Pediatric intracranial infections requiring neurosurgery: a German multicenter analysis of ten-year trends pre- and post-COVID-19 [Abstract]

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longstanding variability in diagnosis and treatment of CSF overdrainage.

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Pediatric intracranial infections requiring neurosurgery: A German multicenter analysis of ten-year trends pre- and post-COVID-19

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Long-term challenges after treatment of hydrocephalus in childhood (Pediatric & CSF Parallel Session), Lehar 3, October 6, 2025, 8:00 AM - 9:30 AM
Intracranial infection in children is a rare but life-threatening condition that requires immediate neurosurgical care. In this multicenter analysis, we examined the impact of the COVID-19 pandemic on the incidence, clinical characteristics and outcome of children with intracranial infections requiring neurosurgery.

Methods

Data from 109 children (aged 0–18 years) undergoing 178 neurosurgical procedures for intracranial infections between 2014 and 2024 from 10 pediatric neurosurgeries were analysed. Pre-pandemic (2014–2020) and post-pandemic (2021–2024) cohorts were compared and incidence risk ratios (IRRs) were calculated. Etiologies, clinical course and sequela were analysed. Outcomes were assessed via the pediatric modified Rankin Scale (mRS) at discharge and 3-month follow-up.

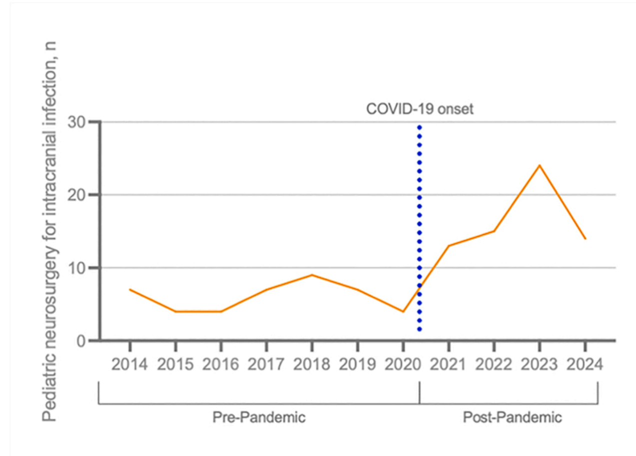
Results

The annual incidence of pediatric intracranial infections requiring neurosurgery increased significantly post-pandemic, with an IRR of 2.6 (95% CI: 1.9–3.5, $p < 0.001$). Intracranial infections secondary to sinusitis and otitis demonstrated even sharper rises, with IRRs of 3.6 (95% CI: 2.4–5.4, $p < 0.001$) and 4.7 (95% CI: 3.1–7.2, $p < 0.001$), respectively. Despite this surge, functional outcomes remained stable: median mRS scores showed no significant differences between pre- and post-pandemic cohorts at discharge (pre: 2 [IQR 1–3] vs. post: 2 [IQR 1–3], $p = 0.3882$) or 3-month follow-up (pre: 1 [IQR 0–2] vs. post: 1 [IQR 0–2], $p = 0.9278$).

Conclusions

These findings highlights the need for increased awareness and vigilance for intracranial infections in children after the pandemic era

Optional Image



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Repair of Frontoethmoidal Meningoencephaloceles: Experience With A Single-stage Transfacial Subcranial Approach From A Lower-middle Income Country

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Long-term challenges after treatment of hydrocephalus in childhood (Pediatric & CSF Parallel Session), Lehar 3, October 6, 2025, 8:00 AM - 9:30 AM
Frontoethmoidal meningoencephaloceles are a continuing problem for neurosurgeons in low to middle income countries, often faced with difficult access to a multidisciplinary team. While our institution has previously attempted a combined extracranial-intracranial approach together with a craniofacial team, the required resources and availability of expertise made it unfeasible in the long term. Thus, for this relatively common condition in our setting, we have adapted a single-stage transfacial subcranial approach with or without split calvarial thickness graft that can be sustainably executed by a single neurosurgeon.

Methods

A retrospective review of all patients who have undergone this approach in the Southern Philippines Medical Center from 2017 to 2024 were included. Their clinical data, post-operative course, and complications were evaluated.

Results

Thirty-six cases were included in this study with the average age of 7.4 years, three of which were adults. Three patients (8.3%) developed hydrocephalus with clinical signs of increased intracranial pressure, all of which underwent operative CSF diversion. Three patients (8.3%) developed early CSF leak with only one case requiring a re-operation, the other two were successfully managed with a lumbar drain. One (2.8%) developed a superficial skin infection that resolved with antibiotics with none developing meningitis. There were no mortalities recorded.

Conclusions

Our experience demonstrates the feasibility of successfully repairing frontoethmoidal meningoencephaloceles in a low resource setting. The described approach has a low associated morbidity and mortality and is an effective technique in a single-neurosurgeon setup.

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