Endoscopy-assisted interhemispheric transcallosal hemispherotomy

Endoscopy-assisted interhemispheric transcallosal hemispherotomy was performed in 5 children (April 2013-June 2014). The procedure consisted of performing a small craniotomy (4 × 3 cm) just lateral to midline using a transverse skin incision. After dural opening, the surgery was performed with the assistance of a rigid high-definition endoscope, and bayoneted self-irrigating bipolar forceps and other standard endoscopic instruments. Steps included a complete corpus callosotomy followed by the disconnection of the hemisphere at the level of the basal nuclei and thalamus. The surgeries were performed in a dedicated operating room with intraoperative magnetic resonance imaging and neuronavigation. Intraoperative magnetic resonance imaging confirmed a total disconnection.

The pathologies for which surgeries were performed included sequelae of middle a cerebral artery infarct (n = 2), Rasmussen syndrome (n = 1), and hemimegalencephaly (2). Four patients had an Engel class I and 1 patient had a class II outcome at a mean follow-up of 10.2 months (range, 3-14 months). The mean blood loss was 80 mL, and mean operating time was 220 minutes. There were no complications in this study.

This study describes a pilot novel technique and the feasibility of performing a minimally invasive, endoscopy-assisted hemispherotomy [1].

Profuse bleeding originating from an injured cerebral sinus can be a harrowing experience for any surgeon, particularly during an operation on a young child. Common surgical remedies include sinus ligation, primary repair, placement of a hemostatic plug, and patch or venous grafting that may require temporary stenting.

In a paper the Tuite et al., describe the use of a contoured bioresorbable plate to hold a hemostatic plug in place along a tear in the inferomedial portion of a relatively inaccessible part of the posterior segment of the superior sagittal sinus in an 11-kg infant undergoing hemispherotomy for epilepsy. This variation on previously described hemostatic techniques proved to be easy, effective, and ultimately lifesaving. Surgeons may find this technique useful in similar dire circumstances when previously described techniques are ineffective or impractical [2].

1)
Chandra PS, Kurwale N, Garg A, Dwivedi R, Malviya SV, Tripathi M. Endoscopy-assisted interhemispheric transcallosal hemispherotomy: preliminary description of a novel technique. Neurosurgery. 2015 Apr;76(4):485-95. doi: 10.1227/NEU.0000000000000675. PubMed PMID: 25710106.
2)
Tuite GF, Carey CM, Nelson WW, Raffa SJ, Winesett SP. Use of a contoured bioresorbable plate with a hemostatic plug to control life-threatening bleeding from the superior sagittal sinus during hemispherotomy: technical note. J Neurosurg Pediatr. 2016 Oct;18(4):487-492. PubMed PMID: 27391919.