SDM
College of
Dental Sciences
& Hospital

"VALIDITY OF ORTHOPANTOMOGRAPH, DIGITAL VOLUMETRIC TOMOGRAPHY AND COMPUTED TOMOGRAPHY FOR ASSESSMENT OF SIMULATED LESIONS OVER MANDIBULAR CONDYLE - A COMPARATIVE STUDY"

BY

DR. VINUTA HEGDE

Dissertation submitted to the

Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore

In partial fulfillment

of the requirements for the degree of

MASTER OF DENTAL SURGERY (M.D.S)

In

ORAL MEDICINE & RADIOLOGY

Under the guidance of

DR. VENKATESH G. NAIKMASUR

PROFESSOR

DEPARTMENT OF ORAL MEDICINE & RADIOLOGY

S.D.M. College of Dental Sciences & Hospital,

Dharwad, Karnataka, India.

2012 – 2015

ABSTRACT

Background and Objectives: Temporomandibular joint (TMJ) imaging is very challenging because of small bony components. Superimpositions from the base of the skull often result in a lack of clear delineation of the joint. Different imaging modalities have been used for hard tissue imaging of TMJ. However, each imaging modality has its own advantages and disadvantages. Orthopantomograph (OPG) is used as screening method. More accurate modalities considered being Computed Tomography (CT) and Digital Volumetric Tomography (DVT).

Purpose of present study was to assess the validity of OPG, DVT and CT in evaluating the simulated lesions over the mandibular condyles.

Methods: 15 dry human mandibles (30 mandibular condyles) with intact mandibular condyles were used in this study. Total of 46 lesions were created randomly on anterosuperior (AS), superior (S) and posterosuperior (PS) surfaces of the condyle with 1mm surgical bur. Subsequently all the mandibles were subjected to OPG, DVT and CT for assessing artificially created lesions. Two observers assessed the images for presence or absence of the lesions, number and surface of the lesions in each condyle.

Results: Statistically good agreement was obtained between 2 observers in assessement of the lesions with all the three imaging modalities. With DVT 100% sensitivity and specificity was obtained. CT produced 96.67% sensitivity and 100% specificity. Sensitivity obtained with OPG was 24.14% and specificity was 100%. Good agreement was obtained between CT and DVT in detecting the lesions and it was found to be 96.67%.

Conclusion: Accuracy of DVT was found to be 100% and it was superior to CT (96.67%) in detecting the lesions over the mandibular condyle and OPG produced least accuracy (24.14%). Owing to the facts like high radiation dose and high cost of CT, we suggest DVT as a better imaging modality for incipient bony changes of TMJ. However further studies with more samples are required to confirm these results.

Key words: TMJ; simulated lesions; OPG; CT; DVT.