The Cracked Tooth Syndrome

Presented by Dr. John West to the Pierce County Dental Society (Tacoma, WA)

Do you have a favorite side that you chew on? Have you ever considered why you favor chewing on one side versus the other? Do you ever ask patients this question and why?

Imagine a new patient comes into your practice with a history of pain on chewing. The new patient isn’t really sure which tooth it is that hurts but is fairly sure it is somewhere on the lower right side. Initial clinical evaluation and findings appear normal so you ask your assistant to take a radiograph of the area. You go through your normal tests to determine which tooth, if any, is causing the symptoms. Palpation, percussion, periodontal probings, and pulpal tests are all normal. Further discussion with the patient reveals that these symptoms have been a problem for them for some time and they have seen several different dentists for the diagnosis. You decide that before you start considering drug seeking and/or psychosomatic disorders, you’ll review the radiograph. It appears within normal limits as well. Before you dismiss this patient’s symptoms, consider the Cracked Tooth Syndrome (CTS).

Cracked Tooth Syndrome (CTS) is both a transient and progressive condition which can be difficult to diagnose. Because CTS usually has a vital pulp, vitality tests and periapical radiographs have limited value as diagnostic aids. There are a number of possible causes and conditions which can present with pain on chewing or result in a patient favoring one side when chewing. Most of the more common conditions are well known and straight forward to diagnose. However, if the problem isn’t one of the more common conditions, then dentists need to consider cracked or fractured teeth. Proper diagnosis and early treatment of fractured and cracked teeth can prevent progression/spread of the crack and/or pulpal involvement.

Diagnosis of CTS can be tricky, but can be made simple. One method that has worked well for identifying the area of concern is with a “cotton wad.” While having the patient in a normal sitting position, simply instruct the patient to chew on a cotton wad about the size of a small piece of gum. Ask the patient to continue chewing and moving the “bolus” around until they are able to stimulate the pain they are describing. When they have found “the spot”, instruct the patient to remain biting and holding the cotton in the spot that is causing the pain. Identifying where they are experiencing the chewing pain can help narrow down which tooth may be causing their biting sensitivity.

There are several different classes of fractures in CTS which are outlined and detailed thoroughly in Dr. West’s article, published in Dentistry Today (see full article which is available on line and on the PCDS web site). The majority of fractures seen by general practitioners are class I and class II fractures. There are three main possible treatments following diagnosis of CTS and they all begin with splinting the tooth with either a cooper or orthodontic band or placing a temporary crown. These early treatment options are designed to prevent further spread of the cracks and allow the clinician the chance
to monitor the tooth and symptoms before a final restoration is placed. If all signs and symptoms resolve with the temporary treatment, no pain on biting and no signs of pulpal symptoms, then you’re ready to restore. If after temporizing the tooth with either a copper band, orthodontic band, or temporary crown, the patient is still having pain on biting and/or pulpal symptoms, then root canal treatment may be required. It is recommended to start the root canal treatment and monitor to insure that all symptoms resolve following temporizing the crown and starting the root canal treatment. Patients do need to be informed that CTS can result in loss of the tooth if symptoms continue due to the nature of the fractures and possible involvement of the periradicular structures and attachment involvement.

Cracked Tooth Syndrome is a complex and sometimes difficult to diagnose condition which may be contributing to pain on biting and patients favoring chewing on one side more than another. Early diagnosis is extremely important. As we know, cracks in teeth do not heal like cracks in bones. Like cracks in glass, cracks in teeth often start small and get bigger with time. With the aging process, more restorations being place, increased stress in our patients, natural and unnatural wear and tear, teeth will continue to be more susceptible to cracks and fractures in the future. Different types of fractures require different approaches for management.

When a patient complains of pain on chewing, consider the possibility that they are experiencing Cracked Tooth Syndrome and make sure that you are aware of how to diagnose and treat this condition. Remember to duplicate the patient’s symptom using the “cotton wad” test. Put the “sleuthing” responsibility on the patient. Give the patient the freedom to make their own chewing pain duplication test. Lastly, remember that the CTS tooth has a vital pulp yet hurts to bite and the diagnosis cannot be made with radiographs or pulp tests.