ABSTRACT

AIM:

To evaluate the effect of a single application of light curable fluoride varnish (Clinpro XT) on enamel demineralization adjacent to orthodontic brackets during fixed orthodontic treatment at different time intervals using scanning electron microscopy (SEM) and Electron Dispersive X ray analysis (EDAX)

MATERIALS AND METHODS:

The study and controls were randomly allotted on either side of both arches. After conventional bonding procedure, light curable fluoride varnish was applied around the bracket on the buccal surface of the study side premolars. A 0.014NiTi arch wire were placed immediately. Brackets were debonded at 60 days in mandible and 90 days in the maxilla. The samples were then subjected to scanning electron microscopy (SEM) and electron dispersive X-ray analysis (EDAX) analysis.

RESULTS:

SEM examination of the enamel surface of the study group revealed almost normal topographic features of enamel. There were globules of calcium fluoride like material irregularly distributed over enamel surface. SEM observation of the enamel surface in control groups revealed roughened enamel surface with
multiple areas of enamel erosion. Various patterns of enamel decalcification were observed in the form of open focal holes and demineralization of enamel rod core. A statistically significant increase in the weight percentage of sodium, aluminum, fluoride, magnesium and iron was noted in the study group when compared to that of the control group. The difference in weight percentage of elemental oxygen, chlorine, silicon and Calcium-Phosphorus ration was statistically insignificant.

**CONCLUSION:**

The results of our study showed that a single application of light curable fluoride varnish (Clinpro-XT) may prevent demineralization. The light curable fluoride varnish (LCFV) may be used in non-compliant patients as a cariostatic agent in long term clinical situation.

**KEY WORDS:** White spot lesions, Fluoride varnish, SEM, EDAX