

# The Effect of Upper Airway Surgery on Sleep Quality and Obstructive Sleep Apnea

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## ABSTRACT BODY:

**Introduction:** Obstructive sleep apnea (OSA) is a common sleep disorder affecting both men and women in all ethnicities. It is well known that the primary cause of OSA is upper airway obstruction due to either anatomical or neurologic factors. The primary treatment modality for OSA is Continuous Positive Airway Pressure (CPAP). However, a significant proportion of patients diagnosed with OSA are not able to comply or tolerate CPAP. Alternative treatment options such as Uvulopalatoplasty (UPPP) have been shown to have variable and limited success in treating OSA. We previously reported a significant higher incidence and more severe degree of OSA among Chinese patients despite their normal BMI. It is believed that Chinese tend to have significant narrower upper anatomical airway as compared to Caucasian populations and hence the increased likelihood of OSA. In this study, we investigated the role and treatment outcome of upper airway surgeries (septoplasty, turbinate reduction, tonsillectomy and UPPP) on OSA in Chinese patients who have clinical identifiable upper airway anatomical obstruction.

**Methods:** A retrospective study was designed to analyze the outcome of Chinese patients who had been diagnosed with moderate to severe degree of OSA. These patients have clear and identifiable upper anatomical obstruction including (either singly or a combination of) narrow soft palatal arch, tonsillar hypertrophy, septal deviation with or without turbinate hypertrophy. These patients have either failed or unable to comply or tolerate convention CPAP treatments. These patients underwent standard tonsillectomy, UPPP (shortening of the uvula and widening of the palatal arch), septoplasty and radical volume reduction of the inferior turbinates. All patients had pre and post-operative PSG and various sleep parameters and the AHI (supine, non-supine, REM and non-REM) as well as oxygen saturation were analyzed.

**Results:** Two groups of Chinese patients with clearly defined upper airway obstruction who had been diagnosed with moderate to severe OSA were analyzed and compared. One group of patients (n=17) underwent septoplasty and radical volume reduction of the turbinate only. While all of these patients had poor sleep and frequent arousals due to nasal obstruction before surgery. All patients reported significant subjective improvement of sleep quality or breathing function after the nasal surgery. However, despite improvement of subjective symptoms in these patients, no significant and measurable improvements in any of the sleep parameters or AHI were observed. None of the patients had any post-surgery changes in sleep efficiency or improvement in sleep arousals (either spontaneous or respiratory related). On the other hand, those Chinese patients (n=14) underwent a combination of tonsillectomy, UPPP, septoplasty and turbinate reduction had a significant improvement in AHI in all categories (supine, non-supine, REM and non-REM). Nearly 50% reduction or more in the severity of OSA was observed. The combination upper airway surgery also seems to reduce the degree of respiratory related arousals although statistical difference was not achieved.

**Conclusion:** This study confirms with other published reports that septoplasty and turbinate reduction alone have no role in treating OSA or improve objective sleep quality. However, the data suggest that judicious selection of patients with clearly defined upper airway obstruction, such as those seen in Chinese patients, who are known to have upper airway anatomical obstruction (narrow palatal arch) and hence higher risk of OSA, may benefit from a combination of nasal surgery with tonsillectomy and UPPP. This study support the possible role of surgery as primary treatment for specific definable upper airway obstruction cases and for those who failed or unable to tolerate CPAP treatment.

**Disclosure Details Abstract Agreement Release:** Abstract Release - Prior Publication Abstract Release - Copyright Abstract Release - Accuracy Abstract Release - Original Work **Prior Presentation or Publication:** Prior = NO