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# A patient's guide to snoring surgery

the symptoms.

hypertrophy.

snoring for some patients.

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#### INTRODUCTION

Snoring is a common clinical problem in children and adults. It affects 30% of the adult population. In the UK, 1 in 4 people suffer from snoring, particularly those aged 40-60 onwards. Snoring is the commonest symptom of obstructive sleep apnoea (OSA). And OSA is the prominent form of sleep disordered breathing (SDB).

Snoring is a sound being produced as a result of a turbulent airflow in the oropharynx. During sleep the dilator muscles in the pharynx relax, making the pharyngeal airspace narrow, hence this results in turbulence in the airflow. Consequently turbulent airflow causes vibration of the soft palate and the pharynx.

#### AIM

The aim of this project was to create a lay document about snoring surgery. This presents a step-to-step guide for the patients; from the moment they attend the snoring clinic to explaining different treatment options available, based on the underlying cause.

### RISK FACTORS

Several factors such as nasal congestion, obesity, tobacco consumption, drinking alcohol, sedative medications, and enlarged tonsils can induce snoring. Also male gender tends to snore almost twice as women following research studies.

#### ROLE OF SLEEP STUDY

OSA was clinically identified about 50 years ago. Sleep study is used for diagnosis of OSA. It records oral and nasal airflow, oxygen levels, heart rate and respiratory effort during sleep. In polysomnographic trace of a patient with OSA, there are repetitive events of partial (hypopnoea) or complete (apnoea) collapse of the airway, per hour.

In an apnoea, breathing is absent for more than 10 seconds whereas in hypopnoea breathing is poor and shallow. Episodes of awakening may occur following apnoea or hypopnoea in order to re-establish normal breathing. Apnoeahypopnoea index (AHI) estimates the severity of OSA by measuring any episodes of apnoea or hypopnoea per hour. AHI scoring 15 or more are indicative of moderate to severe OSA.

#### Lancashire Teaching Hospitals Miss **NHS Foundation Trust**

Palatal surgeries include pillar procedure,



The University of Manchester

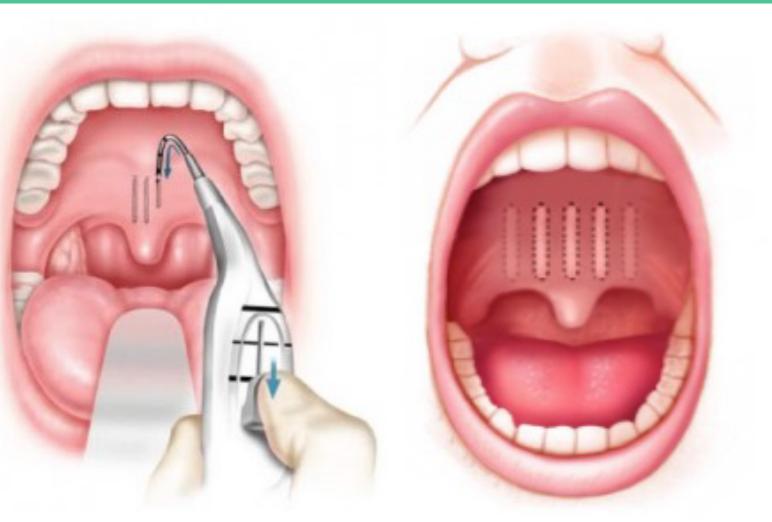
### TREATMENT OPTIONS

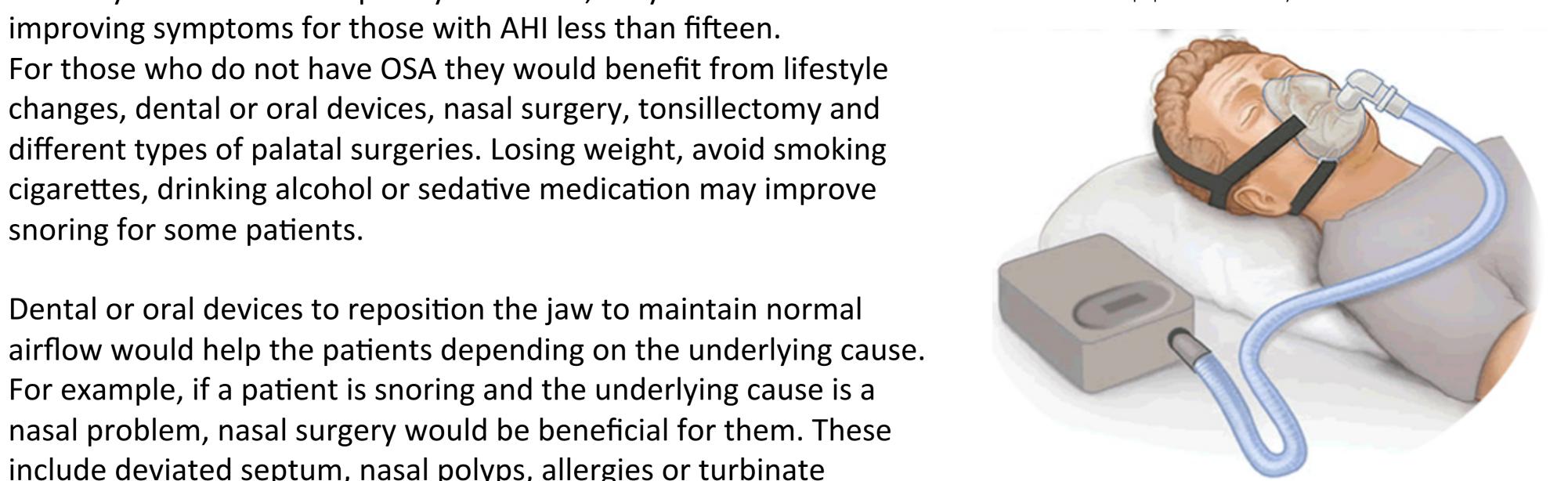
Normal Breathing Treatment options available for OSA include lifestyle changes, during Sleep mandibular advancement appliances, nasal surgery, tonsillectomy or continuous positive airway pressure (CPAP). CPAP is the gold standard treatment for OSA. According to the NICE guidelines CPAP is recommended only if the lifestyle changes did not improve the symptoms or the patients' quality of life has been affected by

Obstructive Sleep Apnea

on the left shows normal breathing where airway is open. The image on the right shows obstructive sleep apnoea where airway is blocked. <sup>1</sup>

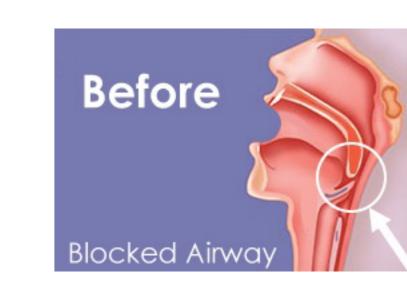
somnoplasty, palatopharyngeal repositioning and tongue volume reduction. OSA patients, who did not benefit from CPAP, may benefit from palatal surgery. Pillar procedure involves inserting tiny implants into the midline of the soft palate to make it stiff. The procedure is performed under local anaesthetic and takes about 2-3 minutes. Randomised control trials have shown improvement in snoring following standard implants.





The image shows a CPAP machine with a mask over the face <sup>2</sup>

Somnoplasty involves applying radiofrequency energy in order to achieve a smaller and tighter soft palate. Mid-way between the base of the uvula to the posterior nasal spine, a number of punctures are made by a needle. Following this, radiofrequency energy is applied at each punctured site, targeting the muscle underneath. This procedure has to be performed twice, 3 months apart. Somnoplasty is performed under local anasthetic. The short-term efficacy of this procedure has been successful; however the long term efficacy is uncertain 20. After the procedure painkillers are provided for patients to ease the pain.





The image shown above presents before and after results of the somnoplasty surgery 4

### FURTHER TREATMENT OPTIONS

Mandibular advancement appliances have shown to reduce snoring

intensity as well as its frequency. However, they are effective at

For those who do not have OSA they would benefit from lifestyle

changes, dental or oral devices, nasal surgery, tonsillectomy and

different types of palatal surgeries. Losing weight, avoid smoking

cigarettes, drinking alcohol or sedative medication may improve

Dental or oral devices to reposition the jaw to maintain normal

For example, if a patient is snoring and the underlying cause is a

nasal problem, nasal surgery would be beneficial for them. These

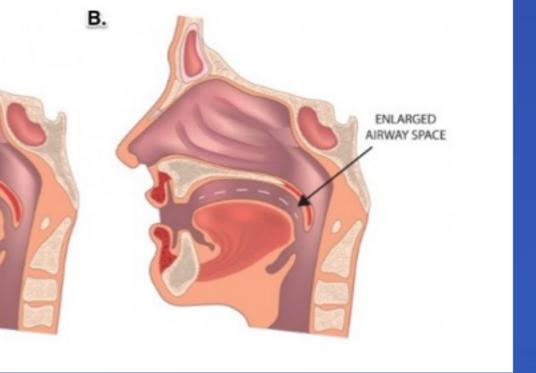
include deviated septum, nasal polyps, allergies or turbinate

improving symptoms for those with AHI less than fifteen.

Palatopharyngeal repositioning (PPR) involves repositioning the muscles in the throat. This increases the pharyngeal airspace. PPR is performed under general anaesthetic. This procedure is very painful for patients and the pain usually lasts for several weeks to months after. Painkillers are also supplied to lessen the pain.

Tongue volume reduction (TVR) involves applying radiofrequency energy to make the tongue smaller. A needle electrode delivers radiofrequency energy to the base of the tongue. Scar tissue forms at the sites where the energy was applied. TVR is performed under general anaesthetic. The operation is very painful and painkillers are supplied to lessen the pain.

Image A shows radiofrequency energy being applied to the base of the tongue. Image B shows the end results where the tongue becomes smaller and the airway space increases 5



## CONCLUSIONS

Snoring is a very common problem and there are several treatment options for it.

Following a visit from snoring clinic, the underlying cause of snoring would be identified. If the patient had OSA, CPAP would be the gold standard treatment.

If OSA was not the underlying cause, nasal, palatal or tongue base surgeries would be the treatment options. The first treatment option in both scenarios is lifestyle changes.

The long-term efficacy of the surgeries mentioned above is uncertain and further studies have to be conducted to investigate their efficacy.

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