**TREATMENT UPDATE**

# Snoring

Thomas E Havas
MBBS (SYD), MD (UNSW), FRCSE, FRACS, FACS
Associate Professor Conjoint UNSW
Otolaryngology, Head and Neck Surgery

Suite 506, level 5
1 Newland St
Bondi Junction 2022

St George Private Hospital
Suite 3A, 1 South St
Kogarah 2217

Suite 102
349 Pacific Highway
North Sydney 2060

**Tel:** 02 9387 7360 | 02 9553 6188
**Fax:** 02 9369 4463
**Email:** enquiries@earnosethroat.com.au
**Web:** www.earnosethroat.com.au

**HAVAS ENT CLINICS**
Excellence in otolaryngology

## CURRENT TREATMENT OPTIONS FOR SIMPLE SNORING

Some degree of sonorous breathing at night is universal. Snoring becomes a problem if it interferes with the quality of sleep for an individual and/or their sleeping partner. Whilst simple snoring is socially disruptive, obstructive sleep apnoea (OSA) has serious medical ramifications, including hypertension, heart disease and cerebro-vascular disease.

Prior to 1981, the treatment for snoring was septoplasty and for OSA was tracheotomy. In 1981, two other treatment options became available. Colin Sullivan reported on the application of nasal continuous positive airway pressure (nCPAP) producing results similar to that of tracheotomy. Coincidentally, in that year Fujita et al introduced uvulopharyngopalatoplasty (UPPP) as a new surgical modality for the treatment of snoring and mild OSA.

This operation was subsequently modified by Kamami in 1994, and further recently modified by the introduction of laser-assisted UPPP.

Subsequent surgical options include advancement of the maxilla and the mandible, somnoplasty (which is the application of radiofrequency energy to the soft palate and/or the base of the tongue) and a variety of tongue-base suspension procedures, either by way of soft tissue to bone anchor (like the Repose System) or by formal genial tubercle advancement procedures.

## WHAT'S NEW?

### Diagnosis of the Obstructive Segment

Diagnosis of the obstructive segment can be done **acoustically** or **directly**.

- **Acoustic analysis** is based on the fact that the soft palate vibrates at a certain fundamental frequency and airway constriction caused by tongue-base ptosis causes sound at a different fundamental frequency. By acoustically analysing the fundamental frequencies in snoring a proportion of turbulence can be attributed to either, or both, of these two sites.
- **Direct visual diagnosis** of the obstructive segment is usually done using flexible fibreoptic rhinolaryngoscopy with the patient seated and/or prone. The patient is asked to breathe deeply with mouth open and mouth closed and the narrowest part of the airway is documented.

Some institutions use sleep nasendoscopy in an attempt to mimic profound muscle relaxation associated with rapid eye movement sleep, to accurately diagnose the collapsing segment, but no literature exists supporting this affording any benefit over awake, prone nasendoscopy.

## CURRENT TREATMENTS

### Uvulopharyngopalatoplasty (UPPP)

UPPP is an operation designed primarily to shorten the palate/uvula and widen the oropharyngeal isthmus.
Similar results have been reported for conventional surgical techniques as compared to laser-assisted techniques.

**Advantages:**

- Controlled resection of uvula and soft palate
- Ability to widen oropharyngeal isthmus

**Disadvantages:**

- Requires hospital admission
- Usually requires a general anaesthetic
- An extremely painful procedure with significant discomfort lasting for 5 to 7 days

**Results:** Short-term results are good for simple snoring, in the order of 80 per cent. Five year follow-up results drop below 50% in most studies.

### Somnoplasty

Somnoplasty involves the application of radiofrequency energy to the soft palate and/or to the base of the tongue.

**Advantages:**

- It can be performed under local anaesthesia
- Hospitalization is not required
- It is much less painful than UPPP

**Disadvantages:**

- The disposable needle used to deliver the energy is expensive, in the order of $500.00
- The potential long-term downside of this procedure is loss of intrinsic palatal muscle due to scarring, with potential functional deficit and/or thinning of the palate

**Results:** The results of radiofrequency ablation are comparable to that of UPPP, but somewhat less predictable. The scarring required to achieve an optimal result takes 12 to 14 weeks.
Long-term results of somnoplasty are starting to emerge and

are similar to conventional or laser-assisted UPPP.

## Injection Snoroplasty

This is a relatively new technique introduced by Maier 4 years ago.
Snoroplasty involves the injection of Fibro-Vein* (a substance used to inject varicose veins) into the soft palate and uvula.

**Advantages:**

- Does not require hospitalization
- Can be done under local anaesthetic
- Is relatively inexpensive
- Is much less painful than either UPPP or somnoplasty

**Disadvantages:**

- Potential disadvantages may be loss of intrinsic palatal muscle function due to scarring with subsequent thinning of the palate.

**Results:** Short-term results are comparable to that of either UPPP (+/- laser) and/or somnoplasty. Again the result is dependent on mature scar tissue formation, which takes about 12 weeks to occur.

## Tongue Base Suspension with Soft Tissue to Bone Anchor

There is a commercially available Repose System, which involves putting a screw on the inside of the jaw and then a suture through the base of the tongue, bringing the base of the tongue forward and tying it to the screw.

The procedure is usually performed under anaesthesia in an operating room setting. The anaesthesia can be neurolept and local or general anaesthetic.

**Advantages:**

- Effective for snoring due to tongue-base ptosis and for mild to moderate OSA

**Disadvantages:**

- The soft tissue sling is uncomfortable and patients have complained of mild dysarthria and occasionally dysphagia with the sling in place

**Results:** Results in terms of reducing snoring are comparable to UPPP, however the procedure has been associated with significant patient intolerance.

## Genial Tubercle Advancement

This is a relatively new operation and involves formally advancing the genial tubercle and the attached genioglossus muscle, pulling the tongue base forward.

**Advantages:**

- Effective and controlled procedure for snoring due to tongue-base ptosis and for mild to moderate OSA

**Disadvantages:**

- Requires major surgical intervention involving orthognathic surgery under general anaesthesia
- The perioperative pain and discomfort is moderate

**Results:** Short-term results are good; not only for snoring but also for mild to moderate OSA

At this stage there are no long-term results.

## Formal Mandibular and Maxillary Advancement

This involves major surgery for severe cases of OSA in those patients who are not capable or willing to comply with nCPAP.

It often requires a tracheotomy and a period of time in intensive care and is not to be recommended lightly.

## Oral Appliances

The majority of oral appliances work to achieve anterior mandibular positioning, opening the posterior airway by advancing the mandible on the maxilla and repositioning the tongue and the soft palate in a more forward position.

**Advantages:**

- Oral appliances have been shown to be effective, not only for snoring but for mild to moderate OSA

**Disadvantages:**

- The appliances are initially not well tolerated
- The appliance is moderately expensive ($700.00)
- Potential problems with temporomandibular joint and/or tooth pain

**Results:** There are no long-term compliance studies with oral appliance, but compliance at around 70% has been reported at the three and a half year mark.

Four randomised control studies and 3 crossover studies have shown that oral appliance therapy is comparable to nCPAP in the management of mild to moderate OSA.

In 3 crossover trials performed comparing oral appliances to nCPAP, the majority of patient's preferred oral appliances.

## CURRENT RECOMMENDATIONS

Simple snoring due to nasal obstruction > septal reconstruction and turbinate reduction.

Simple snoring due to palatal ptosis > injection snoroplasty.

Snoring and mild OSA +/- tongue base ptosis > oral appliances.

Mild to moderate OSA> nCPAP or oral appliances.

Moderate to severe OSA> nCPAP.

Suite 506, level 5
1 Newland St
Bondi Junction 2022

St George Private Hospital
Suite 3A, 1 South St
Kogarah 2217

Suite 102
349 Pacific Highway
North Sydney 2060

**Tel:** 02 9387 7360 | 02 9553 6188
**Fax:** 02 9369 4463
**Email:** enquiries@earnosethroat.com.au
**Web:** www.earnosethroat.com.au