Disconnective Procedure

see Extratemporal disconnective procedure.

Outcomes following functional hemispherotomy in patients with drug-resistant epilepsy have been well described. However, studies reporting long-term longitudinal outcomes after subhemispheric disconnective epilepsy surgery are still limited.

Dorfer et al. conducted a retrospective review of prospectively collected data of 10 children who underwent temporoparietooccipital (TPO) disconnective surgery at the Vienna Pediatric Epilepsy Center.

There were 3 males and 7 females (median age 8.7 years; range 4.2-22.1 years). The affected hemisphere was the left in 3 patients and the right in 7. The patients' median age at seizure onset was 3.0 years (range 0.2-8.3 years). The median duration of epilepsy before surgery was 5.2 years (range 1.3-17.2 years). The underlying pathology was TPO malformation of cortical development in 5 patients, and venous infarction, posterior hemispheric quadrant atrophy, Sturge-Weber syndrome, cortical involvement of a systemic lupus erythematosus, and gliosis after cerebral tumor treatment in 1 each. In 6 children, a pure TPO disconnection was performed; in 2 patients, the temporal lobe was resected and parietooccipital disconnection was performed. The 2 remaining patients had had previous epilepsy surgery that was extended to a TPO disconnection: disconnection of the occipital lobe (n = 1) and resection of the temporal lobe (n = 1). The authors encountered no complications while performing surgery. No patient needed blood replacement therapy. No patient developed CSF disturbances that warranted treatment. Nine of 10 patients are currently seizure free since surgery (Wieser Class 1a) at a median follow-up time of 2.1 years (range 4 months to 8.1 years).

Temporoparietooccipital disconnection is a safe and effective motor-sparing epilepsy surgery in selected cases. Technical adjuncts facilitate a better intraoperative visualization and orientation, thereby enabling a less invasive approach than previously suggested [1)].

Extensive multilobar cortical dysplasia in infants commonly is first seen with catastrophic epilepsy and poses a therapeutic challenge with respect to control of epilepsy, brain development, and psychosocial outcome. Experience with surgical treatment of these lesions is limited, often not very encouraging, and holds a higher operative risk when compared with that in older children and adults.

Two infants were evaluated for surgical control of catastrophic epilepsy present since birth, along with a significant psychomotor developmental delay. Magnetic resonance imaging showed multilobar cortical dysplasia (temporoparietooccipital) with a good electroclinical correlation. They were treated with a temporal lobectomy and posterior parietooccipital disconnection.

Both infants had excellent postoperative recovery and at follow-up (1.5 and 3.5 years) evaluation had total control of seizures with a definite “catch up” in their development, both motor and cognitive. No long-term complications have been detected to date.

The incorporation of disconnective techniques in the surgery for extensive multilobar cortical dysplasia in infants has made it possible to achieve excellent seizure results by maximizing the extent of surgical treatment to include the entire epileptogenic zone. These techniques decrease perioperative morbidity, and Daniel RT et al. believe would decrease the potential for the

development of long-term complications associated with large brain excision [2].

1)
Dorfer C, Czech T, Mühlebner-Fahrngruber A, Mert A, Gröppel G, Novak K, Dressler A, Reiter-Fink E, Traub-Weidinger T, Feucht M. Disconnective surgery in posterior quadrantic epilepsy: experience in a consecutive series of 10 patients. Neurosurg Focus. 2013 Jun;34(6):E10. doi: 10.3171/2013.3.FOCUS1362. PubMed PMID: 23724834.
2)
Daniel RT, Meagher-Villemure K, Roulet E, Villemure JG. Surgical treatment of temporoparietooccipital cortical dysplasia in infants: report of two cases. Epilepsia. 2004 Jul;45(7):872-6. PubMed PMID: 15230716.