非線式排齦法的活體試驗

Cordless method for gingival sulcus management—in vivo study

中文摘要

義齒贗復物之邊緣密合度與萌出外形，不僅影響病患裝牙後之美觀，更對其齲齒之復發與引發牙周刺激有密切關係，為使完成線得以被疏水性的印模材精確的複製，而倒模時不易變形，以往需藉由排齦線的操作來控制牙齦溝出血，並擴大牙齦溝，由於傳統排齦線在操作上不僅耗時且易鬆脫，倘若施力不當將導致日後牙齦之萎縮現象，本研究之目的在研發新型之可注射式排齦材料，並透過動物試驗評估不同配方組成之排齦效果，研究機械-化學方式對排齦之影響，並結合人體試驗以探討臨床使用的可行性。研發之排齦材料其黏度為 42McP，配方之一不添加收斂劑，另一種配方則添加 7%氯化鋁收斂劑，經過米格魯犬的動物實驗評估，兩種配方均可以有良好的出血控制與適度的排開邊緣牙齦，滿足 0.5mm 的印模寬度之基本要求；此外在實驗中使用添加收斂劑的排齦線會使牙齦退縮，而注射式排齦方式則不會造成牙齦萎縮（ANOVA：P<0.05； LSD：P<0.05）。在人體試驗中證實本排齦材料配方與施予方式，能適當地擴大牙齦溝寬度且不會造成牙齦萎縮；並藉由問卷評估操作時與操作後患者的舒適度，綜合牙醫師客觀的觀察與患者主觀的自述，顯示出本材料在排齦應用時，其施予過程中之疼痛程度與出血的控制均優於傳統的排齦線（Kruskal-Wallis test：P<0.05；Dunn’s procedure：P<0.004）。

英文摘要

Fixed prosthesis fabrication requires detailed and precise impression. Impression especially along the subgingival margin is critical to the marginal fit and emergence profile of the prosthesis. In order to accurately record the subgingival margin, retraction cord is frequently used by dental practitioners to retract the gingival tissue and control gingival fluid and bleeding. The patient’s gingival sulcus should be enlarged moderately to allow the hydrophobic impression material to duplicate the prepared margin precisely. The impression material must possess adequate thickness to resist the deformation when dental stone is poured. However, traditional gingival retraction method is inconvenient, time-consuming, loosens easily, and uncomfortable, painful for the patient. When inappropriately manipulated, it will lead to future gingival recession and exposure of marginal area of the prosthesis that would severely affect esthetics.The goal of the study is to develop an injectable gingival retraction material of with low astringent concentration through the integration of material, engineering and chemical technique. The resulted composition was obtained from

animal tests, wherein the viscosity was 42McP with the addition of 0% and 7% aluminum chloride. It was further processed into prototype Q and R, respectively. Bleeding control as well as sulcus width enlargement to 0.5mm were used as the examination criteria for both of the prototypes. Beagle dogs were chosen as animal model system. On the other hand, the retraction cord with astringent, the control group, exhibited severe gingival recession after operation, while the injectable types showed no sign of advert effects. (ANOVA: $p<0.05$; LSD: $p<0.05$) From the encouraging results obtained from animal study, human trial was conducted to investigate its clinical feasibility. Similar results were found when both prototypes (sample Q& R) were applied to human subjects. Model analysis further showed appropriate gingival sulcus enlargement and the absence of gingival recession. A set of questionnaires was used to assess the patient's comfort level during and after placement of the material. The objective observation of the dentist and the subjective narration of the patient indicated that the pain level was lower and the bleeding control was also better than that of the traditional retraction cord.