introduced by Schroeder in 1957 have the advantage of better adherence to tooth structure. AH26 is an epoxy resin based sealer that contains BisGMA resin which polymerises due to catalyst hexamethylene tetramine and bismuth oxide as radio opacifier. To make the sealer non-staining and to reduce its toxicity to periapical tissues silver was deleted from original formula and marketed as AH26/silver free in 1983. The advantages are good working characteristics, dimensionally stable, antibacterial activity due to release of formaldehyde during setting. The sealer shows high cytotoxicity in first 48 hours until it is set but is not cytotoxic once it is set.

Though numerous studies have been carried out with AH26, very little data about AH26/silver free is available. Hence the aim of the present study was to compare the apical sealing ability of resin based root canal sealer AH26/silver free with a zinc oxide eugenol based sealer, Tubliiseal.

MATERIALS AND METHODS

Fifty non-carious single rooted human teeth extracted for orthodontic purpose or due to periodontal reasons were collected. The teeth were stored in normal saline soon after extraction. Prior to the beginning of the study the teeth were kept in 5.25% sodium hypochlorite solution for 24 hours, rinsed with water. Pre-operative radiographs were taken and those teeth with incomplete apex formation, evidence of root fracture, more than one canal, bifurcating canals, curvature>5 degrees ribbon shaped canals or extreme calcifications were discarded. Finally 30 teeth were used in the study.

Standard access cavities were prepared using a round ended tapered fissure diamond bur and no. 2 and 4 round bur with a high speed handpiece. Working lengths were designated as one mm short of the point at which a no. 10 file exited the apical foramen. Any pulpal debris in the root canal were removed with a barbed broach. The canals were enlarged to size of 40 K-file. The canals were irrigated with 1 ml of 3% sodium hypochlorite solution after each instrument. Coronal flaring was accomplished using stepback technique and Gates-Glidden burs no. 2 & 3. Throughout the cleaning and shaping procedures apical patency was maintained by recapitulation with no. 10 file. All teeth were instrumented in same manner by one operator. The canals are dried with paper points and were obturated using lateral condensation technique. Before obturation, the teeth were divided into three groups of ten each.

Group 1 : Obturation was done using Tubliiseal (Kerr corporation, Michigan) as root canal sealer.

Group 2 : Obturation was done using AH26/silverfree (Dentsply Detrey, GmbH Germany) as root canal sealer

Group 3 : No sealer was used

The sealers were mixed according to manufacturers instructions. They were placed in the canal using a lentulospiral, kept 3-4mm short of working length. This process was repeated thrice so that adequate amount of sealer was placed in root canal. The master gutta percha point was coated with sealer and sealed in the canal to the full working length. The lateral condensation was then completed using accessory gutta percha points. Excess gutta percha was removed and the gutta percha in the coronal third of the canal was vertically condensed with a plugger. the access cavities were sealed with cavity. Obturation was verified with radiographs. Obturation was considered to be adequate when no voids were discernible and all visible canal spaces were filled completely. If the obturation appeared to be inadequate, the root canal filling was removed and the canal was refilled.

All samples were kept in 100% humidity at 37°C for one week. At this stage, the teeth in group 3 were divided into two groups of five each - negative and positive control group. Teeth in the negative control group were coated with two coats of nail polish. The teeth in positive group