"VALIDITY OF DIGITAL PANORAMIC RADIOGRAPHY IN THE ASSESSMENT OF PATH OF EMERGENCE OF THE MENTAL NEUROVASCULAR BUNDLE FROM THE INFERIOR ALVEOLAR CANAL"

BY

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ABSTRACT

Background and objectives: The emergence pattern of mental neurovascular bundle (MNVB) from inferior alveolar canal (IAC) is an important presurgical landmark when planned for periapical surgeries, periodontal surgeries, orthognathic surgeries, nerve repositioning or implant placement in mental foramen (MF) region. Various emergence patterns of mental nerve (MN) from IAC have been identified. The purpose of this study was to check the validity of digital panoramic radiography (DPR) in assessing the path of emergence of MNVB from IAC.

Methodology: 50 dry cadaveric mandibles with 100 sides were utilized for the study. All the mandibles were subjected for DPR. A flexible copper wire (FCW) was inserted in the IAC until it emerges from the MF and DPR was repeated. A trained oral and maxillofacial radiologist assessed the emergence patterns in DPR before and after insertion of FCW.

Statistical analysis with SPSS (statistical package for social science) 20.0 software was used to analyse the data. Chi square test was used to assess various emergence patterns before and after insertion of FCW in digital panoramic radiographs. Kappa statistics was used to evaluate the intraobserver agreement before and after insertion of FCW.

Results: The most common emergence pattern observed on DPR before insertion of FCW was straight pattern (54%). When DPR was repeated after insertion of FCW the most common pattern observed was loop pattern (60%). Statistically significant difference (P=0.0001*) was observed before and after insertion of FCW.

Conclusion: Panoramic radiography (PR) is not a reliable imaging modality in identifying the MNVB emergence patterns as most of the loop patterns are depicted as straight patterns. Additional imaging modalities such as cone beam computed tomography (CBCT), can be suggested for better visualization of anterior loop when planned for periapical surgeries, orthognathic surgeries, periodontal surgeries or placement of dental implants in the MF region.

Keywords: Inferior alveolar nerve, mental nerve, mental foramen, digital panoramic radiography