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Topics in Magnetic Resonance Imaging: Volume 19(4) January 2009 pp 191-196

## Awake Craniotomy and Intraoperative Magnetic Resonance Imaging: Patient Selection, Preparation, and Technique

### [Original Articles]

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### Abstract

**Objectives:** Intraoperative magnetic resonance imaging (iMRI) has been reported to augment radical brain tumor resection. "Awake craniotomy" is a technique to conserve function during brain tumor surgery. We report on the combination of these 2 techniques, with special emphasis on potential adverse effects, caveats, and patient preparation.

**Methods:** Thirty-four patients had 38 awake craniotomies with cortical stimulation within an integrated MRI-operating room with a 1.5-T unit. Thirty-two lesions were left hemispheric, 6 on the right side.

**Results:** Preparation for iMRI per patient amounted to 20 to 25 minutes, in addition to scan time. The procedure was well tolerated by all patients. Thirty-two stated that they would undergo this procedure again, if necessary. Four underwent a second "awake" surgery in the iMRI for recurrent disease. Intraoperative MRI had no adverse effect, such as seizures. Cortical stimulation could be performed without restrictions outside the 5-gauss line.

**Conclusions:** The combination of iMRI and awake craniotomy is demanding but well tolerated by patients. Careful preoperative evaluation is essential to ensure compliance. There is no adverse effect through iMRI on the awake patient or the results of cortical stimulation.

Since the introduction of the iMRI in our department in 2005, all awake craniotomies were done in this setting. The implementation of these 2 techniques into our procedures is demanding, and necessitates thorough preparation but has broadened our basis for surgical decision making. However, to substantiate our positive perception, more clinical data are being compiled.

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