

Managing common ENT problems

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Sleep and OSA



Sleep

- o Circadian rhythm
- o 8 hours a day
- o Stages –
 - o NREM 1 & 2
 - o NREM 3 & 4
 - o REM
- o Making new neural connections
- o Weeding out old ones
- o Consolidating connections
- o Outside the box connections

Sleep - benefits

- o Cardiovascular - protective
- o Metabolic – insulin sensitivity
- o Immune – infections, cancer
- o Cognitive – learning, creativity
- o Social/cultural – happiness, positivity
- o Economic

Sleep deprivation

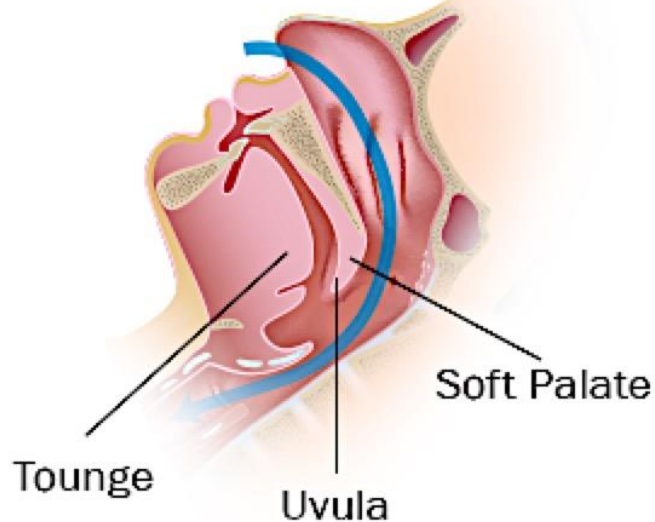
- o Cardiovascular – hypertension, IHD
- o Metabolic – DM, obesity
- o Immune – infections, cancer
- o Cognitive – decline, dementia, psychological
- o Social/cultural – conflict
- o Economic – productivity, accidents

OSA - spectrum

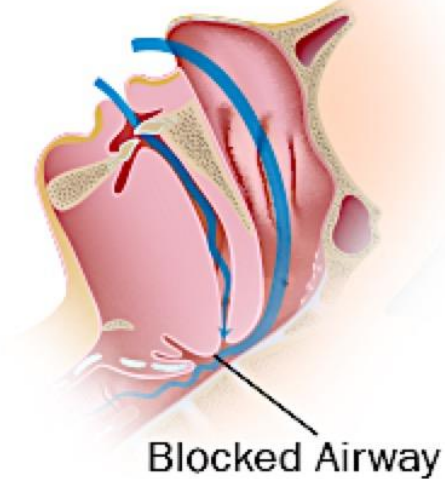
- o Sleep disordered breathing
- o Snoring → mild / moderate / severe OSA
- o UARS

OSA - pathophysiology

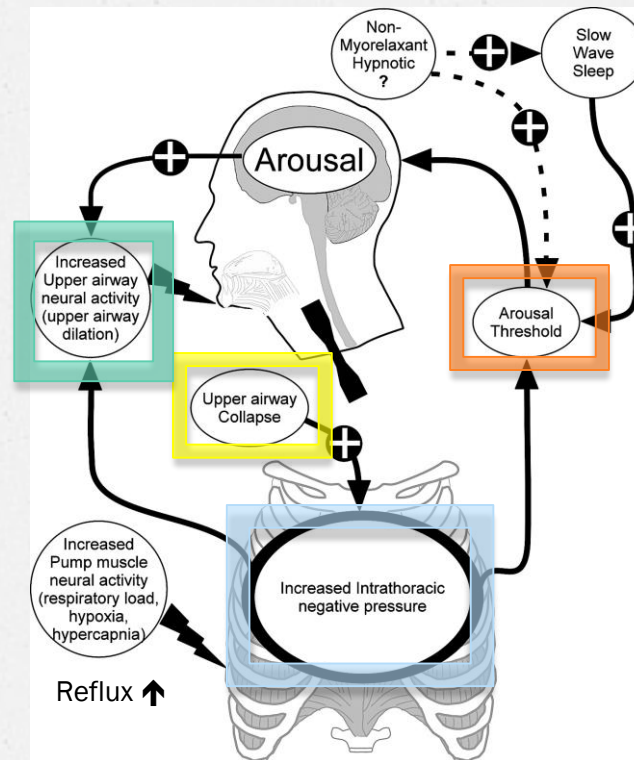
Normal Breathing
during Sleep



Obstructive
Sleep Apnea



OSA - pathophysiology



OSA - presentation

- o Physical fatigue
- o Reflux
- o DM, obesity
- o Hypertension
- o Ischaemic heart disease
- o Heart failure
- o Strokes
- o Respiratory failure
- o Reproductive issues



OSA – disease burden

- o AHI
- o Epworth Sleepiness Scale
- o Fatigue Assessment Score

OSA – disease burden

Eur Arch Otorhinolaryng
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EDITORIAL

The SLEEP (

therapy

Kenny P. Pang¹ · Bri

- S Snoring VAS—improvement in VAS by five points
- L Latency of sleep onset (PSG or MLST)—normalization of sleep latency (if it was abnormal pre-treatment), and/or improvement/normalization of the MSLT
- E Epworth sleepiness scale—normalization to less than 10 (if it was abnormal pre-treatment), or a reduction by five points
- E Execution time—improvement by more than 50 %, using performance vigilance testing
- P Pressure (SBP)—(a) reduction in mean blood pressure by 7 mmHg, or (b) single reduction in either SBP or DBP by 10 mmHg or (c) 5 mmHg reduction in both
- G Gross weight/BMI—loss of >10 % gross weight, and/or reduction BMI from one category to another (by four points)
- O Oxygenation—improvement of duration (min) of O₂ <90 % by at least half
- A AHI via sleep study—reduction by 50 % and AHI <20
- L Life score (PSQI)—improvement in a relevant OSA related QOL score (i.e. PSQI or SF36 or FOSQ)



CrossMark

p apnea

OSA – MDT approach



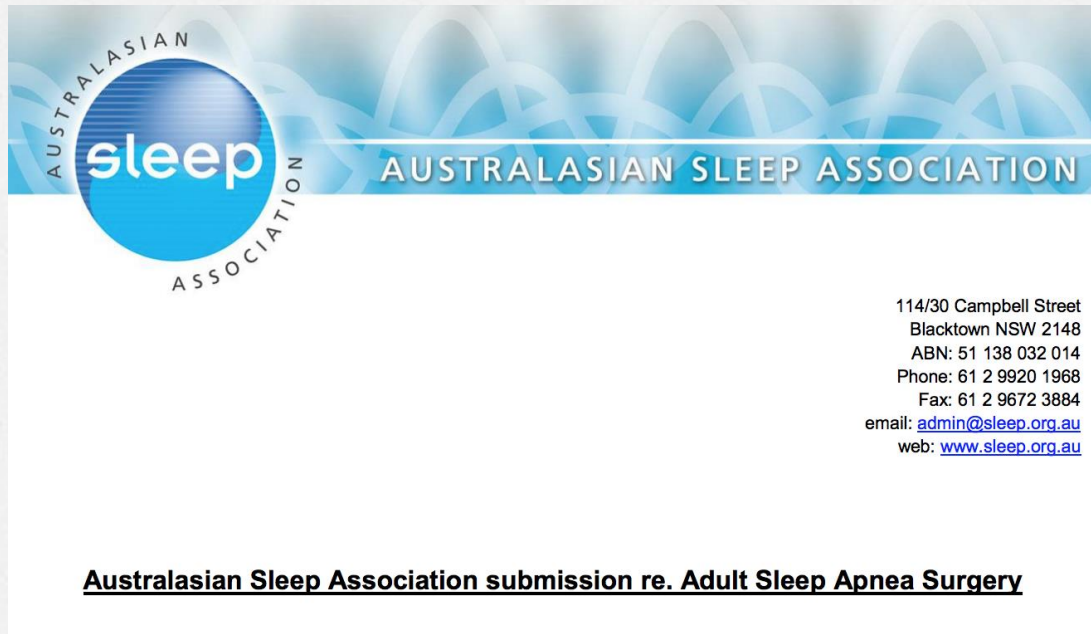
OSA – MDT approach

STANDARDS FOR ADULT RESPIRATORY AND SLEEP SERVICES IN NEW ZEALAND

**A document produced for the Thoracic Society of Australia and
New Zealand (New Zealand Branch)**

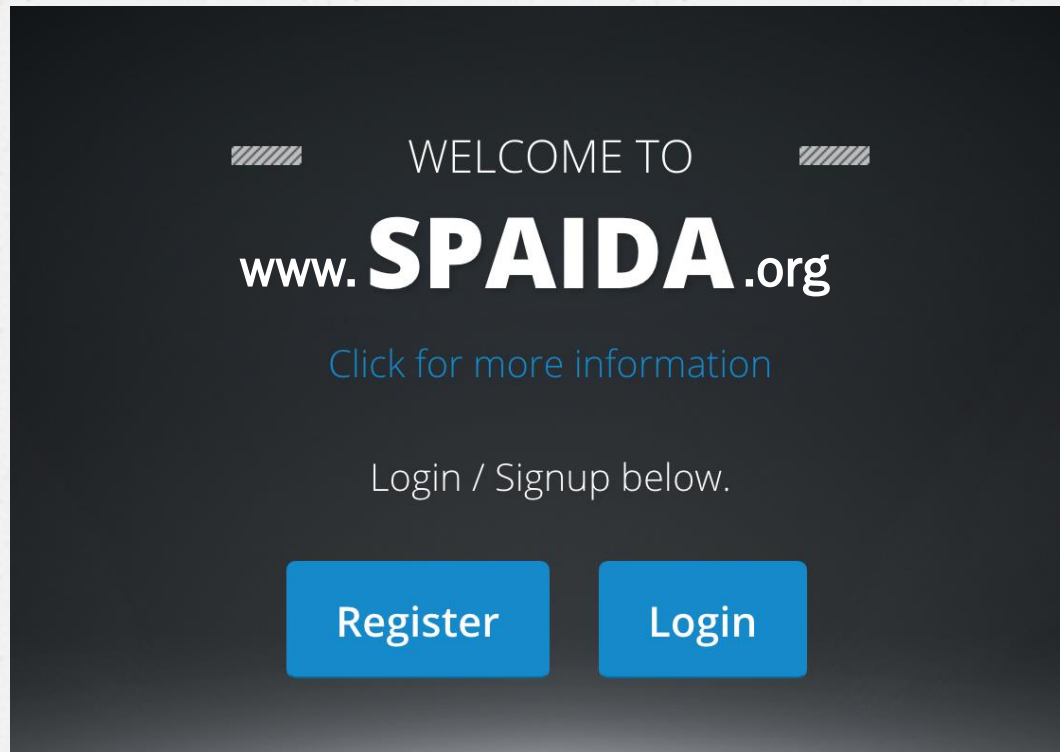
Interaction with ORL services for upper airway assessment and when required, surgery, is mandatory.

OSA – MDT approach



Surgery for OSA has a crucial role as “salvage therapy” in those who have failed OSA and Oral appliances

OSA – MDT approach



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OSA - assessment

- Patient reported measures
 - Snoring, sleepiness, hygiene, QOL
- Vigilance testing
- Co-morbidities
- Dynamic upper airway assessment
 - Awake supine, DISE
- Cephalometry
- Sleep study

Upper airway dynamic assessment



Freidman Tongue Position 1, grade 1 tonsils

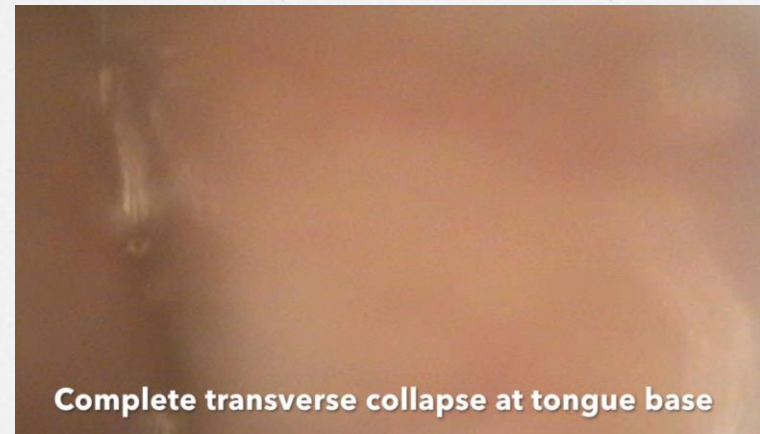
Upper airway dynamic assessment



Complete transverse collapse at tongue base

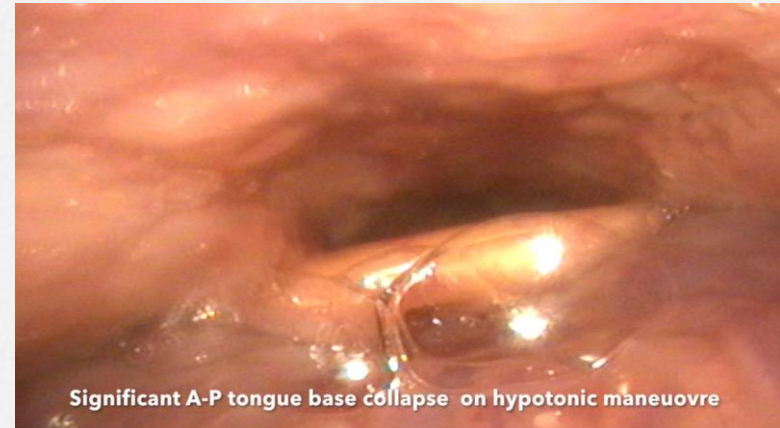
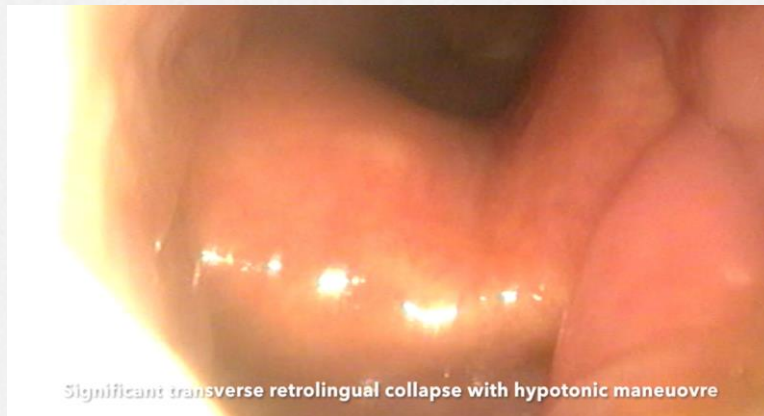


Complete transverse collapse at palate



Complete transverse collapse at tongue base

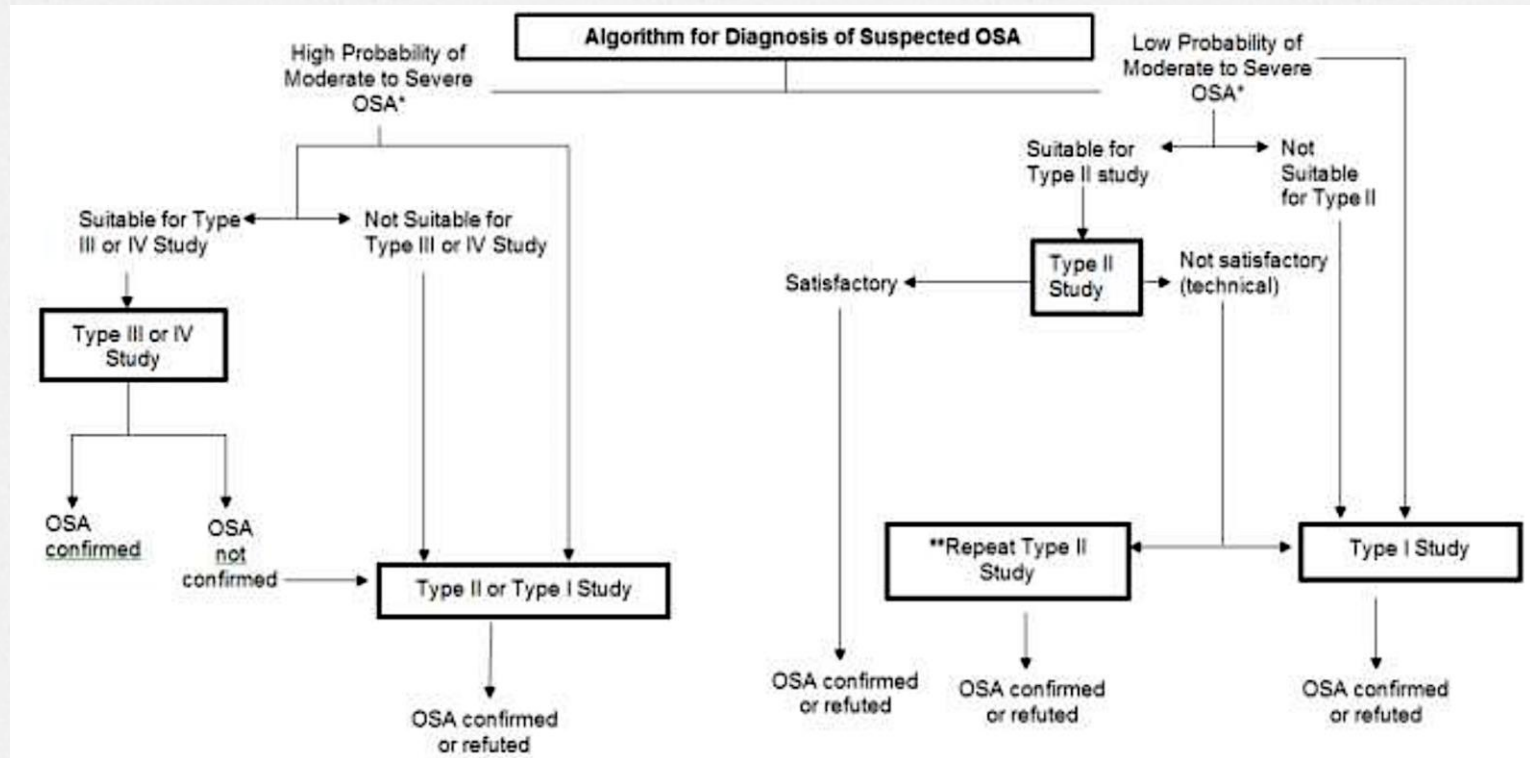
Upper airway dynamic assessment



OSA – sleep study

STUDY TYPE	PARAMETERS MONITORED
I	Minimum of 7 to include EEG, EOG, chin EMG, airflow, respiratory effort, oxygen saturations, and ECG. Attended by a sleep technician.
II	Minimum of 7 to include EEG, EOG, chin EMG, airflow, respiratory effort, oxygen saturations, and ECG. Unattended by a sleep technician.
III	Minimum of 4 channels to include ECG/HR, oxygen saturations, two channels of respiratory effort or one respiratory effort channel and one airflow channel. Attended or unattended by a sleep technician.
IV	Minimum of 3 channels, one of which is airflow or include actigraphy, oxygen saturations, and peripheral arterial tone. Attended or unattended by a sleep technician.

OSA – sleep study



Australasian Sleep Association

OSA – management

- o Lifestyle measures
- o Positional Training (PST)
- o Positive Airway Pressure therapy (PAP)
- o Mandibular Advancement Device (MAD)
- o Surgery

OSA – lifestyle

- o Quit smoking
- o Regulate alcohol intake
- o Sleep hygiene
- o Sleep hygiene
- o Sleep hygiene
- o Weight loss
- o Smart phone apps
 - o Analytics → predictanalytics

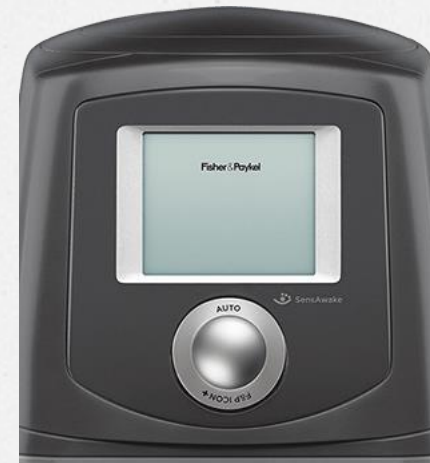
OSA – PST

- o Elbow
- o Tennis ball therapy
- o Night Shift
- o Night Balance
- o Smart phone apps



OSA – PAP

- o 100% efficacy
- o No pain
- o Reversible
- o 46-75% compliance
- o Excessive daytime sleepiness motivates!



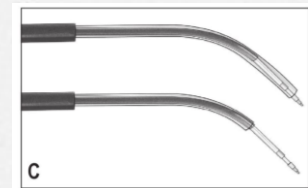
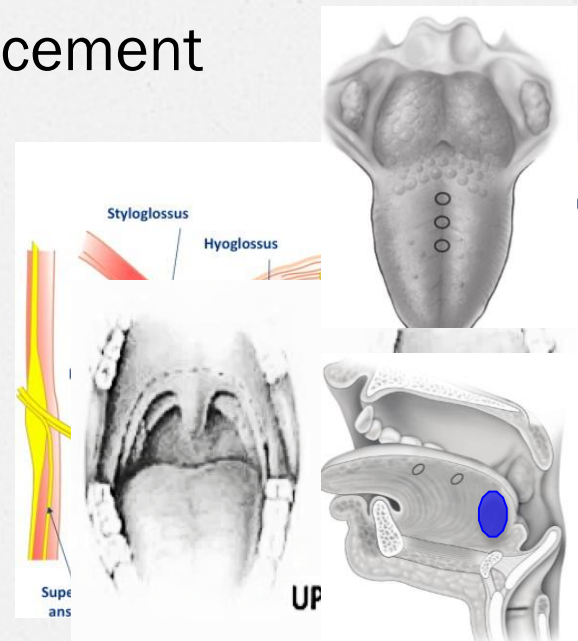
OSA – MAD

- o Non-surgical
- o Simpler option
- o 60% effectiveness
- o Expensive
- o Dental and occlusion side effects



OSA – surgery

- o Maxillary-mandibular advancement
- o Bariatric surgery
- o Oropharyngeal surgery
 - o UPPP
 - o Modified UPPP
 - o Palatal advancement
 - o Tongue Base reduction
 - o Hyoid suspension
 - o Hypoglossal nerve stimulation
 - o Tracheostomy



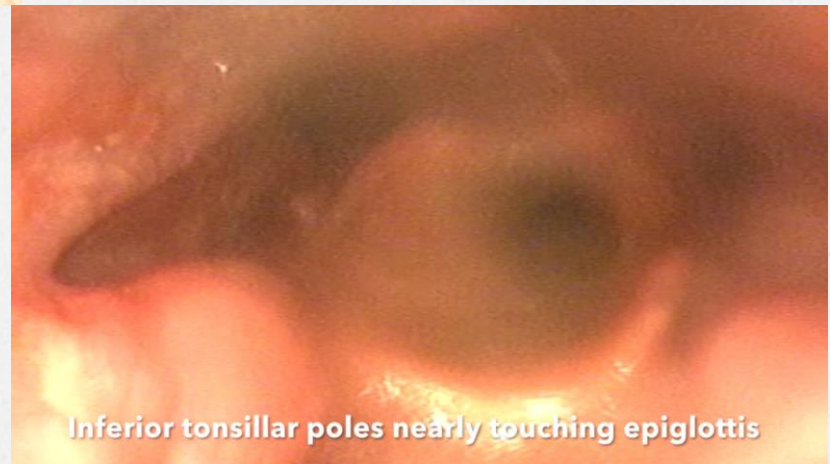
OSA – outcomes

- o AHI
- o Oxygen desat index, lowest sats, time < 90%
- o Excessive daytime sleepiness
- o Vigilance test result
- o Control of hypertension
- o Insulin resistance and obesity
- o Performance and productivity

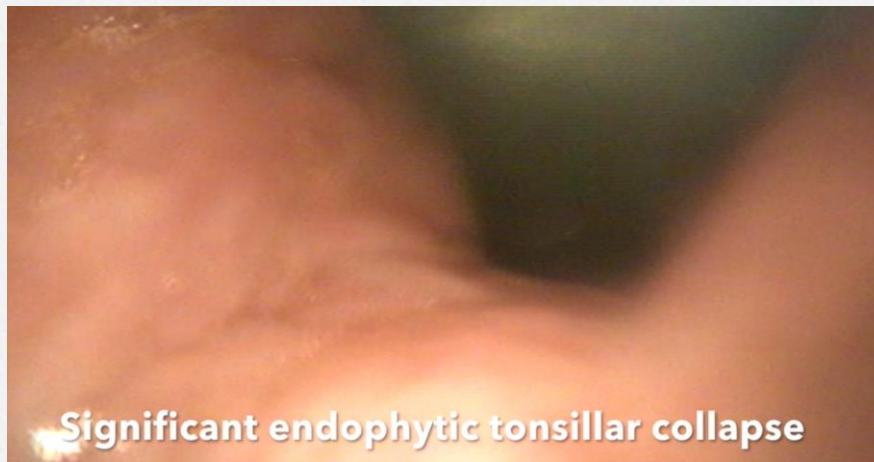
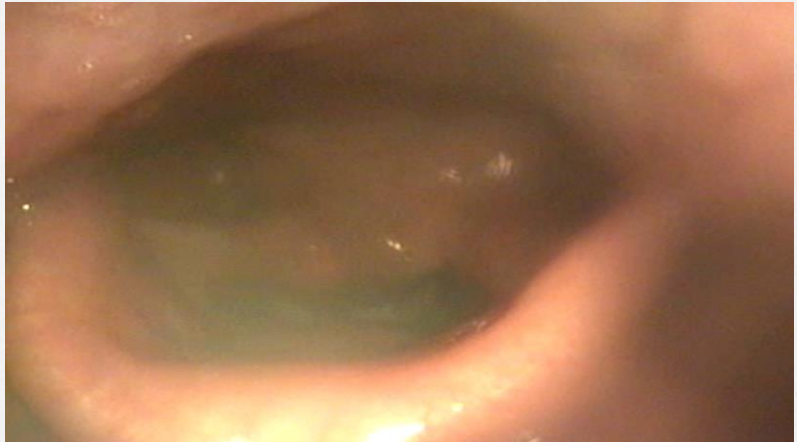
OSA – outlook

- o What is the best cure for OSA?
- o How do we control it best?
- o Success depends on parameter studied
- o Personalised management
- o *Friends for life!*

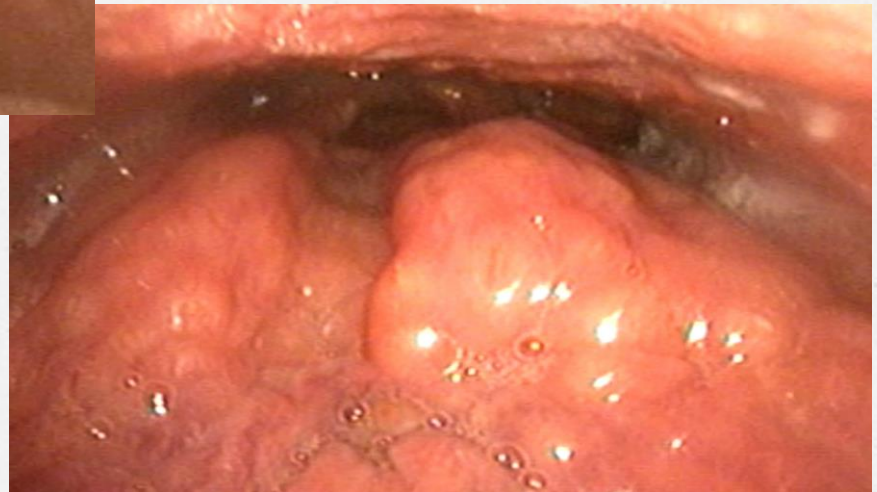
Case 1



Case 2



Case 3



Questions?

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