



The influence of different access cavity designs on fracture strength in endodontically treated teeth

Young-Gyun Lee*, Kyung-Mo Cho, Jin-Woo Kim

Department of Conservative Dentistry, College of Dentistry, Kang Nung University, Kangnung, Korea

I. Objectives

It is generally agreed that endodontic success often depends on canal debridement, disinfection and canal obturation. Access opening to a canal is one of the key to canal debridement. Advantages of straight line access opening are allowed a greater proportion of the root canal walls to be prepared than conventional lingual access cavities, minimized the loss of the tooth structure, reduced incidence of file fracture in curved canals. The purpose of this study is determine the influence of different access opening methods on fracture strength in endodontically treated teeth.

II. Materials and Methods

48 extracted mandibular incisors are divided two groups (Group 1 : straight line access cavity, Group 2 : conventional lingual access cavity) and proceeded conventional endodontic treatment. After root canal treatment, teeth are filled with core material. According to core materials, extracted teeth are subdivided into two groups (Subgroup 1 : Z-250 with single bond , Subgroup 2 : Ti-core with single bond). An Instron testing machine applied controlled loads to the teeth at a cross head speed of 2mm/min. A device was made that allowed loading of the tooth at parallel to its long axis.

III. Results

There were no significant difference in fracture strength among the four groups.

IV. Conclusions

Within the limitations of this study, Straight line access opening did not affect fracture strength in endodontically treated mandibular incisors.