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## Hyoid Suspension Position Statement

Hyoid myotomy/suspension (HS), whether performed separately or combined with other upper airway procedures, **is considered effective and non-investigational** as part of the comprehensive surgical management of symptomatic adult patients with mild obstructive sleep apnea (OSA) and adult patients with moderate and severe OSA assessed as having tongue base or hypopharyngeal obstruction.

HS has been studied rigorously in many patients since it was originally described in 1984. Original research studies include a total of nearly one-thousand patients with treatment results reported in the medical literature.<sup>1-21</sup> Studies have included different variations of the technique such as thyrohyoidpexy and hyoid myotomy with mandibular suspension. Most studies were conducted as part of a multilevel surgery approach in conjunction with pharyngeal and/or nasal surgery. Surgical success as defined by the Sher criteria (AHI less than 20 with a 50% reduction) demonstrates a range of results from 17-90%.<sup>23</sup> 16 studies contain available data regarding this surgical success criterion with 9 of 16 showing success rates greater than 60%. The majority of this past research was based on prospective cohort and retrospective cases series. HS is well tolerated with few complications. The most notable being transient dysphagia, hematoma/seromas, and hardware related complications.<sup>7,14,21</sup>

More recent literature with stricter and more uniform methodologies demonstrates even higher success. Panah et al<sup>20</sup> and Van Tassel et al<sup>21</sup> published more recent studies in 2023. Panah and colleagues conducted an industry sponsored randomized control trial where they divided a group of forty-eight patients into two treatment cohorts that received uvulopalatopharyngoplasty (UP3) and tongue base radiofrequency either with or without modified thyrohyoid suspension. Mean BMI was less than 28. Success was much greater in the hyoid group (75%) compared to the group without hyoid surgery (41.7%) as part of the multilevel protocol ( $p = 0.021$ ). Van Tassel and colleagues investigated a series of thirty-nine patients undergoing hyoid myotomy and suspension combined with uvulopalatopharyngoplasty. 76.9% patients had surgical success with a mean reduction of AHI from 49.9 +/- 25.6 to 15.4 +/- 14.9 ( $p < .001$ ). For HS performed as a standalone intervention, there is less overall evidence, but the results are consistent with the additive efficacy effect seen when HS is utilized as part of combined multi-level or staged sequential approach to treatment. UP3 should be considered in conjunction either at the same time or in staged sequence depending on clinical circumstances and best judgement of the surgeon.

Hyoid suspension is safe and effective and should be considered a part of a comprehensive approach in the medical and surgical management of symptomatic adult patients with mild OSA and adult patients with moderate and severe OSA who have evidence of tongue base or hypopharyngeal obstruction. A comprehensive medical evaluation taking into account diagnostic workup (e.g., history and physical, drug-induced sleep endoscopy), medical risk and individual patient factors is needed to make a final determination regarding the appropriate indication for surgery.



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