

بررسی استحکام شکست دندان های پست کراون شده با و بدون فرول

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Title: Evaluation of the fracture strength of the post – crowned teeth with and without ferrule

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Introduction:

Various factors affect the distribution of stress and fracture resistance of restored teeth by post and core. One of the major causes is the remaining body of the teeth, (ferrule) which was embraced by crown. The purpose of this study was to asses the effect of developing the ferrule via a crown lengthening procedure, on the fracture strength of endodontically treated teeth.

Materials & Methods:

24 recently extracted second premolar of mandible were selected in this descriptive study and their crowns were cut so far that no more than 15 mm of the root remained. Then they were divided randomly into two groups of 12 and their canals were undergone root canal therapy. In the first group, a post-core and full metal crowns were made without ferrule, while in the second group with changing in the optimum ratio of the crown/root height, 2mm ferrule was disigned and then the cast post- core and full-metal crowns were made. Finally, in both groups, a compressive load with 1 mm per minute speed and an angle to 150 on the long axis of the tooth was applied. The force was exerted in mesial marginal ridge, in 7 teeth and on the buccal cusp edge in the other 5 teeth to induce fracture. Statistical analysis of the data was performed with student t-test, chi-square and two-way ANOVA analyses.

Results:

1. There was a significant difference between the mean of fracture load in the ferrule and non-ferrule groups ($P < 0.001$).
2. No significant difference in the mean fracture load was observed when the load was applied in the buccal-cusp edge instead of mesial marginal ridge.

Conclusion:

By adding a 2 mm cervical ferrule on top of the finishing line of mandibular premolars restored by cast post-core and crown, we can increase the fracture resistance of these teeth.

Key words:

Post crown, fracture strength, ferrule effect.

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چکیده

مقدمه:

عوامل متعددی بر توزیع تنش و استحکام شکست دندان های بازسازی شده با پست و کور تأثیر دارد. یکی از مهم ترین این عوامل میزان نسج باقی مانده دندان بالای مارجین تراش می باشد. هدف از این تحقیق بررسی تاثیر ایجاد فرول از طریق افزایش طول تاج کلینیکی بر روی استحکام شکست دندانهای معالجه ریشه شده می باشد.

مواد و روش ها:

در این مطالعه تجربی - آزمایشگاهی برای اجرای طرح، ۲۴ دندان پره مولر دوم پایین انتخاب شدند و تاج تمام آنها به اندازه ای قطع شد تا میزان ریشه باقیمانده ۱۵ میلی متر باشد. سپس به صورت تصادفی به دو گروه ۱۲ تایی تقسیم و درمان ریشه شدند.