

## Clinical anatomy of maxillary sinus variations

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The study of clinical anatomy of maxillary sinus variations is relevant to understand the related pathogenesis of inflammatory and oncologic diseases and for surgical planning, in cases of functional endoscopy surgeries, sinus floor lift and bone volume augmentation [1]. The study aimed to assess the variability of the intraosseous arterial vascular supply, the presence of the Underwood septa and the morphometry of the maxillary sinus volume, using cone beam computed tomography (CBCT) images and related imaging softwares (InVivo® and InVesalius®) for measurements.

100 CBCTs were considered for arterial vascular supply assessment; 100 CBCTs were considered to study the features of Underwood septa; 18 CBCTs were selected to assess the maxillary sinus volume variability.

The presence of the intraosseous arterial supply was 100% in the considered sample, with caliber ranging from 0.4 mm to 1.8 mm. The presence of septa within the maxillary sinus was 19%, and the mean measure of the maxillary sinus volume was 14.3 mm<sup>3</sup>, in the related examined samples.

The results of the morphometric analysis showed how the maxillary sinus, described through centuries by several anatomists [2] shows variations clinically relevant regarding the vascular supply, the presence of bony septa and consequently the sinus volume, and to be aware in surgical planning stage and during the procedures.

The innovation technology in computed tomography imaging allows clinicians to search and spot these variations and prevent eventual intra-operative risks.

### References

- 1) Bernardi, S.; Bianchi, S.; Gerardi, D.; Petrelli, P.; Rinaldi, F.; Piattelli, M.; Macchiarelli, G.; Varvara, G. Anatomy of Maxillary Sinus: Focus on Vascularization and Underwood Septa via 3D Imaging. *Tomography* 2024, 10, 444-458. <https://doi.org/10.3390/tomography10040034>

- 2) Bernardi, S., Angelone, A. M., & Macchiarelli, G. Anatomy in dentistry: From the beginnings to contemporary reality. *Clin. Anat.* 2022 35, 711– 722. <https://doi.org/10.1002/ca.23869>