Influence of intraradicular restoration technique on the biomechanical behavior of upper canines

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PURPOSE

To assess stress distribution in endodontically treated upper canines subjected to cementation of two types of intraradicular retainers: cemented glass fiber post and anatomically shaped glass fiber post.

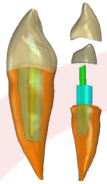
MATERIAL AND METHODS

Rhinoceros

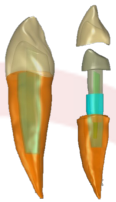
STL format model

Modeling of healthy tooth

Group A: Cemented glass fiber post

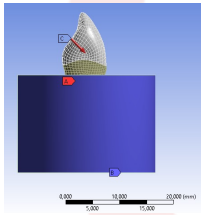


Group B: Anatomically shaped glass fiber post with composite resin



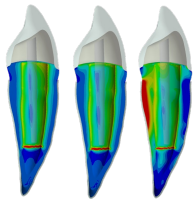
Ansys

Nodes and elements

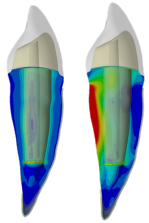


Application of a 100N force on the palatal surface above the cingulum region.

Group A

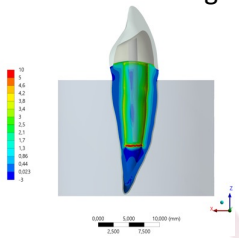


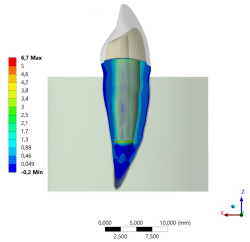
Group B



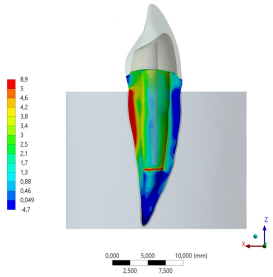
RESULTS

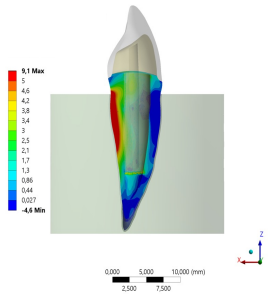
Polymerization shrinkage of both groups respectively - A and B





After applying the load in both groups respectively - A and B





CONCLUSION

There was a numerical difference between the two groups, where the anatomically shaped post technique showed the lowest stress peaks, indicating that prefabricated anatomically shaped glass fiber posts with composite resin are a viable rehabilitation option for endodontically treated teeth.

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