Some pediatric candidates for epilepsy surgery have epilepsy which is considered catastrophic because of a high seizure frequency, often many per day, in association with developmental stagnation or regression. Increasing numbers of infants with catastrophic epilepsy are being considered for surgical treatment, if they have the key elements of surgical candidacy including medically intractable epilepsy, a localized epileptogenic zone, and a low risk of new, unacceptable, postoperative neurologic deficits. Most of these infants have had low grade tumor, cortical development malformations, or other epileptogenic lesions visualized on preoperative MRI. The assessment of potential risks and benefits for surgery in these patients involves complex, age-related issues including the possible impact of uncontrolled seizures or surgery, on cognitive development. This review will address some of these issues in the context of two clinical cases.
Surgical management of epilepsy in childhood is challenging in many ways and requires the special expertise of a multidisciplinary team. Although epilepsy has many common features in both adults and children, pediatric epilepsy disorders and their surgical management have many significant differences and peculiar characteristics. Cause and nature of the seizures in children are much more diverse, including perinatal injuries, stroke, and certain pediatric epilepsy syndromes such as infantile spasms. Hemispheric pathologies such as Rasmussen encephalitis and Sturge-Weber syndrome constitute a significant portion of surgical procedures in infants and children. Extratemporal or multilobar resections and hemispherectomies predominate. In the Cleveland Clinic series, these procedures comprised 44% of surgeries in adolescents, 50% of surgeries in children, and 90% of surgeries in infants. Increasingly, efforts are being made to identify appropriate surgical candidates earlier in life. For each patient, the timing of surgery must carefully be considered based on a full assessment of the relative risks and benefits, derived from a detailed presurgical evaluation. For carefully selected children with severe, intractable epilepsy, a localized epileptogenic zone, and a relatively low risk for new epilepsy surgery, early surgical intervention can stop seizures and reverse the cognitive decline so that these patients can develop normally, eventually leading to relatively normal lives. For more information, see Epilepsy Surgery and Epilepsy and Seizures. A conservative estimate is that one half of patients with medically intractable epilepsy are potential candidates for epilepsy surgery. Another 10-15% of patients with epilepsy have severe symptomatic or cryptogenic generalized seizure disorders that do not respond to AEDs. In the United States alone, there are 200,000 potential surgical candidates.