



Figure 24-4 Pituitary adenoma. This massive, nonfunctional adenoma has grown far beyond the confines of the sella turcica and has distorted the overlying brain. Nonfunctional adenomas tend to be larger at the time of diagnosis than those that secrete a hormone.

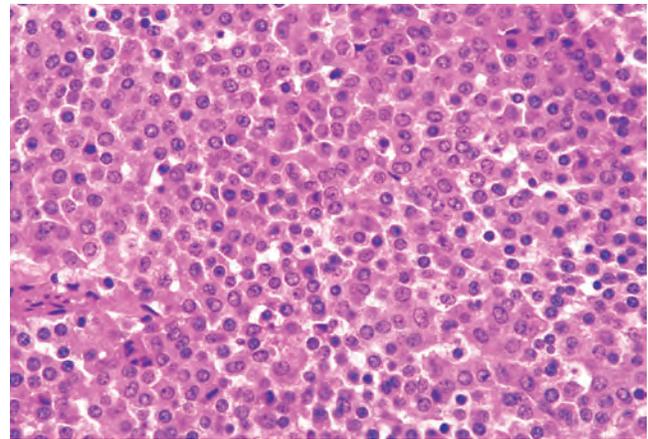


Figure 24-5 Pituitary adenoma. The monomorphism of these cells contrasts markedly with the mixture of cells seen in the normal anterior pituitary. Note also the absence of reticulin network.

pituitary hormones are mentioned later, when the specific types of pituitary adenoma are described. Local mass effects may be produced by any type of pituitary tumor. As already mentioned, these effects include *radiographic abnormalities of the sella turcica*, *visual field abnormalities*, signs and symptoms of *elevated intracranial pressure*, and occasionally *hypopituitarism*. Acute hemorrhage into an adenoma is sometimes associated with *pituitary apoplexy*, as noted earlier.

The following is a discussion of the individual types of tumors.

Lactotroph Adenoma

Prolactin-secreting lactotroph adenomas are the most frequent type of hyperfunctioning pituitary adenoma, accounting for about 30% of all clinically recognized cases. These lesions range from small microadenomas to large, expansile tumors associated with substantial mass effect.

MORPHOLOGY

The overwhelming majority of lactotroph adenomas are comprised of chromophobic cells with juxtannuclear localization of the transcription factor PIT-1; these are known as **sparsely granulated lactotroph adenomas** (Fig. 24-6A). Much rarer are the acidophilic **densely granulated lactotroph adenomas**, characterized by diffuse cytoplasmic PIT-1 expression localization (Fig. 24-6B). Prolactin can be demonstrated within the secretory granules in the cytoplasm of the cells using immunohistochemical stains. Lactotroph adenomas have a propensity to undergo dystrophic calcification, ranging from isolated psammoma bodies to extensive calcification of virtually the entire tumor mass (“pituitary stone”). Prolactin secretion by functioning adenomas is usually efficient (even microadenomas secrete sufficient prolactin to cause hyperprolactinemia) and proportional, in that serum prolactin concentrations tend to correlate with the size of the adenoma.

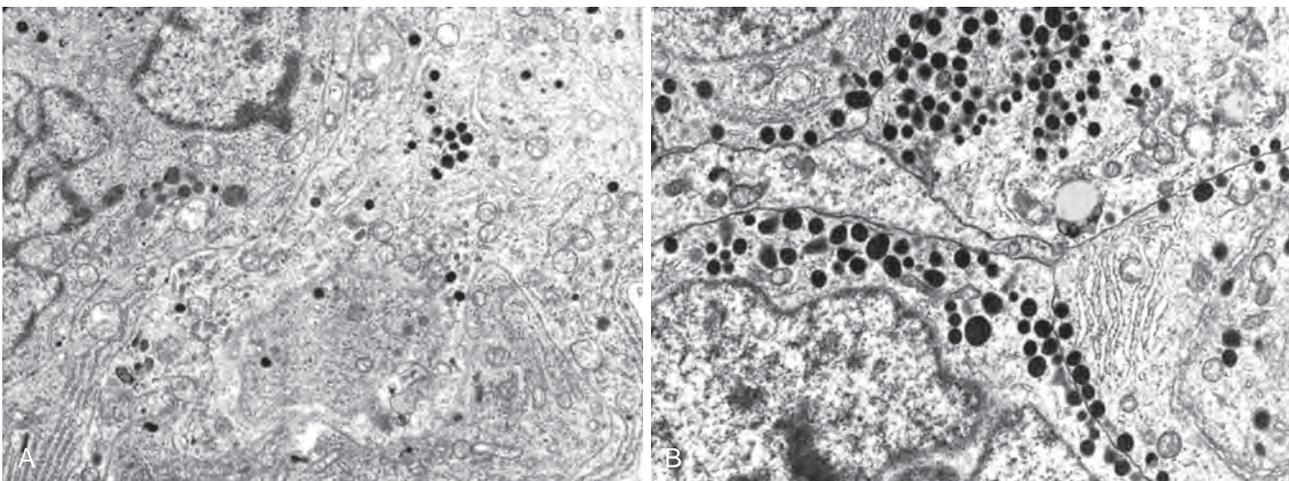


Figure 24-6 Ultrastructural features of prolactinomas. **A**, Electron micrograph of a sparsely granulated prolactinoma. The tumor cells contain abundant granular endoplasmic reticulum (indicative of active protein synthesis) and small numbers of electron-dense secretory granules. **B**, Electron micrograph of densely granulated growth hormone-secreting adenoma. The tumor cells are filled with numerous large, electron-dense secretory granules. (Courtesy Dr. Eva Horvath, St. Michael's Hospital, Toronto, Ont. Canada.)