

ROLE OF MAXILLARY SINUS IN FORENSICS

Dear Editor,

Maxillary sinus starts to develop at the end of second embryonic month, it was the first paranasal sinus to develop, which is of pyramidal in shape and lined with mucosa, situated in the right and left maxillary bones. As the anatomy of maxillary sinus is complex, magnetic resonance imaging, computed tomography and cone beam computed tomography are used to assess and evaluate the anatomy of the sinuses. Usually, it is necessary to use bones that are recovered intact, as most of the bones recovered from the scene are in an incomplete state for postmortem identification. The accuracy of the gender predilection increases if the entire skull bone is available. The shape, size, and volume of the maxillary air-filled sinuses varies among gender and age, thus the examination of the maxillary sinus in cone beam computed tomography can visualise and gives precise interpretation of complex anatomic structures as it is characterized by rapid volumetric image acquisition and with low radiation level with high resolution in turn which helps in gender determination and Forensic anthropology.

Sinus radiography has been used for identification of remains and determination of sex and ancestry. Computed tomography (CT) scans are excellent imaging modality used to evaluate the signal-nasal cavities. They provide an accurate assessment of the paranasal sinuses, craniofacial bones, as well as the extent of pneumatization. Sexual dimorphism refers to the systemic difference in the form (either in shape or size) between individuals of different sexes in the same species. Maxillary sinuses of various species are known to exhibit sexual dimorphism. The maxillary sinus in males is larger than in females in contemporary human populations. The cone-beam computed tomography (CBCT) is a relatively new technology used primarily in a variety of maxillofacial applications. In forensic contexts offering several advantages for postmortem forensic imaging including good resolution for skeletal imaging, relatively low cost, portability, metal artifact reduction, and simplicity.

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REFERNCES

- 1) Deshpande, Anuja A.1; Munde, Anita D.1; Mishra, Sunil S.2.; Kawsankar, Kedar D.3; Sawade, Ruchira V.1; Mandar, Baviskar4. Determination of sexual dimorphism of maxillary sinus using cone-beam computed tomography in a rural population of western Maharashtra – A retrospective, cross-sectional study. *Journal of Family Medicine and Primary Care*:2022 ;11:1257-1261
- 2) Kanthem RK, Guttikonda VR, Yeluri S, Kumari G. Sex determination using maxillary sinus. *J Forensic Dent Sci.* 2015 May-Aug;7(2):163-7. doi: 10.4103/0975-1475.154595
- 3) Sidhu R, Chandra S, Devi P, Taneja N, Sah K, Kaur N. Forensic importance of maxillary sinus in gender determination: A morphometric analysis from Western Uttar Pradesh, India. *Eur J Gen Dent* 2014;3:53-6.

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