

What is the frequency of anatomical variations and pathological findings in maxillary sinuses among patients subjected to maxillofacial cone beam computed tomography? A systematic review

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Abstract

Background: When considering dental implant rehabilitation in atrophic posterior sectors, the maxillary sinuses must be evaluated in detail. Knowledge of the anatomical variations and of the potential lesions found in these structures conditions the outcome of sinus lift procedures and therefore of the dental implants. A systematic review is made to determine the frequency of anatomical variations and pathological findings in maxillary sinuses among patients subjected to cone beam computed tomography (CBCT).

Material and Methods: A PubMed (MEDLINE) literature search was made of articles published up until 20 December 2015. The systematic review was conducted based on the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA). The quality of the studies included in the review was assessed using the Methodological Index for Nonrandomized Studies (MINORS).

Results: The combinations of search terms resulted in a list of 3482 titles. Twenty-three studies finally met the inclusion criteria and were entered in the systematic review, comprising a total of 11,971 patients. The most common anatomical variations were pneumatization and sinus septa. The prevalence of maxillary sinus disease ranged from 7.5% to 66%. The most common pathological findings of the maxillary sinus were mucosal thickening, sinusitis and sinus opacification.

Conclusions: Although the main indication of CBCT of the maxillary sinus in dentistry is sinus floor elevation/treatment planning and evaluation prior to dental implant placement, this imaging modality is increasingly also used for endodontic and periodontal purposes. There is no consensus regarding the cutoff point beyond which mu-