COMPARATIVE EVALUATION OF PENETRATION DEPTH AND PUSH-OUT BOND STRENGTH OF C POINTS & GUTTA PERCHA USING BIOCERAMIC & AH PLUS SEALER – AN INVITRO STUDY.

ABSTRACT:

AIM:

To compare & evaluate the penetration depth and push-out bond strength of C points & Gutta percha using Bio-ceramic and AH Plus root canal sealer – an invitro study.

METHODOLGY:

Eighty single-rooted mandibular premolars were selected. Teeth were decoroanated & standardized root length of 15 mm was obtained. Instrumentation & irrigation were performed. The teeth were divided into four groups; Group I (C Points with Bioceramic sealer), Group II (C Points with AH plus sealer), Group III (Gutta percha with Bioceramic sealer) & Group IV (Gutta percha with AH plus sealer). Obturation was done with 0.1% Rhodamine-B fluorescent dye mixed with the sealer. Each sample was sectioned horizontally into 2 mm thick slices of each of the three thirds (coronal, middle & apical). The sectioned teeth were viewed under Confocal laser microscope for penetration depth of the sealer into the dentinal tubules. The push-out bond strength of each specimen was calculated using Universal Testing Machine. The statistical analysis was done using one-way analysis of variance (ANOVA) & the post hoc Tukey’s test, with significance set at p < 0.05.

RESULT:

Regarding the penetration depth, the results of the present study showed that there is no statistically significant difference among the four groups in any of the regions. Regarding the push-out bond strength, except in the coronal third [where there is significant
difference between Group I: C points with Bioceramic sealer & Group II: C points with AH plus sealer], there is no statistically significant difference in the push-out bond strength results among the groups in all the thirds of root.

CONCLUSION:

1. The present study showed that the depth of penetration can be directly correlated with the bond strength, but not with all sealers & core materials.

2. Within the limitations of this study, it can be concluded that Bioceramic (MTA plus) sealer with C points showed greater penetration depth & greater bond strength.