B-7. Hormonal Correlation of Eosinophilic Pituitary Adenoma and Acromegaly

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It has been known that eosinophilic granules of pituitary adenoma always associate with acromegaly, and further, the intensity of acromegaly depends on the amount of the these granules. However, we experienced a patient of pure eosinophilic pituitary adenoma (Bailey & Cushing, type 1.) without any sign of acromegaly. Because this case showed low concentration of immunoreactive human growth hormone (HGH), either the no-secretion of HGH or secretion of inactive HGH from eosinophilic granules was suspected.

On the other hand, three patients of acromegaly showed high concentration of immunoreactive HGH (over 20–50 ng/m*l*) in plasma. After insulin-induced hypoglycemia and arginine infusion, plasma HGH rose to 80–120 ng/m*l*, while after the ingestion of 50 g glucose there was no change of plasma HGH. On histological examination these pituitary adenoma cells contained many eosinophilic granules. Electron-microscopic examination revealed many spherical secretory granules (200–400 mμ), endoplasmic reticulums and mitochondria. Monolayer cultures of pituitary adenomas from these patients produced much HGH (1000 ng/day, 5×10^5) cells and continued to produce measurable concentration of HGH over the period of a month.

On conclusion, eosinophilic granules are not simply responsible to acromegaly, but the amount of HGH released from eosinophilic granules of the pituitary adenoma is more importnat.

B-8. Transsphenoidal Approach to the Pituitary Adenoma, with Special Reference to Postoperative Course of the Human Growth Hormone in Acromegaly

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Among 23 operations of pituitary adenomas during last 5 years, 10 cases were operated through transsphenoidal route. The findings of PEG tomogram of the sellar and suprasellar region were the indicator in selecting the case of transsphenoidal

operation. i.e., 1) Cases of intrasellar expansion with minimal suprasellar extension, and 2) Cases with suprasellar extension in superior and posterior direction, were operated through transsphenoidal route. In the early period, Hirsch's transseptal method was adopted, and intracapsular scratching by curette and postoperative irradiation was usual treatment. In the latter half period the total removal of tumor tissue was intended under operative microscope by Hardy's method. Either procedures were controlled by radiofluoroscopic control with image intensifier.

In the cases of suprasellar extension, postoperative PEG proved disappearance of suprasellar contour of the tumor and reduction of anterior part of the 3rd ventricle to normal position. Improvement of the visual field was generally good compairing with those of craniotomy cases.

5 adenomas with acromegaly were operated through transsphenoidal route and a case was treated only with Co^{60}-irradiation.

Preoperative human growth hormone (with radioimmunoassey) in acromegaly ranged from 12.5 to 80 mμg/d*l*. 4 out of 5 cases had high blood sugar level uncontrollable with insulin. HGH decreased to normal level within 2 months after operation and also GTT-curve improved to normal pattern except in one case, in which HGH increased again afterwards and GTT-curve remained abnormal. The latter adenoma was very fibrous and hard, and it was supposed that some tumor tissue remained unremoved.

One case, who refused the surgery and was treated with Co^{60}-irradiation only, showed transitory reduction of HGH near to the normal but increased again afterwards to pathological level.

Adrenocortical and thyroid hormone measured with indirect method (17 OHCS, serum thyroxin etc.) in postoperative course showed moderate reduction of the function under normal in majority of cases, but hormonal substitution therapy was requered in only one case.

Diabetes incipidus occured after operation in one case and disappeared spontaneously within 3 months. In effect of treatment on acromegaly no difference was found between intracapsular removal of the tumor tissue combined with postoperative irradiation and total removal of the tumor only.

B-9. Lipid Metabolism of the Experimentally Introduced Mouse Brain Tumors

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