

3936362 DTOP/M : MAJOR : OPERATIVE DENTISTRY ;
M.Sc. (OPERATIVE DENTISTRY)

KEY WORD : PULPAL RESPONSE, DENTAL SILVER AMALGAM,
AMALGAM BOND

PISOL SENAWONGSE : PULPAL RESPONSE TO DENTAL SILVER
AMALGAM AND AMALGAM BOND. THESIS ADVISOR : CHOLTACHIA
HARNIRATTISAI D.D.S., Ph.D., AMARA MUANGMINGSUK D.D.S., M.S.,
WORANUT WEERAPRADIST D.D.S., M.S., CHATCHAREE
SUCHARTLAMPONG, D.D.S., M.Phil. p.143 ISBN 974-663-152-7

This study was divided into 2 parts. The purpose of part I was to determine the pulpal response to an experimental dental silver amalgam (T1) compared to a commercial product in human teeth. One hundred and nine buccal class V cavities were prepared and observed at 3, 30 and 90 days. At each period, at least 7 teeth were restored with either 1) Silicate (S.S. White Co), 2) IRM (Dentsply Co), 3) Spherical D (Shofu Co) the surface sealed with IRM or 4) T1 (Mahidol U) sealed the surface with IRM. IRM and Silicate were used as controls. The teeth were extracted after 3 days, 30 days and 90 days, sectioned, stained with H&E, Brown & Brenn and Messon Trichrome stain and were evaluated for inflammatory response and bacterial penetration. At 3 days, none to slight inflammation was found in more than half of the specimens in all groups with no statistical difference between materials. At 30 days and 90 days, statistical difference was found only between Silicate and the other materials. No statistical difference was found between IRM, Spherical D the surface sealed with IRM and T1 the surface sealed with IRM. This suggested that pulpal response to Spherical D and T1 were not different from the negative control and safe to be used in clinical practice. Part II of this study evaluated the pulpal response to high copper amalgam restoration using a copal varnish, a resin-modified glass-ionomer cement and a dual cure adhesive system as a base/lining material in human teeth. One hundred and twenty-eight class V cavities were prepared and observed as in part I. At each time period, at least 7 teeth were lined with either a copal varnish, Vitremer (3M Co) or Scotchbond Multipurpose Plus (3M Co) according to the manufacturers' instruction before the experimental high copper amalgam alloy (T1) was triturated and condensed into the cavity. IRM and Silicate from the usage test in part I were used as control groups. All specimens were processed for histological evaluation. At 3 days, slight to moderate inflammations were found in half of the specimens lined with copal varnish and Scotchbond Multipurpose Plus. Inflammation increased at 30 days and decreased at 90 days in groups lined with varnish with the presence of bacteria in most specimens. Inflammation was markedly reduced at 30 days and 90 days in group lined with Scotchbond Multipurpose Plus without bacteria penetration except 1 specimen at 90 days. In all specimens of the group lined with Vitremer showed no inflammation and bacterial penetration at any time periods which were similar to the IRM control. This study suggests that the Vitremer and Scotchbond Multipurpose Plus may prevent bacterial penetration and pulpal inflammation when used under an amalgam restoration.