

## **Effect of spatial resolution of digital radiographs on the visibility of the mandibular canal on the conventional tomographs.**

\*Nimpoonyagampong K., Dechosisilpa V., Panmekiate S., Sinpitaksakul P., Limchaichana N. Department of Radiology

This study investigated the effect of digital image resolution on the accuracy of the localizing the superior border of mandibular canal. 20 conventional cross-sectional tomographs posterior to mental foramen were consecutively selected from the implant patient file. The tomographs comprised 11 cases of clear superior border of mandibular canal, 7 cases of questionable superior border and 2 cases of invisible superior border. The conventional tomographs were scanned by flatbed scanner with resolution of 200, 150, 100 and 50 dpi in gray scale color mode with lossless TIFF file-format. 7 observers located the position of the most superior border of mandibular canal in the long axis of mandible in the digital tomographs. 3 observers were asked to repeat the localization a second time after 2 weeks to evaluate localizing precision. Using Delphi method, the silver standard of the superior border of mandibular canal on the radiographs was obtained. The differences between the position given by the observers and silver standard were compared between different resolutions by t-test ( $\alpha=0.05$ ). Localizing precision of observer 1, 2 and 3 was 0.74, 0.75 and 1.41 mm., respectively. It was shown that 50 dpi gave more significant difference than other resolutions. The result of this study showed that the resolution of 50 dpi might not be suitable for storing conventional tomograph in digital form.

Supported by Dental Research Fund, Dental research project 3205-312 # 45 / 2002 Faculty of Dentistry, Chulalongkorn University