

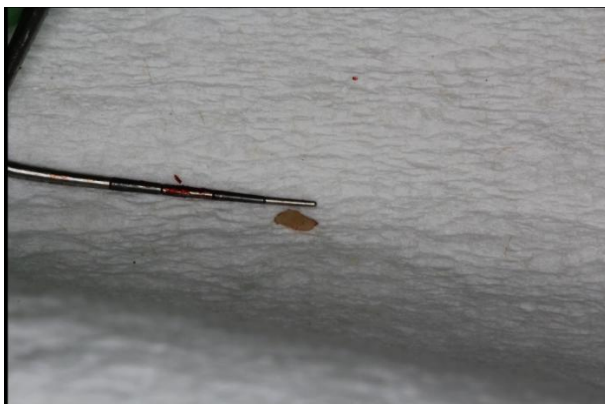
What on Earth is That?

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A seventy-six-year-old female presented to our office on referral with ongoing discomfort in the tooth #9 area. She reported having had root canal therapy on tooth #9 one year ago and thought the continued discomfort was secondary to the “ligaments” of the tooth being damaged during root canal therapy. Upon examination of tooth #9, it was revealed to have a 7mm probing depth at the mesial area with bleeding. Additionally, tooth #9 had grade one mobility, moderate wear secondary to bruxism/clenching habits, and superficial crazing.



The photograph and radiograph displayed above are pre-treatment views of tooth #9. The photograph reveals slight erythema at the tooth #9 apical area as well as moderate wear on the incisal edge. The radiograph shows severe bone loss at the mesial area with a protruding radiopaque fragment. The blue arrow highlights the fragment.





The above photograph is of the 3mm fragment removed from the mesial area of tooth #9 during exploratory and guided tissue regenerative corrective surgery. This fragment initiated an inflammatory reaction that caused bone loss for tooth #9 seen in the pretreatment radiograph. Without detection or removal of this fragment, the bone loss on tooth #9 would have continued to progress. It would have lessened the prognosis as well as the long-term preservation of tooth #9, perhaps even leading to its removal.

This fragment turned out to be a **Cemental Tear (CT)**. A CT is a relatively uncommon and often misdiagnosed condition involving the detachment of a cemental fragment from any surface or portion of the tooth root, typically accompanied by rapid and localized periodontal destruction. Because its clinical signs and symptoms are nonspecific, CT is commonly confused with vertical root fractures, failed endodontic therapy, or failed periodontal therapy. The condition shares overlapping clinical and imaging features with these other pathologies, complicating an accurate diagnosis and appropriate management. When radiographic signs and clinical symptoms are not correctly interpreted, clinicians may face diagnostic uncertainty, leading to unnecessary procedures, potential iatrogenic damage, and compromised oral health. Although the pathogenesis of a CT is not yet fully understood, several predisposing factors have been identified, including advanced age (over 60, possibly secondary to reduced cemental strength), tooth type (single rooted teeth), occlusal and dental trauma, non-vital teeth, and attrition. Management focuses on removing the detached cemental fragment, which acts as a local irritant and plaque reservoir and performing any necessary corrective periodontal procedures. The prognosis can be variable for these teeth, but early recognition and complete removal of the detached cemental fragment are essential. Anticipated clinical improvements with successful treatment include reduced probing depths, bone regeneration (especially with concurrent guided tissue regeneration), reduction in bleeding, and long-term stability.

¹.Silva-Filho et al. Cemental Tear: Systematic Review and Thematic Analysis of Clinical and Imaging Features with a Proposed Diagnostic Framework. J Endod. 2025. Article in Press.