

Transillumination as an Aid in Diagnosing Fractures

Transillumination of tooth structure for fractures is a simple but valuable and under appreciated test. This easy, painless, and non-invasive test can be observed by a patient viewing the exam in a mirror or documented for the record with intraoral photography.

All patients with Cracked Tooth Syndrome (CTS) should have teeth in the area of complaint transilluminated. Patients presenting with CTS usually have a complaint of pain with occluding on hard foods, sometimes upon release from occlusion. CTS can result from a single traumatic occlusion episode or gradual fracturing from years of heavy occlusion or bruxing. Often, there is a cold sensitivity component to their complaint.

The process and result of transillumination is very simple for a patient to understand. First, illuminate a normal, non-fractured tooth, preferably one that has no restorations. Point out how the tooth “lights-up” uniformly like a light bulb. Any teeth with significant fractures will show a well define demarcation of blocked illumination at the fractured site. Shallow enamel fractures will be seen as craze lines over uniform illumination. Significant dentinal fractures will completely block light transmission at the fracture site.

Categorization for fractures can include a description of *location and depth*, i.e., (1) mesial and distal marginal ridges or buccal and lingual developmental grooves, (2) *dimension* – vertical or horizontal and (3) *extension* such as subgingival with or without probing.

Most root fractures actually have an origin in the crown, typically a marginal ridge. Cracked Tooth Syndrome is often associated with a buccal-lingual or mesial-distal fracture. Even after endodontic treatment and a timely placed full coverage restoration, the fracture can continue to “unzip” down the surface of the root and lead to a vertical root fracture. Documentation of fractures, especially with pictures or digital images, is important for prognosis and future diagnosis.

The *Microlux Transilluminator* by Addent is an excellent recommendation for a pen sized cordless unit with a high intensity LED focused glass fiber optic element. Product information: mail@addent.com. Phone (203) 778-0200. Approximately \$176.00. Use of a disposable plastic sleeve obviates any infection control issues.