Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Frontoethmoidal Meningoencephalocele: A Case Report

H. El Mansouri[1*], I. Tahiri[1], S. Ouassil[1], C. Ahmana[1], I. Zouita[1], D. Basraoui[1], H. Jalal[1]

[1]Department of Radiology, Mother and Child Hospital, University Hospital of Mohamed VI, Marrakech, Morocco

DOI: https://doi.org/10.36347/sjmcr.2026.v14i11.061 | **Received:** 17.09.2026 | **Accepted:** 13.11.2026 | **Published:** 17.11.2026

***Corresponding author:** H. El Mansouri
Department of Radiology, Mother and Child Hospital, University Hospital of Mohamed VI, Marrakech, Morocco

Abstract | **Case Report**

Meningoencephaloceles are congenital malformations characterized by herniation of meninges and brain tissue through a cranial defect. Their association with craniolacunae, also known as Lückenschädel, is an important radiological finding. A 15-day-old neonate was admitted for a ruptured frontal encephalocele. Computed tomography (CT) performed before and after intravenous contrast administration revealed a 20-mm median basal frontal osseous defect through which the frontal cerebral parenchyma and meninges protruded, surrounded by cerebrospinal fluid. Multiple rounded and oval-shaped lacunae were also identified throughout the calvarial vault, suggesting Lückenschädel. This case highlights the importance of CT in characterizing frontoethmoidal meningoencephaloceles and detecting associated calvarial abnormalities.

Keywords: Meningoencephalocele, Frontoethmoidal Encephalocele, Craniolacunae, Lückenschädel, Computed Tomography.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Encephaloceles are congenital malformations resulting from a skull defect through which intracranial contents herniate. They are classified according to their location and the structures contained within the herniated sac. Frontoethmoidal encephaloceles involve the anterior cranial region and may contain meninges, cerebrospinal fluid (CSF), and cerebral tissue [1, 2].

Craniolacunae, also known as Lückenschädel or lacunar skull, are characterized by multiple rounded or oval defects in the calvarium, separated by bony ridges. They have been described in association with congenital central nervous system malformations, including meningoencephaloceles [3, 4].

We report a case of a median frontoethmoidal meningoencephalocele associated with multiple calvarial lacunae in a 15-day-old neonate, emphasizing the contribution of CT to the diagnosis of these associated abnormalities.

CASE PRESENTATION

A 15-day-old neonate was admitted for a ruptured frontal encephalocele. A spiral CT examination of the skull was performed using millimetric sections before and after intravenous administration of contrast material.

CT revealed a 20-mm median basal frontal osseous defect through which the frontal cerebral parenchyma and associated meningeal structures protruded, surrounded by CSF. These findings were consistent with a median frontoethmoidal meningoencephalocele.

Multiple rounded and oval-shaped osseous lacunae were also observed diffusely throughout the calvarial vault. Their appearance was suggestive of craniolacunae, also known as Lückenschädel.

The overall radiological diagnosis was a median frontoethmoidal meningoencephalocele associated with a lacunar skull appearance.



Figure 1



Figure 2: bone window

DISCUSSION

Meningoencephaloceles result from congenital defects of the skull and underlying dura, allowing herniation of meninges and cerebral tissue. Frontoethmoidal lesions involve the anterior cranial base and require precise anatomical characterization to guide treatment planning [1, 2].

CT is particularly useful for demonstrating the osseous defect, defining its dimensions, and identifying the structures passing through it. Multiplanar reconstructions help clarify the anatomical relationships, while three-dimensional reconstructions, when available, can improve visualization of complex craniofacial defects. MRI may complement CT by providing better characterization of the herniated neural tissue and associated intracranial abnormalities [2-5].

In the present case, CT demonstrated a 20-mm median basal frontal defect with herniation of the frontal cerebral parenchyma and meninges surrounded by CSF. These findings supported the diagnosis of a meningoencephalocele.

The additional presence of multiple calvarial lacunae was an important associated finding. Craniolacunae are characterized by rounded or oval defects separated by an arborizing pattern of bony ridges. Their proposed mechanisms include disturbances of calvarial development; however, their precise pathogenesis remains incompletely established [3]. Their presence should therefore be interpreted in conjunction with the associated congenital abnormalities.

The association between craniolacunae and meningoencephalocele has previously been reported. In 1972, Schey and Selker described a neonatal meningoencephalocele associated with craniolacunae [4]. Thus, the interest of our case lies not in claiming a previously undescribed association, but in documenting the coexistence of these findings on CT in a neonate presenting with a ruptured encephalocele.

A ruptured encephalocele requires prompt specialist assessment because of the potential risk of CSF leakage and infection. Management generally involves multidisciplinary evaluation and consideration of surgical repair, depending on the anatomical characteristics and clinical condition of the patient [2]. However, the clinical course and treatment of our patient cannot be discussed further because these details were not available.

CONCLUSION

Median frontoethmoidal meningoencephalocele is a congenital malformation requiring detailed radiological assessment. This case illustrates the value of CT in demonstrating the osseous defect and herniated intracranial contents, while identifying associated calvarial lacunae suggestive of Lückenschädel. A systematic examination of the skull and intracranial structures is essential for comprehensive diagnostic evaluation.

REFERENCES

1. Suwanwela C, Suwanwela N. A morphological classification of sincipital encephalomeningoceles. J Neurosurg. 1972;36(2):201-211.
2. Abdourafiq H, Zahrou F, Benantar L, Aniba K. Surgical technique and review of management of frontoethmoidal encephalocoele: a case report. Ann Maxillofac Surg. 2021;11(1):132-135. Doi:10.4103/ams.ams_274_20.
3. Vogt EC, Wyatt GM. Craniolacunia (Lückenschädel): a report of 54 cases. Radiology. 1941;36(2):147-153. Doi:10.1148/36.2.147.
4. Schey WL, Selker RG. Anterior fontanel meningoencephalocele: report of a case. Radiology. 1972;104(1):79-80. Doi:10.1148/104.1.79.
5. Lundorf E, Kjeldgaard A, Halaburt H. Coronal CT examination in the evaluation of small frontoethmoidal encephalocoeles. J Laryngol Otol. 1988;102(12):1119-1121. Doi:10.1017/S0022215100107480.