

## Dil Kökü için Cerrahi Seçenekler

Seda ARSLAN<sup>1</sup>

### GİRİŞ

Obstrüktif uyku apnesi (OUA), uyku sırasında tekrarlayan üst solunum yolu kollapsı ile karakterize, aralıklı hipoksemi, sık uyanma ve uyku bölünmesi ile sonuçlanan bir kronik uykuda solunum bozukluğudur. Aralıklı hipokseminin tetiklediği oksidatif stres ve inflamasyon nedeniyle hastalar metabolik, nöro-bilişsel ve kardiyovasküler hastalıklar açısından yüksek risk altındadır (1). Sürekli pozitif hava yolu basıncı (CPAP), orta-şiddetli OUA için birinci basamak tedavi seçeneğidir. Ancak, bazı yan etkiler nedeniyle birçok hasta CPAP tedavisine uyum sağlayamazlar (2). CPAP tedavisini istemeyen ya da tolere edemeyen çok sayıda OUA hastasında hastalığa neden olan anatomik obstrüksiyonu tedavi etmek için tasarlanmış birtakım oral apareyler ve cerrahi prosedürler vardır (3).

Cerrahi tedavi OUA'de semptomları hafifletebilen, uzun süreli sekel riskini azaltabilen ve yaşam kalitesini iyileştirebilen değerli bir alternatiftir. Bu amaçla yapılan ilk cerrahi olan uvulopalatofaringoplasti (UPPP) yumuşak damağa yöneliktir. Ancak bu teknik hastalığın şiddetini azaltsa da apne ataklarını etkili bir şekilde önleyememiştir. Damağın daha agresif cerrahi rezeksiyonu ile damak cerrahisini iyileştirmeye yönelik girişimler, daha yüksek komplikasyonlarla sonuçlanmış, ancak daha başarılı sonuçlar elde edilememiştir. Bunun yerine, cerrahi tedavinin yumuşak damak dışı hava yolu obstrüksiyonu bölgelerinin genişletilmesiyle daha iyi sonuçlar gözlemlenmiştir. Özellikle hipofarinks ve

<sup>1</sup> Uzm. Dr., Balıkesir Atatürk Şehir Hastanesi, Hastanesi, KBB Kliniği, sade\_as@hotmail.com

## KAYNAKLAR

1. Prabhakar NR, Kumar GK. Oxidative stress in the systemic and cellular responses to intermittent hypoxia. *Biol Chem.* 2004;385:217–221.
2. Engleman HM, Wild MR. Improving CPAP use by patients with the sleep apnoea/hypopnoea syndrome (SAHS). *Sleep Med Rev.* 2003;7:81–99.
3. Weaver TE, Sawyer AM. Adherence to continuous positive airway pressure treatment for obstructive sleep apnoea: implications for future interventions. *Indian J Med Res.* 2010;131:245–258.
4. Caples SM, Rowley JA, Prinsell JR, Pallanch JF, Elamin MB, Katz SG, Harwick JD: Surgical modifications of the upper airway for obstructive sleep apnea in adults: a systematic review and metaanalysis. *Sleep* 2010; 33: 1396–1407.
5. Chang CC, Wu JL, Hsiao JR, et al. Real-Time, Intraoperative, Ultrasound-Assisted Transoral Robotic Surgery for Obstructive Sleep Apnea. *Laryngoscope.* 2021;131(4):E1383-1390. doi: 10.1002/lary.29135.
6. Kezirian EJ, White DP, Malhotra A, et al. Interrater reliability of drug-induced sleep endoscopy. *Arch Otolaryngol Head Neck Surg.* 2010;136(4):393–397.
7. Turhan M, Bostanci A. Robotic Tongue-Base Resection Combined With Tongue-Base Suspension for Obstructive Sleep Apnea. *Laryngoscope.* 2020;130(9):2285-2291. doi: 10.1002/lary.28443.
8. Lin HC, Friedman M. Volumetric Tongue Reduction for Obstructive Sleep Apnea. *Sleep Med Clin.* 2019;14(1):59-65. doi: 10.1016/j.jsmc.2018.10.007.
9. Murphey AW, Kandl JA, Nguyen SA, et al. The effect of glossectomy for obstructive sleep apnea: a systematic review and metaanalysis. *Otolaryngol Head Neck Surg.* 2015;153:334–342.
10. Chabolle F, Wagner I, Blumen MB, et al. Tongue base reduction with hyoepiglottoplasty: a treatment for severe obstructive sleep apnea. *Laryngoscope.* 1999;109:1273–1280.
11. Vicini C, Dallan I, Canzi P, et al. Transoral robotic surgery of the tongue base in obstructive sleep Apnea-Hypopnea syndrome: anatomic considerations and clinical experience. *Head Neck.* 2012;34(1):15-22. doi: 10.1002/hed.21691.
12. Hou T, Shao J, Fang S. The definition of the V zone for the safety space of functional surgery of the tongue. *Laryngoscope.* 2012;122(1):66-70. doi: 10.1002/lary.22342.
13. Hou TN, Zhou LN, Hu HJ. Computed tomographic angiography study of the relationship between the lingual artery and lingual markers in patients with obstructive sleep apnoea. *Clin Radiol.* 2011;66:526–529.
14. Lauretano AM, Li KK, Caradonna DS, et al. Anatomic location of the tongue base neurovascular bundle. *Laryngoscope.* 1997;107(8):1057–1059
15. Cohen DS, Low GM, Melkane AE, et al. Establishing a danger zone: An anatomic study of the lingual artery in base of tongue surgery. *Laryngoscope.* 2017;127(1):110-115. doi: 10.1002/lary.26048.
16. Woodson BT. Updated Hypopharyngeal Surgery for Sleep Apnea. *Adv Otorhinolaryngol.* 2017;80:81-89. doi: 10.1159/000470871.
17. Farrar J, Ryan J, Oliver E, et al. Radiofrequency ablation for the treatment of obstructive sleep apnea: a meta-analysis. *Laryngoscope.* 2008;118(10):1878–1883.
18. Powell NB, Riley RW, Guilleminault C. Radiofrequency tongue base reduction in sleep-disordered breathing: a pilot study. *Otolaryngol Head Neck Surg.* 1999;120(5):656–664.
19. Friedman M, Hamilton C, Samuelson CG, et al. Transoral robotic glossectomy for the treatment of obstructive sleep apnea-hypopnea syndrome. *Otolaryngol Head Neck Surg.* 2012;146(5):854–862.

20. Dorrity J, Wirtz N, Froymovich O, et al. Genioglossal advancement, hyoid suspension, tongue base radiofrequency, and endoscopic partial midline glossectomy for obstructive sleep apnea. *Otolaryngol Clin North Am.* 2016;49(6):1399–1414.
21. Fujita S, Woodson BT, Clark JL, et al. Laser midline glossectomy as a treatment for obstructive sleep apnea. *Laryngoscope.* 1991;101(8):805–809.
22. Woodson BT, Fujita S. Clinical experience with lingualplasty as part of the treatment of severe obstructive sleep apnea. *Otolaryngol Head Neck Surg.* 1992;107(1):40–48.
23. Sorrenti G, Piccin O, Mondini S, et al. One-phase management of severe obstructive sleep apnea: tongue base reduction with hyoepiglottoplasty plus uvulopalatopharyngoplasty. *Otolaryngol Head Neck Surg.* 2006;135:906–910.
24. Woodson BT (2003). Transoral midline glossectomy and lingualplasty. In Fairbanks DNF, Mickelson SA, Woodson BT (Eds.), *Snoring and Obstructive Sleep Apnea* (3<sup>rd</sup> ed., pp. 189–194). Philadelphia, PA: Lippincott Williams & Wilkins.
25. Kotecha B. Updated minimally invasive surgery for sleep-related breathing disorders. *Adv Otorhinolaryngol.* 2017;80:90–98.
26. Maturro SC, Mair EA. Submucosal minimally invasive lingual excision: an effective, novel surgery for pediatric tongue base reduction. *Ann Otol Rhin Laryngol.* 2006;115:624–630.
27. Robinson S, Lewis R, Norton A, et al. Ultrasound-guided radiofrequency submucosal tongue-base excision for sleep apnoea: a preliminary report. *Clin Otolaryngol Allied Sci.* 2003;28(4):341–345.
28. MacKay SG, Jefferson N, Grundy L, et al. Coblation-assisted Lewis and MacKay operation (CobLAMO): new technique for tongue reduction in sleep apnoea surgery. *J Laryngol Otol.* 2013;127(12):1222–1225.
29. Friedman M, Soans R, Gurpinar B, et al. Evaluation of submucosal minimally invasive lingual excision technique for treatment of obstructive sleep apnea/hypopnea syndrome. *Otolaryngol Head Neck Surg.* 2008;139(3):378–384; discussion 385. doi: 10.1016/j.otohns.2008.06.011.
30. Cammaroto G, Montevercchi F, D'Agostino G, et al. Tongue reduction for OSAHS: TORSs vs coblations, technologies vs techniques, apples vs oranges. *Eur Arch Otorhinolaryngol.* 2017;274(2):637–645.
31. Vicini C, Montevercchi F. Transoral Robotic Surgery for Obstructive Sleep Apnea: Past, Present, and Future. *Sleep Med Clin.* 2019;14(1):67–72. doi: 10.1016/j.jsmc.2018.10.008.
32. O'Malley BW Jr, Weinstein GS, Snyder W, et al. Transoral robotic surgery (TORS) for base of tongue neoplasms. *Laryngoscope.* 2006;116:1465–1472.
33. Vicini C, Dallan I, Canzi P, et al. Transoral robotic tongue base resection in obstructive sleep apnoea-hypopnoea syndrome: a preliminary report. *ORL J Otorhinolaryngol Relat Spec.* 2010;72(1):22–27.
34. Vicini C, Montevercchi F, Tenti G, et al. Transoral robotic surgery: tongue base reduction and supraglottoplasty for obstructive sleep apnea. Original research article. *Oper Tech Otolaryngol Head Neck Surg.* 2012;23(1):45–47.
35. Lin HS, Rowley JA, Badr MS, et al. Transoral robotic surgery for treatment of obstructive sleep apnea-hypopnea syndrome. *Laryngoscope.* 2013;123:1811–1816.
36. Vicini C, Montevercchi F, Campanini A, et al. Clinical outcomes and complications associated with TORS for OSAHS: a benchmark for evaluating an emerging surgical technology in a targeted application for benign disease. *ORL J Otorhinolaryngol Relat Spec.* 2014;76:63–69.
37. Justin GA, Chang ET, Camacho M, et al. Transoral robotic surgery for obstructive sleep apnea: a systematic review and meta-analysis. *Otolaryngol Head Neck Surg.* 2016;154:835–846.

38. Miller SC, Nguyen SA, Ong AA, et al. Transoral robotic base of tongue reduction for obstructive sleep apnea: a systematic review and meta-analysis. *Laryngoscope*. 2017;127:258–265.
39. Meccariello G, Cammaroto G, Montevicchi F, et al. Transoral robotic surgery for the management of obstructive sleep apnea: a systematic review and meta-analysis. *Eur Arch Otorhinolaryngol*. 2017;274:647–653.
40. DeRowe A, Gunther E, Fibbi A, et al. Tongue-base suspension with a soft tissue-to-bone anchor for obstructive sleep apnea: preliminary clinical results of a new minimally invasive technique. *Otolaryngol Head Neck Surg*. 2000;122:100–103.
41. Thomas AJ, Chavoya M, Terris DJ. Preliminary findings from a prospective, randomized trial of two tongue-base surgeries for sleep-disordered breathing. *Otolaryngol Head Neck Surg*. 2003;129:539–546.
42. Fernández-Julián E, Muñoz N, Achiques MT, et al. Randomized study comparing two tongue base surgeries for moderate to severe obstructive sleep apnea syndrome. *Otolaryngol Head Neck Surg*. 2009;140:917–923.
43. Omur M, Ozturan D, Elez F, et al. Tongue base suspension combined with UPPP in severe OSA patients. *Otolaryngol Head Neck Surg*. 2005;133:218–223.
44. Bostanci A, Turhan M. A systematic review of tongue base suspension techniques as an isolated procedure or combined with uvulopalatopharyngoplasty in obstructive sleep apnea. *Eur Arch Otorhinolaryngol*. 2016;273:2895–2901.