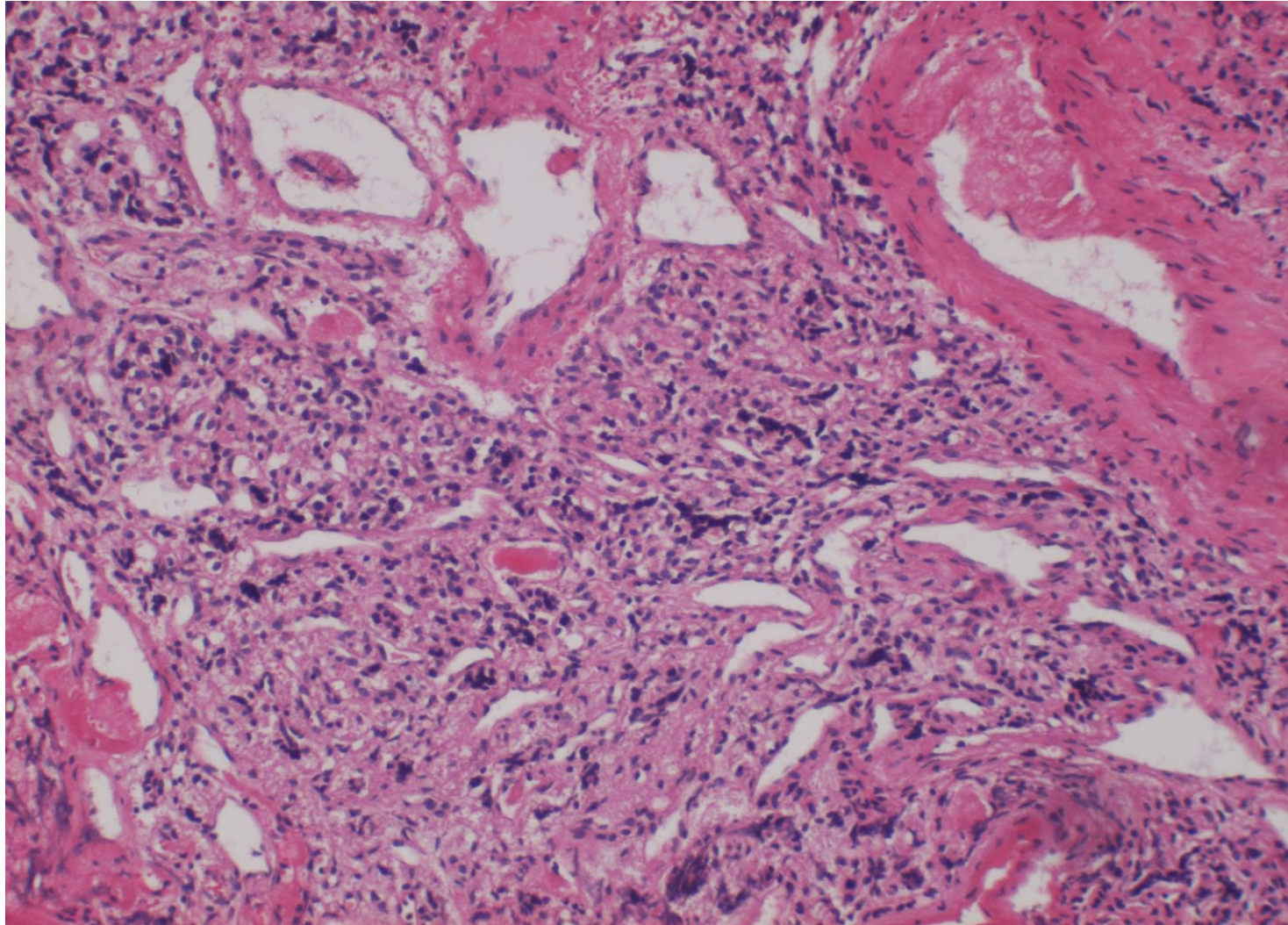
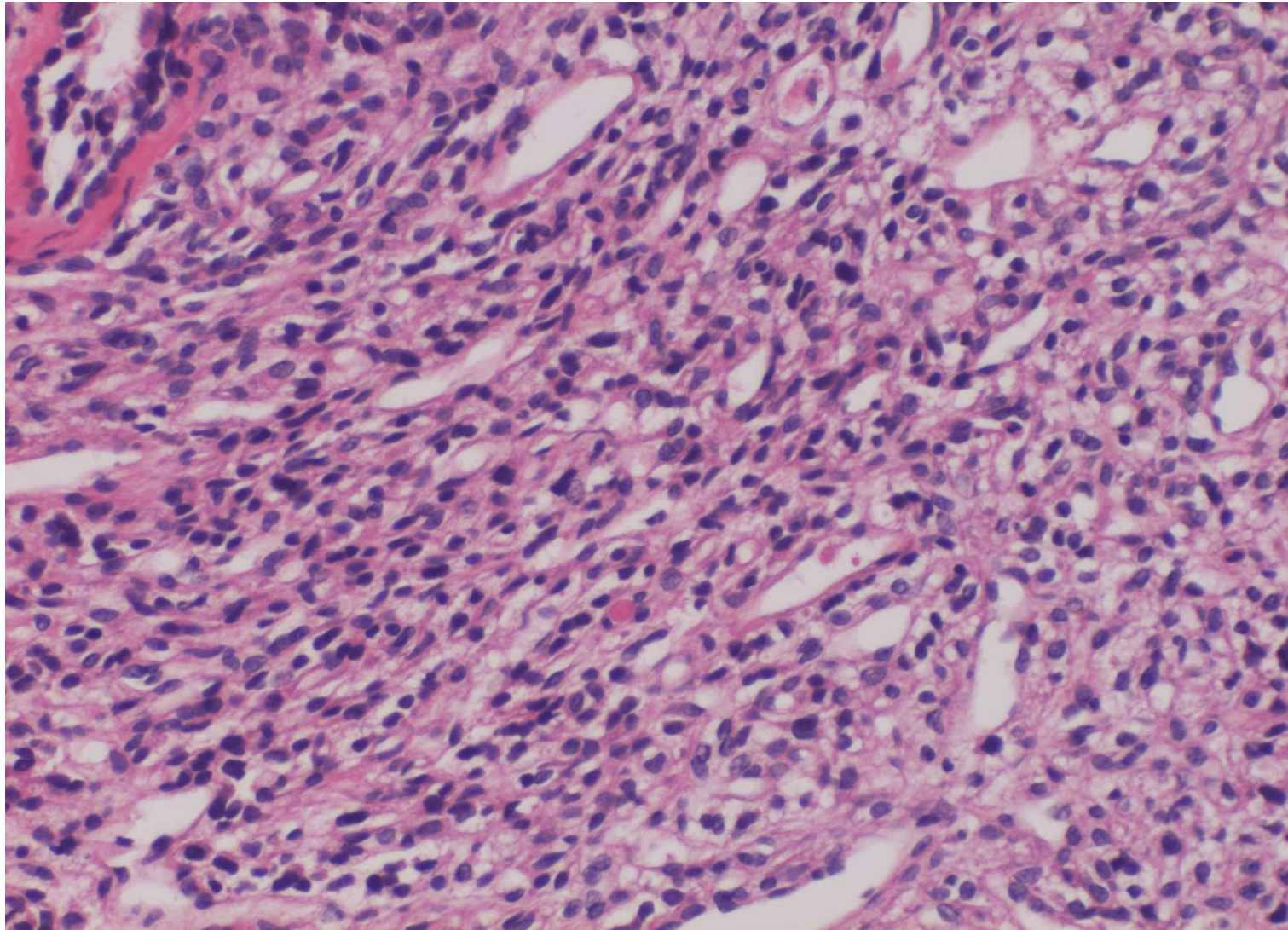


Paraganglioma of the middle ear

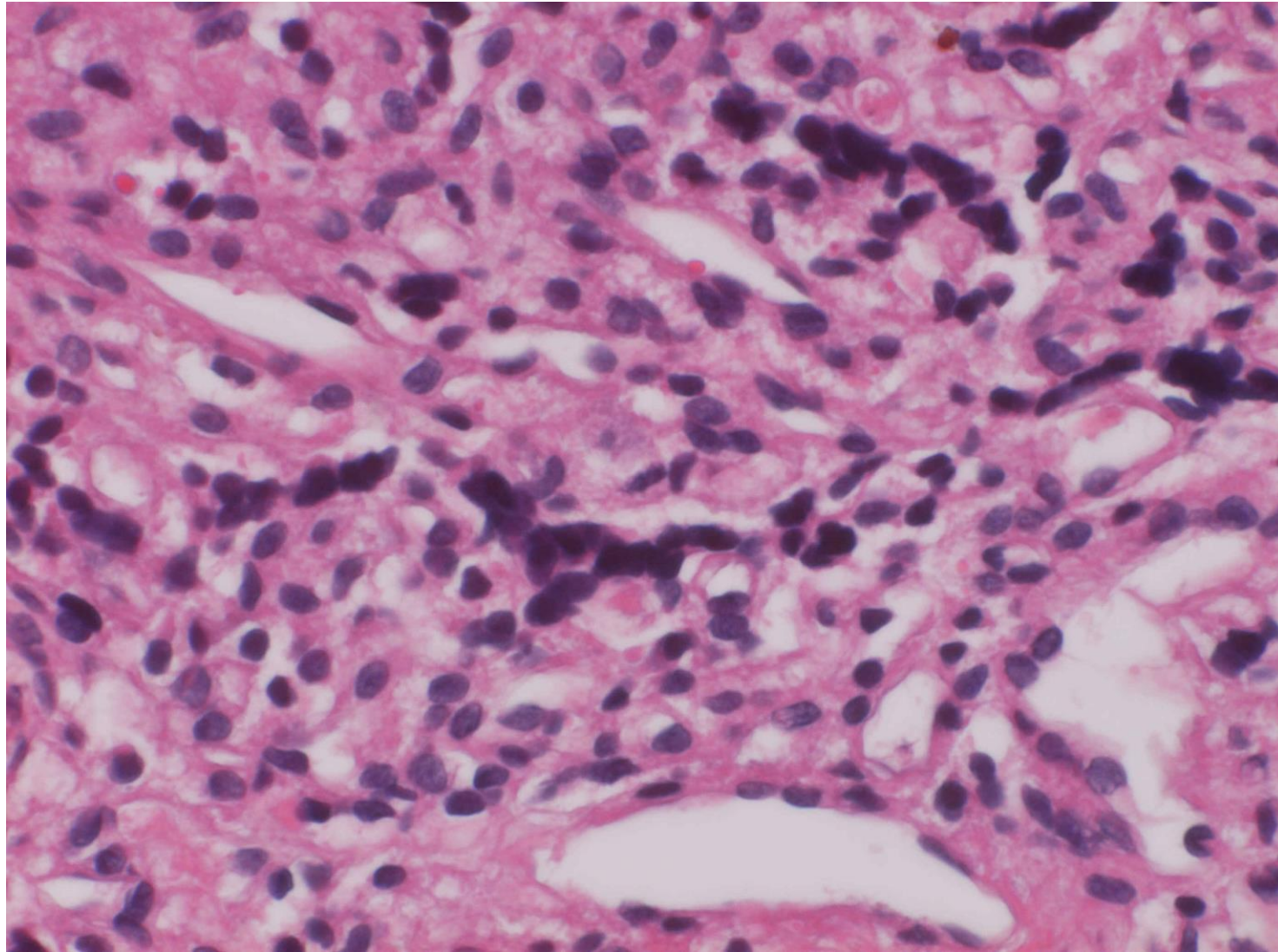
Middle ear paraganglioma (glomus jugulare tumor or glomus tympanicum tumor), the most common tumor of the middle ear, is usually seen in women aged 40-69 years. Most arise in jugular bulb causing mass in middle ear or external auditory canal, causing conductive hearing loss. Microscopically, classic organoid (Zellballen) or nesting pattern of paraganglioma is observed. Round to oval tumor cells contain abundant eosinophilic granular or vacuolated cytoplasm and uniform nuclei. Sustentacular cells (spindled or basophilic in appearance) are present at periphery of nests. Fibrovascular stroma separates nests.



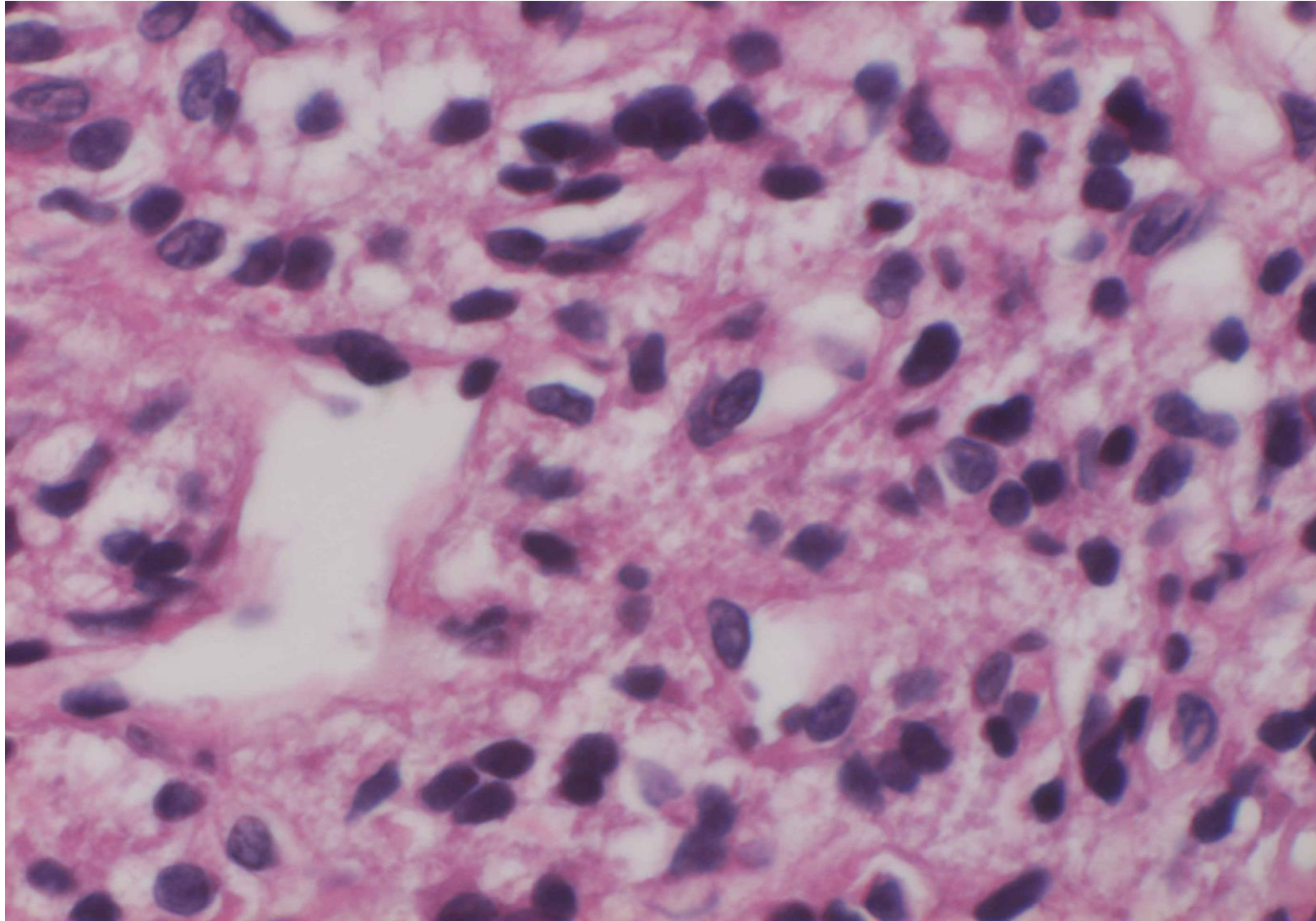
Middle ear paraganglioma in a 66-year-old female patient.
The tumor is rich in vascular component. H&E-1



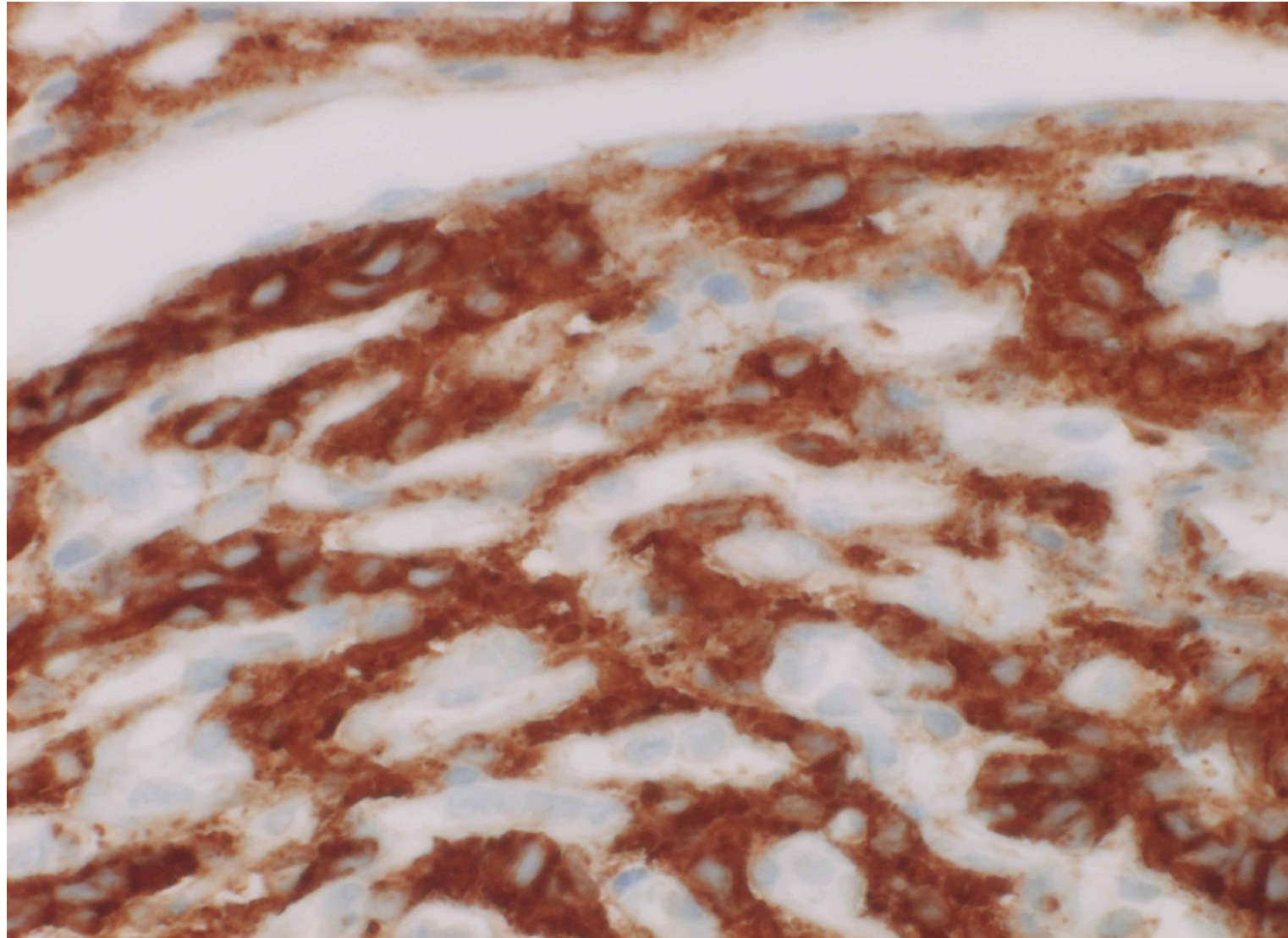
Middle ear paraganglioma in a 66-year-old female patient. The tumor is rich in vascular component, and consists of polygonal cells with eosinophilic or vacuolated cytoplasm. H&E-2



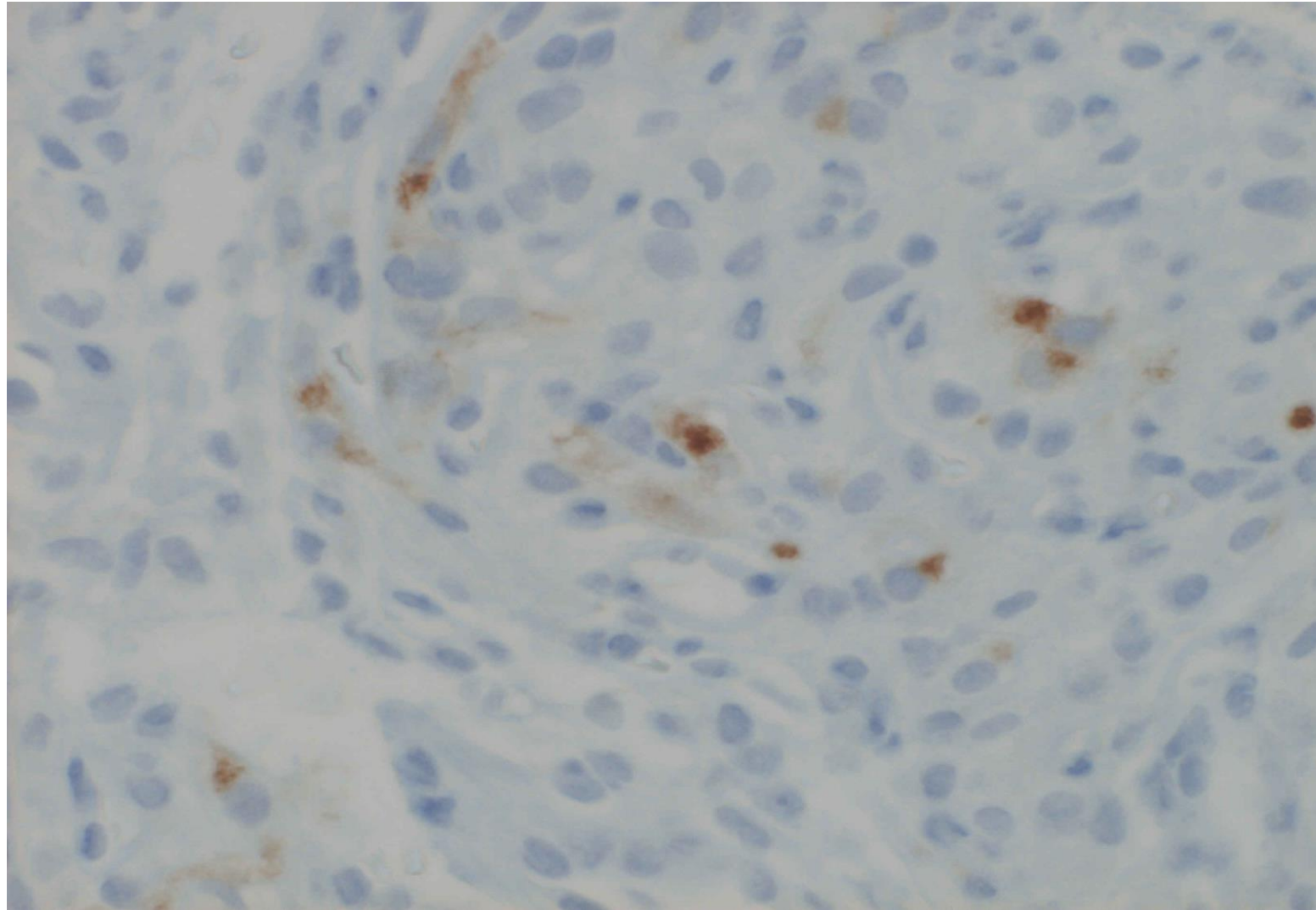
Middle ear paraganglioma in a 66-year-old female patient. The tumor is rich in vascular component, and consists of polygonal cells with eosinophilic or vacuolated cytoplasm. Hyperchromasia is observed. H&E-3



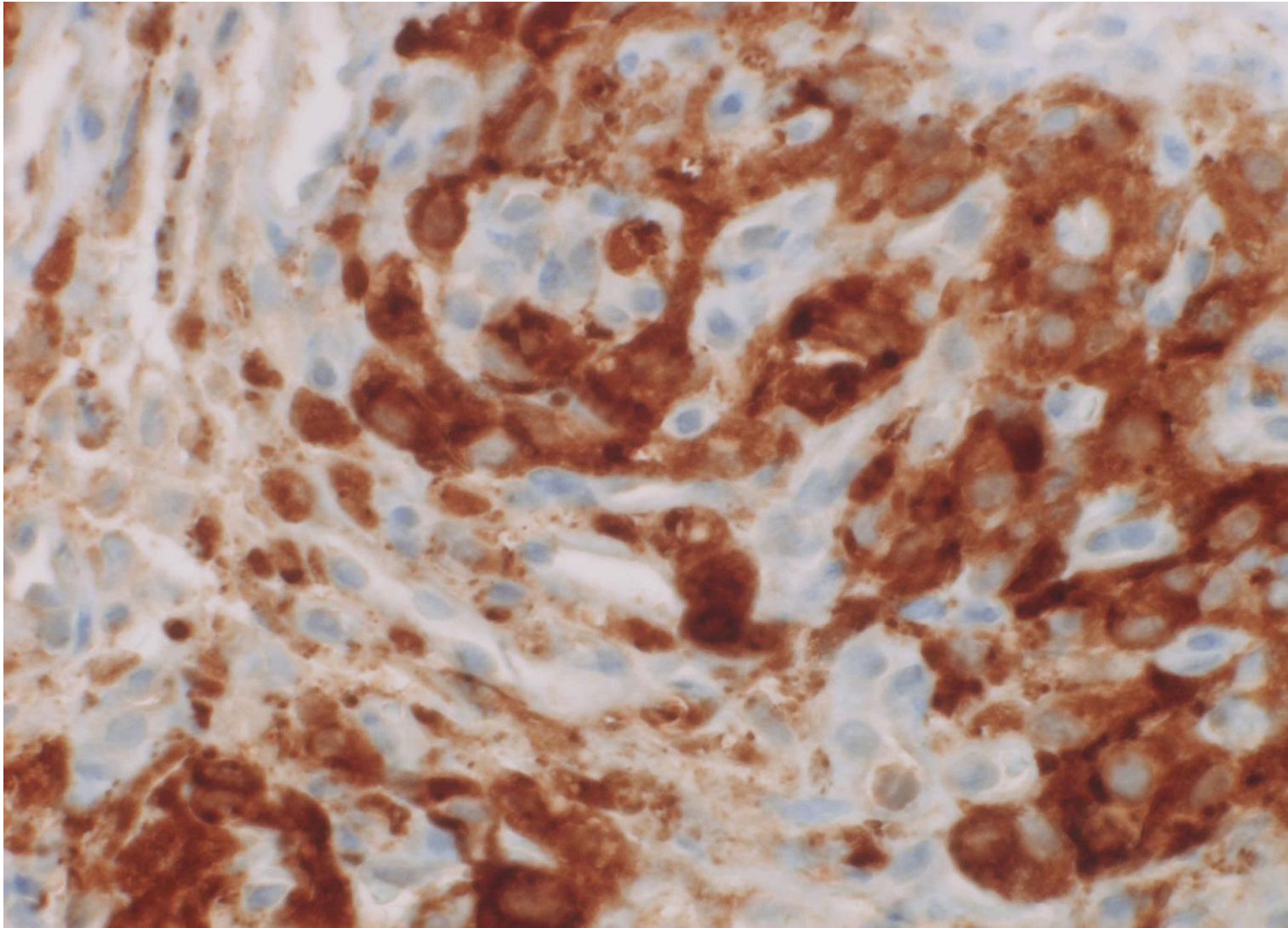
Middle ear paraganglioma in a 66-year-old female patient. The tumor is rich in vascular component, and consists of polygonal cells with eosinophilic or vacuolated cytoplasm. H&E-4



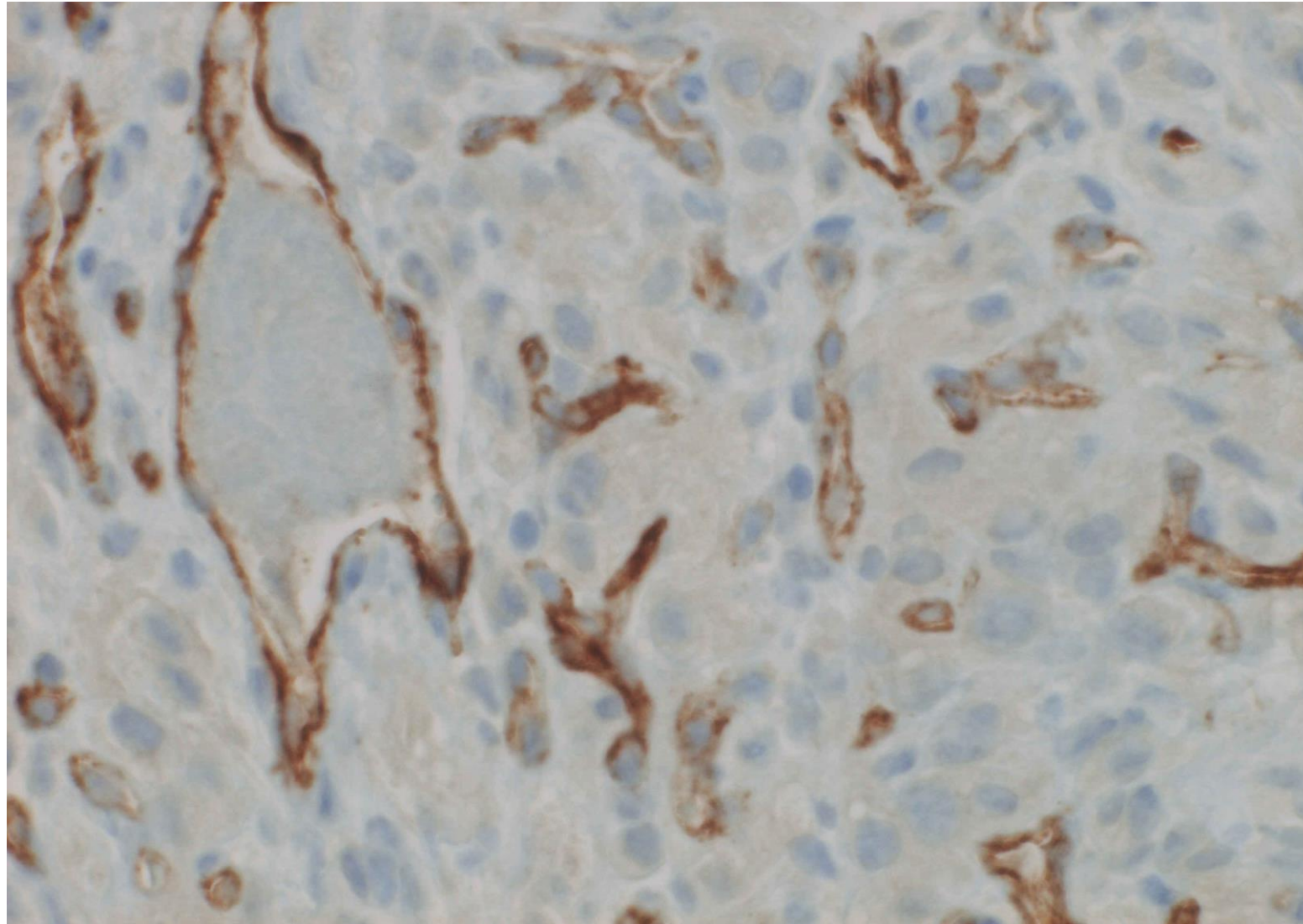
Middle ear paraganglioma in a 66-year-old female patient.
Anastomosing tumor cells are immunoreactive for synaptophysin.
Immunostaining for synaptophysin



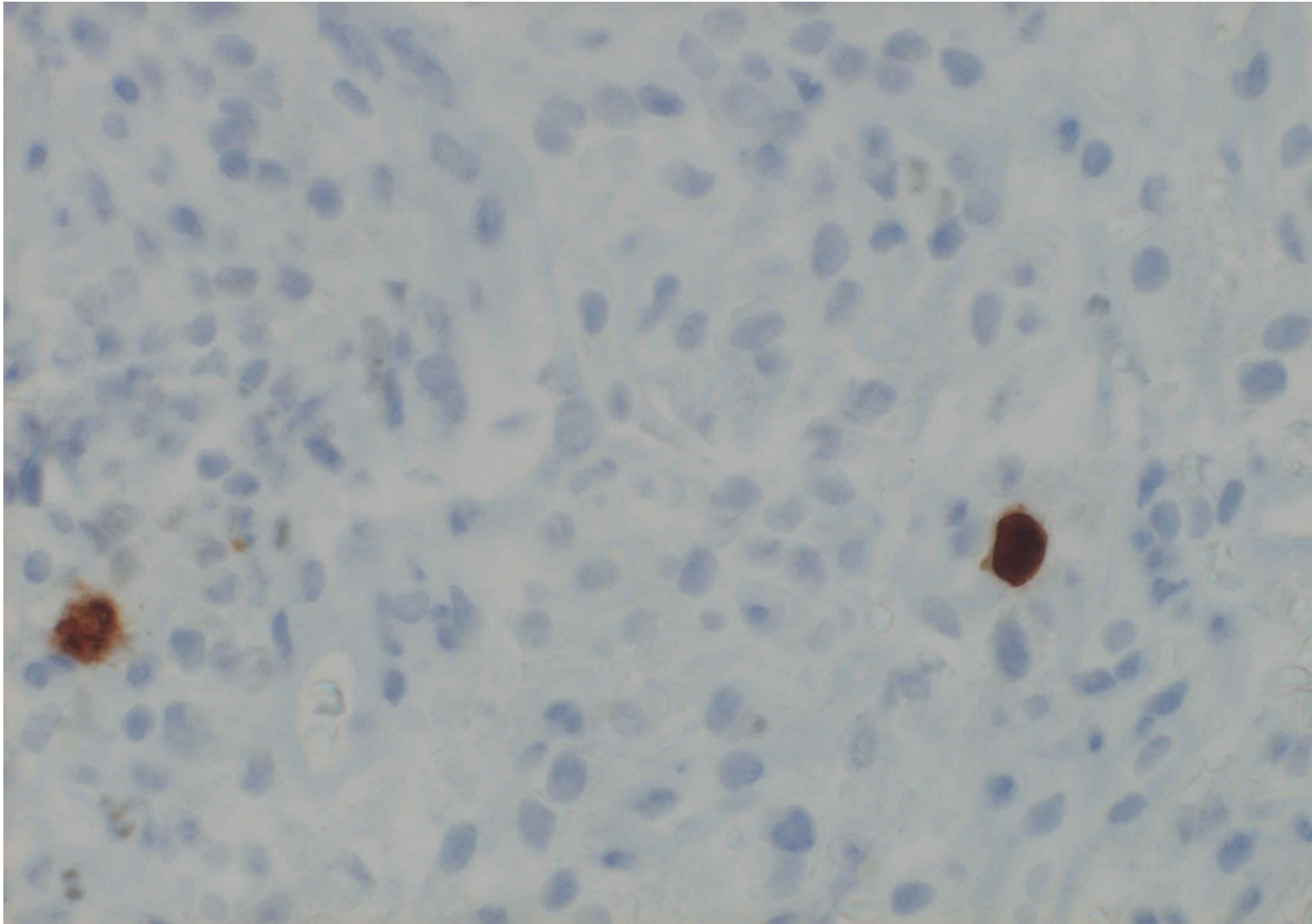
Middle ear paraganglioma in a 66-year-old female patient.
Some tumor cells are immunoreactive for chromogranin A.
Immunostaining for chromogranin A



Middle ear paraganglioma in a 66-year-old female patient. The sustentacular cells around the tumor cells are immunoreactive for S-100 protein, suggesting well-differentiated (benign) nature of the lesion. Immunostaining for S-100 protein



Middle ear paraganglioma in a 66-year-old female patient. Rich vascularity is demonstrated with immunostaining for CD34. Immunostaining for CD34



Middle ear paraganglioma in a 66-year-old female patient. Ki-67 labeling index is very low around 1%, indicating benign nature of the lesion. Immunostaining for Ki-67