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Radiofrequency Assisted Adenoidectomy with Turbinoplasty for OSA-Simplicity Redefined

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ABSTRACT

Adenoid hypertrophy is a prevalent disorder in both children and adults presenting with obstructive sleep apnea (OSA). Adults with obstructive sleep apnea are most likely to have adenoids. Chronic adenoidal inflammation or growth results in nasopharyngeal airway obstruction, leading to recurrent sinus infections, otitis media, or facial mal development. Adenoids typically disappear at the age of 14. However, in some people, they may still exist and cause issues. Aden tonsillectomy is the standard of care for OSA, but recent research has shown that non-obese people with moderate OSA and small tonsils can achieve comparable results with adenoidectomy alone. Direct trans-nasal endoscope-assisted removal of the adenoids is a safe procedure. For patients who present with OSA in this instance, we are using radiofrequency assisted adenoidectomy with turbinoplasty. Here, we evaluate the outcome of adenoidectomy and inferior turbinoplasty surgery using radiofrequency for patients with OSA.

Keywords: Adenoidectomy, Adenoid hypertrophy, Radiofrequency, Obstructive sleep apnea, Turbinoplasty

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INTRODUCTION

Adenoid is the condensation of lymphoid tissue at the back of the nose or on the poster superior part of the nasopharynx. Waldeyer's ring contains an adenoid. It seems to be crucial for the maturation of immunological memory. Adults may experience adenoid hypertrophy due to immunosuppression, immunodeficiency, obesity, or Obstructive Sleep Apnea (OSA) symptoms. [1-3] the inferior turbinate contains many blood vessels and may swell due to several conditions, such as allergies, colds, upper respiratory tract infections, and inflammation. When individuals with OSA report nasal blockage, one of the most frequent reasons is inferior turbinate hypertrophy [4, 5]. Therefore, radiofrequency can decrease turbinoplasty and adenoid hypertrophy. Obstructive Sleep Apnea (OSA) is surgically treated by radiofrequency-assisted adenoidectomy with turbinoplasty. It entails using radiofrequency energy to shrink and remove extra tissue from the turbinate's, which airflow-improving structures are in the nasal channel, and the adenoids, lymphoid tissue at the back of the throat. This surgery tries to treat the upper airway blockage that frequently contributes to OSA [6]. The size of the adenoids and turbinate's is reduced, which improves airflow and lessens the frequency and severity of sleep apnea episodes.

Case Report

A 25-year-old female patient complained of mouth breathing, nasal blockage, excessive daytime sleepiness, fatigability, nose block, snoring, and rhinolalia clausa, or hypo nasal speech, along with clinical symptoms of nose block, post nasal drip, snoring, and nose block.

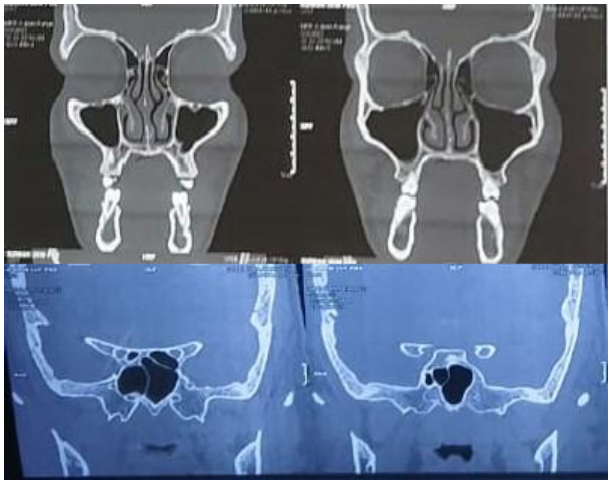

Figure 1: CT PNS.

Clinical examination revealed the patient had chronic adenoiditis with inferior turbinate enlargement and Grade IV 4 adenoid hypertrophy [Figure 1-4]. Using the radiofrequency method, her adenoidectomy and inferior turbinoplasty were planned. An examination of the patient revealed an enlarged adenoid, postnasal drip, dynamic MRI evidence of a nasal blockage in the nasopharynx, and an AHI INDEX 20.

DISCUSSION

The patient underwent radiofrequency-assisted adenoidectomy and inferior turbinoplasty under general anesthesia. This technique involves removing adenoids and reducing inferior turbinate size using radiofrequency, which results in mucosal and submucosal tissue shrinkage with minimal blood loss and pain. Compared to conventional microdebrider-assisted surgery, this technique has negligible blood loss and less pain. Additionally, there is no chance of synechiae formation. In contrast to collation-assisted surgery, this method has a single time investment, and the learning curve is also very short. Adenoid hypertrophy is an obstructive condition due to enlarged adenoids that can cause several symptoms such as mouth breathing, nasal obstruction, hypo nasal speech, snoring, and Obstructive Sleep Apnea (OSA).

One of the various tools in the arsenal of the sleep surgeon for treating upper airway obstruction is minimally invasive radiofrequency surgery. Selecting the patient who wills most benefit from this operation requires careful evaluation. Radiofrequency surgery can deliver long-lasting outcomes without the unacceptably high morbidity associated with more intrusive techniques when performed on the right patient [7,8]. Higher-quality research is required to support its application and implications in sleep-disordered breathing. Local or general anaesthetics can perform the minimally invasive radiofrequency-assisted adenoidectomy with turbinoplasty surgery. Usually, a specialized probe is used, which transmits radiofrequency radiation under control to the targeted tissues, shrinking them. Overall, this treatment helps to increase airflow and lessen OSA symptoms, which results in greater sleep and enhances general health. However, the usefulness of this technique relies on the particular condition of the individual and should be discussed with a licensed healthcare practitioner [9, 10].

The role of radiofrequency tongue base therapy in OSA and snoring has been the subject of numerous observational studies. According to a recent comprehensive review, the findings are generally positive in the short term, with better objective and subjective aspects of obstructive sleep apnea. Although there are few longer-term outcomes, they do indicate that the early improvement may diminish over time. In a randomized, controlled trial, Back et al. reported no statistically significant change in

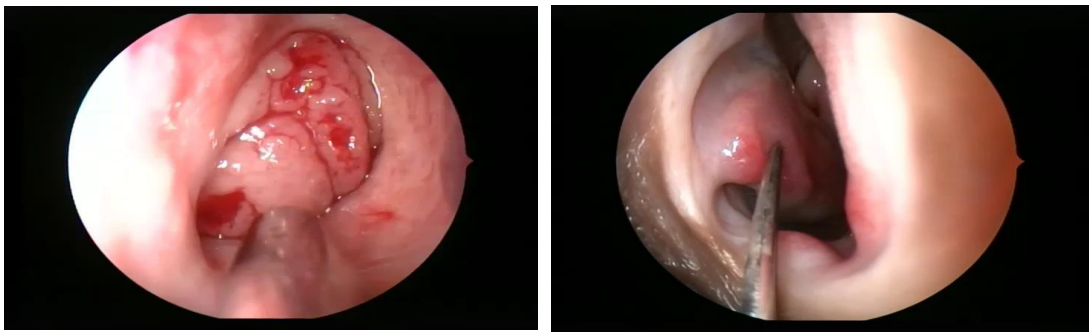

Figure 2: CT showed right inferior turbinate hypertrophy with enlarged adenoids with airway narrowing.

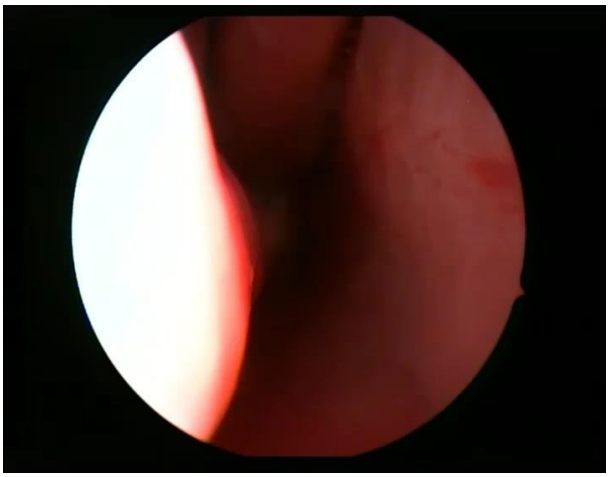

Figure 3: INTRA-OP

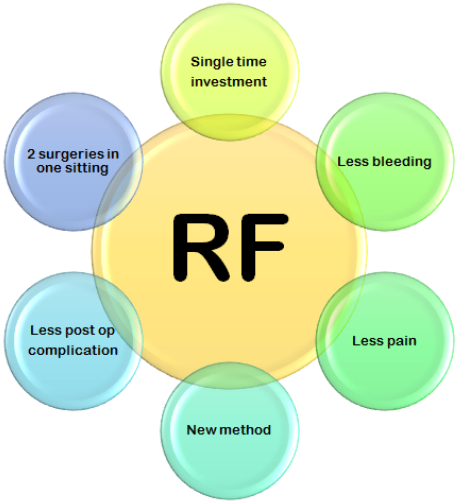

Figure 4: POST OP: Post op with AHI 6.

moderate obstructive sleep apnea severity after a single radiofrequency application to the soft palate compared to a placebo [11]. This emphasizes the necessity of thorough patient assessment using drug-induced sleep nas endoscopy, combining multilayer applications with other targeted sites, and the probable requirement for several applications.

For treating obstructive sleep apnea, examined the use of radiofrequency against laser-assisted uvulopalatoplasty. They concluded that while both treatments needed a series of sessions, radiofrequency appeared to have a more durable long-term result [12]. Investigated the use of radiofrequency in snoring surgery and found that while there was a short-term reduction in snoring symptoms, there was a lack of long-term data. In treating sleep-disturbed breathing, discovered that radiofrequency combined with uvulopalatoplasty was much more successful than radiofrequency alone [13].

Additionally, several surgical techniques and devices have been researched. Intranasal steroids and leukotriene inhibitors are examples of non-surgical treatments, although research has not supported the efficacy of antibiotics. Blind curettes were once the standard adenoidectomy procedure; now, coblation or a more advanced, safe, and efficient procedure is used. It has been demonstrated that adenoid recurrence can be avoided by completely removing the adenoid tissue, which is easier to do with a microdebrider and coblation. Tran's nasal endoscopy has been demonstrated to be superior to the conventional curettage procedure and can aid in removing all adenoid tissue by enhancing visualization [14].

CONCLUSION

Radiofrequency-assisted adenoidectomy is a novel yet simple technique, more preferable to coblation, microdebrider or even conventional adenoidectomy because of its advantages to pain, blood loss and post-op complications. Even while the data for the short term is encouraging, there is currently a shortage of high-quality research addressing the long-term results. The key to achieving persistent improvement appears to be careful patient selection.

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