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ASSESSMENT OF RELATIONSHIP OF MAXILLARY SINUS FLOOR TOPOGRAPHY AND MAXILLARY SINUS MUCOSAL THICKENING WITH ROOT POSITION OF MAXILLARY POSTERIOR TEETH WITH PERIAPICAL INFECTIONS USING LIMITED VOLUME CONE BEAM COMPUTED TOMOGRAPHY

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ABSTRACT

BACKGROUND AND OBJECTIVES: Maxillary sinusitis, or inflammation of the maxillary sinuses, may be infectious and is caused by bacterial, fungal, or viral agents. Approximately 10% to 12% of all maxillary sinusitis cases are caused by odontogenic infection, aided by the close proximity of the roots of the maxillary posterior teeth to the maxillary sinus cavities. Purpose of the present study was to assess the effect of maxillary premolars and molars with periapical infections to the maxillary sinus lining. And, to assess whether the distance between the infected root apices and the sinus floor had any bearing on the changes in the maxillary sinus lining.

METHODOLOGY: Study consisted of 70 patients who had been advised limited volume CBCT for the purpose of complicated extractions, endodontic therapy and periapical surgeries. These scans were utilized to assess the size of the periapical lesions of infected premolar and molar root apices and the lesions were scored using CBCT-PAI.The distance between the infected root apices and maxillary sinus floor was measured using measuring tool provided by Kodak dental services software. Also the thickness of the sinus mucosa was measured with the measuring tool available in the software. The CBCT-PAI scores were correlated to the mucosal thickening measured, using the Karl Pearson correlation coefficient. Similarly, the distance between the infected root apices to sinus floor and the sinus mucosal thickening were correlated using the Karl Pearson correlation coefficient.

RESULTS: Statistically significant and positive correlation was found between the CBCT-PAI scores and the thickening seen in the sinus mucosa suggesting a direct relation existing between the size and severity of the periapical pathology and the mucosal thickening of the maxillary antrum. The distance between the root apices of infected maxillary premolars and molars and maxillary sinus floor did not have statistically significant correlation to the mucosal thickening of the maxillary sinus. An increased mean thickening was seen in the male subjects compared to the females in the studied population. Also increased mean thickening was observed in the 30-40 years age group.

CONCLUSION: The size of the periapical lesion has a direct impact on the thickening of the sinus mucosa indicating odontogenic infections as one of the cause for persistent maxillary sinusitis.

KEY WORDS: Maxillary sinusitis; limited volume CBCT; Odontogenic infections