

# Contrast-enhanced magnetic resonance imaging

Contrast-enhanced magnetic resonance imaging (MRI) is the imaging modality routinely used to follow up patients who have undergone surgical resection of brain meningiomas. There are growing concerns about the massive use of gadolinium-based contrast agents (GBCA). Our aim was to evaluate the performance of a new imaging protocol, performed without GBCA injection, in the detection of tumoral residue or local recurrence after surgery of parafalcine and convexity meningiomas.

**Materials and methods:** Only adult patients with a documented resected parafalcine or convexity meningioma were included. We performed a dedicated MRI protocol that included non-contrast and post-contrast sequences. The presence or absence of residue on the unenhanced sequences was independently recorded by three observers: first blindly, then in comparison with a baseline enhanced MRI examination.

**Results:** A total of 51 patients were included. 37 of them featured a tumor residue on the reference enhanced sequence. Overall, an average of 32 of 37 (87%) residues were identified on the unenhanced sequences that were blindly reviewed; and more than 34 of 37 (93%) were identified with the help of the comparative baseline enhanced examination, with a high sensitivity. The missed cases were related to small residues.

**Conclusion:** Unenhanced MRI sequences are highly sensitive and specific in identifying a tumor residue or a local recurrence in the post operative follow up of brain meningiomas. Sensitivity is even higher with the help of a comparative baseline enhanced MRI examination, whatever the strength of magnetic field <sup>1)</sup>

<sup>1)</sup>

Alonso SM, Lersy F, Ardellier FD, Cebula H, Proust F, Onofrei A, Chammas A, Kremer S. Is non-contrast MRI sufficient to detect meningioma residue after surgery? J Neuroradiol. 2023 Aug 19:S0150-9861(23)00233-X. doi: 10.1016/j.neurad.2023.08.003. Epub ahead of print. PMID: 37598979.

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Last update: **2024/06/07 02:59**

