International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

PREVALENCE OF MAXILLARY SINUS SEPTA IN CONE BEAM COMPUTED TOMOGRAPHIES: A SYSTEMATIC REVIEW WITH META-ANALYSIS

INPLASY202560071
doi: 10.37766/inplasy2025.6.0071
Received: 17 June 2025
Published: 17 June 2025

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ADMINISTRATIVE INFORMATION

Support - Found sources: the authors.

Review Stage at time of this submission - Piloting of the study selection process.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202560071

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 June 2025 and was last updated on 17 June 2025.

INTRODUCTION

Review question / Objective What is the prevalence of maxillary sinus septa in cone beam computed tomographies?
The framework used at this review question is CoCoPop. Co= Condition; Co= Context; Pop= Population.

Rationale The presence of septa located on the floor of the maxillary sinus, especially in the posterior portion of the maxilla, can have a decisive influence on the success of surgical procedures in the region, such as maxillary sinus lift and dental implant fixation. Thus, the region recognition and appropriate surgical planning become indispensable in order to avoid trans-operative and post-operative events. Considering the primary studies carried out previously and their large volume of data, this review becomes an excellent strategy for better understanding of these results and establishing possible correlations between the predetermined variables.

Condition being studied Maxillary sinus is a pneumatic cavity that is covered by the sinusal mucosa. Maxillary sinus septa are thin bone eminences that can be on any wall of the cavity. These bone structures can be complete, when it originates in one wall of the maxillary sinus and ends in a different wall, or partial, when it originates in one wall and does not end in another one. Thus, It is extremely important to locate these structures, as they can have a direct impact on the success of surgical procedures in the maxilla. Therefore, the use of cone beam computed tomographies is indispensable for constructing an appropriate surgical plan to minimize complications.

METHODS

Search strategy ("maxillary sinus"[MeSH Terms] OR ("maxillary"[All Fields] AND "sinus"[All Fields]) OR "maxillary sinus"[All Fields]) AND ("cone beam computed tomography"[MeSH Terms] OR ("cone beam"[All Fields] AND "computed"[All Fields] AND "tomography"[All Fields]) OR "cone beam

computed tomography"[All Fields] OR ("cone"[All Fields] AND "beam"[All Fields] AND "computed"[All Fields] AND "tomography"[All Fields]) OR "cone beam computed tomography"[All Fields]).

Participant or population The population of this study will have a composition of the human samples from scientific papers that utilized cone-beam computed tomographies as an instrument to analyze the maxillary sinus region.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included Cross-sectional studies.

Eligibility criteria Inclusion criteria: Cross-sectional primary studies; that measure the occurrence of maxillary sinus septa on both antimeres; whose utilize cone-beam computed tomographies as an instrument of the research; with a sample of individuals over the age of 18.

Exclusion criteria: Samples that had any pathologies or traumas in the maxilla region; and duplicated papers (those ones that were found on more than one of the databases).

Information sources PubMed; Embase; Scopus; Cochrane Central; Web of Science; LILACS via BVS; and Google Scholar.

Main outcome(s) The main (or primary outcome) will be to determine the prevalence of maxillary sinus septa by cone beam computed tomographies.

Additional outcome(s) Additional outcomes will be to determine the prevalence of the height; location; morphology; number; and orientation of the maxillary sinus septa.

Data management There will be two reviewers: M.P.A and O.B.O.N. The first one (M.P.A) will extract the data and the other one (O.B.O.N) will check what has been selected. In case of disagreement, related to the search and selection phase, this will be decided by consensus between the reviewers. If there still are some disagreements, a third reviewer (N.F.D) will evaluate and decide a consensus. The software for the extracted data will be Microsoft Excel in addition to the extension MetaXL 5.3 (current latest version).

Quality assessment / Risk of bias analysis The quality assessment will be measured using the Anatomical Quality Assessment tool (AQUA tool). The risk of bias analysis is based on five domains whose are answered with “Yes”; “No”; and “Unclear” for Low, high and unclear risk of bias.

Both reviewers (M.P.A and O.B.O.N) will be meeting regularly and solving disagreements. In order of any remaining disagreement, a third reviewer (N.A) will establish a consensus.

Strategy of data synthesis The Cohen's kappa coefficient (κ) will be peformed to measure the amount of agreement between both of the reviewers in the search and selection phase;
To establish the prevalence It will be used the quality effects model utilizing the double arcsine transformation, based on the weight of each individual scientific paper previously selected in agreement with the eligibility criteria, and with that, the forest plot will be build;
The publication risk of bias will be measured using a Doi plot and LFK index using the quality effects model and the double arcsine transformation;
The heterogeneity level of included papers will be assessed using Higgings test (I^2) and a significant heterogeneity will be represented by a P-value that was less than 0.10.

Subgroup analysis The subgrouping process will be performed considering the countries where the included studies were made. This subgroup will be assessed since ethnic and racial factors can influence the involvement of anatomical variations, therefore influencing the prevalence statistics of the maxillary sinus septa.

Sensitivity analysis The sensitivity test will be done analysing the studies that were selected previously by the eligibility criteria, in according to their methodological risk of bias, on low or high risk of bias, and that have a sample of at least 1000 scanned maxillary sinus by cone beam competed tomographies.

Language restriction The authors declare that there will not be any language restriction.

Country(ies) involved Brazil and Chile.

Keywords Septa; Maxillary sinus; Prevalence; Meta-analysis; Morphology.

Dissemination plans The authors intent to disseminate this systematic review in some renowned journals, e.g. International Journal of Oral & Maxillofacial Surgery; Surgical and Radiologic Anatomy; and Journal of Cranio-Maxillofacial Surgery.

Contributions of each author

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