Current evidence of surgeries for obstructive sleep apnea syndrome

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Abstract

There are several surgical treatment modalities for **obstructive sleep apnea syndrome**, ranging from CPAP, to **upper airway surgery** or **maxillofacial surgery**, to **bariatric surgery**. Some of these procedures are investigational and others are well established.

Objective

This paper reviews surgical treatment options for obstructive sleep apnea syndrome to include surgical descriptions as well as criterion for treating apnea/hypopnea indices and outcome results.

Methods

Literature review was performed for OSAS surgical treatment options for soft tissue and skeletal surgeries. Articles with surgical descriptions and surgical reviews are included for each procedure.

Results

A total of twenty-eight surgical treatment modalities for OSAS were identified. Twenty-three of these have a number of descriptive non-controlled and prospective studies. Five are well established randomized controlled studies.

Conclusions

There is a large amount of variability in outcome for sleep surgeries, however, in order to maximize success and cure rates, multiple procedures are most often necessary. Sleep surgeons must get familiar with modern techniques and be able to perform them in order to treat OSAS patients in order to maintain treatment outcomes.

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Keywords

sleep apnea, obstructive sleep apnea, otorhinolaryngic snoring, tonsillectomy

INTRODUCTION

Obstructive sleep apnea syndrome (OSAS) manifestes with **snoring**, daytime sleepiness, and cognitive impairment. Treatment options include **Continuous positive airway pressure** (CPAP) was first described by Sullivan et al. in 1981 as highly effective treatment for OSAS[1]. Although CPAP has been shown to be effective in treating OSAS, it is not well tolerated by about 50% of patients long-term adherence to therapy defined as a 70% use per night[2]. Patients who find medical management often seek surgical treatment options. Surgery is a well established and accepted treatment for OSAS. Surgical treatment options include the genioglossus advancement, extending and uvulopalatopharyngoplasty, tonsillectomy, and bariatric surgery. Surgical treatment options are **palatopharyngeal** and **genioglossus advancement** surgery (UPPP).

METHOD

Literature review was performed for adult **obstructive sleep apnea syndrome** surgical treatment. Titles and abstracts were reviewed to identify potential articles for review. Articles with surgical descriptions and reviews of the studies that contributed significantly and controlled studies are included in this article. Surgical techniques are described based on order and in the order of the most invasive. Surgical techniques are described for each obstructive sleep apnea. The main outcome performed on Medline from inception to June 2010. The surgical articles providing the description of the surgical procedure and the results of the surgery for **palatopharyngeal** and **genioglossus** (UPPP) and **bariatric surgery** were reviewed **uvulopalatopharyngoplasty** (UPPP) for surgery base reduction in 2010.

Subsequently, the articles describing treatments for each of the procedures were also reviewed. Articles that contributed substantially were retained and included in this review. Articles, that only a surgical focus, but included **palatopharyngeal** surgery (UPPP).

RESULTS

The results of the literature search yielded the following surgical modalities: **palatopharyngeal** surgery, **genioglossus advancement**, **genioglossus advancement**, **genioglossus advancement**, hyoid suspension, **uvula** revision uvulopalatopharyngoplasty, **maxillofacial** orthognathic **advancement** (MMA), laser assisted uvulopalatoplasty (LAUP), laser assisted uvulopalatoplasty, uvulopalatoplasty radiofrequency ablation, uvulopalatoplasty, transpalatal advancement **pharyngoplasty** (TAP), cautery-assisted uvulopalatoplasty, cautery-assisted palatoplasty, **pillar implants**, **tongue base** radiofrequency ablation, **tongue base** radiofrequency ablation, **tongue base** radiofrequency ablation

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