Pituitary adenoma

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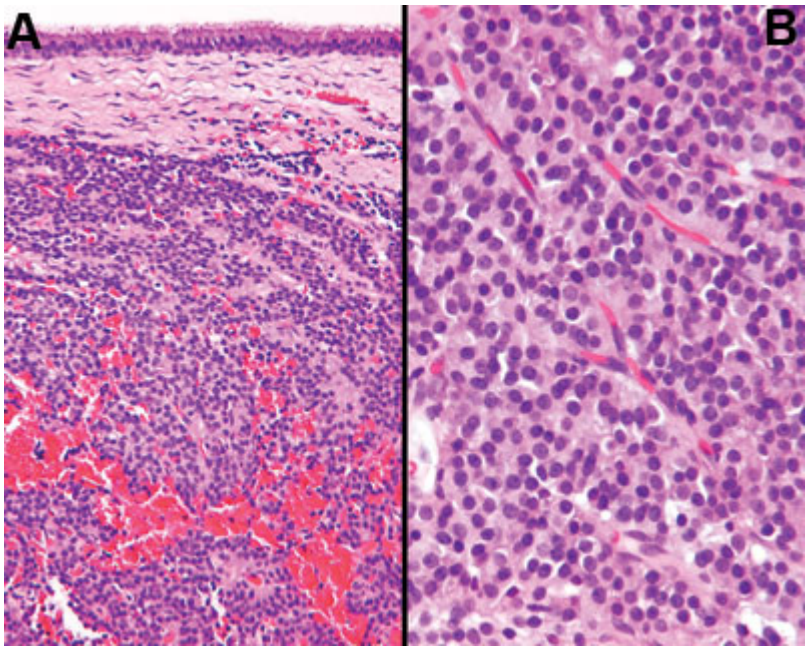

Figure 1. ***A:*** *An ectopic pituitary adenoma within the sphenoid sinus has an intact respiratory epithelium (top) and a sheetlike growth of cells (below).* ***B:*** *A trabecular arrangement is noted in many tumors.*

Pituitary tumors account for approximately 15% of all intracranial neoplasms. They can be either benign or malignant, primary or secondary, and epithelial or nonepithelial. Pituitary carcinoma can only be diagnosed when there is confirmed metastatic disease. The vast majority are primary epithelial pituitary adenomas, which generally arise from hormone-producing cells, regardless of whether a particular tumor is active or inactive (i.e., non-hormone-producing). Pituitary adenomas are further classified on the basis of size, function, cell type, hormone production, location, and biologic behavior. Most pituitary adenomas are benign neoplasms, either null-cell or prolactin-producing microadenomas (<1 cm in their greatest dimension—usually seen radiographically) that are seen within the pituitary gland. Most pituitary adenomas occur in women; they can arise at any age, but they are more common in the third through sixth decades of life. Patients with a pituitary adenoma present with either an endocrinopathy or a mass effect. Nonfunctioning adenomas exhibit no biochemical or clinical evidence of excessive hormone production. Patients with functional tumors present with specific syndromes, such as Cushing's syndrome (adrenocorticotropic hormone-producing).

Histologically, pituitary adenomas are classified as *basophilic, eosinophilic,* and *null cell;* each has a host of different subtypes whose classification is based on specific ultrastructural and immunophenotypic features. Cells are usually arranged in sheets or in gland-like or follicular structures (figure 1). The size of the cells varies from small to medium. Some cells have eosinophilic to basophilic granular cytoplasm, and others have clear cytoplasm (figure 2). Immunophenotypically, these cells react with keratin, chromogranin, and synaptophysin; they also demonstrate specific peptides in many cases.

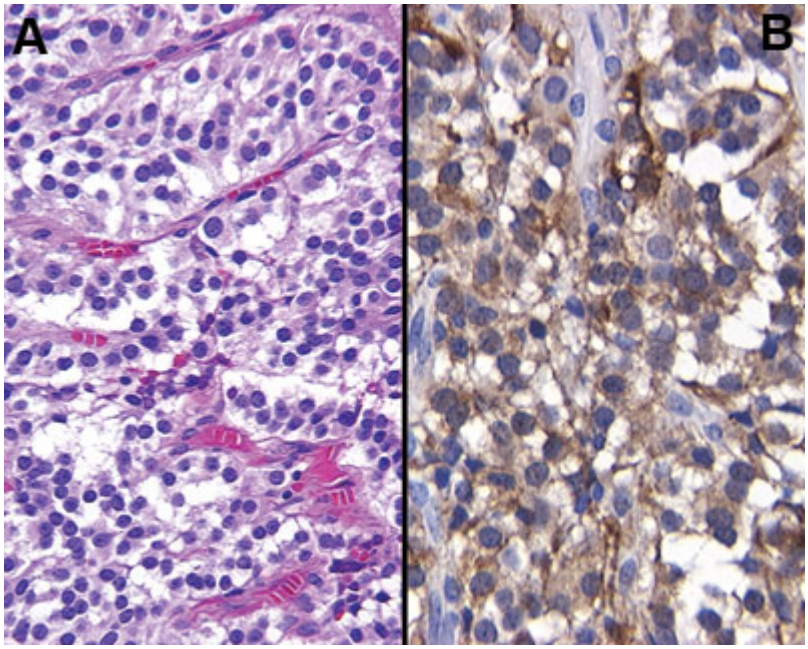

Figure 2. ***A:*** *Small- to medium-size cells with abundant pale and eosinophilic cytoplasm surround nuclei with coarse nuclear chromatin.* ***B:*** *The neoplastic cells are strongly immunoreactive with chromogranin.*

The transsphenoid approach to surgical excision is the most effective treatment, with a cure rate that ranges from 75 to 93%. Irradiation has also been used; among adults, its cure rate is 15% and its clinical improvement rate is 30%. Specific symptoms caused by functional tumors can be managed with pharmacotherapy, but with mixed results.

Suggested reading

Asa SL. Tumors of the pituitary gland. In: Atlas of Tumor Pathology. 3rd series, fascicle 22. Washington, D.C.: Armed Forces Institute of Pathology, 1998.

DeLellis RA, Lloyd RV, Heitz PU, Eng C, eds. Pathology and Genetics of Tumours of Endocrine Organs. World Health Organization Classification of Tumours. Lyon: IARC Press, 2004:10-47.