



## تفاصيل البحث:

DIGITAL RADIOGRAPHIC AND MICROSCOPIC EVALUATION OF :  
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عنوان البحث

The aim of this study was to evaluate and compare the three :  
warm vertical compaction gutta percha techniques internally  
softened with three different heat sources. Fifteen human  
extracted single rooted teeth were prepared and randomly  
divided into three groups. In the root canal of the first group,  
the gutta percha was internally softened with Touch'n Heat  
tips. The intracanal heat source of the second group was  
Nd:YAG laser beam activated at 2.5 W for 15pps and 2 second  
for each single irradiation time. While, a flame-heat carrier  
was used in the third group. The gutta percha was then  
vertically condensed without using a sealer until complete  
canal obturation. To compare each obturation in form of  
replicate the root canal system, a split tooth model was  
performed and obturated ten times for each technique. Each  
obturation was examined under stereomicroscope. All root  
canals and model impressions were digital radiographed by  
Digora system to evaluate the quality of each obturation in  
terms of: extended to the working length, presence or  
absence of voids and canal adaptation. The ability of each  
technique to condense a maximum gutta percha inside the  
different level of root canal was also evaluated through  
measuring the gutta percha density at each mm of obturation  
as well as of surface area of each coronal, middle and apical  
thirds. One root canal of each group was splitted and  
examined by scanning electron microscope. The data  
provided by the Digora system revealed that The Touch'n  
Heat softened obturation technique showed significant  
highest mean density values than the other techniques at all  
parts of the root canal. While, the lased softened obturation  
technique represented the least mean density at both cervical  
and middle thirds. Although the three tested techniques  
represented insignificant differences of filling homogeneity  
all over the working length, the Touch'n Heat group had  
better appearance with no or very few voids on the surface.  
The frequency of void appearance was exaggerated in lased  
obturations either in cervical or middle thirds. All obturations  
of the three groups showed good adapted to dentin wall, with  
prominent projections toward dentinal tubules in lased  
softened group. At the cervical third, the other two groups,  
black gap was noticed at filling/dentin interface. A distinct

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