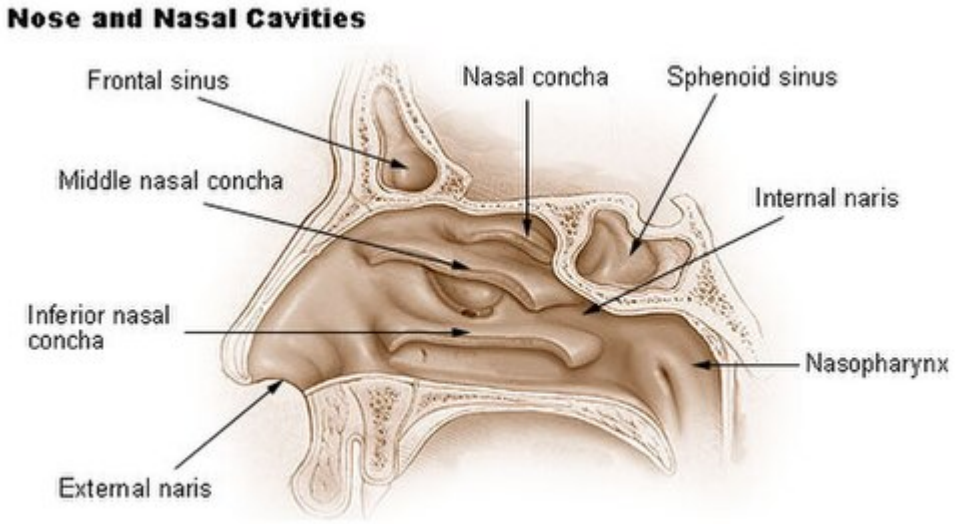
Sphenoid sinus

Each of the paired sphenoidal sinuses (components of the paranasal sinuses) is contained within the body of the sphenoid. They vary in size and shape and owing to the lateral displacement of the intervening septum they are rarely symmetrical. They cannot be palpated during an extraoral examination.



The following are their average measurements: vertical height, 2.2 cm.; transverse breadth, 2 cm.; antero-posterior depth, 2.2 cm.

There are anatomical landmarks within the sphenoid sinus that are used for orientation directing to the sella floor or the cavernous sinus. Yet, little data can be found on the consistency of these landmarks.

Image analysis of the anatomical landmarks included the minimal Intercarotid Artery Distance (ICD), diameter of the sphenoid sinus (DSS), direction of the septum sinuum sphenoidalium (SSS), and the distance between vomer and clivus (VCD). The overall mean ICD was 16.2 mm, with patients suffering from adenomas showing a mean ICD of 15.8 mm compared with an average 16.5 mm in the control group. DSS was equal for both groups (adenoma group: mean 31.5 mm; controls: mean 31.3 mm). Mean VCD was 27.9 mm in patients with pituitary neuroendocrine tumors compared with 26.7 mm in controls. A septum of the sphenoid sinus located in the midline was found in overall 23 % only. SSS was directed into the bony shield of the internal carotid artery in 28 % of underlying tumors and in 37 % of the control group. This is the first detailed description of landmarks of the sphenoid sinus based on a large radiologic-anatomical analysis of CT scans yielding a wide variation and high inconsistency of these landmarks. From out data, we suggest that the surgeon approaching the sphenoid sinus should handle the anatomical landmarks with care bearing their inconsistency in mind. A thorough planning of the procedure up front is highly recommended. Usage of a navigation system considering the bony structures might as well facilitate as steady the approach to the sellar region in some cases for the patient's sake [1].

Preoperative radiological analysis with CT & MRI is inevitable in planning endonasal transsphenoid surgery to avoid complications because of the high variability concerned with sphenoid anatomy. Anatomical variations of sphenoid sinus esp. degree of pneumatization, sellar configuration, septation pattern, inter carotid distance were evaluated. Results were significant and in concordance with other similar studies. Most frequently encountered pneumatization was sellar type and least was conchal type Sphenoid sinus pneumatization is directly linked to safe access to sella. Presence of septae within sinus need to be identified preoperatively to avoid damage and confusion intraoperatively [2]

Sphenoid sinus ostium

see sphenoid sinus ostium

1)
Ahmadipour Y, Lemonas E, Maslehaty H, Goericke S, Stuck BA, El Hindy N, Sure U, Mueller O. Critical analysis of anatomical landmarks within the sphenoid sinus for transsphenoidal surgery. Eur Arch Otorhinolaryngol. 2016 Apr 21. [Epub ahead of print] PubMed PMID: 27101471.
2)
Prakash BG, Vasan TSC, Babu AR, Saju S. Anatomical Variations of Sphenoid Sinus in South Indian Population: All That You Need for Trans-Sphenoidal Pituitary Surgery. Indian J Otolaryngol Head Neck Surg. 2022 Oct;74(Suppl 2):1646-1650. doi: 10.1007/s12070-021-02793-5. Epub 2021 Aug 3. PMID: 36452778; PMCID: PMC9702382.