

Coblator - Assisted Epiglottoplasty - Case Report

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Abstract: Treatment of obstructive sleep apnea is still a matter of debate. Among different therapeutic alternatives – surgical and conservative treatment with (CPAP) is considered the “gold standard”.

We evaluated the role of epiglottis in snoring and OSA and tried to explore the possible options of treatment.

We developed a surgical technique that provides a stable support to the epiglottis without influencing its function during swallowing while preserving laryngeal anatomy and physiology.

Keywords: apnea, coblation, epiglottoplasty

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I. Introduction:

Obstructive sleep apnea (OSA) is described as periodic decrease or cessation of airflow during sleep, caused by an obstruction of the upper respiratory tract. OSA is a relatively common disorder with a prevalence of 1-2% of population, but with a higher incidence in men in middle age – 4% and 2% in women. [1] First line treatment includes CPAP, but its long term compliance is 46 – 85% and some of people cannot tolerate it well. First line treatments include continuous positive airway pressure (CPAP) but this approach has a poor long-term compliance of 46–85% and some of patients do not tolerate it. [2]. Drug induced sleep endoscopy (DISE) is used as a new diagnostic tool for selecting the therapeutic approach for people with OSA. DISE has improved our knowledge of the many factors associated with this disorder, one of which is the epiglottic collapse [3].

The reported prevalence of epiglottic obstruction in OSA patients has varied from study to study, ranging from 12.5 – 73.5%. In a 2015 report by Lan et al. [4], the authors noted 12.5% and 26.6% of their series of 64 OSA patients had a partial and complete A-P collapse, respectively. Isolated epiglottic collapse refers to an A-P collapse other than a lateral or secondary epiglottic collapse of a multilevel area. Not many studies have investigated this type of collapse Golz et al [5].

In 1991 Croft and Pringle were first to describe “sleep endoscopy during sedation”. DISE has been used widely to determine the exact site of the upper airway collapse in patients with OSA. The biggest advantage of this is direct visualization of the obstruction in the upper respiratory tract during sleep. A trapdoor epiglottis and laryngomalacia could be well treated by partial epiglottectomy. [6]

The procedure can be performed in different ways and the epiglottis could be excised using monopolar coagulator or a laser.

Catalfumo et al. [7] described their use of an endoscopic CO2 laser. Bartolomeo et al [8] shared their experience with a case of 25-year-old man with laryngomalacia managed using CO2 laser performing V-shape partial epiglottectomy.

II. Case Report

Patient is a 42 years old male with initials A. K. diagnosed with OSA. The performed polysomnography revealed an AHI of 29 which stands for moderate sleep apnea. These data is associated with the physical examination, clinical history of signs and symptoms (daytime sleepiness, frequent headaches, attentiveness difficulties) and with evaluation, confirming the diagnosis of obstructive sleep apnea. The treatment of choice was endoscopic coblator assisted epiglottoplasty [Fig. 1] considering the fact that the patient did not accept a conservative or palliative treatment with CPAP.



Fig. 1 – A trapdoor epiglottis

The epiglottoplasty with Coblator consisted in the following steps:

- Broadlumen laryngoscope is insured to expose the epiglottis.
- We use PROcise LW plasma wand.
- The mucosa and the cartilage is dissected.
- The overturned mucosa is sutured and there is no exposed cartilage.
- At day 10 post op the patient was already reporting an improvement in the quality of his sleep and a considerable gain in his general well-being. The flow of air through the posterior superior air column was improved. The cure of OSA for this patient was confirmed six months later with a control polysomnography which showed an AHI of 4.7 events/hour of sleep and an average oxyhemoglobin saturation of 97.8%.

III. Discussions

The surgical techniques in this anatomical area are complex, significantly invasive, associated with a high rate of complications – bleeding, oedema, dysgeusia, persistent dysphagia [9]. New technologies (diathermy, CO₂, laser and coblation) have allowed the usage of innovative surgical approaches at modifying the epiglottis and negatively interfering with its sphincter function. [10]

IV. Conclusions

Obstructive sleep apnea has showed as the most frequent and important sleep disorder connected to several systemic alterations.

The surgical technique described in this case report is able to preserve laryngeal anatomy and physiology, and is safe and reversible in case of unexpected complications.

Moreover, it provides stable support to the epiglottis without interfering with its function during swallowing.

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