SDB and TMJ

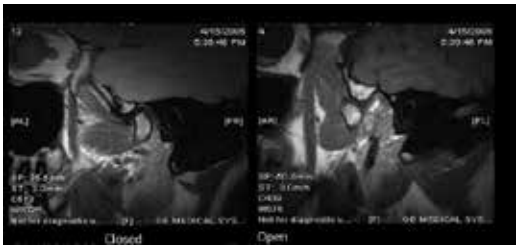
It's not One or the Other

by Robert M. Grill, DDS

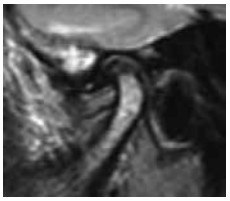
Did I really want to treat "TMJ" patients? No! Who in their right mind would? It was 25 years ago, and I had been in practice for several years. Bob Isaacs, a brilliant local orthodontist, talked to me about a shared patient who had what was thought to be occlusal-muscular pain. Bob wanted me to equilibrate this patient's bite. I recounted that I didn't want to do anything irreversible. He argued that the patient needed the treatment and if I wouldn't do it then who would? His statement got me thinking and changed my professional life from that point on. Twenty five years later, with continual C.E., that's all I do – treat orofacial pain and Temporomandibular Joint (TMJ) damaged patients. Thanks Bob! For the past five years, I have been treating dental sleep medicine patients, most of whom came to me for orofacial pain and TMJ damage issues first.

Have you heard that "TMJ" patients and mandibular advancement devices (MAD) don't mix? The concern of treating Obstructive Sleep Apnea (OSA) with a MAD is a valid one. In my practice, the patients that are treated for OSA with a MAD are one of two groups: those that present initially with orofacial pain and/or TMJ instability and those that don't. With a non TMJ/orofacial pain patient that presents for a MAD for the management of their documented OSA, a head and neck muscle and soft tissue and TMJ palpation evaluation is accomplished along with a thorough history and dental evaluation. Those patients that present for diagnosis and management of TMJ/orofacial pain issues, the exam and data gathering process is extensive. Invariably I use MRI and/or Cone Beam CT (CBCT) scans to aid in the diagnosis process. It is accepted that a CBCT can typically provide informative views and volume studies of the upper airway however, I primarily use MRI to diagnose TMJ damage. My MRI protocol requests sagittal, transverse and coronal views of the nasopharynx and oropharynx. Based on scan presentation and clinical data (sleep quality, snoring, nocturia, somnolence (Epworth/STOP BANG), I make a referral for a sleep medicine consultation if I have suspicion that Sleep Disordered Breathing (SDB) may be present. I explain to patients that in addition to treating the TMJ damage aspect of their facial pain that the sleep medicine consultation is necessary to know if there is an airway component to their pain presentation. I explain that their orofacial pain issue typically won't shorten their life expectancy but OSA statistically will. If OSA is present, then my efforts to manage their pain may produce a less than desirable result.

Obstructive sleep apnea and nocturnal parafunction appear related. One study states "obstructive sleep apnea was the highest risk factor for tooth grinding during sleep". In this same study, treating the OSA with CPAP eliminated the tooth grinding.



Normal TMJ MRI – closed & open



MRI – TMJ closed-anterior displaced disc

MRI – same TMJ with MAD

Sleep disordered breathing can adversely affect REM sleep. The reduction of REM sleep can increase a patient's pain level including pain from within the TMJs and orofacial pain.

The decision to manage OSA in the TMJ damaged patient with a MAD is really a factor of the TMJ diagnosis and the achievement of joint stability. An unstable TMJ damaged patient presents with TMJ/facial pain and/or changing jaw position (active bite changes). I do not advise the use of a MAD in an unstable TMJ patient. MAD therapy positions the condyle down and forward on the eminence. If there is effusion and/or active osseous change in the TMJ, placing potentially more stress on these structures could lead to increased instability. Some studies suggest that the presence of Temporomandibular Dysfuction (TMD) is a contraindication for MAD therapy and excluded these patients. Interim CPAP therapy would be advisable until stability can be achieved and verified along with appropriate management of the TMJ damage. I explain to patients that it isn't so much a matter of the TMJs being damaged – it is a matter of stability. In non-surgical TMJ damaged patients, I typically would recommend a MAD at some point in their airway management once stability is achieved. In fact, in the case of the anterior displaced disc that reduces with opening (clicks), by advancing the mandible forward the condyle can be placed back on the disc while the MAD is in place. (See MRI example above.)

It is essential that a patient use a morning positioner appropriately, upon removing the MAD after each and every time they use the MAD. If a morning positioner is not used, the risk of forming a posterior open bite (POB) increases. A POB is created with a change in jaw position, therefore a change in condyle position. This could potentially lead to instability in the TMJ.

Much has changed in the last 25 years for me. I now treat TMJ damaged/disease patients along with other orofacial pain patients, and I cannot manage my patients without considering airway. DSP

Orofacial pain issues typically won't shorten their life expectancy but OSA statistically will.

1. Oksenberg A, Aarons E, Reduction of sleep bruxism using a mandibular advancement device: an experimental controlled study. *Sleep Med.* Nov. 2002;3(6):513-515.
2. Roehrs T, Hyde M, Blaisdell M, Greenwald M, Roth T. Sleep loss and REM sleep loss are hyperalgesic. *SLEEP* 2006;29(2).
3. Sanders AE, Essick GK, Fillingim R, Knott C, Ohrbach R, Greenspan JD, Diatchenko L, Maixner W, Dubner R, Bair E, Miller VE, Slade GD. Sleep apnea symptoms and risk of temporomandibular disorder: OPPERA cohort. *J Dent Res.* Jul.2013;92(7 Suppl):70S-7S. doi: 10.1177/0022034513488140. Epub May 20, 2013.
4. Giannasi LC, Almeida FR, Magini M, Costa MS, de Oliveira CS, de Oliveira JC, Kalil Bussadori S, de Oliveira LV (2009) Systematic assessment of the impact of oral appliance therapy on the temporomandibular joint during treatment of obstructive sleep apnea: long-term evaluation. *Sleep Breath* 13(4):375-381.

Dr. Robert Grill *has been in practice in the Baltimore metropolitan area since 1983. Dr. Grill opened the TMJ/Facial Pain Center at it's present location, across the street from St. Joseph's Hospital, in Towson, Md. in 2008. Dr. Grill limits his practice to the diagnosis of Orofacial pain and Temporomandibular joint (TMJ) damage/disease, dental sleep medicine and complex restorative dentistry. Dr. Grill takes a comprehensive, evidence based approach to the diagnosis and management of his patients, providing individualized and compassionate care. Since 2014, Dr. Grill has been Adjunct Faculty Johns Hopkins School of Medicine, Department of Otolaryngology, Department of Dentistry teaching orofacial pain diagnosis and management in the dental residency program.*

Dr. Grill is a graduate of the University of Maryland School of Dentistry and received advanced training at the Mahan Facial Pain Center at the University of Florida, LSU Orofacial Pain, the Pankey Institute, The Piper Clinic, and the Dawson Center. Dr. Grill is a member of the American Dental Association, the American Equilibration Society, the American Association of Orofacial Pain, and the American Association of Dental Sleep Medicine. Dr. Grill was recognized as one of "America's Top Dentists 2009" from Consumer's Research Council of America and one of the "top local dentists" in Baltimore Magazine 2011.