Nasofrontal dermoid cysts with intracranial extension

- Endoscopic-assisted removal of a nasofrontal dermoid cyst with intracranial extradural extension
- The Necessity of Dural Resection for Nasal Dermal Sinus Cyst With Intracranial Extension
- Management of congenital midline nasofrontal dermoid cysts in two identical twins: Case report
- Midline nasofrontal dermoids in children: A review of 29 cases managed at Mansoura University Hospitals
- Midline approach to pediatric nasofrontal dermoid cysts
- The management of midline frontonasal dermoids: a review of 55 cases at a tertiary referral center and a protocol for treatment
- "Keystone" approach for intracranial nasofrontal dermoid sinuses
- Three-dimensional computed tomography of congenital nasal anomalies

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Diagnosis

If a dermoid cyst is presenting as a midline mass of the skull, preoperative imaging with computed tomography and/or magnetic resonance imaging is necessary to evaluate for possible extracranial extension, given the altered embryologic development behind the formation of these cysts.

CT and MRI together are usually required for a definitive diagnosis. CT imaging provides vital information about osseous involvement while MRI is crucial for the evaluation of the intracranial extent and detailed tissue characterization. Knowledge of embryonic development is important in understanding the pathologies of nasofrontal masses in the pediatric age group [1)].

Differential diagnosis

Includes epidermoid cyst, encephalocele, glioma, and sinus pericranii.

Treatment

The management of suspected dermoid cysts includes complete surgical excision, which may require a combined intracranial and extracranial approach.

Case series

In 10 patients with cyst extension near or into the intracranial cavity (7 with true intracranial extension), the nasal osteotomy technique was performed. The mean blood loss was 13 ml, with a 0%

transfusion rate. The mean length of inpatient stay was 1 day. A durotomy was made and repaired as part of the dermoid cyst dissection in 3 patients. One patient underwent intraoperative placement of a lumbar drain. The mean operative time was 228 minutes. There were no intraoperative or postoperative complications, including the need for reoperation. No patients had any long-term complications, and no patients had dermoid cyst recurrence. The appearance of the scar was acceptable in all cases.

The midline approach to nasal dermoid cysts with intracranial extension is safe and results in limited blood loss, short operative times, and short lengths of inpatient hospital stay. This is a viable technique for the treatment of this challenging pathology [2)].

Retrospective case series of nasofrontal dermoid cysts in 4 patients treated at a single tertiary medical center from June 1, 2010, through July 31, 2012. The mean age at surgery was 2.5 years. The anatomical location of the nasofrontal dermoid cysts differed: (1) supratip extending through the upper lateral cartilages to the cartilaginous septum, (2) upper dorsum and subcutaneous tissue, (3) tip and supratip extending deep to the nasal bones with involvement of the anterior cranial fossae and dura, and (4) nasal tip extending deep to the level of the rhinion and involving the upper lateral cartilages and below the left medial canthus. Preoperative imaging was performed on all patients. There was one case of intracranial extension. All patients underwent surgical excision with the vertical midline incision. Nasal reconstruction was performed with local soft-tissue flaps (1 patient), regenerative tissue matrix (2 patients), and bone dust pate (1 patient). The patient with intracranial involvement also underwent a frontal craniotomy. All lesions were histologically confirmed as dermoid cysts. Mean follow-up was 1.5 years. There were no complications or recurrences. All patients had cosmetically acceptable scars.

Conclusions and relevance: A vertical midline incision with modifications to excise involved skin provides a satisfactory and cosmetically sound approach to congenital lesions of the nasofrontal region. It affords adequate exposure for complete excision and reconstruction. A multidisciplinary team consisting of a neurosurgeon, facial plastic surgeon, and pediatric otolaryngologist is needed to optimize outcomes [3)]

Case reports

2023

Rand et al. presented an extended external rhinoplasty approach with bilateral marginal and alar base incisions for the removal of a nasal dermoid cyst with intracranial extension in a 3-year-old patient. This approach provides adequate exposure, enables nasal bone osteotomies, and allows access to the skull base while achieving a cosmetically acceptable scar [4)].

2012

A 2-year-old boy who presented to our institution with a congenital midline scalp mass separate from the anterior fontanelle with complete underlying bony erosion to the sagittal sinus demonstrated on

preoperative imaging, who required early surgical excision and reconstruction of the bony defect [5].

2006

A case was associated with a corpus callosum lipoma, and the patient presented with recurrent meningitis [6].

1)
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