Clinically Functioning pituitary neuroendocrine tumor

Functional pituitary neuroendocrine tumors produce high levels of one of the hormones, leading to certain hormonal conditions. They can grow large enough to produce other symptoms, including headache and vision problems. Some functional tumors grow so large that they compress pituitary gland tissue, decreasing the secretion of other pituitary hormones.

Pituitary corticotroph adenoma

Follicle stimulating hormone secreting pituitary neuroendocrine tumor

Lactotroph adenoma

Somatotroph pituitary neuroendocrine tumor (Somatotroph adenoma).

Functional pituitary neuroendocrine tumors (FPAs) lacking a well-defined pseudocapsule can invade the adjacent pituitary gland. In such situations, peel-off resection of the adjacent pituitary gland after selective adenomectomy might lead to complete tumor removal, resulting in optimal endocrinological outcomes.

Nagata et al. presented the significance of peel-off resection of the pituitary gland in patients with FPA in whom complete extracapsular tumor removal cannot be achieved.

They performed a retrospective review of 21 patients with FPA who underwent transsphenoidal surgery (TSS). After selective adenomectomy, peel-off resection of the adjacent pituitary gland was performed in 13 patients because complete extracapsular resection could not be achieved, while peel-off resection was not performed in the remaining 8 patients because complete extracapsular resection was accomplished. The clinical outcomes of these groups were compared. The pituitary tissues obtained by peel-off resection were pathologically examined for tumor cells.

Early postoperative biochemical remission was achieved in 20 patients (95.2%). Anterior pituitary functions were not aggravated postoperatively in any patient: however, transient diabetes insipidus (DI) occurred in 2 patients. There were no statistically significant differences in the clinical outcomes of the two groups. A pseudocapsule was pathologically detected in the adjacent anterior pituitary even in patients in whom no pseudocapsule was intraoperatively detected. Tumor cells were pathologically detected in 7 (58.3%) of 12 pituitary tissues examined.

Peel-off resection of the pituitary gland, which can remove a small tumor cell remnant in the adjacent pituitary, might maximize the effectiveness of TSS with minimal impact on postoperative pituitary function [1].

1)
Nagata Y, Takeuchi K, Yamamoto T, Ishikawa T, Kawabata T, Shimoyama Y, Inoshita N, Wakabayashi T. Peel-off resection of the pituitary gland for functional pituitary neuroendocrine tumors: pathological significance and impact on pituitary function. Pituitary. 2019 Aug 3. doi: 10.1007/s11102-019-00980-w. [Epub ahead of print] PubMed PMID: 31377966.