



# SNORING & SLEEP APNEA



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# LEARNING OBJECTIVES:

At the end of the lecture you should be able to:

Define snoring and sleep apnea.

Describe the epidemiology of snoring and sleep apnea

Name the etiologies of snoring and sleep apnea

Describe the pathophysiology of snoring and sleep apnea

Describe the clinical features of sleep apnea

Discuss the investigations of snoring and sleep apnea

Outline approach to snoring and sleep apnea

Identify the complications and prognosis of snoring and sleep apnea.

# Sleep-Disordered Breathing



- Definition

sleep-related breathing abnormalities ranging from snoring to obstructive sleep apnea (OSA)

**Apnea:** drop in oronasal thermal sensor  $\geq 90\%$  of baseline lasting  $\geq 10$  seconds

**Central Apnea:** apneas without associated respiratory effort

**Obstructive Apnea:** apneic event associated with increase in respiratory effort throughout event



## Obstructive Sleep Apnea Syndrome (OSAS)

- **Life threatening condition.**

- **Introduction**

- Diagnostic Criteria  $\geq 5$  respiratory events (apnea or hypopnea)/hour with respiratory effort **with symptoms** (e.g., daytime somnolence, snoring, fatigue, insomnia, witnessed apneic events) **or**  $\geq 15$  respiratory events/hour with respiratory effort **without** symptoms

- Etiology

due to a combination of anatomic and neuromuscular factors:

1. Adeno-tonsillar hypertrophy



2. craniofacial abnormalities

3. neuromuscular hypotonia (i.e. cerebral palsy, Down syndrome)

4. obesity



- Stroke: OSAS and snoring increases risk of stroke and stroke leads to OSAS
- SSx: daytime somnolence, snoring, witnessed apneic events, morning headache (nocturnal CO<sub>2</sub> retention), mouth breathing, weight gain, abnormal motor activity, bruxism, depression, irritability, insomnia, enuresis (children), sexual dysfunction.

# Effects of untreated OSAS

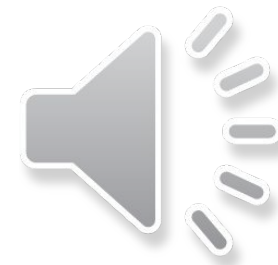


- Mortality: 2.5× risk of driving accident, 3–6× risk of sudden cardiac death **at night**, higher mortality from **heart failure**
- Morbidity: 3× risk of hypertension, pulmonary hypertension stroke, insulin resistance, arrhythmias, ischemic heart disease
- 75–100% have gastroesophageal reflux disease (GERD) or laryngopharyngeal reflux (LPR) improves with CPAP)

## Investigations

flexible nasopharyngoscopy for assessment of nasopharynx and adenoids **intraoperative**

**Polysomnography (gold standar )** **preoperativly**





# Medical Management of Obstructive Sleep

## Apnea



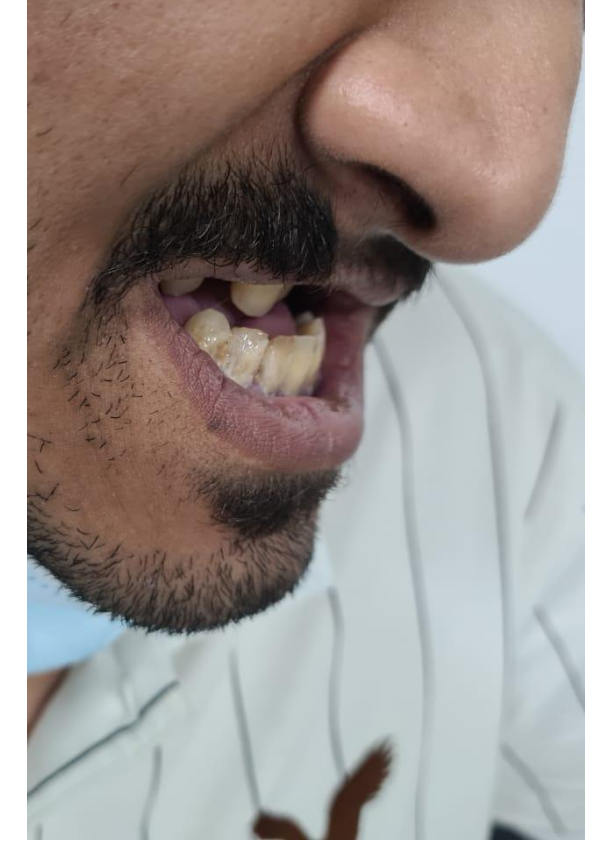
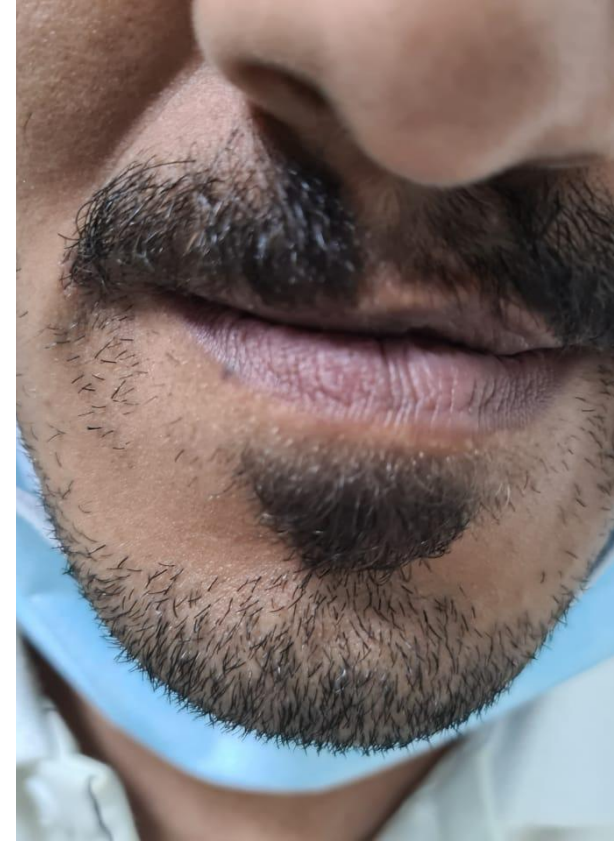
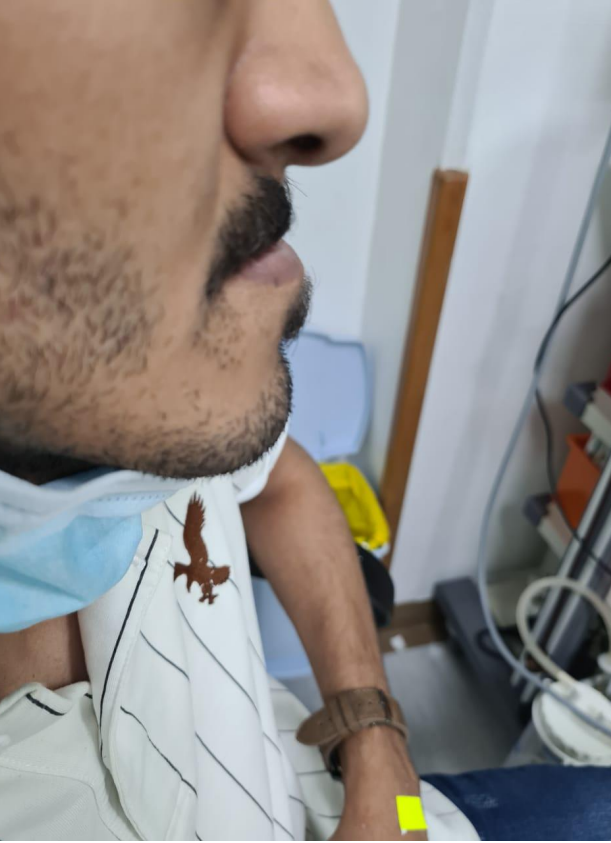
- treat comprehensively, taking into consideration all therapeutic options
- Behavior Modifications: weight loss, abstain from sedatives and alcohol, positional therapy, safety precautions (avoid driving, heights, machinery when tired)
- **CPAP best and effective treatment option**
- Mandibular Repositioning Device: indicated for snorers and mild to moderate OSAS

# Mandibular Repositioning Device



# CPAP





## **Surgical Management of Obstructive Sleep Apnea**

- **Above Palate bone ( Rajab ) Nose surgeries &/or maxillary surgeries .**



# Surgical Management of Obstructive Sleep Apnea

- **Nasal Surgery/Reconstruction** eg septoplasty
- **Nasopharyngeal Surgery** eg Adenoidectomy
- **Oropharyngeal and Velopharyngeal Surgery** eg Tonsillectomy
- Palatoplasty ( LAUP. UVPP? )
- Barbered suturing.
- **Hypopharyngeal Surgery** eg lingual Tonsillectomy
- Hyoid suspension, Implantable lingual nerve stimulator.
- **Mandibular and Midface Advancement Techniques**
- **Tracheotomy**

# Reference في صورة بتجي اوسكي وسؤال عن سليب ابنيا

