A COMPARATIVE ANALYSIS OF FRACTURE RESISTANCES OF NATURAL TEETH, ENDODONTICALLY TREATED TEETH AND POST AND CORE TREATED TEETH

by

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ABSTRACT

BACKGROUND AND OBJECTIVES: Post and core restorations are widely used to preserve the teeth which are grossly destructed after endodontic treatment. Natural teeth, endodontic teeth and teeth restored with post and core are all can be used for prosthetic reconstruction. The present study is undertaken to evaluate the fracture resistances and fracture patterns of natural teeth, endodontically and post-core treated teeth.

METHOD: 60 extracted human maxillary central incisors were grouped into three. All the samples were kept in normal saline. 20 teeth were kept without any endodontical intervention. Other 40 teeth were endodontically treated. All the samples were embedded in acrylic resin after simulating periodontal ligament. Out of these 40 endodontically treated teeth, 20 teeth were restored with post and core and then with crown. All the samples were individually tested for fracture resistance and fracture pattern using universal testing machine after placing samples in custom made attachment jig with a cross head speed of 2.5mm/min. fracture strength value and fracture pattern were noted and subjected to statistical analysis.

RESULTS: Natural teeth showed the maximum mean fracture strength among the groups followed by endodontically treated teeth and post and core treated teeth. Deference between means of three groups were statistically significant. The fracture patterns were not significant when compared between the groups.

INTERPRETATION AND CONCLUSION: Considering three groups, a highly significant difference in fracture strengths was observed between three groups. Natural teeth showed highest fracture strength when compared with other two groups. Teeth restored with post and core showed lowest fracture strength when compared with other two groups. When compared all three groups, the fracture patterns were not significant. Also the fracture patterns were not significant when compared between the groups.

KEY WORDS: fracture resistance, fracture pattern, endodontically treated teeth, post and core.