

External Ventricular Drain for Hydrocephalus Following Intraventricular Hemorrhage

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- [Beyond traditional predictors: the impact of the pulsatility index and cortical subarachnoid space diameter on endoscopic third ventriculostomy success](#)

Hydrocephalus is a common complication of [intraventricular hemorrhage](#) (IVH), resulting from obstruction of cerebrospinal fluid (CSF) pathways or impaired absorption. An external ventricular drain (EVD) is a critical intervention for managing acute hydrocephalus in these cases.

see [External Ventricular Drainage Indications](#)

Procedure Overview

Preparation:

Imaging: CT/MRI to confirm ventricular enlargement and guide placement.

Antibiotic prophylaxis: Typically a single dose of a broad-spectrum antibiotic.

Anesthesia: Local or general depending on patient stability.

Placement:

The EVD is most commonly inserted through the Kocher's point (frontal approach) to access the lateral ventricle.

The drain is positioned to allow CSF drainage and monitoring of intracranial pressure.

Care is taken to avoid further damage to neural tissue or blood vessels.

Post-placement:

Connect to a closed drainage system, typically set at a predefined pressure level (e.g., 10–15 cm

H₂O).

Regular assessments of CSF output, ICP, and the need for adjustments in drainage.

Management

CSF drainage:

Controlled based on clinical status and ICP levels.

Adjust drainage height to optimize intracranial dynamics.

Monitoring:

Neurological status: To evaluate the response to treatment.

CSF characteristics: Presence of blood, infection signs.

Infection: Daily monitoring for signs of ventriculitis or meningitis.

Clot resolution:

Blood breakdown products can impair CSF reabsorption. The use of intraventricular thrombolysis (e.g., alteplase) is controversial but sometimes employed under strict protocols.

Complications

Infection: Risk increases with prolonged use (>7–10 days). Obstruction: EVD blockage due to blood clots or debris. Malposition: Incorrect catheter placement may require repositioning. Overdrainage: Risk of subdural hematoma or herniation. CSF leakage: Around the insertion site.

Outcomes Early placement of an EVD can significantly improve outcomes by controlling ICP and preventing further neurological deterioration. Long-term interventions, such as permanent ventriculoperitoneal shunting, may be required if hydrocephalus persists after clot resolution. **Prognosis** depends on the severity of the IVH, the presence of complications, and the patient's overall condition. **Key Points** The EVD is a life-saving measure for acute hydrocephalus due to IVH. It requires meticulous management to prevent complications and optimize outcomes. The decision for further interventions, like thrombolysis or permanent shunting, should be individualized.

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