

A Case of Cushing's Disease Diagnosed by Bilateral Simultaneous Cavernous Sinus Sampling

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Abstract: The pituitary origin of ACTH secretion in ACTH-dependent hypercortisolism is sometimes difficult to diagnose, as magnetic resonance imaging (MRI) may fail to identify ACTH-secreting microadenomas or may give false positive imaging results of microadenomas. Recently, a diagnosis using cavernous sinus sampling has become possible, which has led to good outcomes of surgery for Cushing's disease. We recently treated a 59-year-old male suffering from flushing, poorly controlled diabetes and hypertension. Because of the high level of ACTH and cortisol in his blood, he was suspected to have Cushing's disease. MRI demonstrated a mass in the pituitary gland. An endocrinological examination strongly suggested the diagnosis of Cushing's disease, but the diagnosis was not definite. Therefore, selective venous sampling was performed. The ACTH gradient level from the inferior petrosal sinus was not clear, but the level from the cavernous sinus exhibited a high gradient. The central:peripheral ratio of ACTH was 3.54:1, thus confirming the diagnosis of Cushing's disease. Endoscopic transsphenoidal surgery was performed, and the adenoma was totally removed. After surgery, the hypertension and diabetes were dramatically improved. Selective venous sampling from the cavernous sinus is a useful method to make a diagnosis of Cushing's disease.

Key words : Cushing's disease, Cavernous sinus, Inferior petrosal sinus, Sampling