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LETTER TO THE EDITOR - PITUITARIES

Going beyond scoring systems for cavernous sinus involvement in trans-sphenoidal pituitary surgery

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Dear Editor,

We read with great interest the work by Serra et al. [5], which addresses a widespread need in trans-sphenoidal pituitary surgery: the availability of a simple and reliable scoring system to predict extent of resection. In fact, notwithstanding the huge technical advances in endoscopic equipment [3], there remain cases in which gross total resection (GTR) cannot be achieved safely. Cavernous sinus invasion is probably the main factor leading to residual disease [4]. Knosp classification [2], as correctly pointed out by the Authors, has several limitations, including unsatisfactory inter-observer reproducibility. Therefore, the authors suggest a novel score to assess cavernous sinus involvement, based on the simple measurement of intercarotid distance at the C4 segment and of the maximum horizontal diameter of the adenoma. We think that this is a useful trick which deserves to be prospectively validated. We tested the "*Serra score*" on a small sample consisting of 25 patients operated for pituitary adenoma between January and March 2018 at our Institution. GTR was collaboratively assessed on the first post-operative MR scan and, overall, it was achieved in 72% of cases. A board-certified neurosurgeon (PPM) and a resident (FF) independently assessed the Serra Score, obtaining an 80% concordance. Based on these two evaluations, GTR was achieved respectively in 100% and 100% Grade I, in 71.4% and 75% grade II, and in 25% and 41.9% grade III cases (GTR grade I vs III, $p = 0.02$ and 0.07, respectively, Fisher exact test; GTR grade I vs II and II vs III, p = NS for both evaluations). Therefore, we confirm that the proposed score is an interesting tool for predicting preoperatively the extent of resection of a pituitary adenoma. However, cavernous sinus invasion is not the only factor leading to residual disease in trans-sphenoidal pituitary surgery. Suprasellar extension is another important issue, which is particularly difficult to deal with in case the adenoma has a firm/rubbish consistency. Intriguingly, in the small test cohort here described, GTR was achieved in 40% of cases with vs 80% of cases without significant suprasellar extension, although the difference was not statistically significant due to the small sample size. Unfortunately, radiological data are currently able to predict tumor consistency with scarce reliability [1]. In conclusion, it appeared that other relevant parameters were not fully considered in the proposed grading system. It might be premature to prospectively validate a novel classification without sufficient multiparametric analyses.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

This article is part of the Topical Collection on *Pituitaries*

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