

SLEEP DISORDERED BREATHING (PART 4)

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OBSTRUCTIVE SLEEP APNEA IN CHILDREN

➤ CLASSIFICATION

- **Primary Snoring** - Approx 10% of children
- **Upper Airway Resistance Syndrome**
- **Obstructive Sleep Apnea Syndrome**
 - Approximately 1% to 3% of all children
 - 40% of snoring children referred to a sleep clinic or otolaryngologist

CHILDHOOD VS ADULT OBSTRUCTIVE SLEEP APNEA SYNDROME

	Adults	Children
Presentation		
Excessive daytime sleepiness	Main presenting complaint	Infrequent complaint
Associated obesity	Majority of patients	Minority of patients
Underweight/failure to thrive	Not seen	Frequent finding
Daytime mouth-breathing	Not seen	Frequent finding
Gender	Males/female = 2:1	Male/female = 1:1
Enlarged tonsils and adenoids	Not seen	Frequent finding
Sleep pattern		
Obstructive	Obstructive apnea	Obstructive apnea or obstructive hypoventilation
Arousal with obstruction	Common	Not often seen
Disrupted	Common	Not often seen
Management		
Surgical	Minority of patients	Definitive therapy in most patients
Medical (positive airway pressure)	Most common management	Only in selected patients

Sleep study definitions

The polysomnographic thresholds for sleep obstructive events in children differ from those for adults. The following definitions have been suggested:

Apnea: No airflow lasting more than two times the respiratory cycle time (as compared with a 10-second duration in adults); this distinction acknowledges the variation in respiratory rate with age.

Hypopnea: A discernible decrease in airflow or a 50% or more decrease in airflow for more than two times the respiratory cycle time.

Obstructive hypoventilation: Partial upper airway obstruction leading to a peak PET CO₂ of 55 mm Hg or a PET CO₂ of >50 mm Hg for >10% of the total sleep time or >45 mm Hg for >60% of total sleep time.

SYMPTOMS

- Night
 - Snoring
 - Difficulty breathing during sleep
 - Nighttime sweating, restlessness
 - Unusual sleeping positions
 - Chest retraction
 - Use of accessory muscles
 - Paradoxical breathing (inward movement of the thorax during inspiration)
 - Enuresis
- Daytime
 - Mouth-breathing
 - Nasal obstruction
 - Hyponasal speech
 - Morning headaches
 - Adults with OSAS often present with excessive daytime sleepiness, but this is seen less frequently in children with OSAS

COMPLICATIONS OF CHILDHOOD OSAS

- Failure to thrive
- Behavior and Learning
 - Hyperactivity
 - Aggressiveness
 - Inattention
 - Learning problems

- Deficits in memory, vocabulary, and learning
- Neurocognitive effects of sleep-related upper airway obstruction in young children may be only partially reversible and lead to a "learning debt" that adversely influences subsequent school performance.
- CARDIOPULMONARY
 - pulmonary hypertension
 - cor pulmonale

HIGH-RISK GROUPS

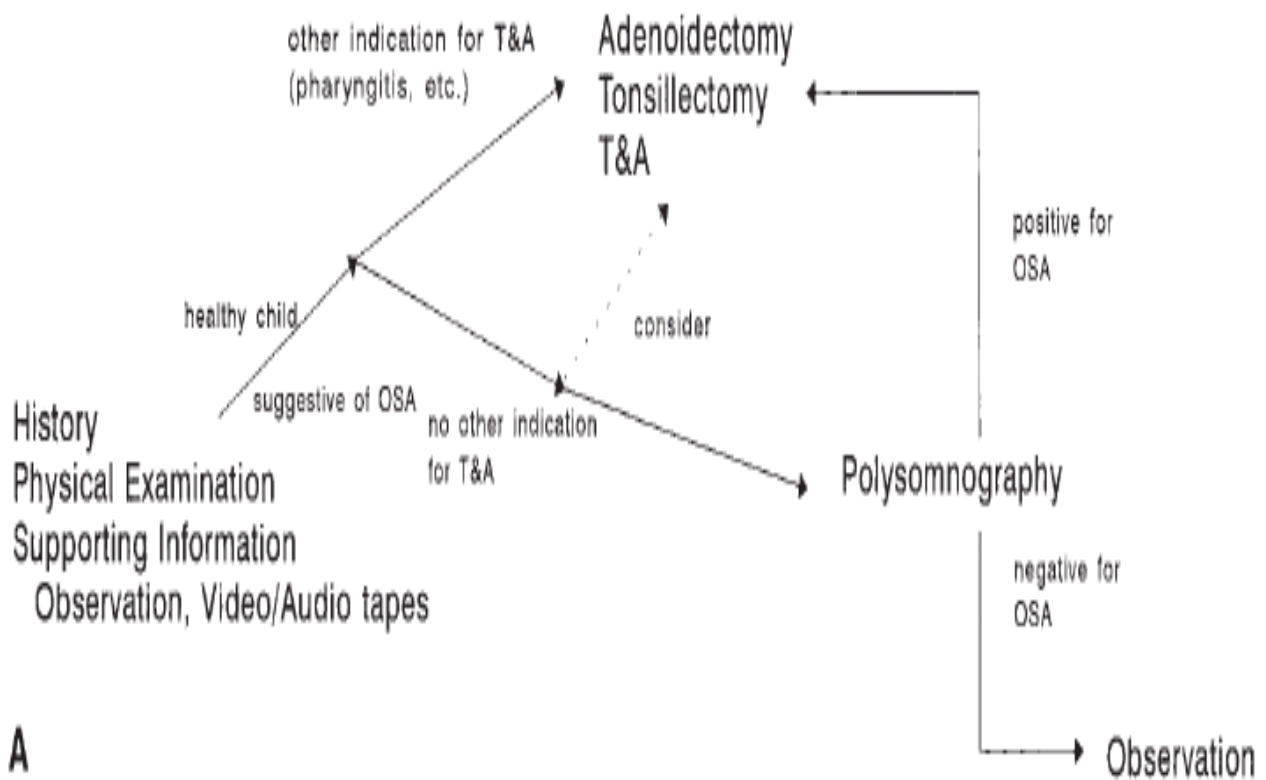
- **Obesity**
- **Craniofacial Abnormalities** eg. achondroplasia
- **Neuromuscular Disease** eg. Cerebral palsy, Down
- **Mucopolysaccharidoses** eg. Hunter's and Hurler
- **Acute-Onset or Rapidly Progressive Obstructive Sleep Apnea Syndrome**
 - Viral syndromes eg. Epstein-Barr virus infection
- Malignant and benign tumors of the head and neck

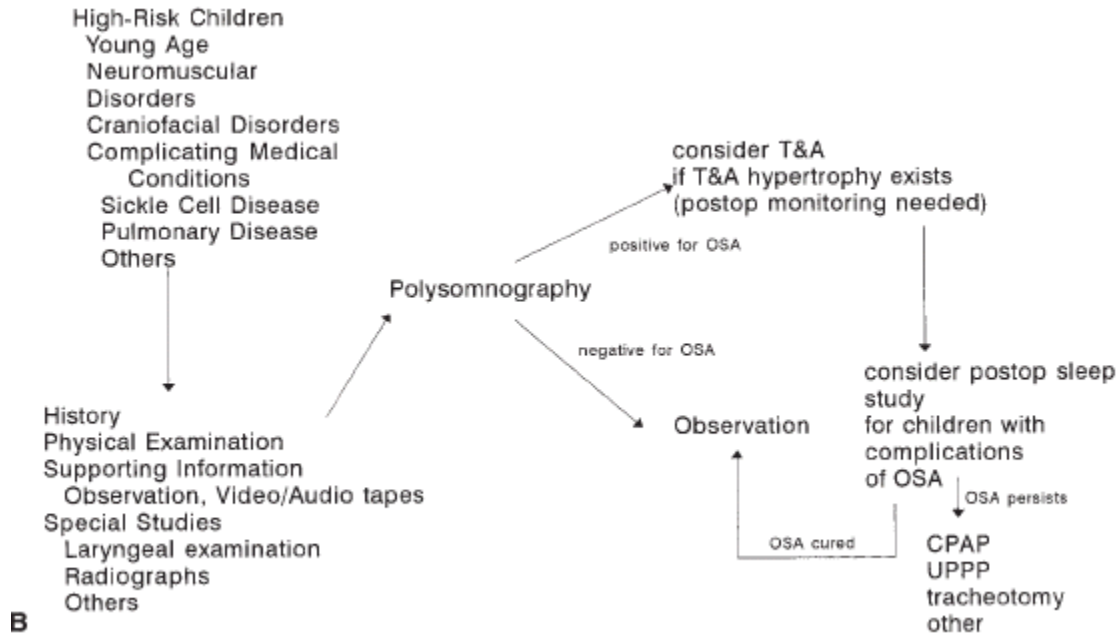
MEDICAL CONDITIONS ASSOCIATED WITH OSAS

Achondroplasia
Apert's syndrome
Beckwith-Weidemann syndrome
Cerebral palsy
Choanal stenosis
Cleft palate following repair
Crouzon syndrome
Cystic hygroma
Down syndrome
Hallermann-Streiff syndrome
Hypothyroidism
Klippel-Feil syndrome
Mucopolysaccharidosis
Obesity

Osteopetrosis
Papillomatosis (oropharyngeal)
Pierre Robin syndrome
Pfeiffer's syndrome
Pharyngeal flap surgery
Prader Willi syndrome
Sickle cell disease
Treacher Collins syndrome

Management algorithms





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