The 4th edition of the World Health Organization (WHO) classification of endocrine tumors has been recently released. In this new edition, major changes are recommended in several areas of the classification of tumors of the anterior pituitary gland (adenophypophysis). The scope of the present manuscript is to summarize these recommended changes, emphasizing a few significant topics. These changes include the following: (1) a novel approach for classifying pituitary neuroendocrine tumors according to pituitary adenohypophyseal cell lineages; (2) changes to the histological grading of pituitary neuroendocrine tumors with the elimination of the term “atypical adenoma;” and (3) introduction of new entities like the pituitary blastoma and re-definition of old entities like the null-cell adenoma. This new classification is very practical and mostly based on immunohistochemistry for pituitary hormones, pituitary-specific transcription factors, and other immunohistochemical markers commonly used in pathology practice, not requiring routine ultrastructural analysis of the tumors. Evaluation of tumor proliferation potential, by mitotic count and Ki-67 labeling index, and tumor invasion is strongly recommended on individual case basis to identify clinically aggressive adenomas. In addition, the classification offers the treating clinical team information on tumor prognosis by identifying specific variants of adenomas associated with an elevated risk for recurrence. Changes in the classification of non-neuroendocrine tumors are also proposed, in particular those tumors arising in the posterior pituitary including pituicytoma, granular cell tumor of the posterior pituitary, and spindle cell oncocytoma. These changes endorse those previously published in the 2016 WHO classification of CNS tumors. Other tumors arising in the sellar region are also reviewed in detail including craniopharyngiomas, mesenchymal and stromal tumors, germ cell tumors, and hematopoietic tumors. It is hoped that the 2017 WHO classification of pituitary tumors will establish more biologically and clinically uniform groups of tumors, make it possible for practicing pathologists to better diagnose these tumors, and contribute to our understanding of clinical outcomes for patients harboring pituitary tumors [1)].

1)

Lopes MBS. The 2017 World Health Organization classification of tumors of the pituitary gland: a summary. Acta Neuropathol. 2017 Oct;134(4):521-535. doi: 10.1007/s00401-017-1769-8. Epub 2017 Aug 18. Review. PubMed PMID: 28821944.