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Despite advances in surgical technique and neurophysiologic monitoring, lesions near the cortical areas responsible for language function may require an awake and cooperative patient to definitively identify the limits of the resection (awake craniotomy). Such techniques allow for the possibility of total resection of the lesion with preservation of language function. Given the requirements for an awake and yet cooperative patient, such procedures are more commonplace in adults than children. However, with appropriate preoperative preparation, patient selection, and perioperative care, these procedures can be performed in a select group of pediatric patients. During these procedures, the demands for anesthetic care include the provision of general anesthesia or deep sedation during craniotomy and exposure of the brain with prompt awakening to allow for intraoperative mapping of language function. Additional requirements during the awake portion of the procedure include the use of sedative and analgesic agents that will have limited effects on hemodynamic and respiratory function. We present a 13-year-old, previously healthy, girl who presented with new-onset seizure activity in the left mid-temporal region. Further workup with an MRI revealed a mass lesion centered at the left temporoparietal junction suggestive of a neoplastic process. A functional MRI indicated close proximity of the tumor to Wernicke's and Broca's areas, as well as the motor cortex. Given the radiographic findings, there were significant concerns about the tumor location and the proximity to receptive language centers. Following neuropsychological, neurosurgical and neurology evaluations, the patient was deemed to be an appropriate candidate for a left temporal parietal, awake craniotomy with intraoperative electrocorticography (ECoG) and functional language mapping.

Although several case reports have been published on the subject of anesthetic care for awake craniotomy in the adult population, there are limited data in children with reports of such a procedure in only 9 other pediatric patients.¹⁻⁵ The previous reports regarding the performance of an awake craniotomy in pediatric-aged patients are reviewed and suggestions for perioperative management provided. Patient selection, anesthetic technique employed, the asleep-awake-asleep anesthetic method, and potential complications associated with the performance of an awake craniotomy in a pediatric patient are discussed.

1. Tobias JD, Jimenez DF. Anaesthetic management during awake craniotomy in a 12-year-old boy. *Paediatr Anaesth* 1997;7:341-344.
 2. Ard J, Doyle W, Bekker A. Awake craniotomy with dexmedetomidine in pediatric patients. *J Neurosurg Anesth* 2003;15:263-266.
 3. Hagberg CA, Gollas A, Berry JM. The laryngeal mask airway for awake craniotomy in the pediatric patient: report of three cases. *J Clin Anesth* 2004;16:43-47.
 4. Klimek M, Verbrugge SJ, Roubos S, van der Most E, Vincent AJ, Klein J. Awake craniotomy for glioblastoma in a 9-year-old child. *Anaesthesia* 2004;59:607-609.
 5. Everett LL, Van Rooyen IF, Warner MH, Shurtleff HA, Saneto RP, Ojemann JG. Use of dexmedetomidine in awake craniotomy in adolescents: report of two cases. *Ped Anesth* 2006;16:338-342.
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