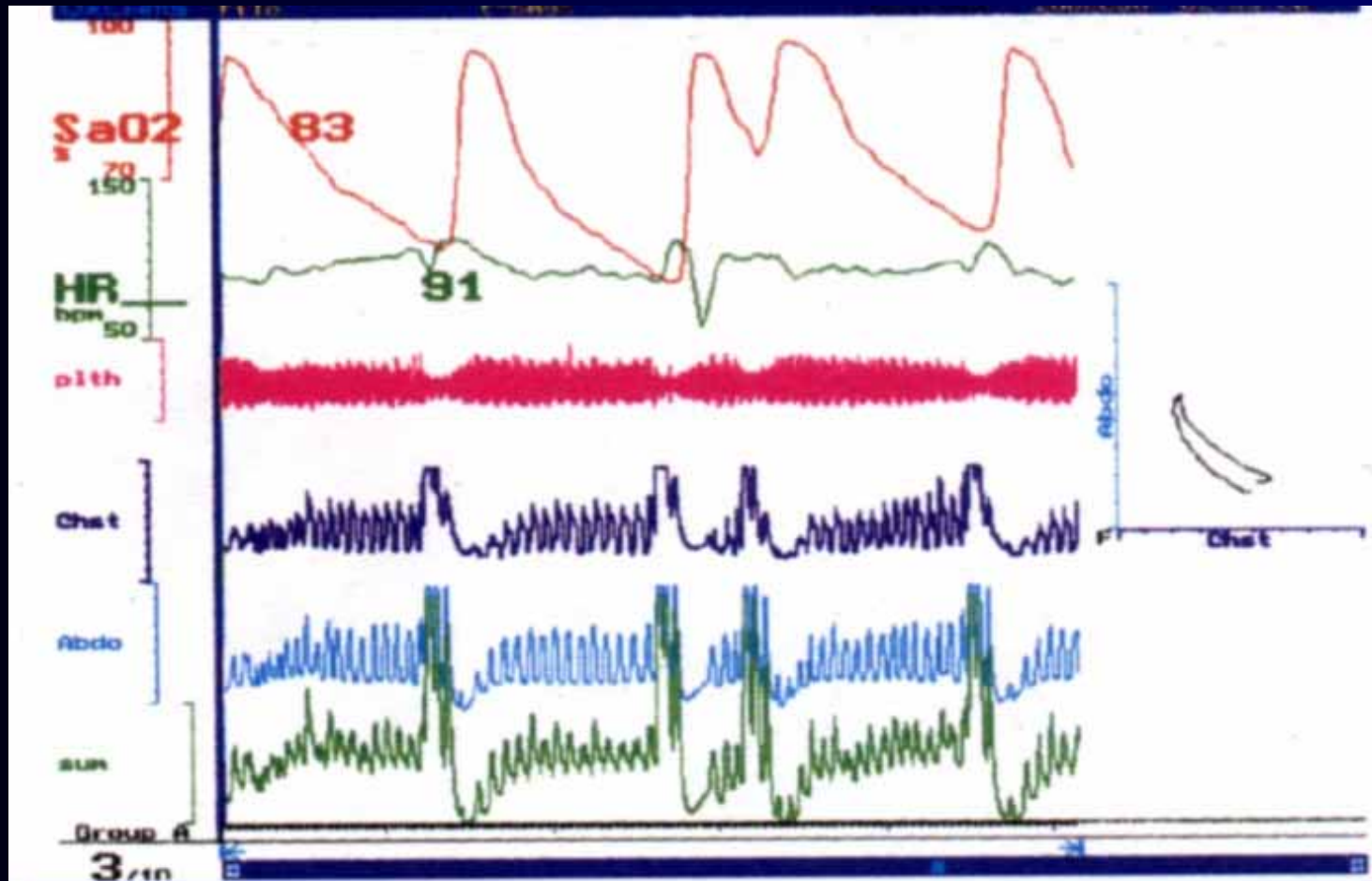
Complications of obstructive sleep apnoea

- Systemic hypertension
- Pulmonary hypertension
- Cor pulmonale
- Coronary artery disease
- Cardiac arrhythmia
- Cerebrovascular accidents
- Polycythemia
- Increased mortality

Special investigations

- Sleep studies /polysomnography
- Lateral X-ray neck
- CXR, ECG
- Nasal endoscopy
- Elective intubation

Special investigations *(continued)*



Treatment (OSAS)

- Medical Rx:
 - Dietary modification
 - Nasopharyngeal airway
 - CPAP (continuous positive airway pressure)
- Surgical Rx:
 - Adenotonsillectomy
 - UPPP
 - Tracheostomy

Summary

- Stridor is abnormal and should be investigated
- Stridor is an emergency!!!
- Laryngeal evaluation has to be performed in all patients with stridor
- Snoring for longer than 6 months in a child is abnormal