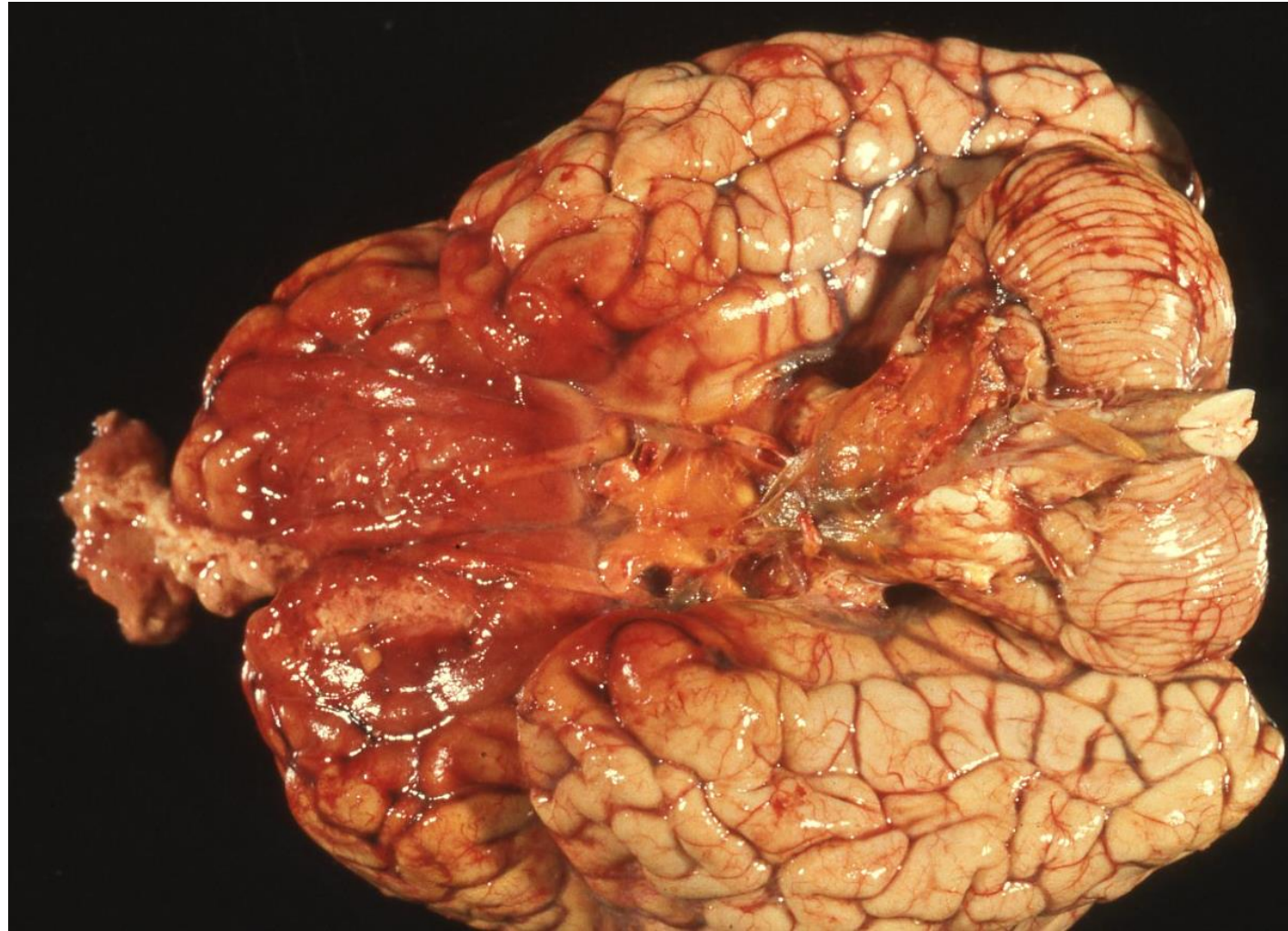


Rhinocerebral mucormycosis

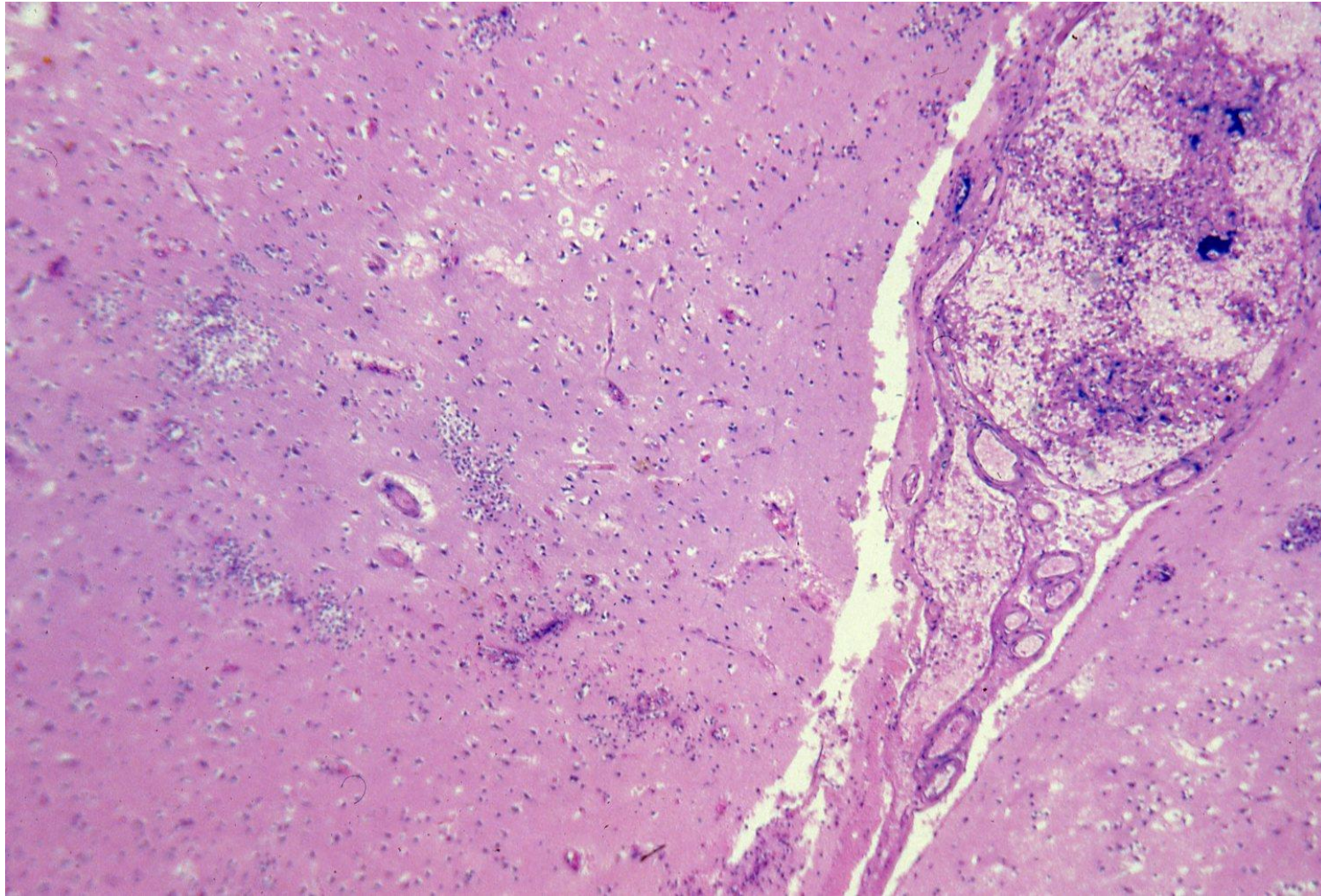
Rhinocerebral mucormycosis (rhino-orbital-cerebral mucormycosis) happens through direct extension from infected paranasal sinuses to the eyes and the basal part of the brain. It is typically seen in patients with poorly controlled diabetes mellitus with ketoacidosis. In a 56-year-old diabetic male patient with pancreas head cancer, rhinocerebral mucormycosis is associated with hemorrhagic necrosis (gangrene) of the left arm and multifocal angioinvasion of the unseptated fungus.



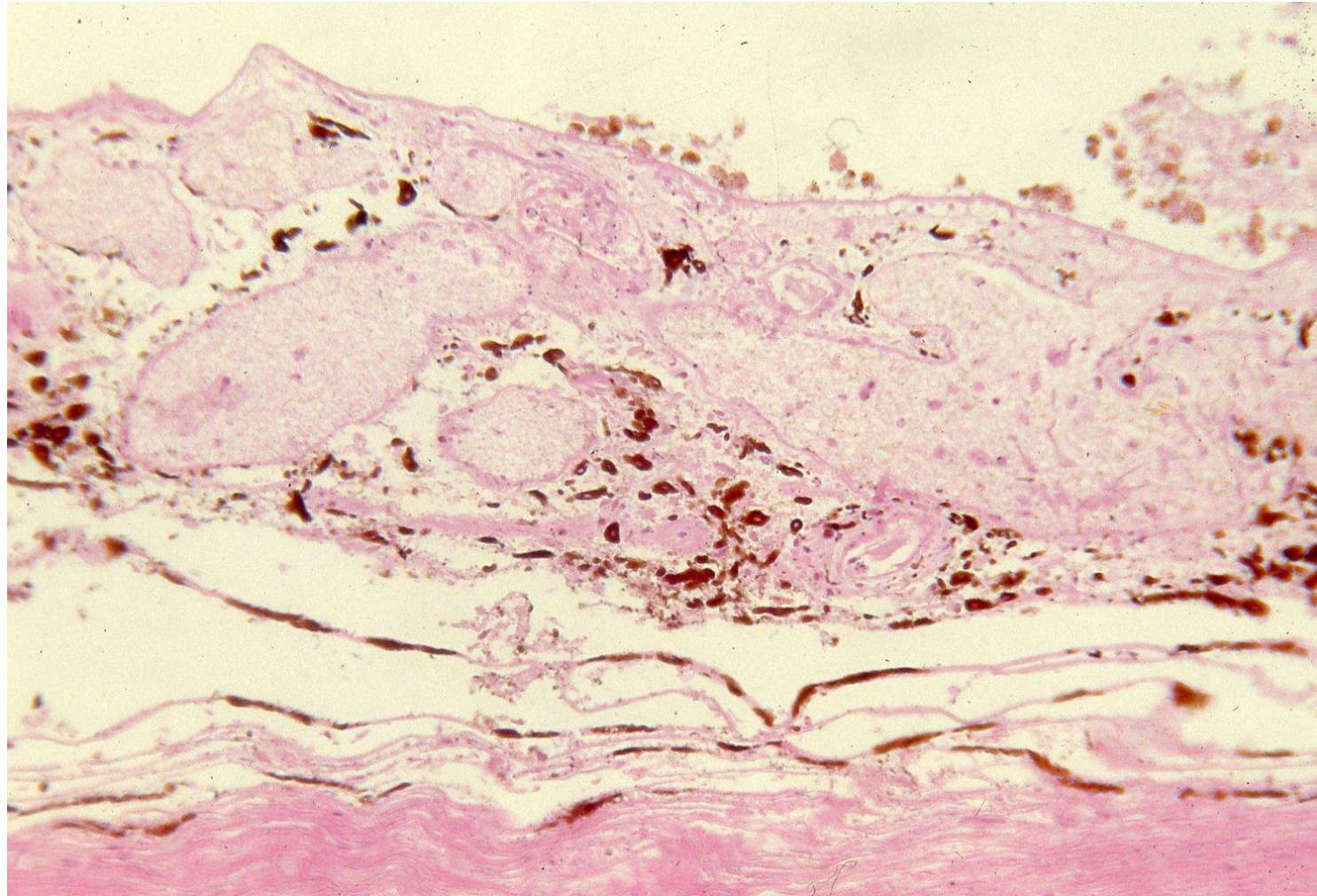
Gross appearance of rhinocerebral mucormycosis in a 56-year-old male patient (1). Hemorrhagic necrosis of the face involving the nose and both eyes is evident.



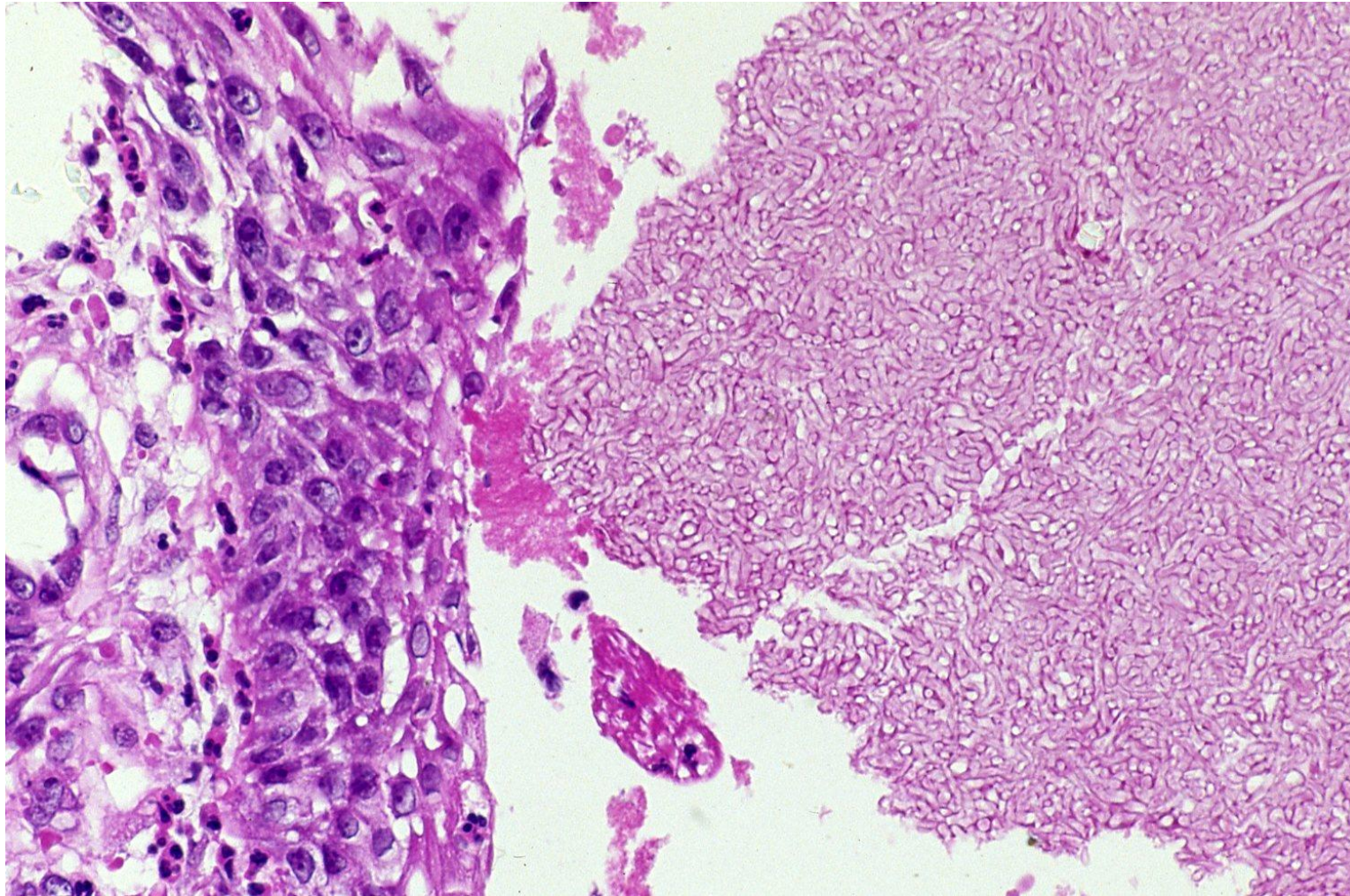
Gross appearance of rhinocerebral mucormycosis in a 56-year-old male patient (2). The base of the bilateral frontal lobes show hemorrhagic necrosis with meningitis.



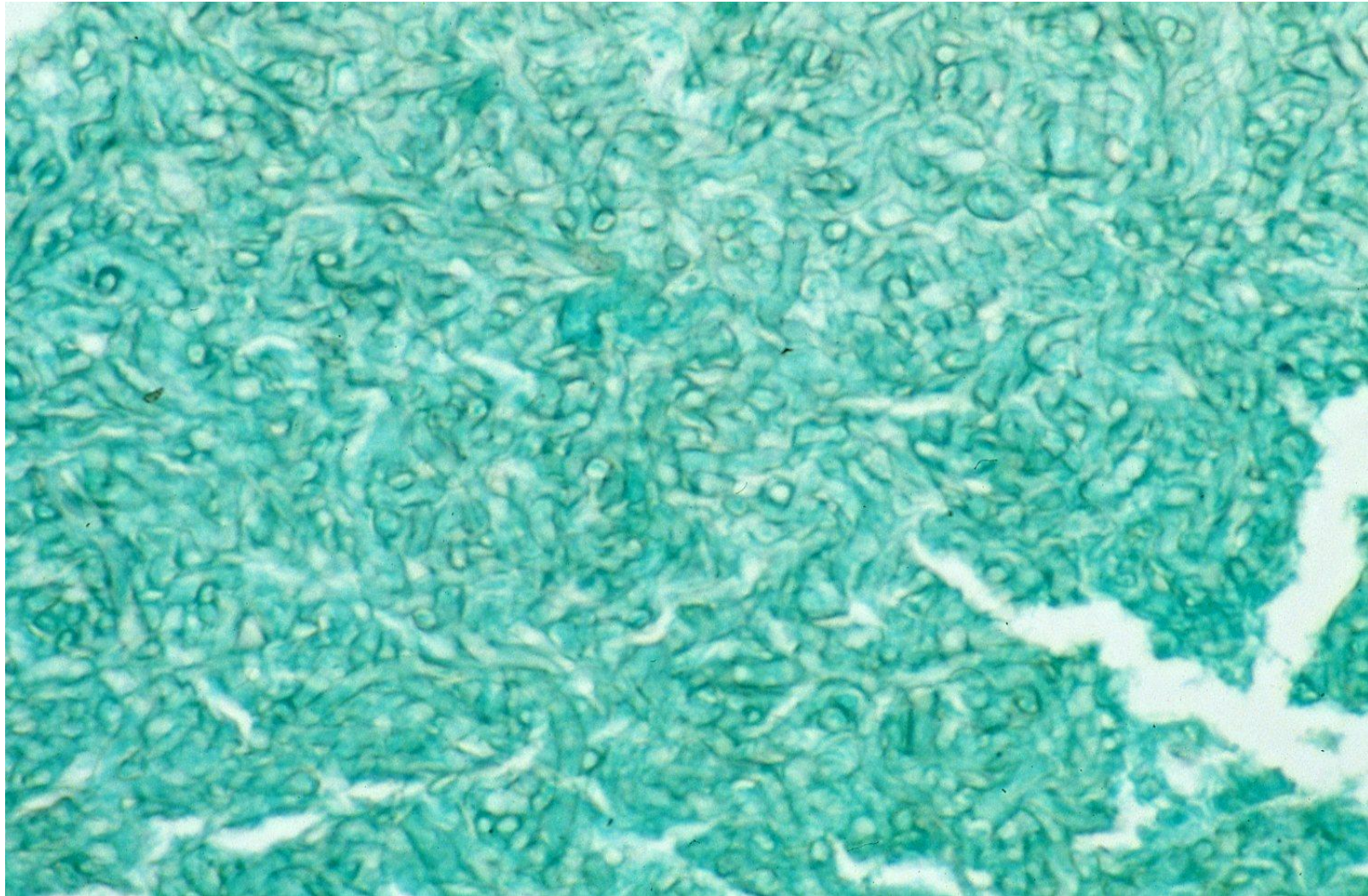
Microscopic appearance of rhinocerebral mucormycosis in a 56-year-old male patient. The base of the frontal lobe shows angioinvasive growth of hypha-forming fungi. H&E



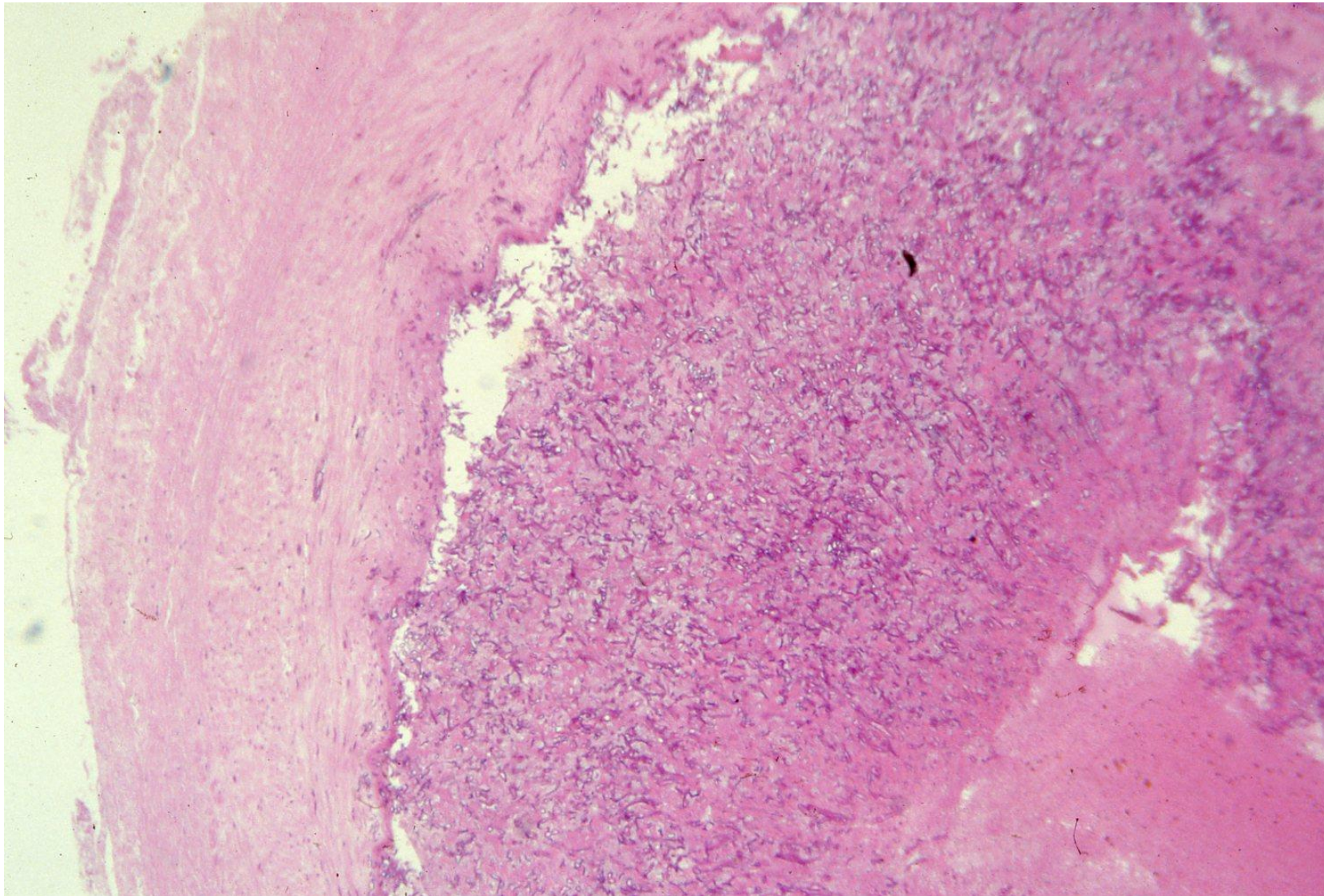
Microscopic appearance of rhinocerebral mucormycosis in a 56-year-old male patient. The retina of the eye ball shows vascular dilatation and ischemic necrosis. H&E



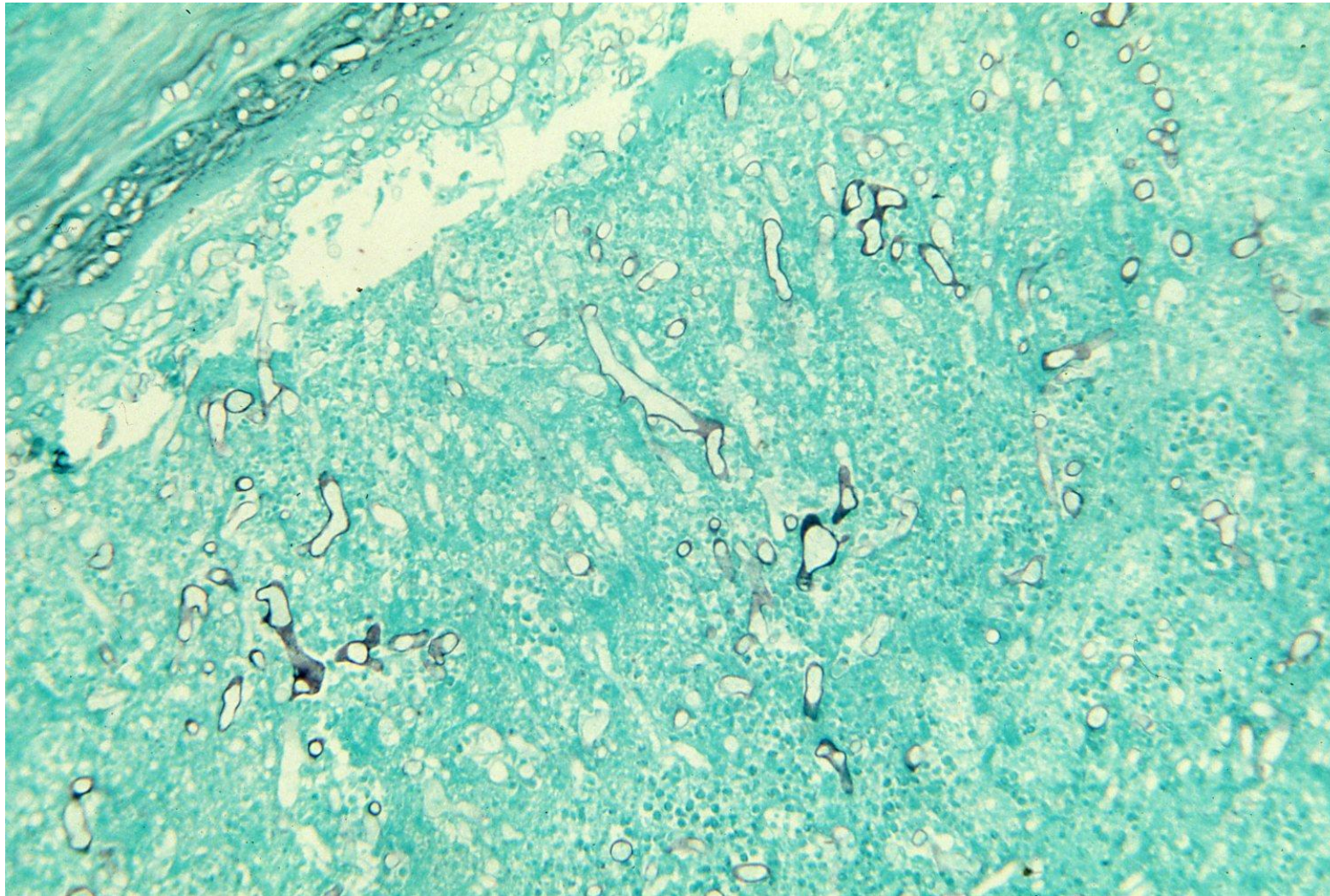
Microscopic appearance of rhinocerebral mucormycosis in a 56-year-old male patient. Left maxillary sinus show fungus ball formation by fungi forming unseptated hyphae. H&E



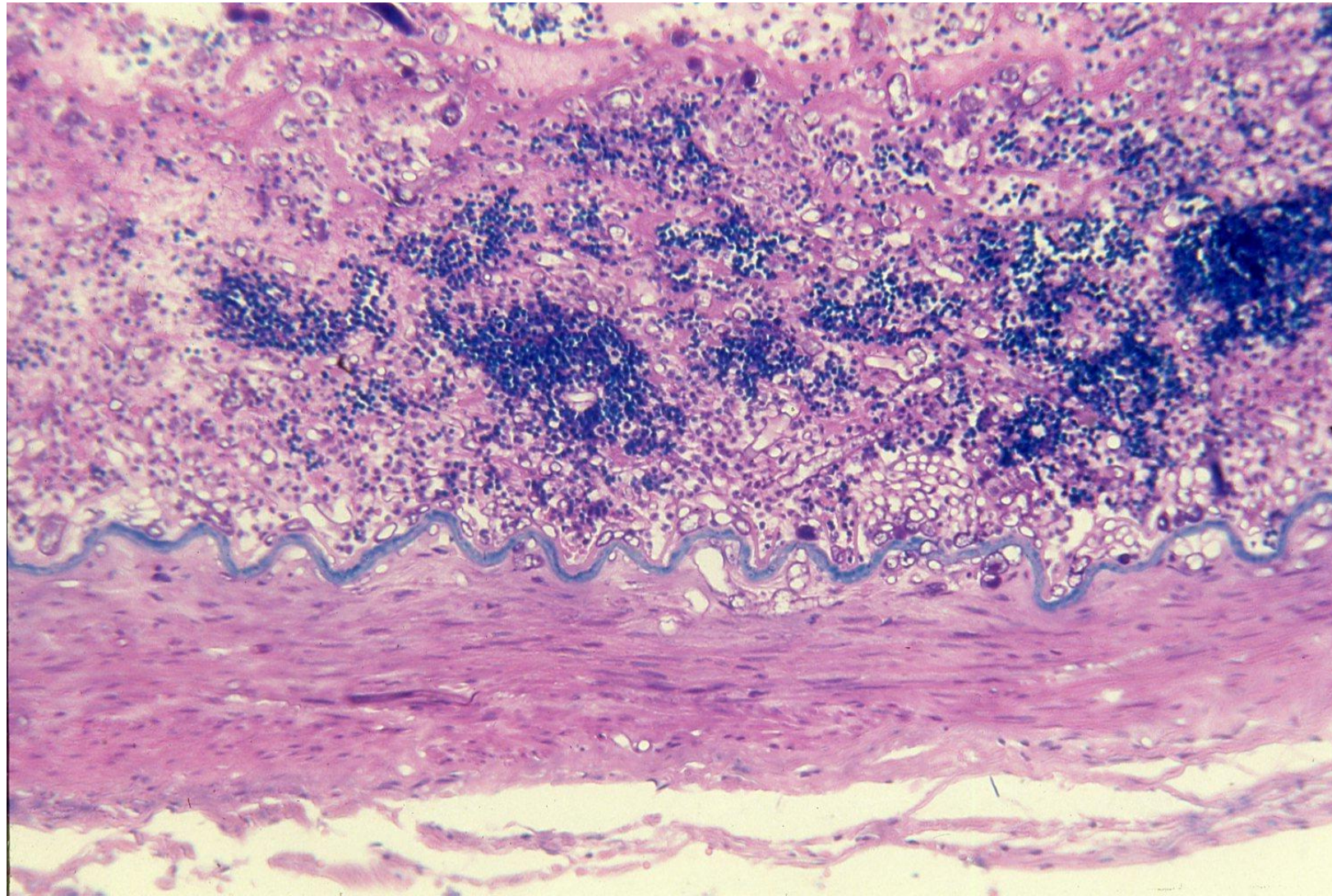
Microscopic appearance of rhinocerebral mucormycosis in a 56-year-old male patient. Left maxillary sinus show fungus ball formation by fungi forming unseptated hyphae. Grocott



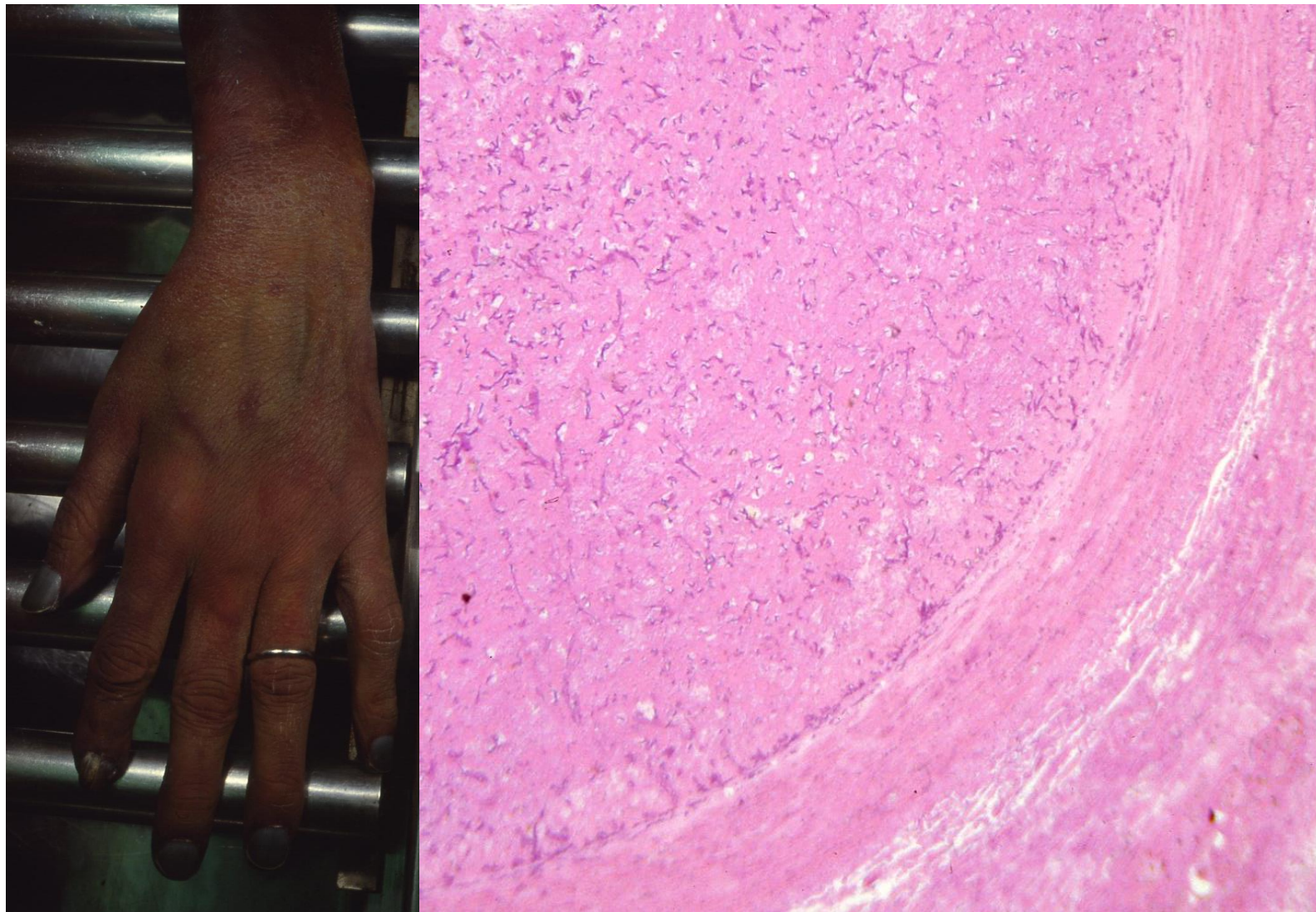
Microscopic appearance of the internal carotid artery in a 56-year-old male patient with rhinocerebral mucormycosis. The internal carotid artery shows mycotic embolism caused by hypha-forming fungi. H&E



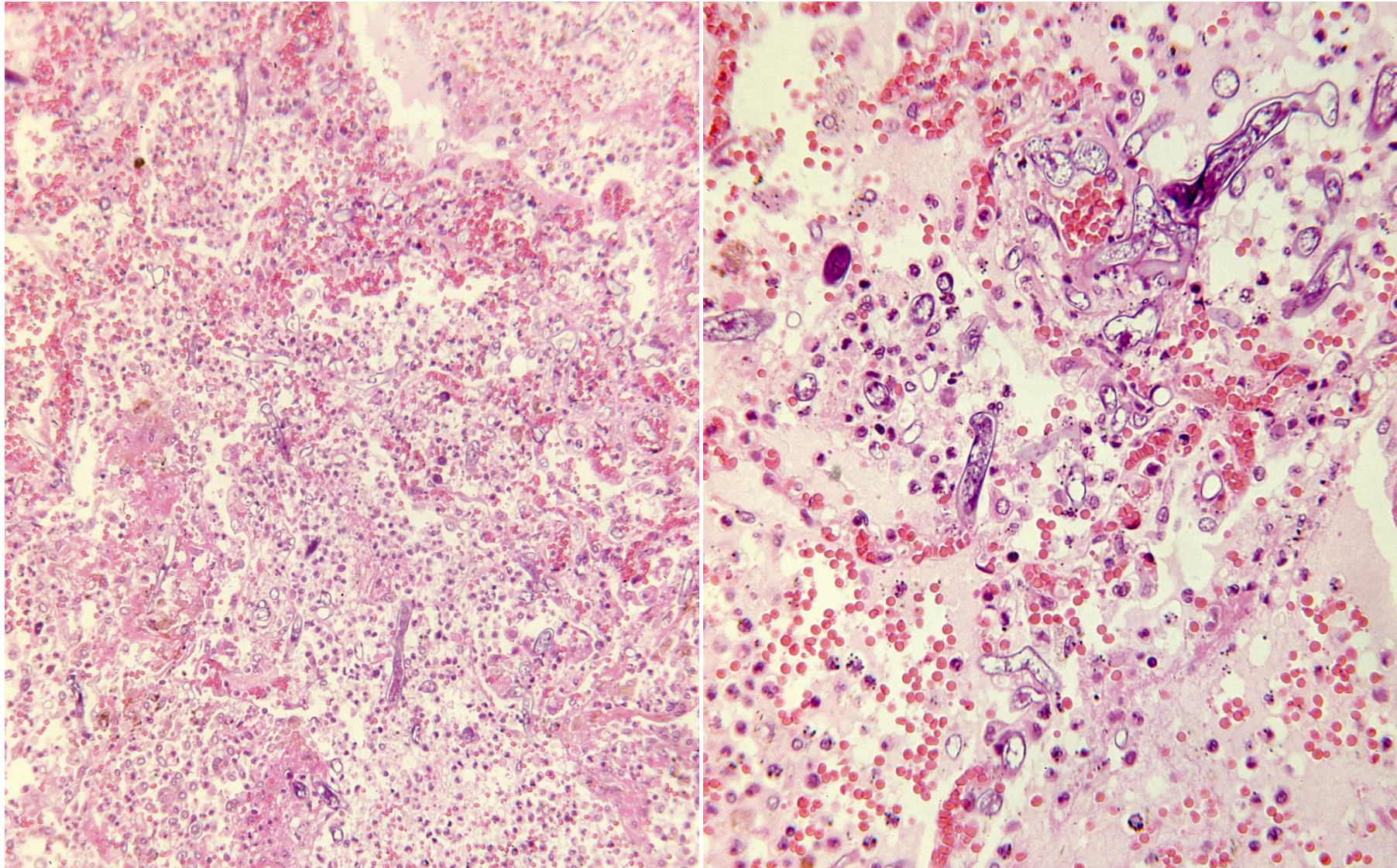
Microscopic appearance of the internal carotid artery in a 56-year-old male patient with rhinocerebral mucormycosis. The internal carotid artery shows mycotic embolism caused by hypha-forming fungi. Septum formation is not seen. Grocott



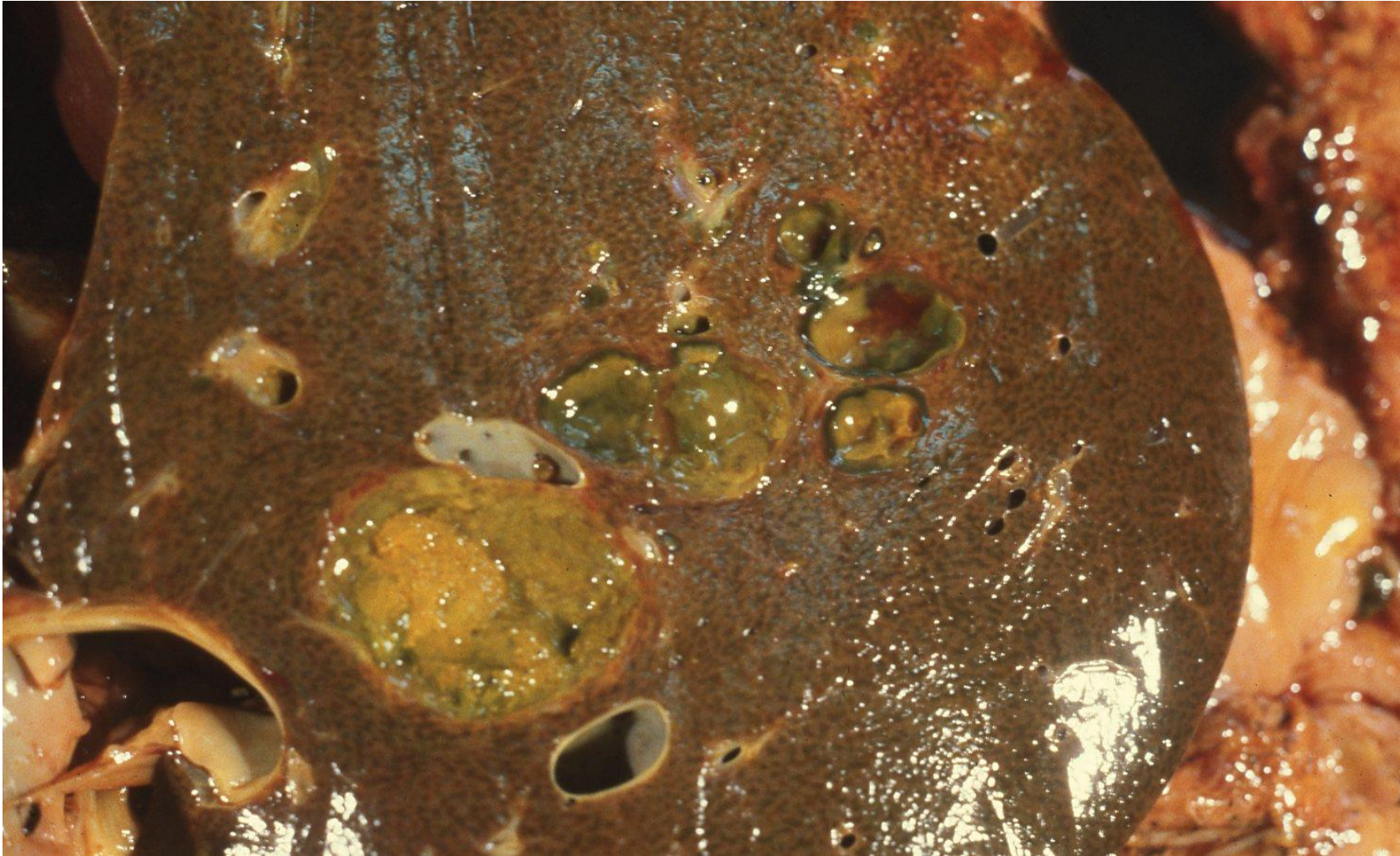
Microscopic appearance of the basilar artery in a 56-year-old male patient with rhinocerebral mucormycosis. The basilar artery shows mycotic embolism caused by hypha-forming fungi. LFB-HE



Hemorrhagic gangrene of the left arm in a 56-year-old male patient with rhinocerebral mucormycosis. The left upper arm reveals massive hemorrhagic necrosis, and ischemic change is also seen in the hand and fingers. The left brachial artery shows mycotic embolism caused by hypha-forming fungi. H&E



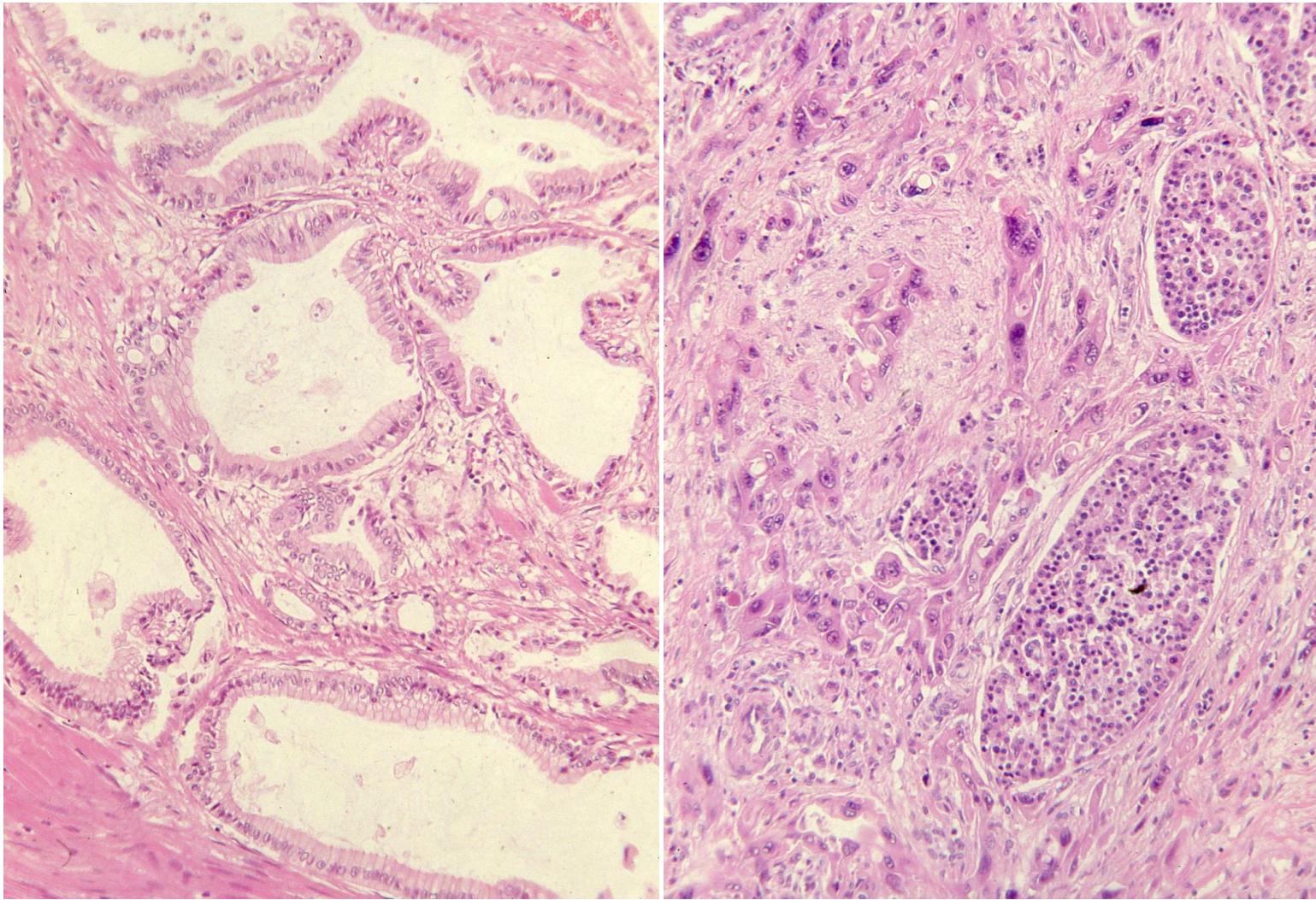
Microscopic appearance of the lung in a 56-year-old male patient with rhinocerebral mucormycosis. The lung reveals multifocal lesions of mucormycosis. H&E



Gross appearance of the liver in a 56-year-old male patient with rhinocerebral mucormycosis. The liver shows formation of multifocal mycotic abscesses.



Gross appearance of the pancreas head in a 56-year-old male patient with rhinocerebral mucormycosis. The pancreas head shows an invasive malignancy (arrows).



Microscopic appearance of the pancreas head in a 56-year-old male patient with rhinocerebral mucormycosis. The pancreas tumor consists of well-differentiated (left) and poorly differentiated (right) adenocarcinoma components.