Frontoethmoidal encephalocele treatment

Comprehensive management of FEEM encompasses the following:

Accurate diagnosis, delineation of anatomy, and surgical planning

Single- or multiple-staged surgeries preferably with both a craniomaxillofacial surgeon and a neurosurgeon present

Osteotomies and bone movements that correct all deformities, including the interorbital hypertelorism

Nasal reconstruction (if required) to address the long-nose hypertelorism deformity

Skin closure that removes abnormal skin and places incisions in advantageous locations.

Steps generally advocated in the surgical management of FEEM:

Intracranial/subcranial/transfacial/combined approach for exposure of the anomaly

Craniotomy/trepanation

Repositioning the bulging herniated tissue mass back into the cranium

Surgical excision with removal of nonfunctional extracranial cerebral tissue

Water-tight closure of the dural defect

Closure of the internal cranial bone defects

Correction of the craniofacial deformities such as hypertelorism and relieving intracranial pressure that may delay normal brain development

Nasal augmentation

Medial canthoplexy

Placing a shunt if needed.

Comprehensive and holistic management of FEEMs involves both removal of the herniated mass of the encephalomeningocele and reconstruction of the attendant craniofacial deformity caused by this entity and can be achieved by means of two main surgical techniques [1)].

The debate between the extracranial and the intracranial approach for frontoethmoidal (FEE) encephalocele corrective surgery was not summarized yet. The extracranial approach is traditionally believed being inferior to the intracranial approach, but convincing evidence was missing. To provide robust evidence, we conducted a meta-analysis on the incidence of cerebrospinal fluid (CSF) leakage, its progression to infection, the reoperation to treat the leakage, and the recurrence rate between the two techniques. We performed a meta-proportion pooled analysis and meta-analysis on eligible literature following the recommendation of PRISMA guidelines. The outcome of interest was the

incidence of Cerebrospinal fluid fistula, the Cerebrospinal fluid fistula that progressed into an infection, the reoperation rate to treat the leakage, and the recurrence rate. We included 28 studies comprising 1793 patients in the pooled prevalence calculations. Of the 28 studies, nine studies describing 730 patients were eligible for meta-analysis. The prevalence of Cerebrospinal fluid fistula was 8% (95% CI, 0.04-0.12) in the intracranial approach and 10% (95% CI, 0.01-0.23) in the extracranial approach The subgroup analysis of the intracranial approach showed higher Cerebrospinal fluid fistula prevalence in the frontal craniotomy approach (9%; 95% CI, 0.03-0.16) than the subfrontal osteotomy (6%; 95% CI, 0.03-0.12). Meta-analysis study revealed a significantly higher risk of Cerebrospinal fluid fistula (OR 2.82; 95% CI, 1.03-7.72), a higher reoperation rate (OR 5.38; 95% CI: 1.13 - 25.76), and the recurrence rate (RR 4.63; 95% CI, 1.51-14.20) for the extracranial approach. The event of infected Cerebrospinal fluid fistula (OR 3.69; 95% CI, 0.52-26.37) was higher in the extracranial than intracranial approach without any statistical significance. The extracranial approach was associated with a higher risk of Cerebrospinal fluid fistula, reoperation rate to treat the Cerebrospinal fluid fistula, and the recurrence rates. The infected Cerebrospinal fluid fistula between the extracranial and intracranial approaches showed no significant difference [2].

1)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6018266/

2)

Suryaningtyas W, Sabudi IPAW, Parenrengi MA. The extracranial versus intracranial approach In frontoethmoidal encephalocele corrective surgery: a meta-analysis. Neurosurg Rev. 2021 Jun 13. doi: 10.1007/s10143-021-01582-6. Epub ahead of print. PMID: 34120254.