

EFFECT OF DIFFERENT ROTATIONAL SPEEDS OF LIGHTSPEED INSTRUMENTS ON CANAL MORPHOLOGY

Laila Ahmed Baharmmam* and Madiha M. Gomaa **

ABSTRACT

The aim of the present study was to assess LightSpeed instrumentation behavior in apical canal preparation using two rotational speeds; 750 and 2000 r.p.m. Fifty single rooted teeth with 20-30° apical curvatures were prepared using LightSpeed instruments of sizes 20 through 47.5. Roots were sectioned at 2, 4, and 6 mm from their apices. The cross root sections were photographed at a standard magnification and distance before preparation. Teeth were reassembled using a specially designed muffle. Then, they were divided into two groups after which root canal preparation was done. Group I was prepared at 750 r.p.m. while group II at 2000 r.p.m. Pre and post instrumentation photographs were superimposed and subjected to image computer analysis "Image J Program". Measured parameters were pre and post instrumentation canal area and displacement distance. Results showed generally a gradual increase in canal area coronal wards. A slight increase in canal area was found in the 750 r.p.m. group as compared to the 2000 r.p.m. one at 4 and 6 mm levels. However, this difference was found to be statistically insignificant. Canal preparation remained relatively centralized where a statistically insignificant canal center displacement was found. at both preparation speeds. We can conclude that LightSpeed instruments produced a centralized preparation with minimal canal transportation and with no significant effect of rotational preparation speed variation on canal area and centering ability.

* Lecturer in Endodontic Division, Dept. of Conservative Dental Science, Faculty of Dentistry. King Abdulaziz University. Specialist in Endodontics, Faculty of Dentistry. King Abdulaziz University.

** Professor of Endodontics, Dept. of Conservative Dental Science, Faculty of Dentistry, King Abdulaziz University. Consultant in Endodontics. Faculty of Dentistry. King Abdulaziz University.