

MÜLLER MANEUVER: EVALUATION OF UPPER AIRWAY BEHAVIOR WITHOUT AND WITH ORAL APPLIANCE (Mandibular Lingual Repositioning Device)

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Introduction: The fiberoptic scope used to evaluate the upper airway with Müller's maneuver have been evaluated by Sher et al¹ and Katsantonis et al³ as a method to identify potentials obstructions areas. Mandibular position modify upper airway anatomy. The use of mandibular/lingual repositioning device (MLRD) is a alternative to treat obstructive sleep apnea/hipopnea syndrome (OSAHS)². The objective of this study is to verify, under fiberoptic nasopharyngolaryngoscopy (NPLC), the upper airway anatomy behavior without and using MLRD.

Methods: A group of ten patients (descriptive data are shown in table 1) were treated with ARML and Müller maneuver observed by NPLC was evaluated, without and with oral appliance.

Table 1

PATIENT	AGE	GENDER	NECK CIRC.	BMI	RDI	SAT O2 min	ESS
1	40	F	36	37.60	7.00	92%	0
2	41	M	45	34.70	47.30	55%	18
3	65	M	40	25.00	38.00	68%	13
4	42	M	41	26.60	33.00	73%	12
5	27	M	43	32.80	41.00	74%	5
6	63	M	37	27.40	28.20	70%	12
7	47	F	36	36.00	11.00	85%	19
8	47	M	42	29.80	65.00	83%	9
9	47	M	48	34.40	45.00	63%	21
10	37	M	37	23.00	43.00	81%	16
AVG	45.60	80%M	40.50	30.73	35.85	74%	12.56
SD	11.40		4.09	5.06	17.20	11%	6.91

Results: What oropharynx was concerned there was no increase on the diameter larger than 50% in any of the cases. At the hypopharynx, there was a significant improvement, of 90% (9 patients), due the decrease of the tongue's base at the airway narrowing. Of those 30% (3 patients) had a significant increase of the antero-posterior airway diameter, enough to allow the Müller maneuver to be negative. At the remaining patients (60%/6 patients) the upper airway narrowing provoked by the side walls was even enough to diminish in more than 50%, of the hypopharynx caliber. Only one patient (10%) didn't show any changes at the upper airway endoscopic analyses when using MLRD during Müller maneuver.

Discussion: Due to the technical procedures (discomfort, patient's position and state of alertness), equipments and examiner's hability, the endoscopic exam using Müller's maneuver, in order to observe the anatomic behavior of the upper airway, becomes subjective. We should also point out that this exam is dynamic, allowing some structures, such as soft palate to move during the exam, changing the airway caliber at this level, even with the oral appliance in position, oposite to static images (XR, NMR and CT). This must be considered.

Conclusions: As observed, it was possible to conclude that the MLRD promotes na effective increase of the antero-posterior hypopharynx diameter at Müller maneuver through the mandible protusion, and from the tongue's base position, but doesn't provoke a significant change in oropharynx. Therefore, bacause of the exams limitations, needs to be validated with other visual exams like XR, NMR and CT.

References:

- 1) Sher AE, Thorpy MJ, Shrintzen RJ, et al. Predictive value of Müller maneuver in selection of patient for uvulopalatopharyngoplasty. *Laryngoscope*. 1985, 95:1483-7.
- 2) Barbosa RC, Aloe F, Tavares SM, Silva AB. Oral appliance treatment: PSG results in 16 mild to severe OSAS subjects. *Sleep*; 1999, v.22, Suppl., p.S305.
- 3) Katsantonis GP, Mass CS, Walsh JK,. The predictive efficacy of the Müller maneuver in uvulopalatopharyngoplasty. *Laryngoscope*. 1989, 99:677-80.