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ARRESTING CARIES IN ENAMEL BY KETAC BOND MATERIAL AS A SEALANT

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Introduction:

Since glass ionomer cement was introduced in dentistry[1], it has mainly been used as a filling, cementing, and lining material. Only few reports have been published on glass ionomer cements for fissure sealing[2-8], but it has been suggested that its fluoride release[9,10] and the adherence to the enamel[11,12] may be suitable for the purpose.

The capacity of a sealant to prevent microleakage into the fissure is important, since microleakage may support a carious process underneath the sealant[13,14]. A study was conducted to investigate if microleakage occurs in fissures after being sealed with a glass ionomer cement (Fuji III). The study indicated that Fuji III was poorly retained in the fissures, and that the material permits leakage even when it is fully retained. The material may however, prevent caries by release of fluorides, and the fact that remnants of cement were found in fissures which clinically seemed to have lost it, indicates that this may even occur in cases with loss of retention[15]. Clinical effectiveness of a BIS-GMA fissure sealant versus Fuji III glass ionomer pit and fissure sealant was also evaluated[16]. A comparison of this study's six-month complete retention rates of 92.2%

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for the Concise light cured sealant and 1.7% for the Fuji III after sic months suggested that the routine clinical use of the Fuji III glass ionomer as a fissure sealant was unreliable at this time. Smith stated that "one problem with the present filling glass ionomer cements is that they are too brittle to be used in shallow lesions"[17].

The long-term efficacy of resin fissure sealants has been well docomented in the dental literature. Mertz Fairhurst, in a six-year clinical trial of two fissure sealants reported complete retention in 68% of Delton treated teeth and 37% of Nuva-Seal treated teeth after six years[18]. Houpt has also published six-year data on Delton stating that almost 60% of sealed sites remained protected after six years with an overall 56% effectiveness in reducing caries[19].

Sealants have been clinically proved to prevent and even arrest caries[20-28]. Sealants have been accepted as more effective caries-preventive agents than amalgam, thus making the concept of extension for prevention obsolete for amalgam Class I restorations. Sealants do not require any mechanical removal of sound tooth structure and preserve this integrity of the intact tooth. Among 14 patients treated, one bilateral occlusal carious lesion was sealed and the other lesion was left open as a control. The control lesions showed patterns of sudden increases in cavity depth, as well as evidence of being active bacteriologically, whereas, with one exception, the sealed lesions were inactive bacteriologically. The residual carious material in the sealed lesions suggested a complete cessation of the carious process. No clinical or radiographic signs were seen to suggest that the health of the sealed tooth had been compromised[28]. Two year clinical paired occlusal restorations were evaluated. Each study participant received a sealed composite restoration placed over a carious lesion and either a traditional outline-form unsealed amalgam or an ultraconservative sealed amalgam restoration. Caries was removed before placement of both types of amalgam restorations. No important clinical differences developed among the three groups of restorations[29].

The use of glass ionomer cement as a sealant may perhaps be viewed as a further improvement in the technique. One of the main advantages in clinical practice in the use of glass ionomer cements relates to their ability to bond chemically to dentin and enamel[30]. This, in conjunction with active fluoride release into the surrounding

الملخص العربى

ايقاف التسويس فى مينا الاسنان باستعمال مادة (كتاك بوند)

اجرى هذا البحث على ١٦ طفلا تتراوح اعمارهم بين ٧ و ١١ سنة ، لديهم تسوس مبدئى فى مينا السطح الاطباق فى الطاحن الأول السفلى الدائم من الجانبين ، وليس لديهم أى تسوس فى أى سطح آخر .

وقد اخذت عينات بكتريولوجية عند بداية البحث وفى نهاية البحث بعد عام من استعمال مادة (كتاك بوند) من اسنان الاختبار . كذلك اخذت عينات بكتريولوجية كل اربعة أشهر من اسنان المجموعة الحاكمة لمدة عام .

وكانت نتيجة البحث انه أمكن ايقاف التسوس فى مينا الاسنان المستخدم فيها مادة (كتاك بوند) كطلاء وقائى حيث وجد ان ١٣ حالة كانت العينات البكتريولوجية فيها خالية من البكتريا . وقد حدثت زيادة فى حدة التسوس فى الاسنان التى لم تستعمل فيها مادة الـ (كتاك بوند) .