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C0267 - ANALYSIS OF PREOPERATIVE IMAGING AS A PREDICTIVE MARKER FOR INTRAOPERATIVE AND POSTOPERATIVE SURGICAL MANAGEMENT IN THE ENDOSCOPIC ENDONASAL RESECTION OF PITUITARY MACROADENOMAS

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Resumen

Objectives: Macroadenomas are one of the most common pathologies encountered in skull base surgery practice. The primary surgical management goals are maximizing cytoreduction and achieving optic nerve decompression. Devastating intraoperative complications have been significantly reduced over the years. However, postoperative hypothalamo-hypophyseal axis injuries and cerebrospinal fluid (CSF) leaks remain issues in the management of these lesions. The objective of this prospective, single-center study is to utilize preoperative MRI to predict the relative location of critical neuroanatomic structures, including the pituitary gland and diaphragm, in order to create a preoperative plan and an intraoperative map to enable a safer surgical resection.

Methods: 30 surgical cases of pituitary macroadenomas (> 2 cm) were prospectively analyzed. Three main elements were analyzed by a neuroradiologist on the preoperative MRI: gland location, diaphragm integrity, and sellar diaphragm ascent.

Results: Mean tumor diameter was 27.8 mm (20-62 mm). Partial or complete preoperative pituitary insufficiency was present in 13 patients (43.3%). After surgery, 2 (6.6%) completely recovered pituitary function, 10 (33.3%) remained unchanged and 1 (3.3%) presented a new hormonal deficit. Among preoperative hormonally intact patients, only 1 (3.3%) experienced a transient diabetes insipidus that resolved within weeks. Diaphragm was predicted to be preserved in 24 (80%) cases, in 5 (16.6%) to be disrupted and in 1 (3.3%) case it was unclear. Intraoperatively, the 24 intact-predicted diaphragms were confirmed. Among the 5 violated diaphragms, 2 (6.6%) were confirmed, 1 (3.3%) was preserved and 2 (6.6%) diaphragms were not evaluated because the operation was confined to optic nerve decompression. The unclear case preoperatively was found to be violated intraoperatively.

Conclusions: Detailed preoperative MRI analysis, combined with a pseudocapsular dissection technique offers a positive result in terms of postoperative preservation of pituitary function, diaphragm preservation and reducing residual tumor.