Double pituitary adenomas with distinct histological features and immunophenotypes

We present a case of double pituitary adenomas with distinct pathological features. A 59 year old Japanese woman was referred to Hokkaido University Hospital for endocrinological examination of acromegaly. The patient showed typical acromegalic features. Growth hormone (GH) and insulin-like growth factor 1 were 17.1 ng/ml and 1620 ng/ml, respectively. Other pituitary hormones including thyroid stimulating hormone (TSH), prolactin, gonadotropins, and adrenocorticotropic hormone (ACTH) were within normal ranges. GH was not suppressed in the 75 g oral glucose tolerance test. Although the response of TSH was normal, GH showed a paradoxical rise to 200 μg with thyrotropin releasing hormone administration. On imaging analysis, double low intensity regions separated by a normal pituitary were identified (fig 1). Based on the diagnosis of acromegaly, transsphenoidal pituitary adeno-mectomy was done. Each tumour showed distinct histological and immunohistochemical features; the left adenoma consisted of relatively small cells with hyperchromatic nuclei immunoreactive for TSH. In contrast, the tumour cells of the right tumour were acidophilic and cytoplasm rich with an intense immunoreactivity for GH (fig 2). Other pituitary hormones including luteinising hormone, follicle stimulating hormone, prolactin, and ACTH were immunohistochemically negative for both adenomas.

The incidence of double or multiple pituitary adenomas is approximately 1% of autopsy pituitaries and 0.4% to 1.3% of a surgically resected series. In the present case, one adenoma was endocrinologically active but the other inactive regardless of being immunohistochemically positive for TSH. The independent production of distinct pituitary hormones from each adenoma has been reported, so one should take into consideration doing an intensive preoperative imaging analysis if one hopes to accomplish complete remission of endocrinopathy.

**References**

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