

Abstract:**Comparison of canal filling and push-out bond strength in two methods of single cone root canal filling With cold lateral compression using AH plus and beta RCS and MTA Endo seal****Introduction:**

Due to the widespread use of bio ceramic sealers and the need to compare the bond strength of these sealers with conventional resin sealers , this study was performed to compare canal filling and push-out bond strength with AH plus , beta RCS and MTA Endo seal sealers in two methods of canal filling single cone and cold lateral compression.

Material and methods:

In this laboratory study, the root canals of 72 single canal anterior teeth, using the modified crown down. Method with rotary files of taper system up to F3# as a master apical file (MAF) is prepared and they Accidentally divided into groups A and B according to the canal filling methods.in group A, the root canals were filled with single cone method and in group B, the canals were filled with gutta-percha using with cold lateral compression method. In both groups, the samples were randomly divided in to sub groups 1, 2 and 3.each containing 12 samples. AH plus, Endo seal MTA and beta RCS were used in each of these sealers respectively. The quality of complete root saturation was assessed by periapical radiography values filled with gutta-percha, sealers and void were converted into percentage using software image J(national institutes of health , public domain).the push-out test was performed on the samples by a universal device. After collecting data, analysis of variance was analyzed using a test and p value was considered less than 0.05 Significant.

Results:

The results showed that the highest amount of push-out bond strength in lateral compression technique was estimate in AH plus , MTA Endo seal , beta RCS and in single cone technique , the highest values were estimated in MTA Endo seal , Ah plus and beta RCS sealers. Also the amount of push-out bond strength in single cone technique was (10.51 ± 5.3) more than cold lateral compaction technique (6.36 ± 3) , $(P < 0.05)$.there were no significant difference in the percentage of gutta-percha and sealer with types of sealers studies in two cold lateral compression techniques and single cone. however, the filling rate in the Endo seal MTA sealers was lower than AH plus and beta RCS $(P < 0.05)$ and the amount of void in single cone technique (1.43 ± 0.747) was less than the cold lateral compression (1.82 ± 0.469) , $(p = 0.003)$.

Conclusion:

The high value of push-out bond strength in cold lateral compression technique and lower amount of void in the AH plus sealer , showed that this canal filling methods should still be considered as a gold standard of canal filling methods.

Keywords:

Push-out bond strength, cold lateral technique, single cone technique