

A Case Report Using Oral Appliance Therapy Plus Oropharyngeal Exercise

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Case Report

Snoring and obstructive sleep apneas are common disorders that affect at least 40 million Americans over 40 years of age. It is becoming more common in recent years for dentists to learn to fabricate and treat patients who have Obstructive Sleep Apnea with oral appliances. However, Oral Appliance Therapy often yields incomplete outcomes. Adjunctive therapeutic modalities may then be deployed in order to improve the overall effectiveness of therapy.

The cause of sleep disordered breathing is a collapse of the pharynx that occurs with the onset of sleep and loss of muscle tonus in the upper airway. It has been shown that pharyngeal musculature and function is altered in patients with OSA and that one of the contributing factors in the progression of OSA is thought to be progressive muscle weakness with age [1-3]. Oropharyngeal exercise (OP) has been shown to improve moderate OSA in a group of Brazilian men using a complex set of exercises based on speech therapy practices [4]. In this clinical case oropharyngeal exercise was deployed to further improve outcome with MRD (Figures 1-3).

A 58 year old male patient was referred to the dental clinic for oral appliance therapy and presented with the following history:

- No medications
- Stays fit

Vitals:

BP- 120/76

O₂ @98%

- Baseline AHI- 21/hr (level III Home Sleep Test)
- O₂ nadir- 82%, time below 90% saturation - 3.2% of night
- Epworth sleepiness scale=17
- CPAP trial set empirically at pressure of 11 cm
- Patient was non adherent to CPAP due to mask seal

Mandibular Repositioning Therapy (MRD-Herbst Type) was initiated and reduced the AHI to 15/hr (53% supine sleep, non-supine AHI=8)

O₂ nadir- 85%, Time below 90% dropped to 1.3%. Patient still tired, Epworth unchanged.

The patient could not tolerate more protrusion.

Oropharyngeal exercises introduced: for 2 months, 10 minutes/day, without further changes to the MRD the follow-up HST showed:

- 0.3% time below 90
- 0% below 90%
- Overall AHI=1/hr

- Epworth=7



Figure 1: Brazilian men.



Figure 2: Oropharyngeal exercise.



Figure 3: Radiographic image.

Conclusion

We postulate that oropharyngeal exercise (OPE) may be suitable as a treatment alternative for select patients who have a component of muscle weakness within the pathophysiology of their OSA. OPE may

also provide a means to improve upon results in some patients with inadequate response to MRD or surgery.

References

1. White DP, Younes MK (2012) Obstructive sleep apnea. *Compr Physiol* 2(4): 2541-94.
2. Fogel RB, White DP, Pierce RJ, Malhotra A, Edwards JK, et al. (2003) Control of upper airway muscle activity in younger versus older men during sleep onset. *J Physiol* 1: 533-44.
3. Pendlebury ST, Pepin JL, Veale D, Levy P (1997) Natural evolution of moderate sleep apnoea syndrome: significant progression over a mean of 17 months. *Thorax* 52(10): 872-8.
4. Guimaraes KC, Drager LF, Genta PR, Marcondes BF, Lorenzi-Filho G, et al. (2009) Effects of oropharyngeal exercises on patients with moderate obstructive sleep apnea syndrome. *Am J Respir Crit Care Med.* 179(10): 962-6.