

# Oral Appliance Therapy: The Value of Dental Expertise

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**KEYWORDS:** Oral appliance therapy (OAT), mandibular repositioning device (MRD), obstructive sleep apnea (OSA)

Oral appliances for the treatment of snoring and obstructive sleep apnea (OSA) have become an accepted therapeutic modality. Many medical providers involved in the diagnosis and treatment of this disorder have neglected the importance of involving a trained dentist and a dental facility in the process of providing treatment. The purpose is to point out the potential for unexpected dental conditions and avoidance of medical and legal complications encountered in a relatively straightforward clinical encounter for the fitting and construction of an oral appliance.

## CASE REPORT

J.M., a 65-year-old woman, was referred by a local sleep physician and presented for an initial oral appliance therapy (OAT) visit. This visit includes medical, sleep, and temporomandibular joint (TMJ) history reviews, and a comprehensive oral/ dental examination in accordance with the protocol of the Academy of Dental Sleep Medicine (ADSM), formerly the Sleep Disorders Dental Society. Dental

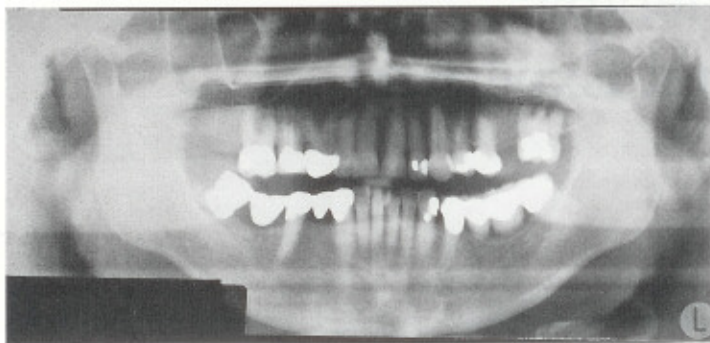
impressions with bite relations were also taken, at the time, for the trial procedures phase of the OAT process.

As part of the oral examination, a panoramic radiograph was secured (Fig. 1). Evaluation of this radiograph revealed a radiolucent appearance and lack of definition of the root of the terminal abutment of a lower right fixed bridge that replaced the mandibular right first bicuspid and first molar tooth. The patient was advised, and a periapical radiograph was taken to obtain a higher-resolution view of the abutment tooth. The radiograph (Fig. 2) demonstrated decay and resorption of root structure apical to the gingival level on this tooth.

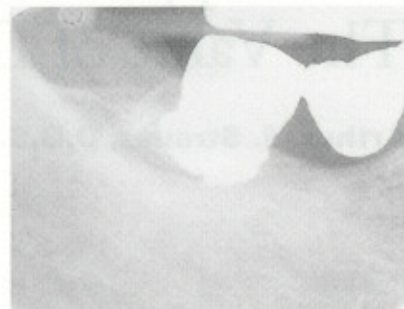
Upon clinical examination, it was noted that the carious lesion had separated the prosthetic crown from remainder of the underlying root. The patient was advised of the inevitable loss of the most posterior abutment tooth and with it a portion of the complete fixed bridge. To prevent removal of the fixed bridge during this impression visit severe undercuts were blocked out with wax.

At the second visit, the trial mandibular repositioning device (TMRD) was inserted. When the trial appliance was removed, it was noted that

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**Figure 1** Panoramic radiograph showing apparent missing tooth roots of mandibular right distal bridge abutment.



**Figure 2** Periapical radiograph of distal abutment with apparent root tip toward the distal.

the bridge was contained within the appliance. The bridge was sectioned and re-cemented, and TMRD was modified and refitted. The patient was referred back to her primary dentist to have the remaining root of that original most posterior abutment tooth removed.

J.M. was able to continue with trial procedures and decide on management of her current dental condition. The outcome of her decision will impact her definitive oral appliance design.

Because both the patient and author were aware of the dental problem prior to construction of the trial appliance the possibility of ingestion or aspiration of a fixed bridge was potentially prevented and, by extension, the potential for medical or legal complications.

## DISCUSSION

At the very least, a diagnosis of a potentially injurious dental problem condition was made and the patient informed before impression or treatment procedures were initiated.

Options that might be considered in light of the initial encounter with the dental sleep specialist include (1) ending the appointment and returning the patient to her primary dentist for treatment of

the problem before resuming OAT, and (2) proceeding with the appointment and trial procedures with management of potential complications.

Because construction of the trial oral appliance was proceeding in a dental office, the expertise, materials, and equipment were available to deal with the loss of a fixed bridge during impression-taking or appliance placement. The patient, who had been made aware of the possibility of dental complications, was appreciative that any such problems could be treated and could make an informed decision to continue with treatment.

Without radiographs, appropriate interpretation, and a dental examination, the potential exists for unforeseen removal and potential aspiration or ingestion of a dental prosthesis while separating an impression or a "boil-and-bite"-type mandibular repositioning device (MRD) from the mouth. This can also occur while either a trial or definitive MRD is seated in the mouth. Unless the practitioner completely understands the existing dental disease conditions and possibility of loss of an existing prosthetic device the potential for an adverse outcome or possibly litigation exists.

It is likely that a dentist well trained in OAT has the expertise to anticipate and manage the complexities inherent in this discipline. In a dental facility, the dentist can obtain and diagnose the appropriate radiographs, attempt to avoid problems

during impression-taking, and modify and/or re-cement crowns or fixed bridges, should that become necessary.

Some oral appliance manufacturers have advocated the fabrication and/or fitting of oral appliances by physicians or other non-dentists. Potential complications are omitted, overlooked, or downplayed. The dental sleep disorders specialist and the Academy of Dental Sleep Medicine are there to help develop treatment options, as well as avoid complications in the management of snoring and obstructive sleep apnea hypopnea syndrome.

#### EDITORS' NOTE

The Academy of Dental Sleep Medicine (formerly the Sleep Disorders Dental Society) has established a credentialing examination for dentists interested in oral appliance therapy. Physicians can be assured that credentialed dentists have completed advanced training and education in sleep medicine and oral appliance therapy and have passed a rigorous examination.