

# intracanal Adhesive Treatment and Intentional Replantation with Vertical Root Fracture using Zeiss EXTARO 300

I will present Zeiss EXTARO 300, a microscope with five built-in visual assist modes, released for sale in 2017.

This device allows for detecting the infected tooth substance with red fluorescence using the Fluorescence Mode, with the potential to visualize bacterial metabolism-generated protoporphyrin IX accumulation regions using a fluorescent excitation of 405 nm.

In dentistry, photodynamic diagnostic technology, identifying protoporphyrin IX accumulation regions in the bacterial infection-associated tooth substance, is applied in conserved regions. However, this technology has not been established globally in endodontic therapy, i.e., the field requiring microscopic support the most often. Therefore, we decided to confirm the efficacy of using the Fluorescence Mode of this Zeiss device for tooth fracture treatment.

Vertically fractured roots in the case of single-rooted teeth are usually treated with tooth extraction, and root resection in the case of multi-rooted teeth. Namely, no particular established treatment exists to preserve without the lacking part of the root fractured tooth. However, with the introduction of dental microscopy, CBCT, and adhesive treatment advancement, the intracanal adhesion technique with intentional replantation could be attempted in such difficult cases.

Root fracture treatment methods could be divided broadly into two types. One possible approach is fractured tooth extraction, followed by replantation upon contamination removal and adhering the fractured fragments together while the tooth is out of the mouth. The other possibility is non-surgical contamination removal from the inside of the root canal and fracture space, followed by adhering the fractured tooth fragments together.

In this case, I will present the intracanal adhesive treatment and intentional replantation method using Zeiss EXTARO 300.



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