

presented with left-sided HD. His cervical MRI revealed enlarged epidural with anterior, left-ward displacement of the posterior dura and spinal cord. He underwent surgical treatment by laminotomies, along with tenting of an autologous duroplasty to the overlying laminae. **Results:** We decided to combine epidural venous plexus coagulation with posterior duraplasty and dural fixation using tenting suture which led to a favorable clinical outcome has not been previously proposed in the literature.

We hypothesize that in this context, an abnormal vasculature could also predispose to posterior epidural venous plexus engorgement, anterior dural displacement in cervical flexion, and microvascular changes in the anterior spinal arterial circulation, leading to the progressive anterior horn cell ischemia that lead to the clinical phenotype of HD. **Conclusions:** The association between HD and VGAM in this patient may provide clues with regard to the pathophysiology of HD.

## P.206

### Tissue Plasminogen Activator in Addition to Twist Drill Drainage as a Treatment for Chronic Subdural Hematomas – A Descriptive Analysis

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**Background:** Current literature provides little consensus on universal guidelines for first-line treatment of chronic subdural hematomas (cSDH). However, administration of local tissue plasminogen activator (tPA) may enhance the traditional method of twist drill drainage (TDD). The study aims to explore the efficacy of TDD with and without tPA, at achieving clinically relevant drainage (200mL) and reducing recurrence of cSDH. **Methods:** A retrospective review of patients (N=34) with cSDH is presented. Patients who received TDD with tPA (n=17) were identified and matched, based primarily on age and hematoma volume, to a control group (n=17), TDD without tPA. Variables of interest include initial hematoma volume, volume drained, length of stay, and recurrence rates. Descriptive analysis was run. **Results:** Average age for patients was 74.6 with 76% male. Mean drainage volumes for the tPA cohort was 381.6mL and TDD without tPA cohort was 151.3mL. The addition of tPA resulted in drainage volumes nearly double (1.9x) the clinically relevant amount and had low recurrence rates (12.5%). TDD without tPA failed to result in clinically relevant drainage and had a recurrence rate of 52.9%. Average length of stay differed by two days (9.71 tPA; 7.71 control). **Conclusions:** TDD with tPA was effective at treating cSDH in our population.

## P.207

### Reducing the risks of proximal and distal shunt failure in adult hydrocephalus: A Shunt Outcomes Quality Improvement (ShOut-QI) Study

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**Background:** Ventriculoperitoneal (VP) shunt failures in adult patients are common and subject patients to multiple surgeries and a decreased quality of life. A prospective cohort Shunt Outcomes Quality Improvement (ShOut-QI) initiative was implemented to reduce shunt failure incidence through neuronavigation-assisted proximal catheter insertion and laparoscopy-guided distal catheter anchoring over the liver dome to drain CSF away from the omentum. **Methods:** “Pre-ShOut” and “Post-ShOut” groups of patients included those with and without neuronavigation/laparoscopy, respectively for insertion of a new VP shunt. The primary outcome was shunt failure which was defined as any return to surgery for shunt revision as determined with a standardized clinical and radiology follow-up protocol. **Results:** 244 patients (97 Pre-ShOut, 147 Post-ShOut), mean age 73 years, were enrolled over a 7-year interval and observed for a mean duration of 4 years after shunt insertion. Neuronavigation improved proximal catheter placement accuracy by 20% ( $p < .001$ ), and shunt failure occurred in 57% vs 23% in the Pre-ShOut and Post-ShOut groups, respectively ( $p = .008$ ), representing a 53% relative risk reduction in the incidence of shunt failure. **Conclusions:** Adult shunt failure incidence may be significantly reduced by improving the accuracy of proximal catheter placement with neuronavigation and reducing the risk of distal catheter failure with laparoscopic-guided placement.

## P.208

### Pilot Study of a Multi-center, Randomized, Blinded, Placebo-Controlled Trial of Shunt Surgery in Idiopathic Normal Pressure Hydrocephalus

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**Background:** To describe preliminary results of a multi-center, randomized, blinded, placebo-controlled, pilot trial of shunt surgery in idiopathic normal pressure hydrocephalus