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Radiological evaluation of maxillary sinus anatomy by cone beam: a transversal descriptive and analytic study

Introduction & Aim: Maxillary sinus is an integral entity of the orofacial sphere. As an oral surgeon or a dentist professional, it's an obligation to know the different anatomical variations that can present this maxillary sinus. A good knowledge of sinus anatomy is an essential factor that allows dentists to avoid surgical complications (such as the potential risk of bleeding during oral surgeries: Caldwell-Luc and sinus lift) and to be able to opt for specific therapeutic modifications. The aim of this work is to determine the anatomical and radiological dimensions and variabilities of the maxillary sinus using cone beam on a regional population in Rabat.

Materials & Methods: A radiological descriptive and analytic transversal study was conducted on 200 cone beam images (200 maxillary sinus), performed between August and November of 2016, which concerned 100 patients (100 cone beam images for right sinuses and 100 images for left sinuses) aged 8 to 79; 48% male and 52% female. The study was carried out on the dimensions of the sinus of height, depth, width and volume. The anatomical variants that were evaluated included the shape of the floor, hypoplasias, and accessory sinuses, procreation of the orbital channels in the sinus, accessory ostia, intra-sinus septa and complete septations. SPSS (version 21) was used to analyze the data. Pearson correlation and linear regression were applied to compare quantitative variables.



Akram BELMEHDI

Mohamed V University Rabat,
Kingdom of Morocco

Co-Author

S Chbicheb

Mohamed V University Rabat,
Kingdom of Morocco

Results: Regarding the dimensions of the maxillary sinus. Mean height, depth, width and volume values were 34.52 ± 6.41 mm, respectively; 35.71 ± 4.40 mm; 23.99 ± 4.86 mm; 14.19 ± 5.6 cm³. Regarding variants: The most popular floor shape was the arcuate shape in 64% versus only 36% for the rectilinear form. Hypoplasia was rare; only six cases (3%) were found (66.7% were male and 33.3% female, 66.7% on the right side and 33.3% on the left side); unilateral. For accessory sinus and complete partitioning, they were present in 4.5% of the cases (37.5% of males and 62.5% of females, 55.5% at the right side and 44.5% at the level on the left side). As for the accessory ostia, they were found in the majority of cases 84% (45.2% male and 54.8% female, 52.3% located at the right side and 47.7% at the left side). They were in 84.6% bilateral and only in 15.4% unilateral, their length and average thickness were respectively 7.16 ± 4.49 mm and 1.72 ± 3.16 mm. However, intra-sinus septa were very rare 25.5% (55.9% were male and 44.1% female, 52% on the right side and 48% on the left side) strongly localized 1/3 average of the upper and lower walls, with an average height of 5.03 mm.

Discussion: The results of our research were close to those of other studies, in terms of dimensions on the one hand and the location and distribution of anatomo-radiological features on the other hand. Some of them have no predilection for sex, age and side (right and left of the sinus) as it was proven for septa and ostium accessories. Other forms were more prone to infection; these are hypoplasias and root-planar forms.

Biography

Akram Belmehti is a Dental Doctor and a Specialist in the Department of Oral Surgery, Faculty of Dentistry, Mohamed V University, Rabat, Morocco. He is the Member of the Research Committee of Oral Biology and Pathology at the same university. He has published eight papers in reputed journals and has been serving as a Reviewer of Journal of Medical and Surgical Research. He has participated in more than 30 oral presentations and posters in national and international dental and medical conferences.

akram.belmehti@gmail.com