Hydrocephalus Management

- An aggressive, unresected pineoblastoma in an adult woman: the role of exclusive radiotherapy - a case report and literature review
- Comprehensive predictive modeling in subarachnoid hemorrhage: integrating radiomics and clinical variables
- Risk factors for the development of hydrocephalus in traumatic brain injury: a systematic review and meta-analysis
- Volumetric predictors for shunt-dependency in pediatric posterior fossa tumors
- Radiological diagnosis of infantile osteopetrosis in a 1-year-old with macrocephaly and jaundice
- 'VACTERL-H in newborn: A rare case report'
- COVID-19-Related Spontaneous Vertebral Artery Dissection: A Case Report
- Subarachnoid hemorrhage, part 2 : Treatment, complications and long-term sequelae

- **Acute phase:**
  - External ventricular drainage (EVD)
- **Definitive treatment:**
  - Ventriculoperitoneal (VP) shunt
  - Endoscopic third ventriculostomy (ETV), depending on etiology

Retrospective Controlled Cohort Studies

In a Retrospective Controlled Cohort Study Sun et al. included 46 pediatric patients who underwent the Conventional external ventricular drain (C-EVD) or modified external ventricular drainage (M-EVD) for PMH treatment at Hebei Province of Children's Hospital from January 2018 to December 2023. Conventional external ventricular drain placement is standard of care in purulent meningitis management with hydrocephalus. The indwelling time of conventional external ventricular drainage is relatively short, 7-10 days. Long-term external drainage devices may lead to retrograde infection. This study has modified the external ventricular drain procedure. Clinical outcomes, cerebrospinal fluid (CSF) test results, complications, and outcomes were compared between the modified external ventricular drainage (n = 21) group and conventional external ventricular drain (n = 25) group.

The two groups were similar regarding age, sex, weight and other general conditions ($P > 0.05$). There were significant differences in the values of white blood cells (WBC), glucose (GLU) and protein (PR) in cerebrospinal fluid between the two groups when the drainage tube was removed, which was statistically significant. The median days of removing the drainage tube in the conventional external ventricular drain group and the modified external ventricular drainage group were 9 days and 19 days, respectively. The median days of CSF returning to normal were 19 days and 13 days ($P < 0.05$). A total of 13 children in the modified external ventricular drainage group underwent ventriculo-peritoneal shunt surgery, while 17 children in the conventional external ventricular drain group were treated with entriculo-peritoneal shunt surgery ($P = 0.665$).

The modified external ventricular drainage has more obvious advantages compared to conventional external ventricular drain. The modified significantly prolonged the catheterization time, which can more effectively treat purulent meningitis with hydrocephalus in pediatric patients. [1)]

Sun et al. provide a preliminary comparison of a modified EVD approach in pediatric PMH. While results hint at biochemical CSF improvement and extended drainage tolerance, the lack of clarity on technique, small sample size, and missing infection data limit the conclusions. Future prospective, randomized, and multicenter studies with defined protocols and standardized microbiological workup are needed before recommending M-EVD as standard practice.

1)
Sun Y, Du J, Fang J, Wang S, Luan J, Cheng Z, Yang Z, Sun Y. Clinical characteristics and post-operative outcomes in children with purulent meningitis with hydrocephalus: 46 cases in a single center study. Ital J Pediatr. 2025 May 19;51(1):145. doi: 10.1186/s13052-025-01995-9. PMID: 40390131.