

# Agenesis of Sphenoid Sinus: A Case Report

Ramiza Ramza Ramli<sup>1)</sup>, Behzad Shahrjerdi<sup>1)</sup>, Mehrdad Hajmomenian<sup>2)</sup>

## ABSTRACT

**Introduction:** Sphenoid sinus agenesis is extremely rare and usually occurs with some congenital problems.

**Methodology:** A review of case report was made.

**Result:** We describe a case of an absence of sphenoid sinus that accidentally demonstrated by computed tomography in a normal patient.

**Conclusion:** Surgeons planning for a sinus and base of skull surgery should be aware of the possibility of sinus agenesis to prevent surgical complications.

## KEY WORDS

agenesis, hypoplasia, sphenoid sinus, computed tomography

## INTRODUCTION

Paranasal sinuses have a great diversity of anomalies. It is necessary for surgeons to be aware of these anatomical variations that may put the patient in risk of intraoperative complications and help to improve the success of operative strategies by avoiding possible morbidities. Computed tomography is an excellent imaging technique to demonstrate a good surgical map prior to surgery.

## CASE SUMMARY

A 30-year-old man referred to the emergency ward due to motor vehicle accident with history of loss of consciousness and facial trauma. CT scan that was requested to rule out any intracranial hemorrhage or skull and facial fracture had fortunately not detect injury but noted an absence of sphenoid sinus in presence of normal other paranasal sinuses.

Axial and sagittal CT scans revealed the normal body of sphenoid with symmetrical bony structure and total lake of pneumatization (Figure 1, 2).

The patient had no history of craniofacial anomaly, skeletal disease or congenital syndrome and no history of headache and sinusitis.

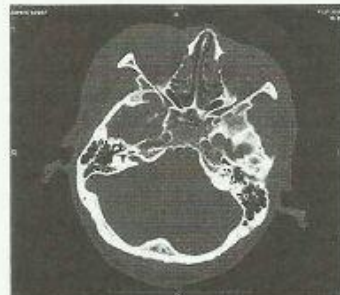


Figure 1. Axial view

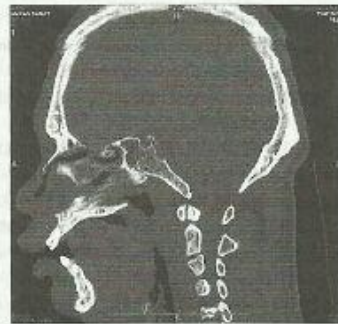


Figure 2. Sagittal view

Received on July 4, 2012 and accepted on October 9, 2012

1) Department of Otorhinolaryngology-Head & Neck Surgery 2) Department of Radiology School of Medical Sciences, Universiti Sains Malaysia, Health Campus

16150 Kota Bharu, Kelantan, Malaysia

Correspondence to: Ramiza Ramza Ramli

(e-mail: ramaz@kck.usm.my)

## DISCUSSION

The paranasal sinuses begin their development as an evagination of mucosa from the nasal cavity within 3rd and 4th months of gestation which will start expanding after the birth<sup>1)</sup>. The sphenoid sinuses appear in 4<sup>th</sup> fetal month<sup>2)</sup>. At birth it is recognized as a cavity with maximum diameter of 2 mm and by 3 years old aeration begins in the sphenoid bone and by the age of 7 years, pneumatization reaches the sella turcica. At 12 years old, sphenoid sinus reaches its full size at 23 x 20 x 17 mm<sup>3)</sup>.

Agenesis of the paranasal sinuses mostly refers to the frontal sinus (12%), maxillary sinus (5-6%) and sphenoid sinus (1-1.5%)<sup>4)</sup>. Sphenoid sinus agenesis is common in craniosynostosis, osteodysplasia, cystic fibrosis, Down syndrome and Hand-schuller-christian disease<sup>5)</sup>. The deficient resorption of the corpus sphenoidale is considered as the pathogenesis of this agenesis without any craniofacial anomalies<sup>6)</sup>.

## CONCLUSION

Pneumatization of the sphenoid sinus is clinically important in base of skull surgery. Computed tomography is strongly recommended for surgical mapping.

## REFERENCES

- 1) Hengerer AS. Embryologic development of the sinuses. *Ear Nose Throat J* 1984; 63: 134-135.
- 2) Aydinlioglu A, Erdem S. Maxillary and sphenoid sinus aplasia in Turkish individuals: a retrospective review using computed tomography. *Clin Anat* 2004; 17: 618-622.
- 3) Degirmenci B, Haktanir A, Acar M, Albayrak R, Yucel A. Agenesis of sphenoid sinus: three cases. *Surg Radiol Anat* 2005; 27: 351-353.
- 4) Digre KB, Maxner CE, Crawford S, Yuh WT. Significance of CT and MR findings in sphenoid sinus disease. *Am J Neuroradiol* 1989; 10: 603-606.
- 5) Peele JC. Unusual anatomical variations of the sphenoid sinuses. *Laryngoscope* 1953; 67: 208-237.
- 6) Anderhuber W, Weiglein A, Wolf G. Nasal cavities and paranasal sinuses in newborns and children. *Acta Anat* 1992; 144: 120-126.
- 7) Degirmenci B, Haktanir A, Acar M, Albayrak R, Yucel A. Agenesis of sphenoid sinus: three cases. *Surg Radiol Anat* 2005; 27: 351-353.