



CODEN [USA]: IAJPB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.2634127>

Available online at: <http://www.iajps.com>

Research Article

ROLE OF DENTAL SCAN IN ESTABLISHING ASSOCIATION BETWEEN MAXILLARY SINUS AND ADJACENT STRUCTURE

¹Dr. Zohra Rahim, ²Dr. Hafsa Batool, ³Dr. Afshan Waseem
^{1,2,3}Liaquat University of Health Sciences, Jamshoro Sindh

Article Received: February 2019

Accepted: March 2019

Published: April 2019

Abstract:

Objectives: We aimed in this analysis to interrogate the importance of dental examination using Denta Scan for observing the proximity of upper jaw teeth roots and floor of sinus through dental examination.

Study Design: A retrospective and randomized study

Duration: This analysis was started from January, 2018 to December, 2018 with the duration of 12 months at the Dental Unit of Liaquat University Hospital, Hyderabad.

Methodology: Dental examination of 60 cases of maxillary first premolar and second molar was performed. The relativity of maxillary sinus tooth root is categorized in four categories of dental examination. Proximity of sinus root and floor, alveolar cortical plate and the root's density was observed and evaluated.

Results: Dental examinations of the 60 cases in which female and males were 26 and 34 respectively with range of 14 to 18 years of age were observed through this analysis. Category 0 association was very usually observed in the 1st and 2nd PM, while through the 1st and 2nd MM category 1 association was observed usually. The average proximity from the maxillary sinus floor to the root was maximum for the molars palatal root and the premolar oral root. Although it was minimum for the mesiobuccally root of upper jaw 1st molar and the 2nd premolar palatal root. The proximity in the association of root of teeth and upper jaw sinus from right to left was not expressive analytically where p-value is greater than 0.001, the association among various categories was vital analytically where p-value is greater than 0.001. Radix buccalis of upper jaw 1st PM and the mesiobuccally root of upper jaw 1st molar were observed mostly near to the cortical plate. The distobuccal root of upper jaw 3rd molar seen distant from the cortical plate. Including the four vertical associations, analytically vital variation was observed in the density of bone around the roots.

Conclusion: As a difference between other upper jaw posterior roots of teeth, the density of bone was constantly slighter in the maxillary PM and MM. Anatomical association raised the information and directed us for the next diagnosis of absolute preoperative preparation. During execution of the major oral operative method prevented the evaluated casual complexities.

Key words: Maxillary, sinus floor, anatomy.

Corresponding author:

Dr. Zohra Rahim,

Liaquat University of Health Sciences, Jamshoro Sindh

QR code



Please cite this article in press Zohra Rahim et al., *Role Of Dental Scan In Establishing Association Between Maxillary Sinus And Adjacent Structure.*, Indo Am. J. P. Sci, 2019; 06(04).

INTRODUCTION:

For the selection of diagnosis, the structural association is most significant. A contest of oral medicine specifically all through the method of prosthetic and endodontic. Observation of the association has delivered us a path for the usage of new methods expressively [1]. Generally, the maxillary sinus grows all through the beginning. Size and shape of the sinus varies due to the raise of age [2,3]. It is generally analyzed through x-ray that roots infiltrate the floor of sinus but the maxillary sinus had prolonged round to the origins of the tooth. Removal of tooth can make the OAC and direct to damage or root dislocation through in the maxillary sinus if it is most near or projects to the maxillary sinus. Structural association is instantly involved in the determination of orthodontic activities of the tooth. The density of bone with the alveolar cortical plate and MM roots give a maximum indulge to extent of odontogenic pestilence [3,4]. The current analysis objects to interrogate the upper jaw posterior teeth to maxillary sinus and to evaluate the proximity of maxillary sinus and its floor to observe the density of bone in the alveolar cortical plate and root through dental examination.

METHODOLOGY:

This is an analysis in which people are allocated at random (by chance alone) to receive one of several clinical interventions and reflective type of analysis having calculations got through dental examination of sixty cases. Dental examination result was gained through the dental unit of dental unit of Liaquat University Hospital, Hyderabad. Dental examination is a software application which provides the CT of maxillofacial bones like maxilla and jaw bone into three flat surfaces panoramic, oblique sagittal which is cross sectional and axial. The actual calculatable scale in the various observations makes consistency of calculations and cross-accordance of vital structural edifices which are lower alveolar nerve and

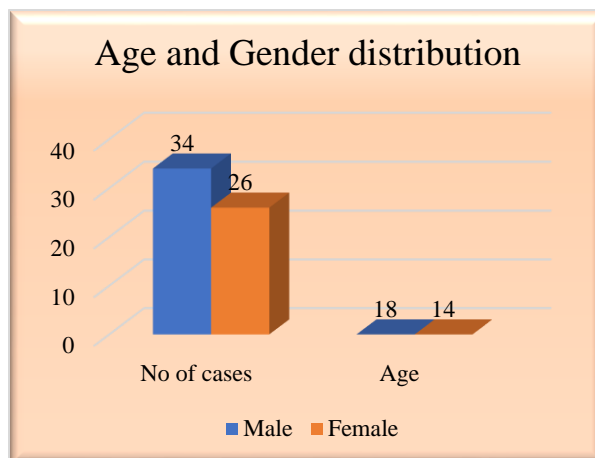
mental foramen maxillary sinus by total three flat surfaces. The dental examination is almost verified to be a treatment device for observation the incursion in the maxilla of those cases which have the most common malignant epithelial neoplasm affecting the oral cavity OSCC [5,6]. Inclusion eligibility of analysis was dental examination of cases which have usually exploded maxillary PM to MM with removal of tooth. The dental examination images were gathered from the cases information was observed and gathered through SPSS 20. The association of tooth root and maxillary sinus floor is categorized in four categories of dental examination stated on the classified Jung in 2009. Proximity was calculated through images of dental examination, associative calculation in category 0 and 3. A positive score is provided to the apices of roots ranging under the maxillary sinus floor and negative score to the apices of roots upper than the maxillary sinus floor. The proximity of upper jaw posterior teeth by their equivalent alveolar cortical plate was calculated through dental examination to calculate the density of bone. The proximity of palatal cortical plate and buccal were calculated accordingly for the root of palatal and buccal. A matching t-test was made for the difference and observation of calculation of right and left sides. Information of observation was shown as SD, Average and Frequency. The density of bone of almost four vertical association was observed through ANNOVA examination which retain in the roots of teeth and maxillary sinus floor.

RESULTS:

Dental examinations of the 60 cases in which female and males were 26 and 34 respectively with range of 14 to 18 years of age were observed through this analysis. Category 0 association was very usually observed in the 1st and 2nd PM, while through the 1st and 2nd MM category 1 association was observed usually in the below given table no 01.

Table no 01: Age and gender distribution

<i>Gender</i>	<i>No of cases</i>	<i>Age</i>
<i>Male</i>	34	18 years
<i>Female</i>	26	14 years



The average proximity from the maxillary sinus floor to the root was maximum for the molars palatal root and the premolar oral root. Although it was minimum for the mesiobuccally root of upper jaw 1st molar and the 2nd premolar palatal root shown below in the table 02.

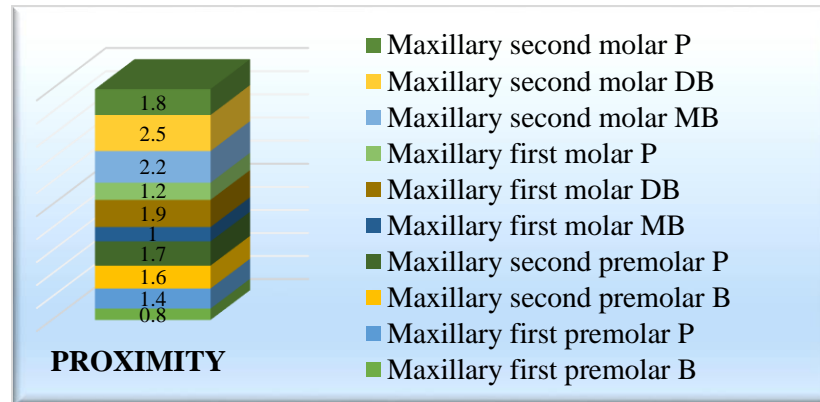
Table No 02: Vertical relation of maxillary floor sinus and apex root of maxillary posterior teeth

Tooth	Type 0		Type 1		Type 2		Type 3	
	Quantity	Percentage	Quantity	Percentage	Quantity	Percentage	Quantity	Percentage
Maxillary first molar								
MB	15	30%	28	57%	02	4%	04	9%
DB	18	36%	22	45%	08	17%	01	2%
P	21	41%	21	42%	07	15%	01	2%
Maxillary second molar								
MB	14	28%	30	61%	0	0%	06	11%
DB	28	57%	21	42%	01	1%	0	0%
P	33	66%	16	32%	01	1%	01	1%
Maxillary first premolar								
B	48	96%	02	4%	0	0%	0	0%
P	48	5%	02	5%	0	0%	0	0%
Maxillary second premolar								
B	35	70%	14	28%	0	0%	01	2%
P	32	65%	17	34%	0	0%	01	1%

The proximity in the association of root of teeth and upper jaw sinus from right to left was not expressive analytically where p-value is greater than 0.001, the association among various categories was vital analytically where p-value is greater than 0.001. Radix buccalis of upper jaw 1st PM and the mesiobuccally root of upper jaw 1st molar were observed mostly near to the cortical plate. The distobuccal root of upper jaw 3rd molar seen distant from the cortical plate. Including the four vertical associations, analytically vital variation was observed in the density of bone around the roots. The details are shown below in table 03:

Table no 03: Proximity in the association of teeth root and maxillary sinus

Maxillary first premolar		Maxillary second premolar		Maxillary first molar			Maxillary second molar		
B	P	B	P	MB	DB	P	MB	DB	P
0.8	1.4	1.6	1.7	1	1.9	1.2	2.2	2.5	1.8



DISCUSSION:

It was hard enough to know the association of upper jaw subsequent tooth root and upper jaw sinus floor early than processing of every diagnosis to prevent every treatment complexity. There are possible consequences which are mostly relative to upper jaw subsequent tooth root orders in the nearest place of the floor of sinus. In case, while endodontic / removal process there is raised consequence of damage of floor of sinus along the root canal devices in category 1 and 3 associations. The orbital erection circumstance was stated in the prose, it might outcome through a fast aggravation of sequela of pulp death of the tooth later by endodontic diagnosis of a MM [8]. It is verified influence that while the periapical operation, conservative periapical x-rays should not be engaged for the calculation of upper jaw sinus damage. That's why, it is necessary to be progressive imaging model qualities like dental examination or CBCT are maximumly required [9]. Microorganisms mainly viruses and bacteria and their venoms occur in the periapical grazes of the included teeth may penetrate upper jaw sinus by else the blood veins or lymph vessels and porous upper jaw bone. That's why it can be observed that there is positive association occurs among periodontal grazes and upper jaw sinus mucosal density [10,11]. CBCT observation was found to be presenting that vital association occurs among density of mucosa sinus and carious upper jaw subsequent teeth and periodontal ailment [13]. The association among the root of tooth and floor of sinus performed vital act in periodontal operation. The prose presented an instance observed by Huang and Brunsvold upper jaw sinus outcome from periodontal diagnosis of the 1st molar with cavernous pockets and bone infections [12,13]. Eberhardt et al. observed the mesiobuccally upper jaw 2nd molar roots were perceived near to upper jaw sinus floor. An else analysis done by Kilic et al. analyzed the distobuccal upper jaw 2nd molar root was observed to the floor of sinus [14,15]. Through the usage of CBCT images of upper jaw

molars analyzed by Jung and Cho in their analysis that the root of buccal most usually projects in the upper jaw sinus. The outcomes of our analyses defined the that the mesiobuccally upper jaw 1st molar roots founded at the minimum proximity to the floor of sinus and of premolars, the premolar palatal root was observed near to the floor of sinus. Category 1 association was found more usual for molar and category 0 for the upper jaw premolars. It had been analyzed that the buccal root was observed near to the buccal cortical plate for MM through an analysis by Arji et al [16]. The outcome of our analysis proved the density of bone was observed reediest for mesiobuccally upper jaw 1st molar roots and densest for the distobuccal MM roots.

CONCLUSION:

A most vital association was analyzed among the upper jaw posterior teeth and upper jaw sinus floor along the palatal and buccal roots. The upper jaw molars buccal root was observed to be most usually projected in the upper jaw sinus. Mesiobuccally molar root and premolar palatal root were observed to be near in distance to the upper jaw sinus floor between the upper jaw posterior tooth roots. The density of the bone on the oral feature to the root was observed to be constantly slimmer in the PM and MM contrasted to the other roots of upper jaw posterior tooth. Clinical importance of the analysis was to have early information of anatomical association among upper jaw posterior tooth and upper jaw sinus directs us to observe the association in an actual preoperative diagnosis arrangement. It almost given the tips for prevention of probable complexities evaluated during initialization of little buccal operational treatments which are most usual in dental treatments.

REFERENCES:

1. Von Arx T, Fodich I, Bornstein MM. Proximity of premolar roots to maxillary sinus: A radiographic survey using cone-beam computed tomography. J Endod 2014;40:1541-8.

2. Shokri A, Lari S, Yousefi F, Hashemi L. Assessment of the relationship between the maxillary sinus floor and maxillary posterior teeth roots using cone beam computed tomography. *J Contemp Dent Pract* 2014;15:618-22.
3. Jung YH, Cho BH. Assessment of the relationship between the maxillary molars and adjacent structures using cone beam computed tomography. *Imaging Sci Dent* 2012;42:219-24.
4. Fuhrmann R, Bücker A, Diedrich P. Radiological assessment of artificial bone defects in the floor of the maxillary sinus. *DentomaxillofacRadiol* 1997;26:112-6.
5. Chandel S, Agrawal A, Singh N, Singhal A. Dentascans: A diagnostic boon. *J Dent Sci Res* 2013; 4:13-7.
6. Desai PD, Dutta K, Sarakar S. Multidetector computed tomography dentascans analysis of root canal morphology of maxillary canine. *Indian J Dent Res* 2015; 26:31-7.
7. Jung YH, Cho BH. Comparison of panoramic radiography and cone beam computed tomography for assessing the relationship between the maxillary sinus floor and maxillary molars. *Korean J Oral MaxillofacRadiol* 2009;39:69-73.
8. Koch F, Breil P, Marroquín BB, Gawehn J, Kunkel M. Abscess of the orbit arising 48 h after root canal treatment of a maxillary first molar. *Int Endod J* 2006;39:657-64. [Downloaded free from <http://www.ijdentistry.com> on Thursday, July 5, 2018, IP: 182.189.128.32] Fry, et al.: Proximity of maxillary posterior teeth roots to maxillary sinus and adjacent structures
9. Oberli K, Bornstein MM, von Arx T. Periapical surgery and the maxillary sinus: Radiographic parameters for clinical outcome. *Oral Surg Oral Med Oral Pathol Oral RadiolEndod* 2007;103:848-53.
10. Lu Y, Liu Z, Zhang L, Zhou X, Zheng Q, Duan X, et al. Associations between maxillary sinus mucosal thickening and apical periodontitis using cone-beam computed tomography scanning: A retrospective study. *J Endod* 2012;38:1069-74.
11. Bornstein MM, Wasmer J, Sendi P, Janner SF, Buser D, von Arx T. Characteristics and dimensions of the Schneiderian membrane and apical bone in maxillary molars referred for apical surgery: A comparative radiographic analysis using limited cone beam computed tomography. *J Endod* 2012;38:51-7.
12. Huang CH, Brunsvold MA. Maxillary sinusitis and periapical abscess following periodontal therapy: A case report using three-dimensional evaluation. *J Periodontol* 2006;77:129-34.
13. Brüllmann DD, Schmidtman I, Hornstein S, Schulze RK. Correlation of cone beam computed tomography (CBCT) findings in the maxillary sinus with dental diagnoses: A retrospective cross-sectional study. *Clin Oral Investig* 2012;16:1023-9.
14. Eberhardt JA, Torabinejad M, Christiansen EL. A computed tomographic study of the distances between the maxillary sinus floor and the apices of the maxillary posterior teeth. *Oral Surg Oral Med Oral Pathol* 1992;73:345-6.
15. Kilic C, Kamburoglu K, Yuksel SP, Ozen T. An assessment of the relationship between the maxillary sinus floor and the maxillary posterior teeth root tips using dental cone-beam computerized tomography. *Eur J Dent* 2010;4:462-7.
16. Arijji Y, Obayashi N, Goto M, Izumi M, Naitoh M, Kurita K, et al. Roots of the maxillary first and second molars in horizontal relation to alveolar cortical plates and maxillary sinus: Computed tomography assessment for infection spread. *Clin Oral Investing* 2006;10:35-41.