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Research Paper

Radiofrequency ablation of the lateral palatal space for snoring

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Abstract *Objective:* Pilot study to examine the effect of radiofrequency ablation (RFA) of the lateral palatal fat pad in patients with socially-disruptive snoring.
Method: Snoring outcomes and complications were compared between a group of patients with treated with RFA ablation of the lateral soft palate fat pad with or without inferior turbinate reduction (8 patients) and another group undergoing inferior turbinate reduction alone (12 patients).
Results: Snoring loudness and bothersomeness improved in the palate but not inferior turbinate group. Pain was mild and no major complications were observed.
Conclusion: The study supports RFA ablation of the lateral palatal space as a potential low morbidity procedure for snoring.

Introduction

Snoring is a common nuisance affecting almost half of males and a third of females between 30 and 60 years of age.[1] It results from increased upper airway resistance and airway flutter during sleep. Progression may lead to obstructive sleep apnea (OSA). Snoring's bothersomeness often leads sufferers to seek treatment. Treatments include weight loss, smoking/alcohol cessation, positional therapy, and oropharyngeal exercises. Use of mandibular advancement devices, nasal devices, and continuous positive airway

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pressure (CPAP) are other mechanical alternatives. Multiple surgical procedures have also been proposed.

The present study introduces a novel technique that aims to ablate a fat pad in the lateral palate (supratonsillar fat[2]) using radiofrequency ablation (RFA) to decrease snoring. This contrasts to RFA of the midline muscular palate initially described by Powell et al[3] and others[4] which although reduces snoring with low serious adverse effects, requires multiple treatments with variable outcomes. While the current technique is conceptually similar, it differs in being directed towards a lateral anatomic space containing "supratonsillar fat".

Anatomy

The lateral palatal space is bounded medially by the curving fibres of palatopharyngeus, laterally by the superior constrictor muscle, inferiorly by the superior pole of the tonsil, medially and ventrally by the palatoglossus muscle, and ventrally by the mucosa of the palate (Figs. 1 and 2). The space is somewhat pyramidal in shape, wider and deeper inferiorly near the tonsil, and tapering superiorly towards the hamulus. The space contains a variable amount of fat, the removal of which exposes the boundary structures and opens the area to make it amenable to various surgical techniques. To our knowledge, and upon review of literature and anatomy texts, this space has not previously been described, nor has its surgical importance clearly outlined. It is however, a critical space and outcomes from palatal surgery that are reconstructive/repositioning by nature are influenced by awareness of this key surgical anatomy.

Methods

Study design

Following approval by the IRB of the Medical College of Wisconsin, a retrospective chart review of RFA office based snoring surgeries was performed. RFA aimed at the lateral palatal space ($n = 8$) was performed with Coblation (Arthrocare, Smith Nephew, Austin TX). Six of these had simultaneous treatment of the inferior turbinates. Twelve patients with only inferior turbinate reduction were used as a comparison group. Pre-operative and post-operative Epworth sleepiness scale, NOSE, snoring loudness and bothersomeness (10 point visual analog) scales were assessed.

Procedure

Following lidocaine with epinephrine 1% injection into the area of the lateral palatal space, the RF probe was inserted near the tip of the hamulus into the region of the lateral palatal space. Device activation often created an audible crackling/popping noise indicating correct placement

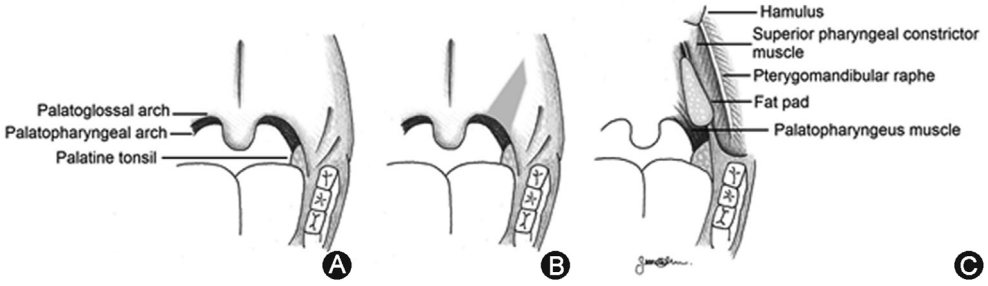

Fig. 1 Anterior representation of the oropharynx showing lateral palatal space. A: Anterior view with mucosa intact. B: With location of lateral palatal space shaded and location of RF ablation depicted. C: Mucosa removed and showing the lateral palatal space with supratonsillar fat lateral to the palatopharyngeus muscle and medial to the superior pharyngeal constrictor muscle.

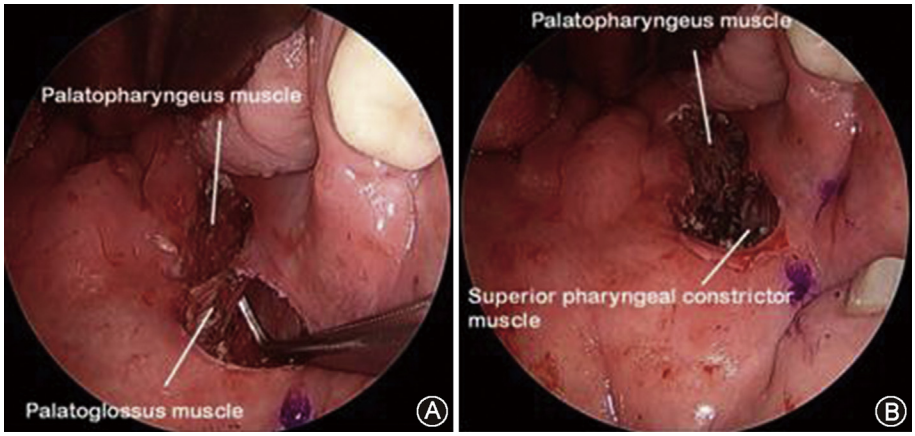

Fig. 2 Intraoperative photo showing lateral palatal space after fat removal and post tonsillectomy. A: Palatoglossus muscle intact with angled hemostat medial to the superior constructor muscle. B: Palatoglossus muscle cut.