

BONDING AMALGAM AND COMPOSITE TO DENTIN OF PRIMARY MOLARS BY USING DIFFERENT BONDING AGENTS

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ABSTRACT

This study was designed to compare the shear bond strength of amalgam and composite resin bonded with Imperva and Mirage ABC adhesive systems. Also, clinical evaluation of amalgam and composite restorations bonded with the same adhesives every 3 months for a period of 9 months was carried out.

For the laboratory part of this study eighty shed primary sound molars were divided to four groups where amalgam bonded to dentin and composite bonded to dentin using both previous adhesives respectively were tested for shear bond strength. For the clinical part of this study thirty children (4-8 years) with pairs of carious contralateral lower primary molars were divided into two main groups (Amalgam group (A), Composite group (B)). They were further subdivided according to the bonding material used (Imperva or Mirage respectively). Follow up of the restorations was performed clinically after 3, 6 and nine months following the Ryge criteria rating which includes colour match, anatomic form, recurrent carries, marginal adaptation and cavo surface marginal discolouration. Results showed that bonded restorations exhibited high clinical performance throughout the study. Imperva Bond as an adhesive liner in primary molars showed more clinical success than those bonded with Mirage Bond.

INTRODUCTION :

The restoration of carious lesions in primary and young permanent teeth continues to be among the most important services that paediatric dentists and general practitioners provide for the children in their practices⁽¹⁾. Major problems associated with dental amalgam restorations were marginal leakage and marginal breakdown because of the lack of adhesion to cavity walls⁽²⁾. With composite restorations polymerization contraction occurs as the material cures, forming marginal micro gaps⁽³⁾. Development of new adhesives offer the dentist a variety of new forms of treatment which were dif-

ficult or impossible to perform without chemical adhesion to the tooth structure. Materials are available which bond to natural tooth tissues, alloys and ceramics⁽²⁾.

The fourth-generation of dentin adhesives appeared in the early 1990s and is still widely used. The bonding mechanism of the fourth-generation adhesive systems is a three-step process; conditioning, priming and bonding.⁽⁴⁾

Recently, a new type of bonding system has been introduced which combines all three functions, the so called self-conditioning primer-

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