Reviewer’s report

Title: Efficacy of sellar opening in the pituitary adenoma resection of transsphenoidal surgery influences the degree of tumor resection

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Reviewer: Ronald Benveniste

Reviewer’s report:

This study addresses the question of whether larger openings in the bony sellar floor are associated with greater likelihood of gross total tumor resection (GTR) in patients with pituitary adenomas. The strengths of this study include the use of sophisticated quantification of sellar floor opening based on high resolution CT images, and the fact that postoperative images were obtained very soon after surgery, eliminating the possibility of dural ossification or bony regrowth confounding the measurements.

The authors reach conclusions that match anecdotal observation and common sense; specifically, that relatively large bony openings (relative to the size of the tumor's "base") correlate with GTR, and that bony opening close to the tuberculum sella is associated with greater likelihood of cerebrospinal fluid (CSF) leak.

The main weaknesses of the study are that first, GTR was assessed without regard to whether the residual tumor was in the cavernous sinus or in other locations. Most surgeons do not plan to resect tumor in the cavernous sinus, and in my opinion the more clinically useful correlation would be between the extent of bony opening and resection of all "surgically accessible" tumor (i.e., not in the cavernous sinus). If a tumor extends into the cavernous sinuses, the "base" of the tumor is wider than the sella, and in this circumstance the ratio of the size of the opening to the base of the tumor is likely to be low, and in addition residual tumor is almost certain.

A second weakness is that the correlation between the bony opening near the tuberculum sella and CSF leakage was not considered separately for micro and macroadenomas. The sella is likely to have arachnoid in its most rostral part in patients with small tumors, while macroadenomas can completely fill the sella and extend suprasellar; in this circumstance, a more rostral opening of the sellar floor would be much less likely to result in a breach of the arachnoid, and may help with tumor resection.

This study is useful and I recommend publication, as long as the two issues above are addressed (preferably with revision of the data, but at least in the paper's discussion). I also recommend revision of English word usage, grammar, and syntax by an English speaking editor.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes
Does the work include the necessary controls?
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Yes

Are the conclusions drawn adequately supported by the data shown?
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Yes

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