

Brain Abscess Following Cerebrospinal Fluid Fistula

- A rare presentation of isolated candidal hepatic abscess in a maintenance hemodialysis patient
- Intraoperative Injection of Normal Saline Through Lumbar Drainage for Transnasal Endoscopic Repair of Complex CSF Leaks
- Precision diagnosis and therapy of a case of brain abscesses associated with asymptomatic pulmonary arteriovenous fistulas
- Nonmissile Anterior Skull-Base Penetrating Brain Injury: Experience with 22 Patients
- Paramedian Forehead Flap for Repair of Refractory High-Flow Anterior Skull Base CSF Leak
- Surgical management and outcomes of non-missile open head injury: Report of 44 cases from a single trauma centre
- Use of Pedicled Trapezius Myocutaneous Flap for Posterior Skull Reconstruction
- Brain abscess caused by *Haemophilus influenzae* type E in a pediatric patient suffering from Apert syndrome

It is well known that accurate location of the leak in the operation is crucial for repairing cerebrospinal fluid leakage. The study aims to investigate the application of intraoperative injection of normal saline through lumbar drainage in repairing complex leaks.

Methods: The fistulas of all patients with CSF leak were located by computed tomography cisternography (CTC) or heavy T2 magnetic resonance imaging (MRI) before surgery. Before anesthesia, the patient underwent lumbar drainage implantation, and then 20 ml of normal saline was slowly injected through the lumbar drainage to observe the patient's response. The surgical approach was designed based on the preoperative imaging data. When the operation was near to the suspected fistula, normal saline was injected through lumbar drainage (20 ml each time) to confirm the leak location. After CSF leak repair, saline was injected again to confirm whether the repair was successfully.

Result: Of the 5 patients with complex leaks, 4 cases were repaired by transnasal endoscopy method, and 1 case was repaired by transnasal endoscopy method and epidural method. A total of 7 leaks were found during the operation. During the operation, 40-120 ml of normal saline was injected through lumbar drainage. Cauda equina neuralgia was developed in patients who received 120 ml normal saline, which was relieved by intrathecal injection of dexamethasone. During the follow-up of 3 months, 1 case suffered from brain abscess, which was controlled by vancomycin. There was no recurrence of rhinorrhea.

Conclusion: Intraoperative injection of normal saline through lumbar drainage can not only better expose the complex leak but also check the repair effect of the leak during transnasal endoscopic repair, which is effective and avoids side effects ¹⁾.

¹⁾

Wei X, Zhang F, Qiu Y, Shen H, Ilyasova T, Liu L. Intraoperative Injection of Normal Saline Through Lumbar Drainage for Transnasal Endoscopic Repair of Complex CSF Leaks. *Front Surg.* 2022 Mar 21;9:861406. doi: 10.3389/fsurg.2022.861406. PMID: 35388360; PMCID: PMC8977469.

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