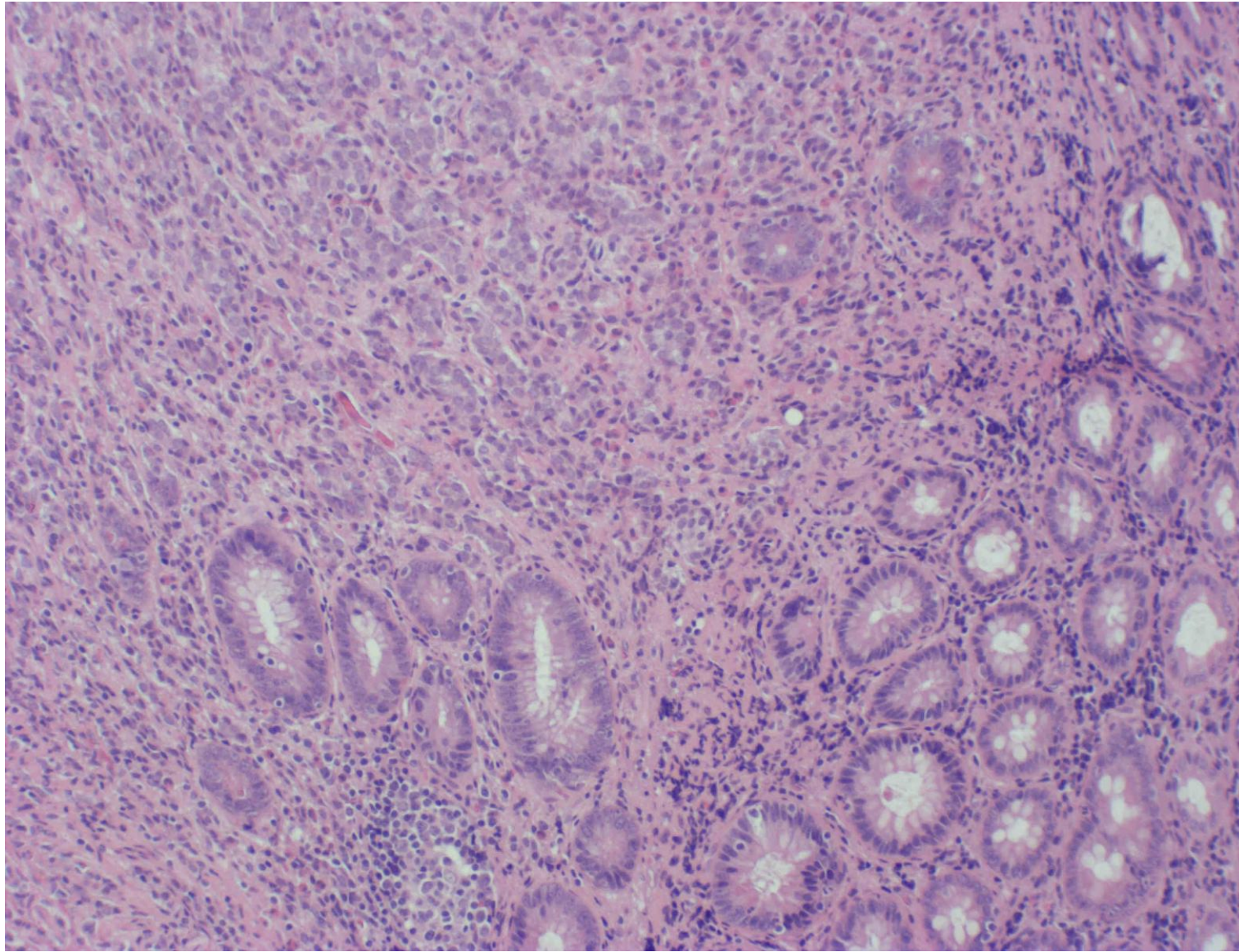


Lipid-rich appendiceal carcinoid tumor

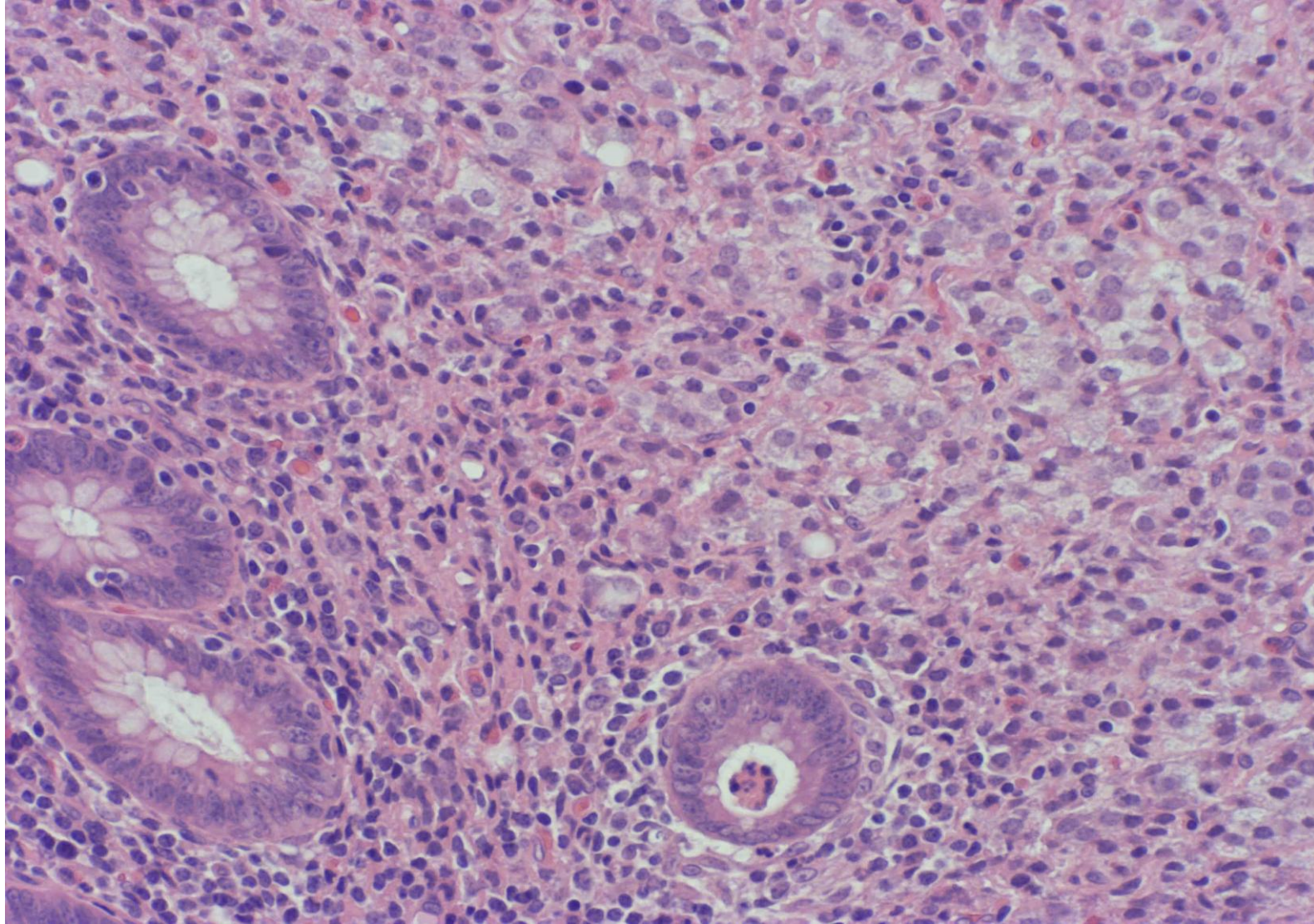
Appendiceal carcinoid tumors (neuroendocrine tumors) are mostly asymptomatic and discovered after appendectomy. The lipid-rich carcinoid (clear cell carcinoid) is histologically characterized by the presence of clear fat vacuoles in the cytoplasm of tumor cells. The differential diagnosis from goblet cell carcinoid (goblet cell adenocarcinoma) is requested.

Lipid-rich appendiceal carcinoid tumor seen in a case of 16-year-old man complaining of acute appendicitis is described.

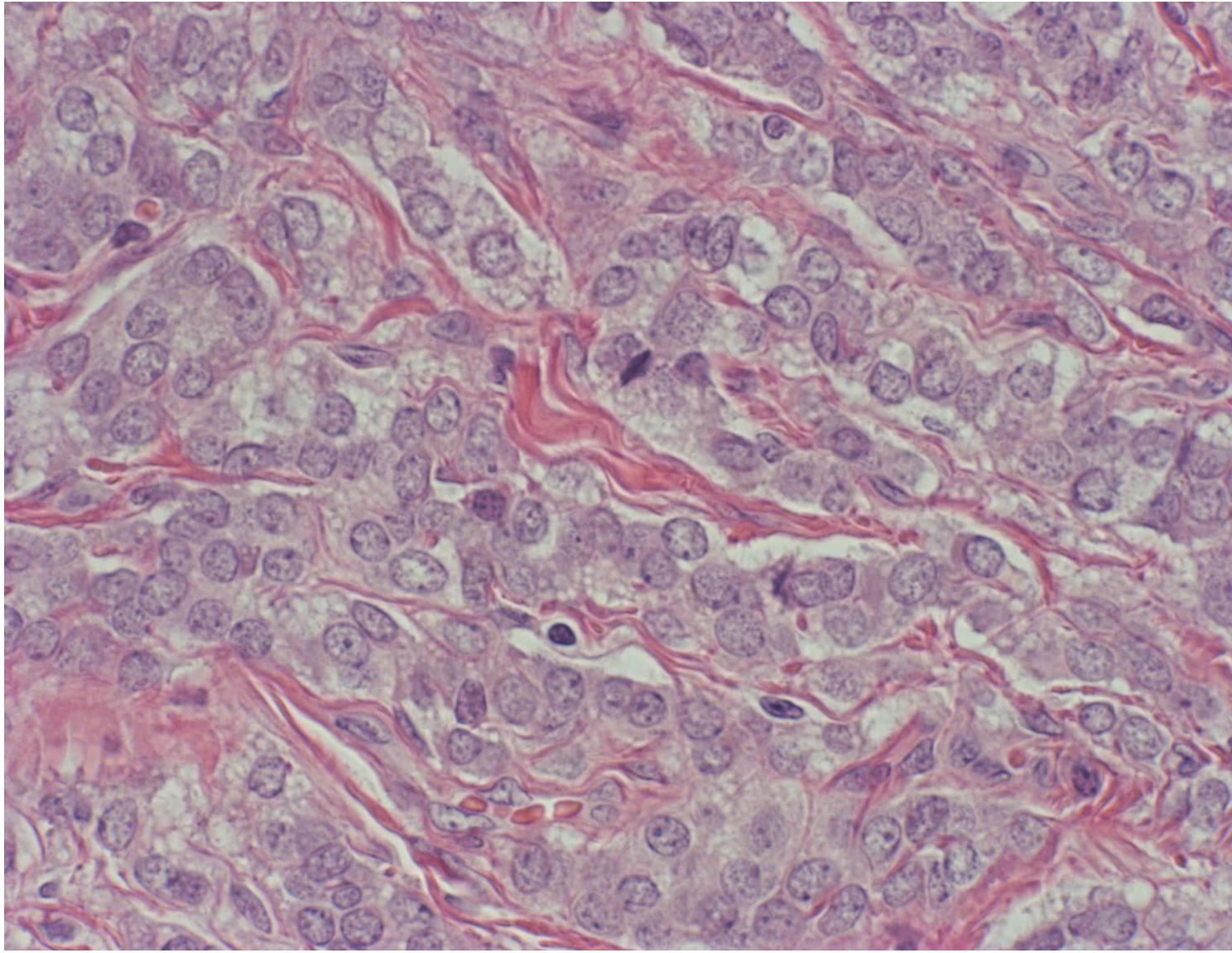
Ref.: Lanjewar DN, et al. Lipid-rich carcinoid of the appendix: A case report with review of literature. Indian J Pathol Microbiol 2021; 64(2): 376-378. doi: 10.4103/IJPM.IJPM_894_20



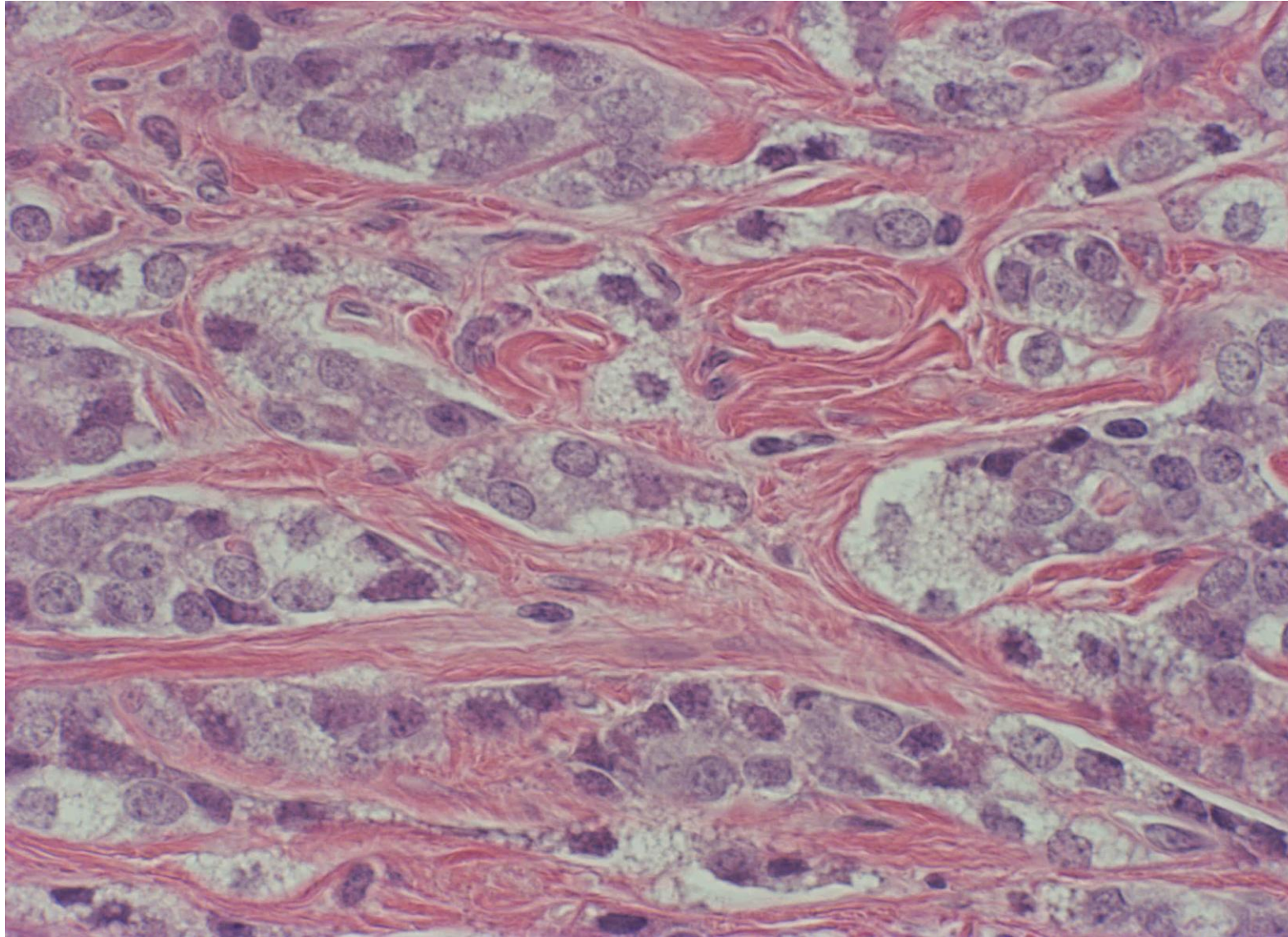
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. Submucosal invasion of the carcinoid tumor cells with focal involvement of the mucosal base is evident. H&E-1



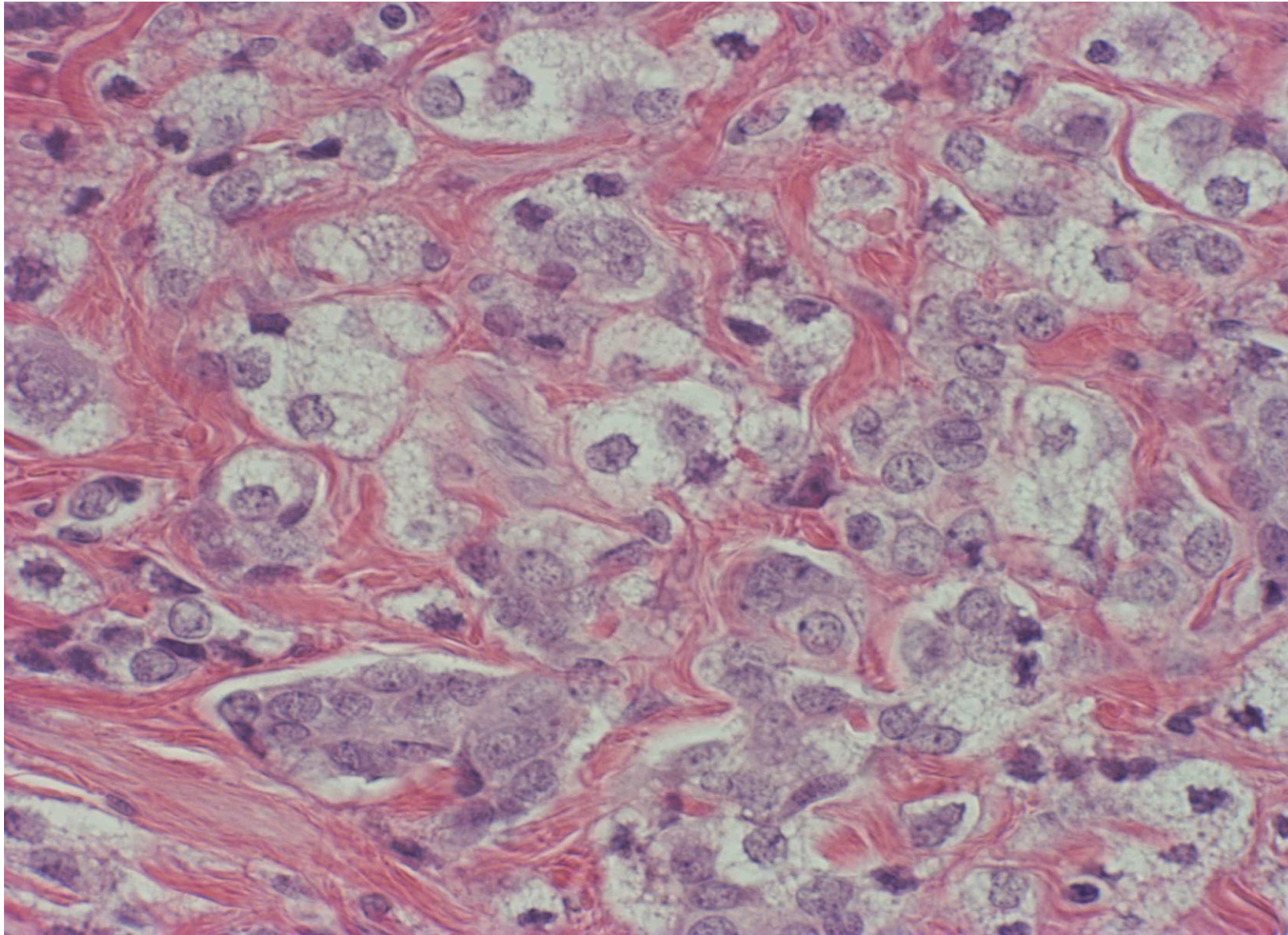
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. Submucosal invasion of the carcinoid tumor cells with focal involvement of the mucosal base is evident. H&E-2



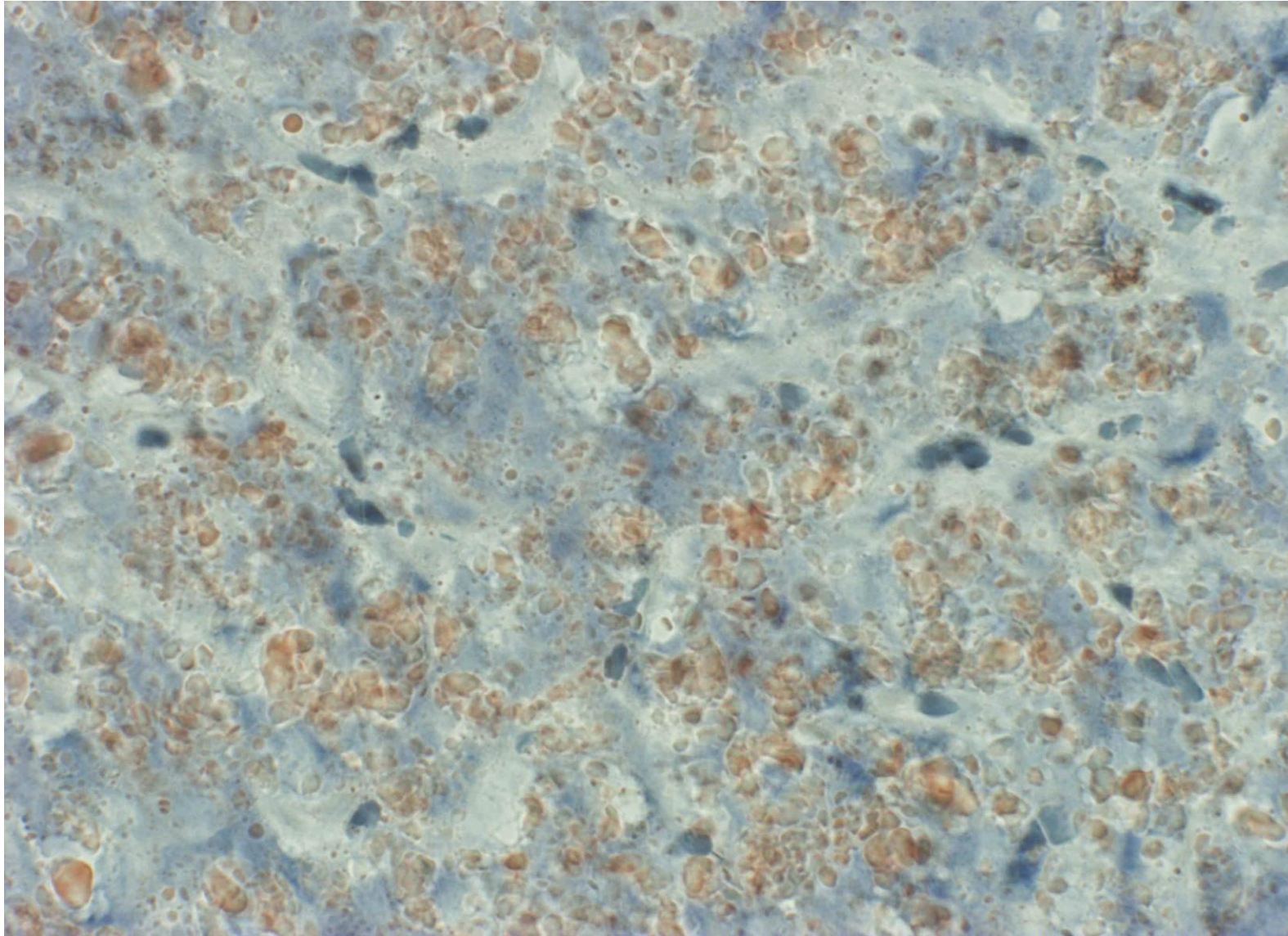
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells with a trabecular arrangement are rich in fat vacuoles in the cytoplasm. H&E-3



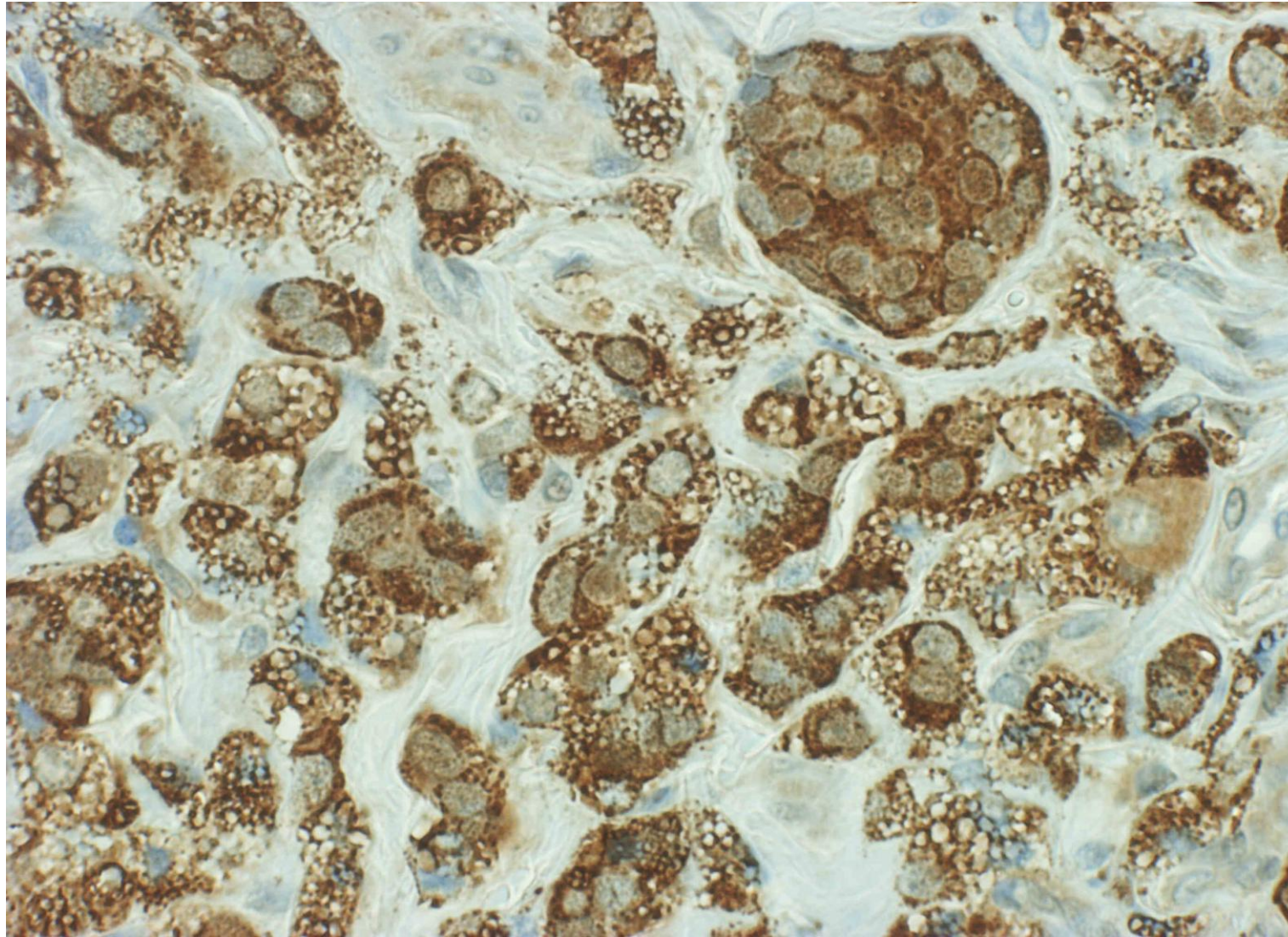
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells with a trabecular arrangement are rich in fat vacuoles in the cytoplasm. H&E-4



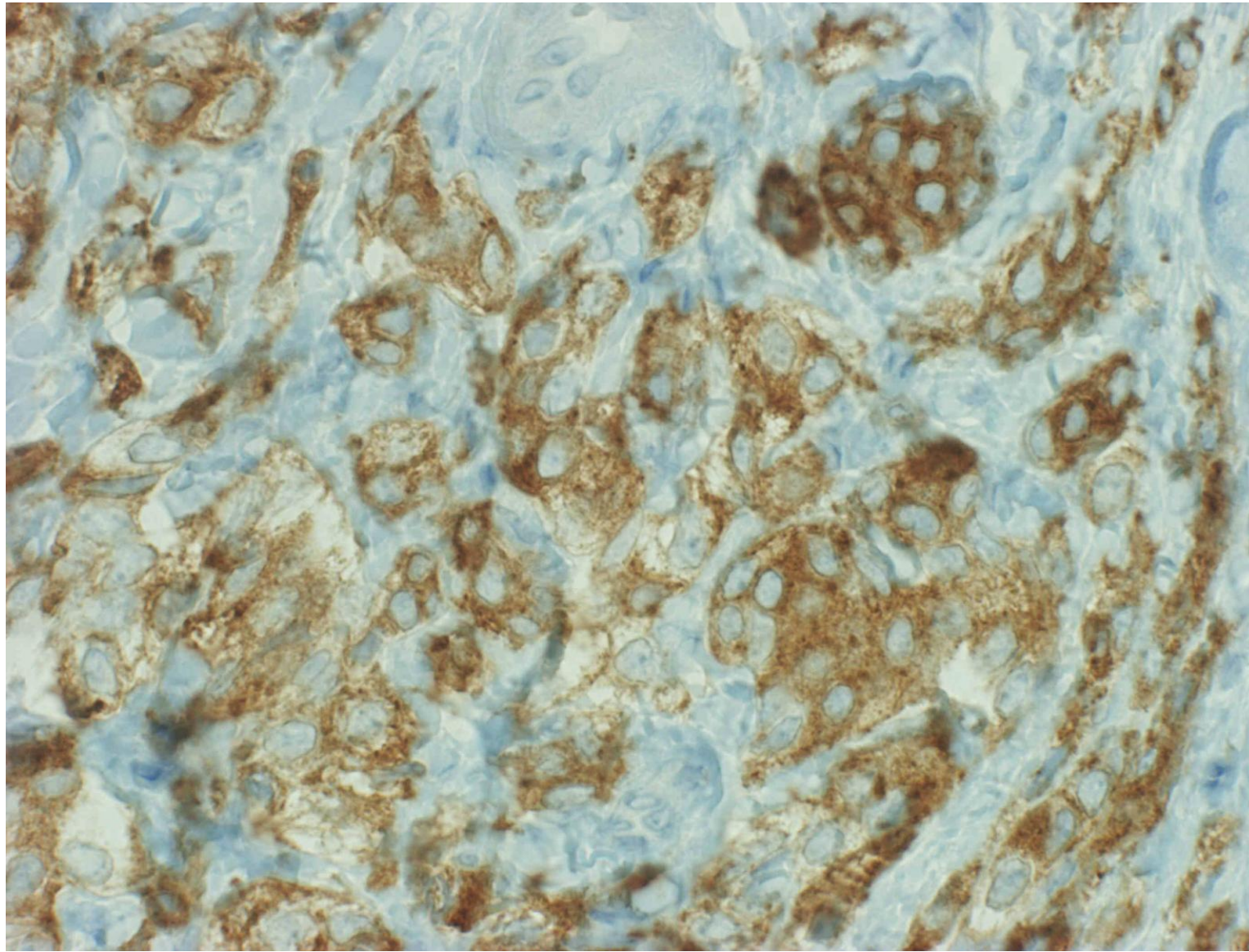
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells with small nest formation are rich in fat vacuoles in the cytoplasm. H&E-5



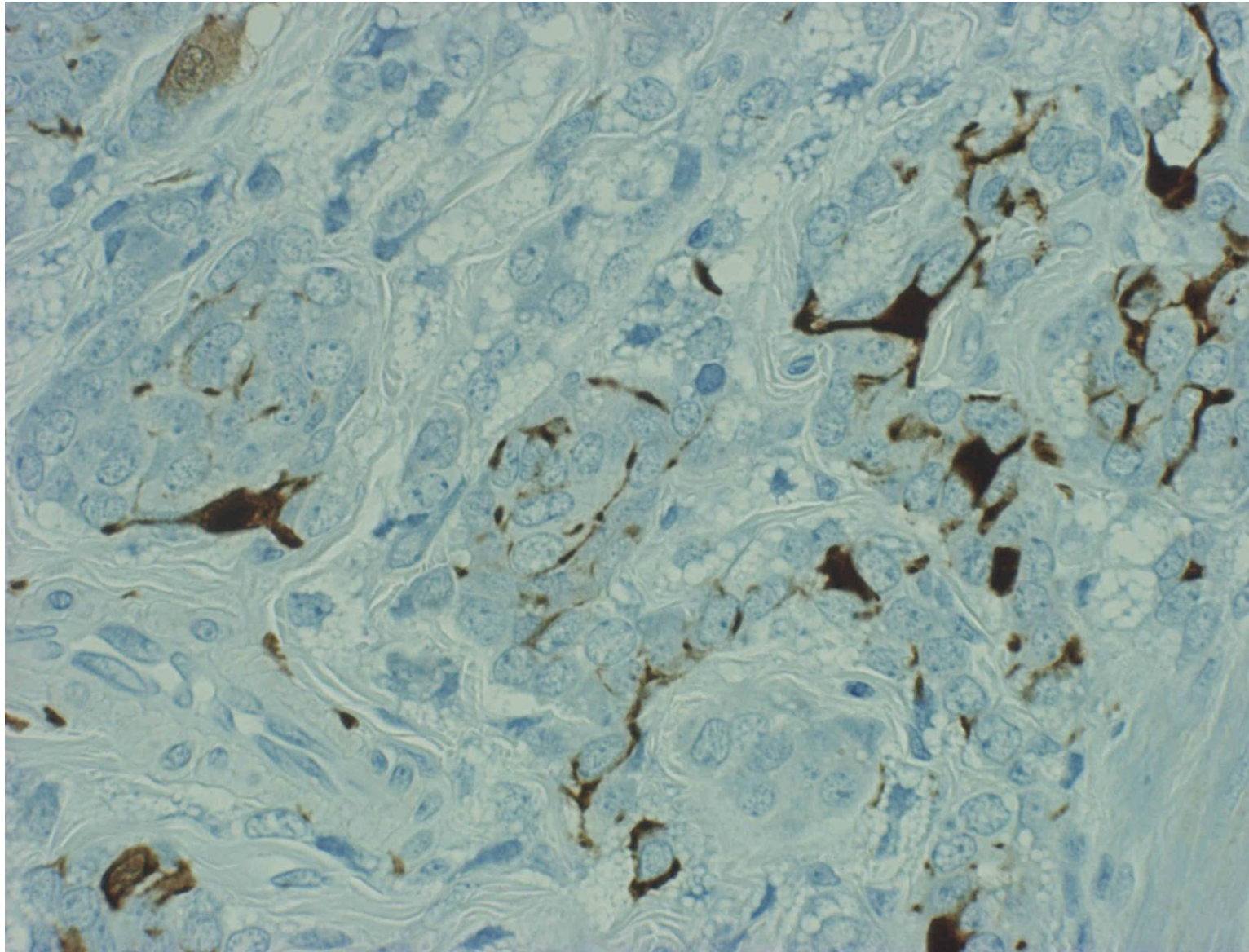
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells with small nest formation are rich in Sudan III-reactive fat vacuoles in the cytoplasm. Sudan III



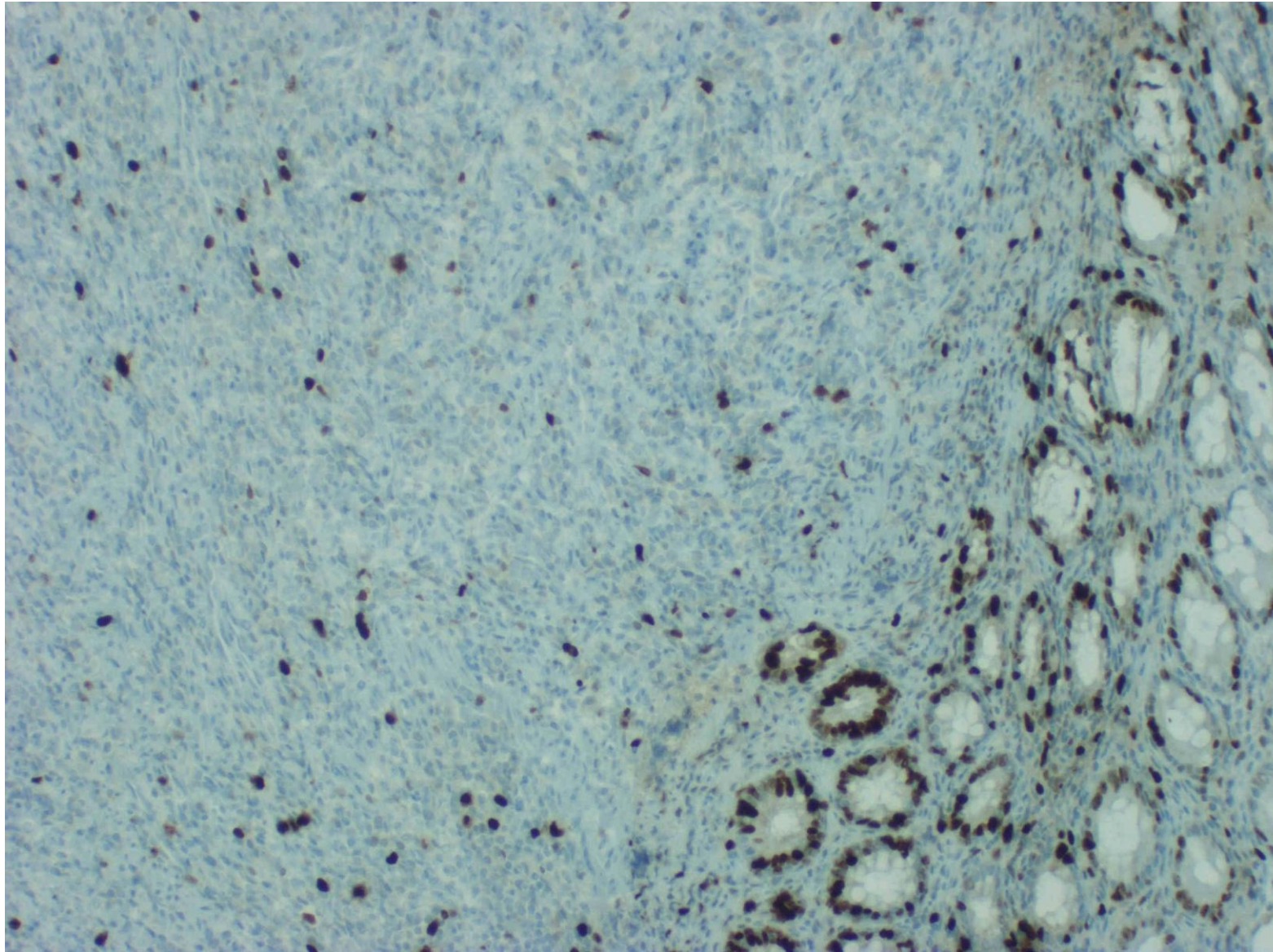
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells with small nest formation are immunoreactive for chromogranin A. The lipid droplets are evident. Immunostaining for chromogranin A



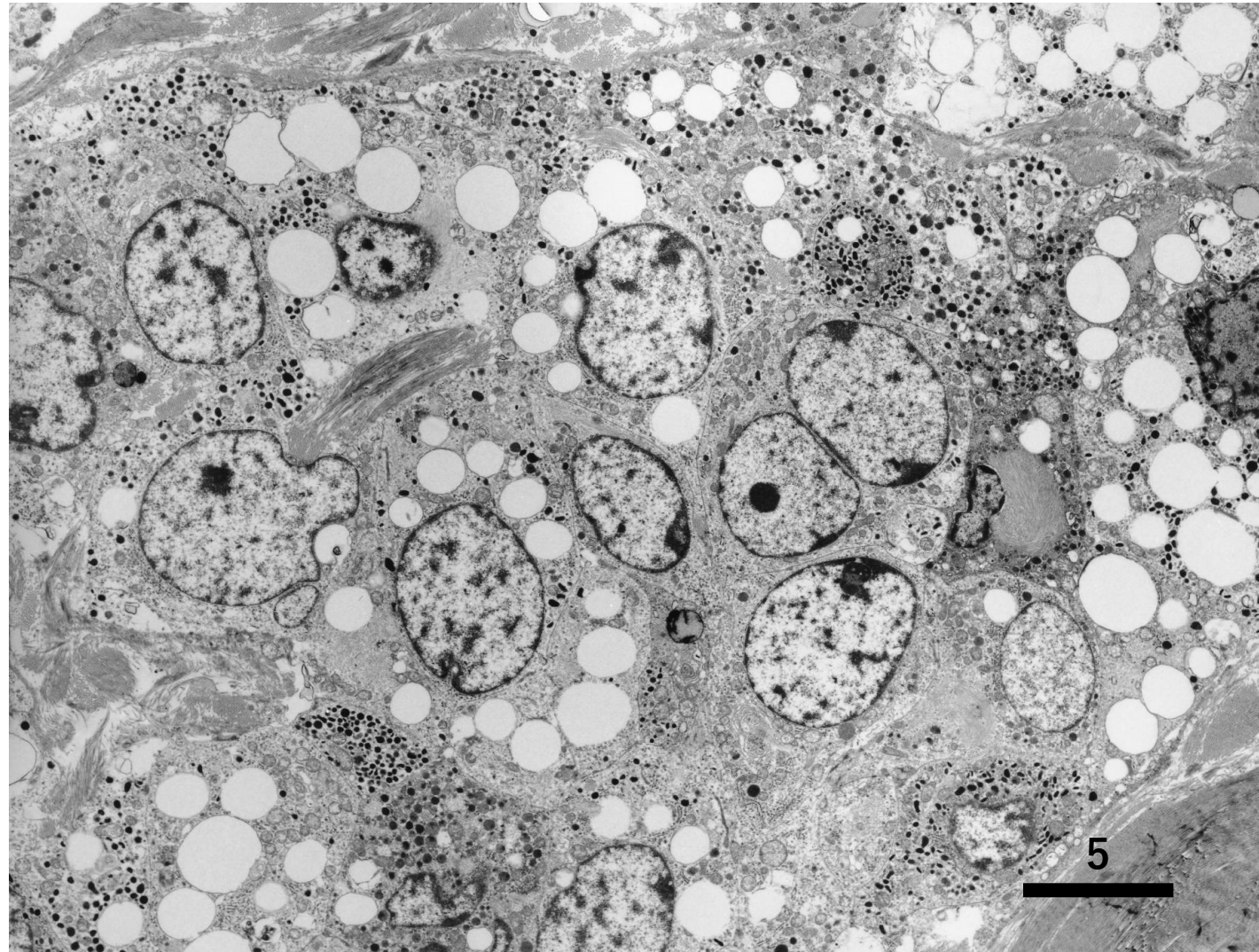
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells with small nest formation are immunoreactive for synaptophysin. The lipid droplets are evident. Immunostaining for synaptophysin



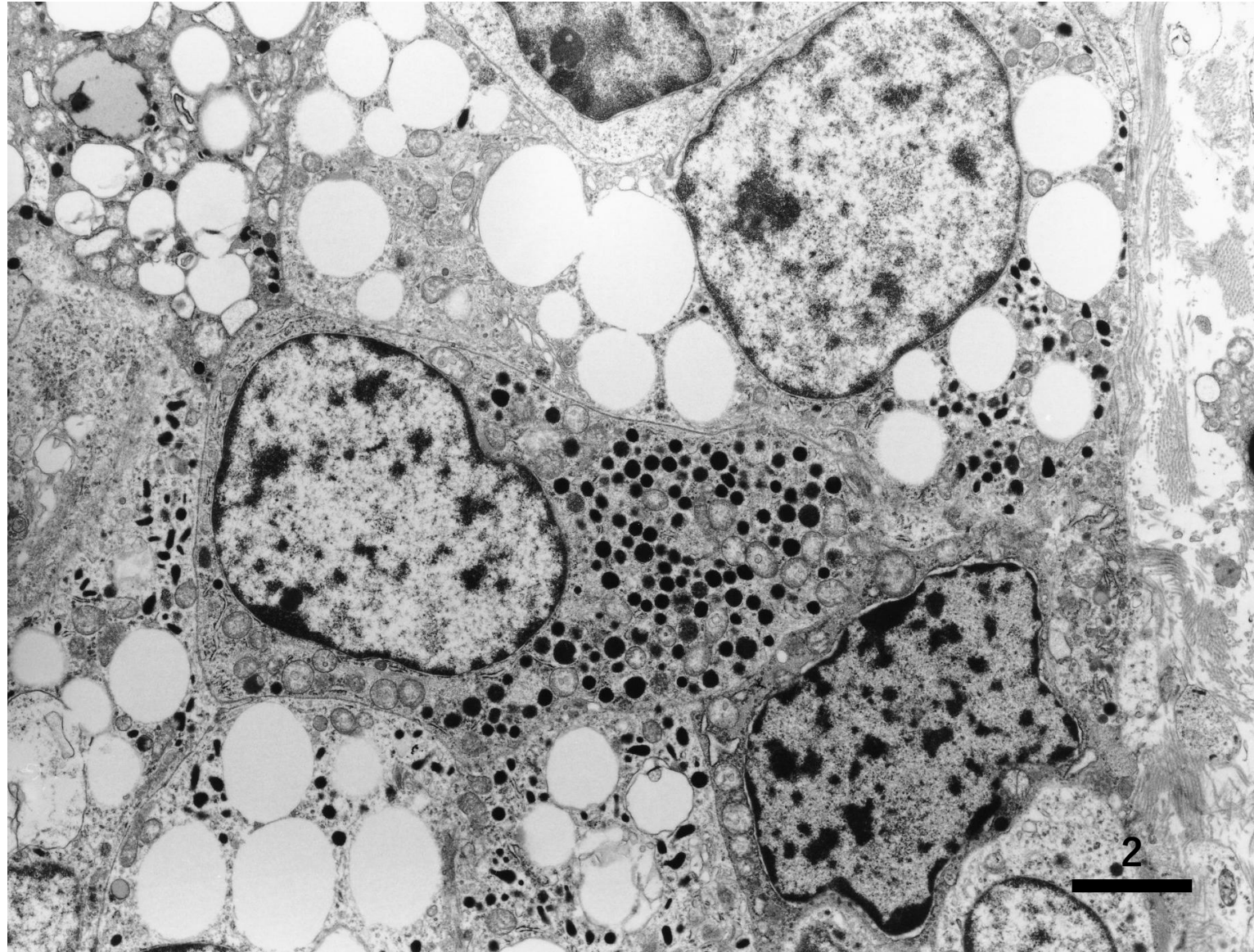
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells with small nest formation are surrounded by S-100 protein-immunoreactive sustentacular cells. Immunostaining for S-100 protein



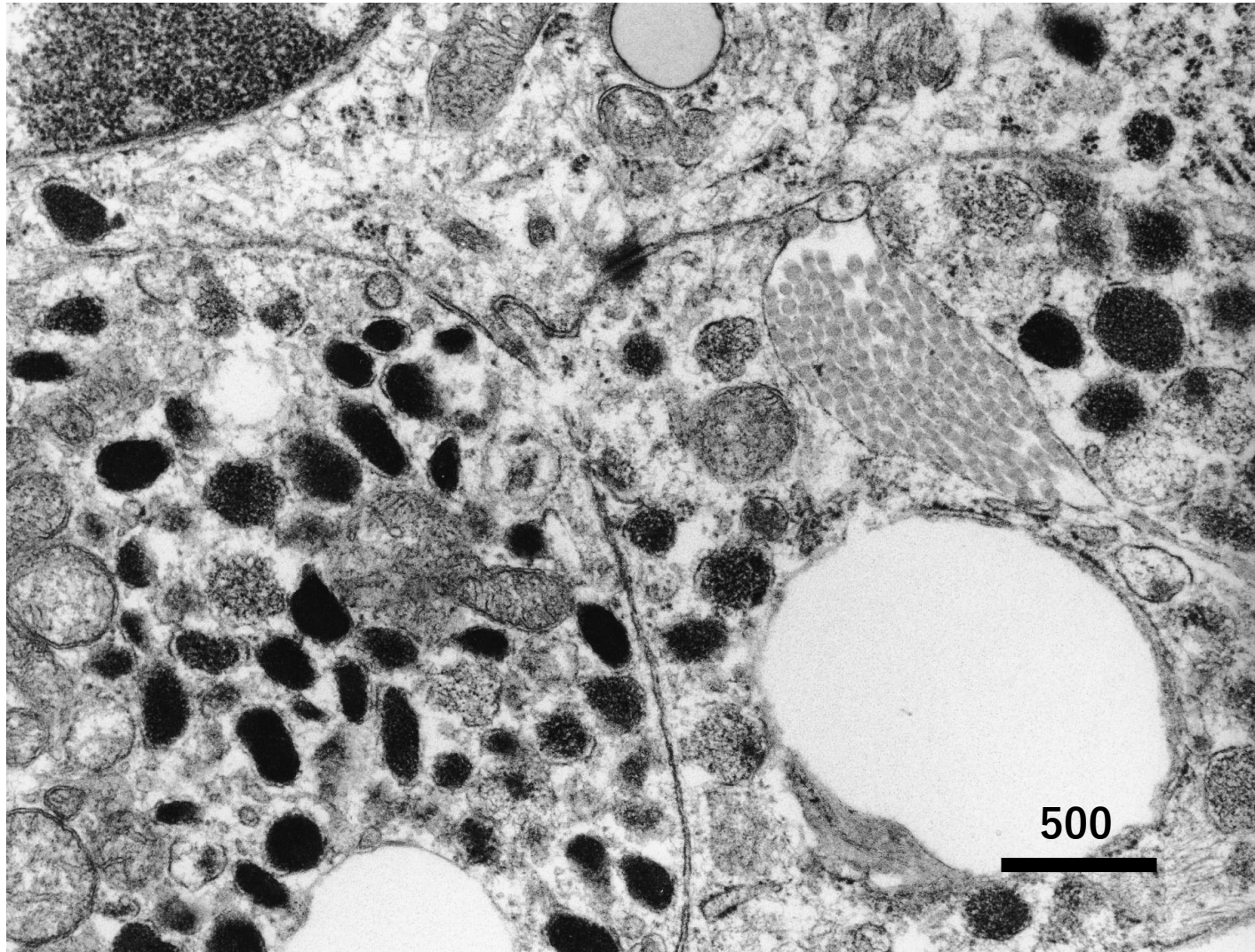
Lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. Ki-67 labeling index of the carcinoid tumor cells is $<10\%$. The appendiceal mucosal crypts are heavily labeled. Immunostaining for Ki-67



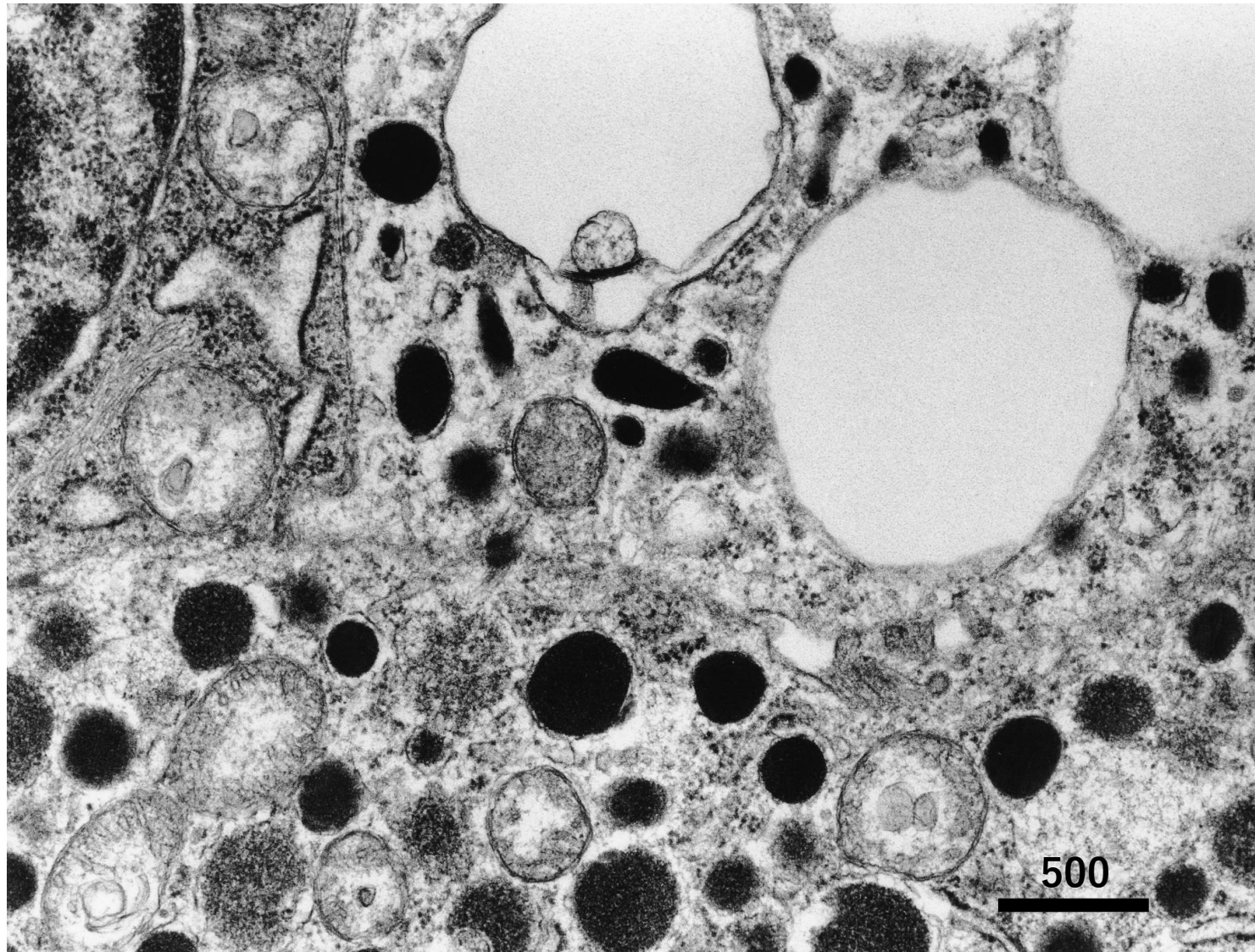
Ultrastructure of lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells possess electron-dense neuroendocrine granules and fat vacuoles in the cytoplasm. EM-1



Ultrastructure of lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The carcinoid tumor cells possess electron-dense neuroendocrine granules and fat vacuoles in the cytoplasm. EM-2



Ultrastructure of lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The cytoplasm of the carcinoid tumor cells contains round-shaped neuroendocrine granules (265 nm in diameter in average) and elongated (serotonin-type) neuroendocrine granules (250 nm in diameter in average), as well as fat vacuoles. EM-3



Ultrastructure of lipid-rich appendiceal carcinoid tumor in a 16-year-old man complaining of acute appendicitis. The cytoplasm of the carcinoid tumor cells contains round-shaped neuroendocrine granules (265 nm in diameter in average) and elongated (serotonin-type) neuroendocrine granules (250 nm in diameter in average), as well as fat vacuoles. EM-4