

## Treating Upper Airway Disorders

### THE LIMITATIONS OF TRADITIONAL METHODS

**F**or years, the medical community has searched for a less invasive solution for the treatment of upper airway disorders.<sup>1</sup> Surgical therapies have succeeded in reducing obstructions in some patients, but carry significant risks and almost always result in significant postoperative pain. Nonsurgical methods have offered patients some relief, but often prove ineffective because of variable compliance and widespread patient discomfort.

# Somnoplasty® – evolving the standard of care for upper airway disorders

Patients with **chronic nasal obstruction** from enlarged turbinates often endure the prolonged use of intranasal sprays and systemic medications. Some carry significant side effects—and compliance over time can be inconsistent. The morbidity associated with surgical procedures includes pain, bleeding, the need for nasal packing, adhesion, crusting, dryness and infection.<sup>2</sup>

Those who suffer from **obstructive sleep apnea** have often been treated with continuous positive airway pressure (CPAP). CPAP has a disturbingly low compliance rate (25% to 50%) and is only a palliative treatment. Uvulopalatoplasty (UPPP) procedures can be extremely painful and variably effective. In more extreme cases, patients have been subjected to genioglossal advancement and tracheotomies.

Many patients who seek treatment for **habitual snoring** have most recently experienced the discomfort of the laser-assisted uvulopalatoplasty (LAUP)—a multiphase procedure so invasive and painful that it can discourage patients from returning after their first visit.<sup>3</sup>

## THE CLINICAL BENEFITS OF SOMNOPLASTY®

- ▲ Minimally invasive<sup>4,5</sup>
- ▲ Minimal postoperative discomfort<sup>2,4,5</sup>
- ▲ Safe<sup>5-8</sup>
- ▲ Effective<sup>4-9</sup>
- ▲ Office-based procedure

## A simple solution

Somnoplasty, from Somnus,<sup>™</sup> is an office-based procedure performed using local anesthesia to treat upper airway obstructions.

Somnoplasty uses controlled, low-power radiofrequency energy to create one or several submucosal volumetric lesions. Over a period of 6 to 8 weeks, the lesions are naturally resorbed, reducing tissue volume and stiffening remaining tissue in the desired area.

## Reducing chronic nasal obstruction

Chronic enlargement of turbinates affects over 1.5 billion people worldwide and is irreversible except through surgical intervention. Through a partially insulated electrode, Somnoplasty reduces turbinate tissue with minimal, if any, crusting or bleeding. The procedure typically takes less than 2 minutes per turbinate. One study demonstrated that 89% of patients were no longer using medication for nasal obstruction at the end of 8 weeks.<sup>9</sup> Multiple lesions have resulted in improved response rates.<sup>10</sup>

## BETTER BREATHING

In recent studies, chronic nasal obstruction patients experienced:

- ▲ Improved breathing in 100% of participants<sup>9</sup>
- ▲ Decreased degree and frequency of nasal obstruction—81%<sup>10</sup>
- ▲ Minimal adverse effects—no bleeding, crusting, dryness, foul odor or need for nasal packing<sup>2</sup>

## NASAL OBSTRUCTION ASSESSMENT BEFORE AND AFTER SURGERY BY PATIENT AND EXAMINER

Parameter	Degree of obstruction		Frequency of obstruction		Nasal examination	
	Before	After	Before	After	Before	After
Mean	6.33	2.63	6.58	2.86	2.68	0.41
SD	1.64	2.05	1.95	2.14	0.96	0.76
Range	2–10	0–8	2–10	0–10	1–4	0–3
Total score*	272	113	283	123	118	18
Improvement (%)		58.8		56.5		84.8

\*Summation of the scores in VAS (43 nostrils).  
SOURCE: Li KK, Riley RW, Powell NB, Troell RJ. Radiofrequency tissue volume reduction for turbinate hypertrophy. *Otolaryngol Head Neck Surg.* 1998;119(6):569–573.

## Alleviating obstructive sleep apnea syndrome

Somnoplasty is an effective and minimally invasive choice for the treatment of obstructive sleep apnea syndrome. Delivering radiofrequency energy submucosally to the base of tongue, Somnoplasty creates limited zones of coagulation beneath the tissue surface. As lesions resorb, they stiffen and reduce the tissue in the base of tongue. A study published for OSAS/UARS reported a 55% reduction in the mean respiratory disturbance index (RDI) from baseline for all subjects—with an overall mean reduction in tongue volume of 17%.<sup>6</sup>

### SOUNDER SLEEP

Patients seeking treatment for sleep-disordered breathing (SDB) were treated with Somnoplasty,<sup>6</sup> demonstrating:

- ▲ Decreased daytime sleepiness—  
as determined by Epworth sleepiness scores
- ▲ No infections
- ▲ No airway compromises
- ▲ Limited, short-term postoperative pain
- ▲ Decreased snoring—77%

### Quieting habitual snoring

It is estimated that over 40 million North Americans are affected by habitual snoring—often resulting from the narrowing and partial obstruction of the upper airway due to abnormal size and positioning of the soft palate and uvula.<sup>11-12</sup> Somnoplasty provides a relatively painless procedure to treat habitual snoring—reducing soft palate tissue volume in a precise and minimally invasive manner.<sup>4,8</sup> Snoring has been shown to decrease following tissue volume reduction,<sup>1,5</sup> and recent studies have shown post-treatment pain to range from negligible to mild.<sup>1</sup>

### REST RELIEF

In a recent multicenter study,<sup>13</sup> Somnoplasty treatments were shown to:

- ▲ Deliver a 85.3% success rate for up to two Somnoplasty treatment sessions
- ▲ Reduce mean snoring index 60.6%
- ▲ Reduce mean Epworth sleepiness score 37.5%

## PATIENTS AND SPOUSES EXPRESS SATISFACTION WITH THE SOMNOPLASTY PROCEDURE

	Mean
Perception of procedure: 0 (very difficult) — 10 (very easy)	8.4
Spouse's assessment of improvement: 0 (none) — 10 (greatly improved)	7.1
Patient's quality of sleep—pre treatment: 1 (very poor) — 10 (very good)	3.6
Patient's quality of sleep—post treatment: 1 (very poor) — 10 (very good)	7.6
Number of treatments	1.7

SOURCE: Clarke ME. Clinical experience using radiofrequency tissue volume reduction (RFTVR), Somnoplasty<sup>SM</sup> for the treatment of snoring. Paper presented at the February 1999 meeting of The American College of Oral and Maxillofacial Surgeons, February 24–26, 1999, Orlando, Fla.

## Somnoplasty—the logical conclusion

Somnoplasty has proven to be an excellent option to relieve upper airway obstructions with minimal intraoperative and postoperative pain. In a recent study on the treatment of habitual snoring,<sup>14</sup> 9% of patients undergoing Somnoplasty needed narcotic analgesics, as compared to 100% of patients undergoing LAUP and UPPP procedures. Somnoplasty has also been shown to effectively reduce tongue tissue volume for the treatment of obstructive sleep apnea. It is a feasible and safe method for palate tissue reduction for the treatment of habitual snoring. And Somnoplasty has also proven effective in the improvement of nasal obstruction caused by turbinate hypertrophy. With an ever-expanding list of potential clinical applications, the Somnoplasty platform technology promises a future of continued innovation and leadership in the treatment of upper airway obstructions.

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