Abstract No: 702 (Poster) *Health and Hygiene*

QUALITY EVALUATION OF INTRA ORAL PERIAPICAL RADIOGRAPHS OF THE IMPACTED MADIBULAR THIRD MOLAR REGION OF THE PATIENTS AT THE DENTAL HOSPITAL PERADENIYA

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Assessment of the degree of difficulty, during removal of Impacted Mandibular Third Molar (IMTM), depends on the availability of higher quality images. Therefore, the aim of this study was to identify the frequency of occurrence of technical errors and the image requirements observed in the Intra Oral Peri Apical Radiographs (IOPA) of the IMTM region. In addition, the prevalence of the type of impaction in the selected sample and the discomfort level of patient during the procedure were assessed.

A total of 150 IOPAs was analyzed, of which 100 were taken with bisected angle and 50 with paralleling techniques. The technique of imaging was determined according to the clinical requirements of the patient, thus no modifications were carried out for the purpose of the study. All of the radiographs were constantly being taken by a similar X ray unit, by a single radiographer during a three month period. The radiographs were obtained with the same kind of films, which were processed using the same non dark room type automatic x ray film processor, under the same circumstances. With the help of the same viewing box, the radiographs were analyzed by the two members of the study. Technical errors related to the image contrast, angulation, cone cut and processing were recorded along with the image requirements followed by presenting full third molar, full second molar, distal bone cover and inferior distal canal. The level of mouth opening of the patient was measured using a digital vernier calliper. Furthermore, the level of patient discomfort, pain and gagging reflexes were assessed. The collected data were analyzed by using the chi-square test. Overall evaluation of the quality of radiographs was categorized as good, fair and poor.

The most common type of error, detected on the radiographs taken by bisected angle technique was cone cut, while incorrect exposure was the most frequent type of error observed in paralleling technique. According to the results analyzed, the quality of IOPAs was statistically similar in both techniques. There was a significant difference in the type of impaction between males and females (horizontal and mesio angulated, respectively) thus there was no significant difference in the frequency of impaction between the right and left sides. A higher percentage of a gag reflex and pain discomfort was observed with paralleling technique in comparison with bisected angle technique. According to the study, the bisected angle technique can be used in producing high quality radiographs of the IMTM region with minimal pain, discomfort and gagging reflex initiation. In addition, higher quality radiographs of the IMTM region can be acquired with the paralleling technique when mouth opening level of the patients is above 40 mm.