A COMPARATIVE EVALUATION OF SEALING ABILITY OF ROOT CANAL SEALERS

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ABSTRACT: The importance of apical seal has always been stressed in endodontic therapy. Root canal sealers have been used along with gutta percha to enhance the seal. The apical sealing ability of AH26/silverfree, a modified version of AH26, a resin based sealer was compared with Tubiseal, a zinc oxide eugenol based sealer using methylene blue dye penetration method. AH26/silverfree showed superior sealing ability.

INTRODUCTION

The success of endodontic therapy depends on a thorough biomechanical preparation for the removal of necrotic debris and bacteria from the canal followed by obturation of canal space to prevent further ingress of bacterial and tissue fluids. Dow and Ingle (1955)¹ suggested that the cause for failure of root canal therapy is apical percolation or microleakage due to inadequate apical seal. This allows periapical fluids, protein and bacterial access to the canal. Due to this inflammatory response is initiated in the periapical area, often resulting in radiographic and clinical signs of failure of root canal therapy. It follows then, that effective endodontic obturation must provide a dimensionally stable, impermeable seal that will prevent transmission or communication of fluids¹.

Gutta percha, commonly advocated obturation material for permanent teeth has no adhesive qualities to dentin regardless of the obturation technique used. Hence sealers are used as binding agent and as lubricant during obturation².

Many sealers are available for use in root canals. The most common sealers are calcium hydroxide, zinc oxide eugenol, resin based and glass ionomer based³⁴.

Zinc oxide eugenol based sealers have been widely used and have been shown to have satisfactory sealing abilities. They are often used as standard in comparing with other sealers⁵. The original zinc oxide eugenol based sealer was developed by Rickert (1933)⁶ and marketed as Kerr’s root canal sealer. Since it fell into disfavour because of staining, a non-staining sealer, Tubiseal was developed. Marketed as two paste system, its base paste contains zinc oxide, barium sulphate as radio opacifier, mineral oil and oleoresins for good plasticity and the catalyst paste contains eugenol. The advantages are lubricating properties, plasticity and also antibacterial and obtundant properties due to its eugenol content⁷.

Resin based sealers which were

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