

01-1

CAD for Inlay, Onlay, Veneer and Full Crown

Xiuyin Zhang*, C. Y. Yang

School of Stomatology, Shanghai Second Medical University, China

Objective : The purpose of the research is to build an experimental system to design inlay, onlay veneer and full crown with computer and achieve the data of these prostheses in order to manufacture with computer.

Materials and methods : The process is divided into three steps:the first one is to measure the prepared tooth, the mesial and distal teeth and opposing teeth with the digital speckle correlation method;the second one is to reconstruct the shape of the measured objects;the third one is the CAD for inlay, onlay, veneer and full crown. The first and second one had been introduced before. The article is mainly about the third one in detail. That is according to the distance of the mesio-distal, bucco-lingual, occluso-gingival and occlusal relationship of the defective tooth to modify the standard shape to image from it, the result is the full crown data of the defective tooth.

Results : This study have built the CAD method for inlay, onlay, veneer and full crown and provided the prostheses data of defective posterior for CAM.

Conclusion : The CAD method for full crown is convenient and economic. It is easily used design anterior and posterior crown, inlay, onlay, copying and veneer, etc.

01-2

A Comparative Study of the Effect of Porcelain Materials with Two Elastic Moduli on the Stress of Three Kinds of Porcelain Laminate Complexes

Yonglie Chao*, Haiyang Yu, Yun Luo, Yukun Meng, Chuanshi Du

College of Stomatology, West China University of Medical Sciences, China

Objective : To investigate the effect of porcelain with two different elastic moduli on the stress distribution of three kinds of porcelain laminate complexes.

Materials and methods : The models of 3-D FEA of left upper permanent central incisor were constructed by means of microtomy. A comparative study was carried out to reveal the stress distribution and displacement among the window, unlengthened and lengthened porcelain laminates with elastic moduli of 63GPa and 82.8GPa under dispersed load of 150N.

Results : The displacements exist in the labio-apical direction under imitating load of central occlusion, and apical direction under imitating load of protrusive occlusion. The stress level slightly increased under imitating load of central occlusion when the elastic modulus changed from 63 to 82.8 GPa. The stress value of unlengthened laminate seemed the highest in protruding occlusion

Conclusion : It implies that porcelain materials with higher elastic modulus should not be used in case of unlengthened laminate regarding the design of laminates.