

# THE CLUES BEHIND BRUXISM

With a detective's observation skills, identify warning signs in patients' occlusion.

**H**ygienists must think like detectives. As our patients' first point of contact, hygienists are often the first to collect and analyze clinical data on each patient to determine medical history concerns, along with periodontal and dental disease. Hygienists must piece the clues together and begin to solve the mystery within every patient.

As research progresses and new theories and technology emerge, the sphere of dental health grows wider and wider. One area receiving much focus today is occlusion. According to the American Dental Association, 95 percent of Americans experience bruxism at some point in their lives. As the demand for cosmetic dentistry rises dramatically, the need for proper detection and correction of malocclusion and parafunctional habits is enormous.

Of course, a thorough and meticulous exam must take place in order to uncover all these clues. Like a detective, don't leave any stone unturned. We need to utilize all the investigative tools available. These include radiographs, periodontal probes, explorers, articulating paper, and advanced occlusal analysis technology.

Herein lies our "case." Bruxism is defined as the unconscious habit of grinding or grinding teeth, and is one of the leading causes of tooth destruction. The need for comprehensive rehabilitation often comes as a result of excessive wear caused by



abnormal grinding and clenching. Let's look at some of the clues that often present themselves during a very thorough dental hygiene exam. Be sure to make note of these clues, as they warrant further investigation. Once we have gathered all the evidence, we will look at possible solutions to solve this "crime."

## **Clue No. 1**

Flat canines provide an immediate red flag for tooth grinding. Aside from having the patient tell you that he or she grinds, there aren't many more clues that are this easy to follow. As the teeth grind, they move in laterally excursive motions. Canines are originally designed to be the guiding force of tooth movement. Canines with well-defined incisal edges guide the teeth apart in order to protect molars from constant occlusal trauma. From the excessive motions associated with bruxing, the incisal anatomy is often the first to go. Once this happens, all the remaining teeth take more pressure and force, resulting in excessive wear on all teeth.

## **Clue No. 2**

Abfraction is a relatively new concept and remains somewhat controversial. The prevailing theory is that abfraction is the result of excessive occlusal forces. It is defined as loss of tooth structure in the cervical region.<sup>1</sup> More specifically, one theory states that abfraction is the result of excessive occlusal loading that disturbs the bonds between hydroxyapatite crystals, resulting in loss of cervical enamel.<sup>1</sup>

More research is needed to confirm this theory. Research does exist, however, to support the relationship between abfraction and wear facets and canine disclusion.<sup>2</sup> When abfraction is evident, be aware of possible occlusal trauma, including bruxism.

## **Clue No. 3**

As super-sleuths, top hygienists often spend 15 to 20 minutes of their appointment time in detection and diag-

## **TOP 10 CLUES FOR DETECTING BRUXISM**

- 1 Flat canines**
- 2 Abfraction**
- 3 Popping, clicking, and pain in TMJ**
- 4 Frequent headaches and/or migraines**
- 5 Chipped, worn incisal edges**
- 6 Worn cusp tips**
- 7 Isolated bone loss**
- 8 Cracked teeth**
- 9 Broken restorations**
- 10 Patient indicates stress and anxiety, or state they grind or clench**

nosis mode. This time is often spent performing an intraoral/extraoral cancer exam, a complete periodontal examination, and occlusal analysis. Part of a five-star extraoral exam includes palpating the TMJ.

A great way to accomplish this is to place the fingers on the face in the area of the joint. Ask the patient to open as wide as possible and then to slide the jaw from left to right. Observe for crepitation, popping, and obvious discomfort. Ask yourself if the crepitus is bilateral or isolated to one side. Also, look for any movement of the joint from left to right upon opening.

While performing the TMJ exam, ask the patient if he or she is aware of any grinding or clenching habits, and whether anyone has ever suggested that they grind or clench. Also, ask if they frequently wake up with dull headaches and tightness in the jaw. These are good indicators of nighttime grinding.

Often, with the right appliance, these symptoms can be completely eliminated.

## **Clue No. 4**

Frequent dull headaches during the day and upon waking can be a strong signal of clenching and grinding. Migraines have been linked to nighttime tooth grinding. The use of the NTI appliance has shown great success in reducing occlusion-induced migraines.

## **Clue No. 5**

Along with flat canines, look for chipped and flattened incisal edges on the incisors.

As this wear progresses, there will also be a loss of vertical dimension. Loss of vertical dimension has huge implications for the future health of the entire dentition, the periodontium, and the TMJ. In addition, patients often seek cosmetic and restorative dentistry to repair teeth that have been damaged in this manner. The scalpel-less facelift often addresses the facial drooping that is a result of less-than-ideal vertical dimension.

# Bruxism

## Clue No. 6

Sharp cusp tips on molars are crucial for proper chewing and occlusion. Wear of the cusp tips often appears as shiny, yellowish areas on the occlusal surfaces of molars. These areas are often sensitive to touch with an explorer, and it is not uncommon for cracks to radiate from these worn spots. The destruction of the cusp tips may result in rapid loss of vertical dimension as the anterior teeth take on more stress from chewing.

## Clue No. 7

Isolated periodontal pocketing and bone loss require very close analysis. Hygienists play a key role in detecting the primary cause of localized bone destruction. First, examine the entire mouth to determine if this truly is an isolated problem. Then begin to weigh the evidence. Is the pocket bleeding? Is a faulty restoration the culprit? Don't forget, extreme occlusal trauma can produce widening of the periodontal ligament and bone loss.<sup>3</sup> Occlusal analysis must always be performed when there is an unusual site of bone loss.

## Clue No. 8

Cracked teeth can result from numerous sources of trauma. From weak tooth structure to excessive occlusal forces, cracked and broken teeth can become a source of discomfort for many patients and often require extensive restoration. Sometimes, tooth loss occurs in these cases. Use these clues to see if bruxing could be the culprit when presented with cracked tooth syndrome.

## Clue No. 9

Broken restorations are often a call to action for dental providers. This is an especially urgent topic when the breakage occurs on a relatively new restoration. Anyone who has ever attended a cosmetic continuum course knows that occlusion is of prime importance in cosmetic and rehab cases. They urge their students to understand that the success of their beautiful smiles relies on sound mechanical concepts. Dental care that results in a change in occlusion can often result in bruxism and unusual biting patterns. Premier cosmetic dentists focus much of their attention on the final occlusion of all restorations. In addition, patients who had grinding habits before extensive dental care usually continue to grind after their care is complete. It is imperative to provide these patients with an appliance to protect the health and longevity of the esthetic and functional restorations, as well as the supporting structures.

## Clue No. 10

Finally, ask patients if they grind or clench. The health history is a perfect place for this type of question. Also include questions about headaches and morning jaw dis-

comfort. So often, we fail to ask the right questions, assuming our patients will ask for what they need. This is often a false assumption. Make patients aware of the damage they are doing to their mouths and what the consequences are. Utilize printed patient education material as well as interactive educational sources, intraoral cameras, etc. If the teeth have suffered the effects of years of abuse, offer patients the best in cosmetic and restorative dentistry to restore proper occlusion and vertical dimension. It just might make them smile!

This Top 10 list reveals one more thing ... damage has already begun. Without treatment, bruxism can cause irreversible damage to tooth structure, leaving the dentition vulnerable to fractures, erosion, and even changes in facial appearance. Many patients do not realize that they grind, so it is up to the dental team to uncover the clues and make this discovery. When given all the information and treatment options, most patients are eager to begin preventive therapy immediately.

For years, the gold standard in treatment of bruxing has been the lab-fabricated bite guard. These guards prove highly effective. The challenge often faced by clinicians is the time and cost involved in creating such an appliance. There are many instances in which the patient needs a more immediate, cost-effective solution. If these needs are not met, the condition often goes untreated. Recent developments have brought a new answer to dentistry. Chairside options such as Dental Concepts' BruxGuard provide that immediate solution. The BruxGuard is a custom bite guard that can be fitted easily and accurately at chairside in minutes. The end result is a safe, comfortable and efficacious solution for patients who brux.

The key to solving the mystery of teeth grinding is to complete a comprehensive oral assessment. As the patients' first point of contact, the hygiene exam is the perfect place to start. The search for these clues adds mere seconds to your patient's appointment. It could add years to their smile!

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## References

- 1 Rees JS, Jagger DC. Abfraction lesions: myth or reality? *J Esthet Restor Dent.* 2003;15(5):263-71.
- 2 Miller N, Penaud J, Ambrosini P, Bisson-Boutelliez C, Briancon S. Analysis of etiologic factors and periodontal conditions involved with 309 abfractions. *J Clin Periodontol.* 2003 Sep;30(9):828-32.
- 3 Attanasio R. Nocturnal Bruxism and Its Clinical Management. *Temporomandibular Disorders and Orofacial Pain.* 0011-8532/91.