



Mandibular Titration using George Gauge during DISE May Identify the Optimal Advancement Position for Oral Appliance Success

Michael Bauschard, MD; Harmeet Chiang, DDS; Ryan Nord, MD
VCU Health

Objectives:

Utilizing drug-induced sleep endoscopy to select the optimal mandibular advancement level for predicting a successful oral appliance outcome.

Materials and Methods:

Patients with Obstructive Sleep Apnea (OSA) who are candidates for Oral Appliance Therapy (OAT) are identified through our multi-disciplinary sleep clinic. Two or three protrusive bites were taken utilizing the George gauge. These protrusive bites were utilized during Drug Induced Sleep Endoscopy (DISE) in order to advance the mandible of the patient, thus mimicking mandibular titration taking place during OAT. During sleep endoscopy, the Velum, Oropharynx, Tongue Base, Epiglottis (VOTE) classification was used to assess any relief of obstruction provided by these protrusive bites versus a patient's native collapse.

Results:

Two patients were evaluated with the above technique. Our first patient was found on DISE to have cessation of snoring and resolution of hypopharyngeal collapse with a protrusive bite in place. Our second patient was found to have resolution of hypopharyngeal collapse with 5 millimeters of mandibular protrusion, while interestingly, their hypopharyngeal collapse returned with 9 millimeters (maximum protrusive range of the patient) of mandibular protrusion taken by the George gauge.

Conclusions:

Utilizing protrusive bites at different degrees, it is feasible to select the advancement level which leads to optimal airway opening. This technique may minimize the degree of mandible protrusion and contribute to both the efficacy of and compliance with OA therapy.

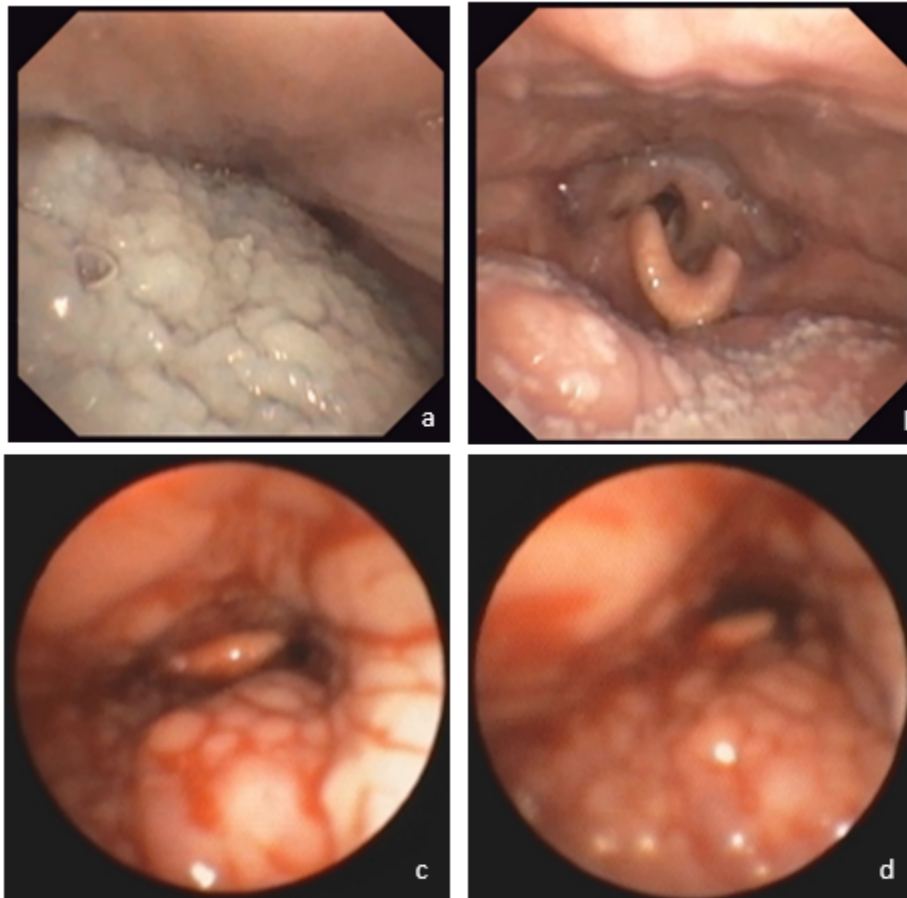


Figure 1 (a) Native hypopharyngeal collapse seen on drug-induced sleep endoscopy (DISE) with apposition of tongue base and posterior pharyngeal wall. (b) Resolution of hypopharyngeal collapse seen with mandibular protruding George bite in place (c) DISE exam of second patient with apposition of epiglottis and posterior pharyngeal wall during native collapse (d) Resolution of hypopharyngeal collapse with 5 mm George bite in place with resolution of snoring.

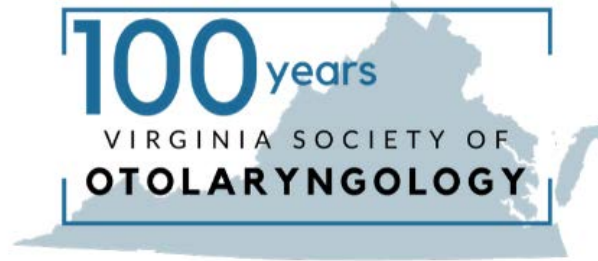


Table 1

Age	Sex	AHI	DISE Findings	
			No intervention	George bite advancement
32	F	10.2	Velum: partial collapse Oropharynx: no collapse Tongue Base: partial collapse Epiglottis: independent collapse	Velum: partial collapse Oropharynx: no collapse Tongue Base: partial collapse (slightly improved) Epiglottis: no collapse
74	M	17.0	Velum: complete anterior posterior collapse Oropharynx: complete lateral collapse Tongue Base: complete circumferential collapse Epiglottis: no independent collapse	Velum: slight partial anterior posterior collapse Oropharynx: slight partial lateral collapse Tongue Base: no collapse Epiglottis: no independent collapse

Table 1: Results of first two patients enrolled in study with findings on Drug-induced Sleep Endoscopy (DISE) examining native airway versus airway treated with George bite mandibular protrusion.