

# THE EDITOR'S CORNER

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## The Risks of Root Resorption

One of the more comforting aspects of practicing orthodontics is that we see few complications of treatment in comparison with, say, our colleagues in oral and maxillofacial surgery. Surgical complications can be quite frightening, maybe even life-threatening: paresthesia, hemorrhage, airway compromise, or worse. The issues that we orthodontists have to deal with are relatively minor: soft-tissue irritation, broken appliances, patient noncompliance, and sometimes relapse. If a patient presents with soft-tissue irritation, you can clip the offending wire or supply wax to cover the irritating spot on the appliance. If a patient presents with a broken appliance, you can simply fix it or make a new one. In the case of relapse, you can retreat the patient. All these are straightforward, effective, and fairly predictable. On the other hand, patient noncompliance can be more frustrating and difficult to handle. Some practitioners seem to be geniuses at eliciting compliance, but it has always been an irksome problem to me. Overall, however, while cases have been reported in the literature of catastrophic complications—I remember one fatality—these horrific situations are few and far between.

The one common complication that we can do nothing to fix is the occurrence of orthodontically induced root resorption (OIRR), also referred to as external apical root resorption (EARR). In just about any case where the teeth have been moved more than a minimal amount, a close look at the periapical radiographs will reveal “blunting” of the roots—the telltale sign of root resorption. Although this has led many of us to

believe that resorption is an apical phenomenon, electron microscopic studies of extracted post-orthodontic teeth have revealed that resorption also occurs up and down the lateral root surfaces, primarily on the side to which the tooth was moved—the so-called “pressure side.” Given the location of this lateral root resorption, it will not be evident on a standard radiograph, thus obscuring the reality that any and all root surfaces can demonstrate OIRR-EARR. Root resorption is also a serious medicolegal concern, considering that it is the primary complaint in many orthodontic professional liability cases.

The degree of resorption that may occur with orthodontic treatment varies widely from patient to patient and is very difficult to predict. Difficult, but not impossible. In this issue of JCO, Drs. Ebrahim Al-Awadhi and Leah Finan present a thorough review of the literature on the risk factors for root resorption. While there are a number of common-sense causes listed in their tables, including force magnitude and rate of tooth movement, there are also some less obvious factors, such as patient age and medical conditions.

Even though there is essentially nothing we can do to repair root resorption, we can still exercise all due caution to prevent it as we progress through a treatment plan, especially in patients who present with a higher degree of risk. This month's article will be invaluable in making us aware of the demonstrated predictors of OIRR-EARR, thus allowing us to take the necessary precautions to minimize this unfortunately ubiquitous treatment complication. RGK