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### Identification of disappearing brain lesions with intraoperative magnetic resonance imaging prevents surgery.

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#### Abstract

**BACKGROUND:** Typically, neurosurgery is performed several weeks after diagnostic imaging. In the majority of cases, histopathology confirms the diagnosis of neoplasia. In a small number of cases, a different diagnosis is established or histopathology is nondiagnostic. The frequency with which these outcomes occur has not been established.

**OBJECTIVE:** To determine the frequency and outcome of disappearing brain lesions within a group of patients undergoing surgery for suspected brain tumor.

**METHODS:** Over the past decade, 982 patients were managed in the intraoperative magnetic resonance imaging unit at the University of Calgary, Calgary, Alberta, Canada. These patients have been prospectively evaluated.

**RESULTS:** In 652 patients, a brain tumor was suspected. In 6 of the 652 patients, histopathology indicated a nontumor diagnosis. In 5 patients, intraoperative images, acquired after induction of anesthesia, showed complete or nearly complete resolution of the suspected tumor identified on diagnostic magnetic resonance imaging acquired  $6 \pm 4$  (mean  $\pm$  SD) weeks previously. Anesthesia was reversed, and the surgical procedure aborted. The lesions have not progressed with  $6 \pm 2$  years of follow-up.

**CONCLUSION:** Intraoperative magnetic resonance imaging prevented surgery on 5 patients with disappearing lesions.

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