Radiofrequency Tongue-Base Reduction for Sleep Apnea: Comparison of Different Techniques
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What is This?
Objectives: Three-month results could demonstrate the safety and efficacy of the Pillar® Palatal Implant System in the treatment of primary snoring in a limited number of patients. The aim of this study was to determine the results over a 1-year follow-up period in an extended patient group.

Methods: Forty-one healthy patients with primary snoring due to palatal flabby were enrolled into this prospective study after clinical and endoscopic examination (42.3 ± 9.0 years, body-mass-index 25.3 ± 2.6 kg/m², apnea-hypopnea-index 3.4 ± 2.3). Under local anesthesia, 3 implants intended for permanent implantation were placed into the soft palate close to the midline as possible. Snoring (evaluated by the bedpartner), postoperative morbidity, and daytime sleepiness (evaluated by the patient) were assessed by visual analog scale (VAS) before and 90, 180, and 360 days after surgery.

Results: All implants could be placed without any complications or remarkable postoperative pain. During the first year, 12 implants were partially extruded in 10 patients without any airway compromise. Four patients had them reimplanted as they realized an increase of their snoring after the implant removal. Speech, swallowing, and taste remained unchanged. Snoring was reduced from 7.1 ± 1.9 to 4.2 ± 2.7 and finally 4.0 ± 2.6 (VAS, P < 0.001). Daytime sleepiness dropped significantly from 2.8 ± 2.6 to finally 1.2 ± 1.2 (VAS, P < 0.001).

Conclusions: The Pillar® Palatal Implant System is a new surgical tool for the reduction of snoring. Our subjective data demonstrated its safety and efficacy as well as good patients' acceptance over a period of 1 year.

11:38 AM

Anatomic Analysis of the GBAT System’s Effectiveness Capturing Genial Tuberacle and Attachments

Jennifer Hennessee, MD (presenter); Frank R Miller, MD
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Objectives: The Genial Bone Advancement Trephine (GBAT) System is a one-step system that advances the genial tubercle for the treatment of retroligual obstruction in obstructive sleep apnea syndrome. The purpose of this project was to anatomically analyze the effectiveness of the GBAT System to capture the genial tubercle and its muscular attachments in the circular trephine.

Methods: Eight cadaveric heads were examined and panoramic x-rays were obtained. Seven specimens were selected based on mandibular height and dentition to undergo the procedure. Using the GBAT System with the 14 mm trephine, the procedure was performed following the stepwise instructions. The mandibles were dissected and analysis of the location of the osteotomy with respect to the genial tubercle, genioglossus muscles, geniohyoid muscles, and mandibular dentition was performed.

Results: All 7 of the specimens had complete capture of the genial tubercle. The mean percentage of the genioglossus muscle captured in the circular osteotomy was 85% (50%-100%). All specimens had preservation of the posterior genioglossus muscle fibers. The mean percentage of the geniohyoid muscle captured was 78% (15%-100%). No tooth roots were transected or contained in the bone plug.

Conclusions: The GBAT System is an effective, one-step system for capturing and advancing the genial tubercle and its muscular attachments in the treatment of obstructive sleep apnea syndrome.

11:46 AM

Radiofrequency Tongue-Base Reduction for Sleep Apnea: Comparison of Different Techniques

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Objectives: This pilot study investigates the feasibility, safety, and efficacy of radiofrequency base-of-tongue reduction (RFBOT) for patients with obstructive sleep apnea syndrome (OSAS). It evaluates differences between traditional radiofrequency reduction (Somnoplasty®) and low-temperature radiofrequency molecular disassociation (Coblation®), and discusses the role of RFBOT in multi-level management of OSAS.

Methods: A retrospective chart review identified OSAS patients who received RFBOT (either Somnoplasty® or Coblation®) for treatment of retroglossal obstruction. Patient characteristics, treatment variables, and adverse effects were recorded to assess safety and efficacy of RFBOT.

Results: Preliminary review identified more than 40 patients (>200 procedures) who received RFBOT. Most patients (>90%) were male, and ages ranged from 32–75 years. Different treatment times led to an evolution from use of Somnoplasty® early in the study to use of Coblation®. Equivalent delivery of 750 Joules per site took >3 minutes for Somnoplasty® and 12–15 seconds for Coblation®. Patients received between 1–5 RFBOT sessions, with between 3–7 sites treated each session. The majority of patients (>80%) indicated resolution or marked improvement of OSAS symptoms following completion of treatment. Analysis of pre- and posttreatment RDI continues, but early analysis reveals an average improvement of 72% (range 24%-100%). Of the >200 procedures done overall, there were 5 complications; only 1 required inpatient management. Complication rates and efficacy did not differ between RFBOT technique.

Conclusions: This pilot study supports the safety and efficacy of RFBOT, using either traditional radiofrequency (Somnoplasty®) or low-temperature radiofrequency molecular disassociation (Coblation®) techniques. The more rapid tissue effect with Coblation® may promote increased patient acceptance.