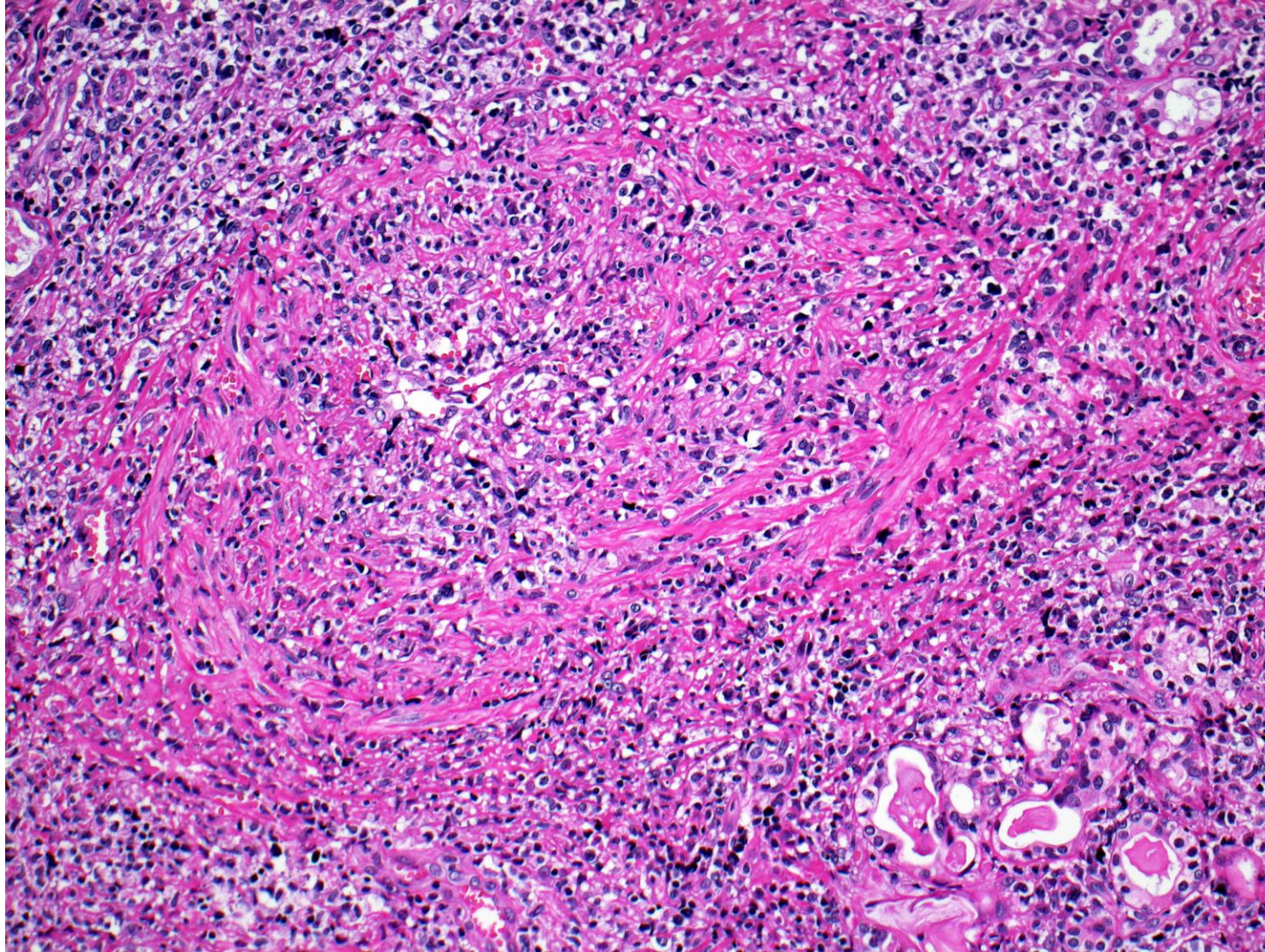


NK/T cell lymphoma of the nasal cavity

Extranodal NK/T cell lymphoma of nasal type, common in East Asia and Latin America, is featured by characterized by angiotropism and angiodestruction, necrosis and the association with Epstein-Barr virus (EBV) infection. EBV is implicated in the lymphomagenesis. The mucosa is ulcerated, and the growing lymphoid cells show a broad cytological spectrum, ranging from small to large cells. It was once called as polymorphic reticulosis or lethal midline granuloma. The prognosis is poor. Extranasal presentation of this cytotoxic lymphoma may be seen in the skin and gastrointestinal tract. Nodal or bone marrow involvement is rare. In two third of cases, the proliferating lymphoid cells belong to NK cell lineage, being positive for CD56, cytoplasmic CD3 and cytotoxic markers (TIA-1, granzyme B and perforin). CD2, CD16 and CD94 are also expressed. In the remaining one third of cases, cytotoxic T-cell lineage is proven, expressing surface CD3, CD5 and CD8. CD2 and CD7 are also detected. EBER is consistently positive. CD30 and PD-1 may be expressed. p53 can be overexpressed. Ki-67 labeling index is high (>60%). The other positive markers include HLA-DR, CD25, CD29, CD38, CD43, CD54, CD95, CD178 and CD183.

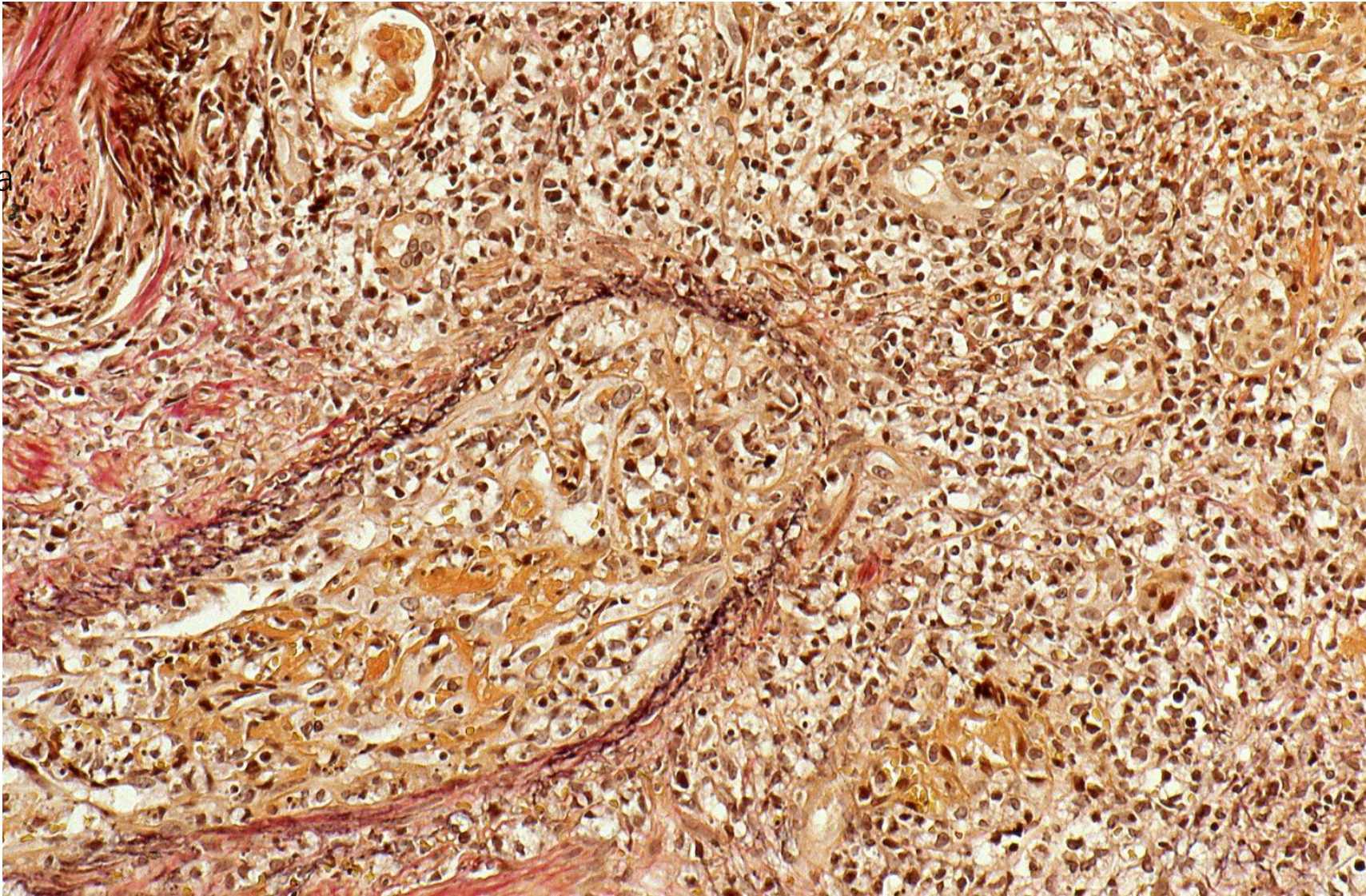
Ref.: Ng SB, et al, Nasal-type extranodal natural killer/T-cell lymphomas: a clinicopathologic and genotypic study of 42 cases in Singapore. *Mod Pathol* 2004; 17(9): 1097-1107. doi: 10.1038/modpathol.3800157

Case 1:
(70 y-o female)
NK cell lymphoma



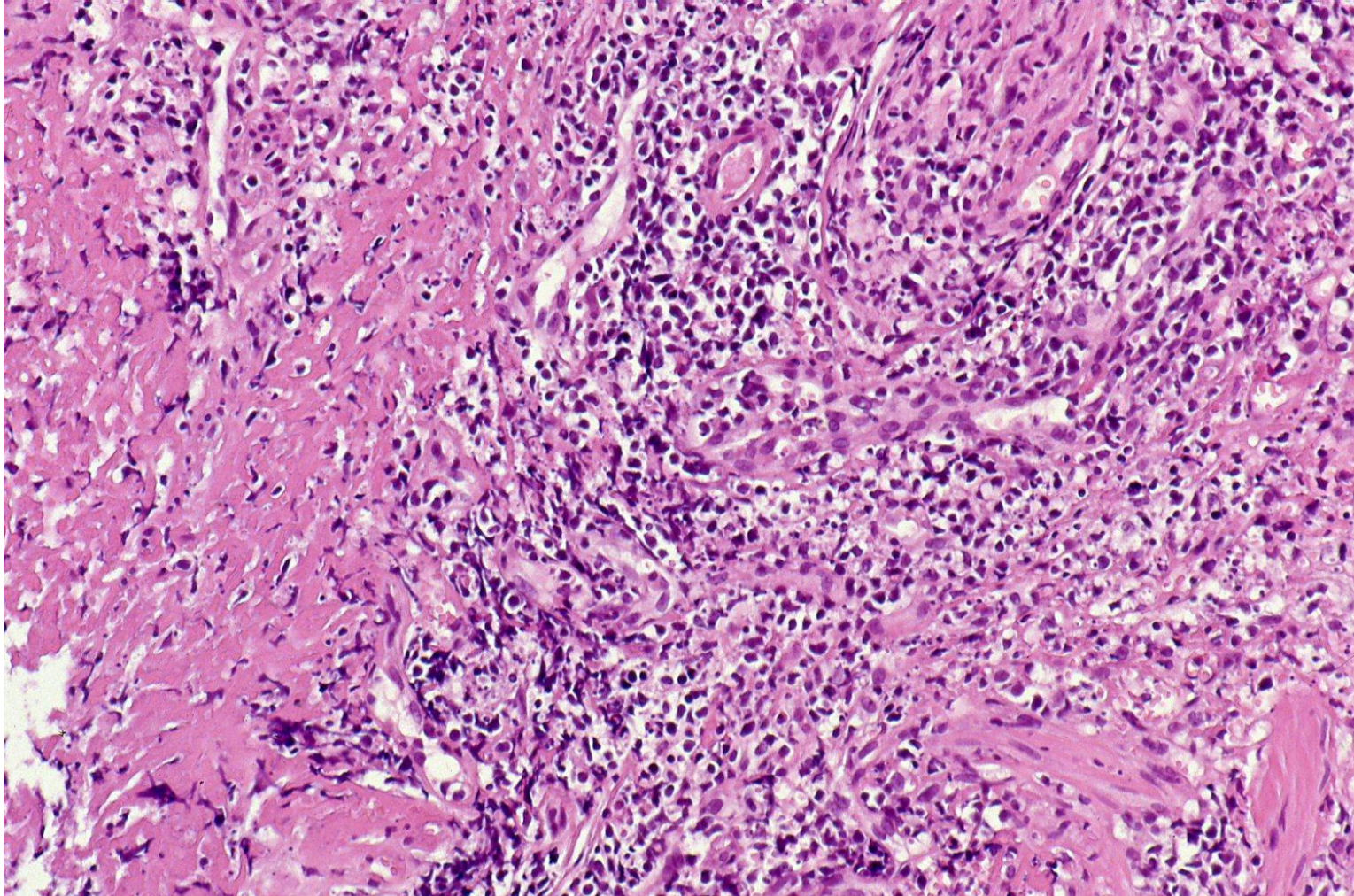
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffuse infiltration of lymphoid cells is seen in the nasal mucosa. The angiocentric lesion is characteristic. Arterial lumen is obstructed (H&E-1a).

Case 1:
(70 y-o female)
NK cell lymphoma



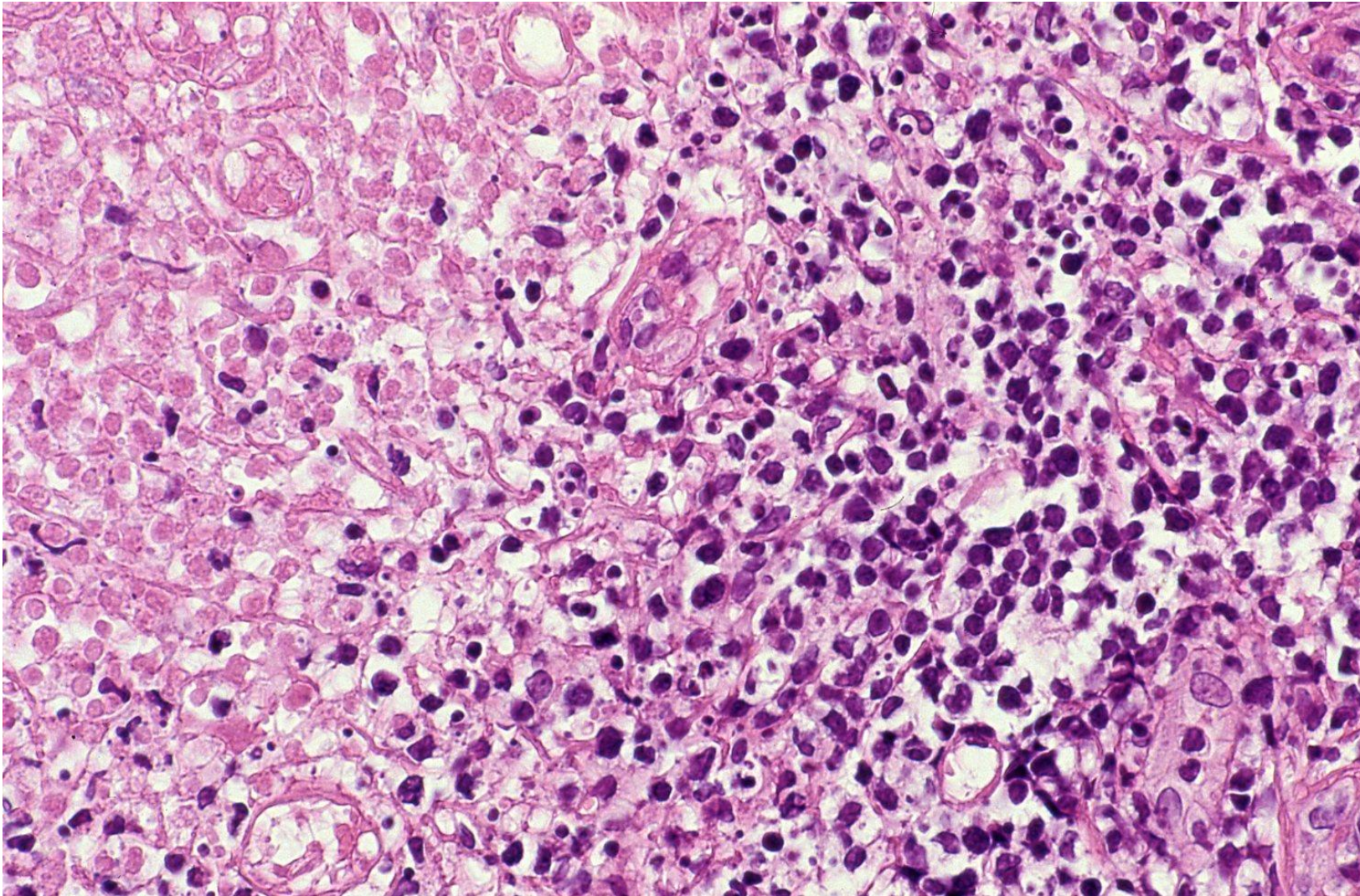
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient.
The arterial lumen in the nasal mucosa is obliterated by lymphoma cell involvement (the angiocentric lesion) (EVG).

Case 1:
(70 y-o female)
NK cell lymphoma



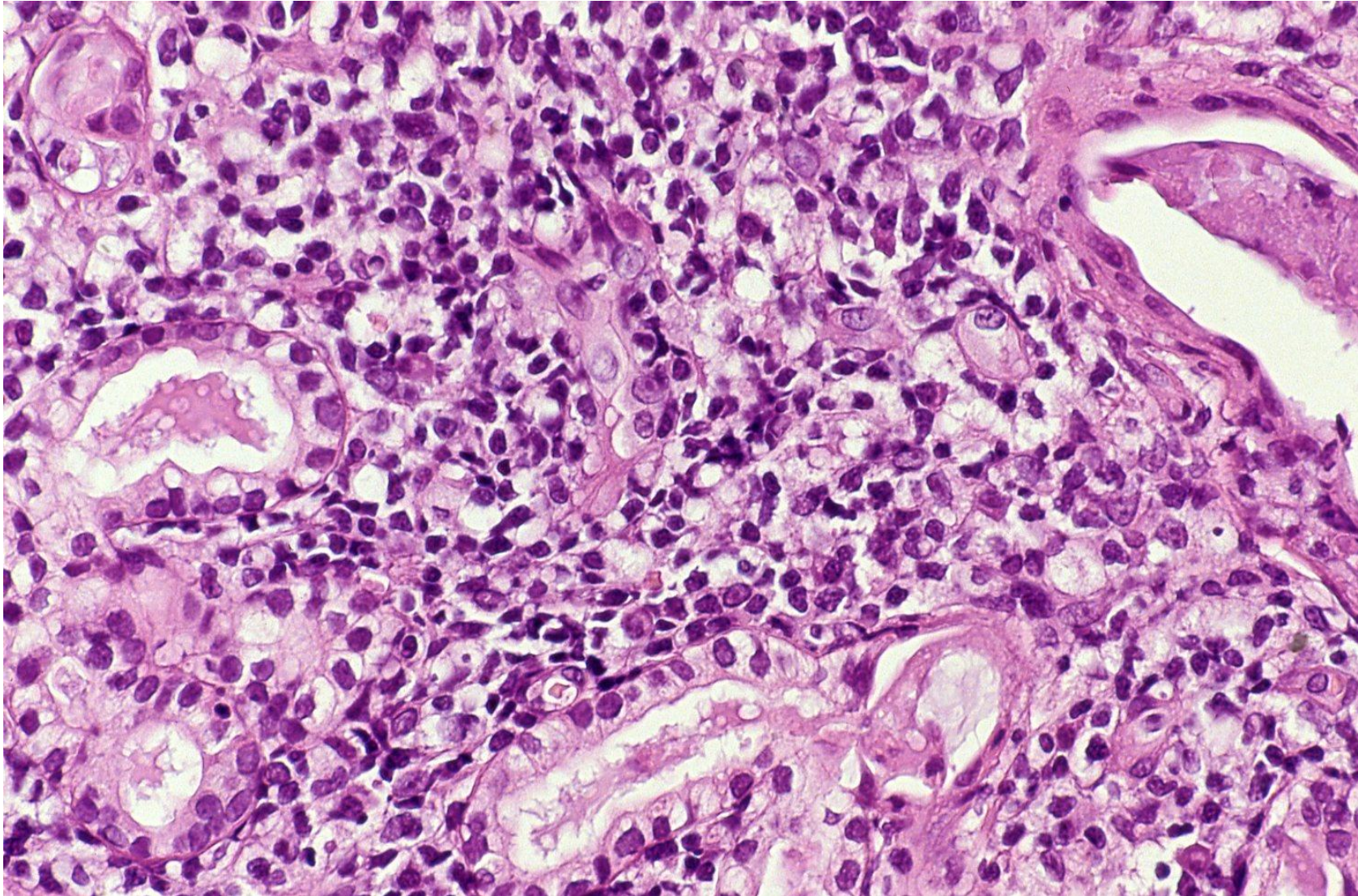
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffuse lymphomatous invasion provoked focal necrosis with fibrinous exudation (H&E-1b).

Case 1:
(70 y-o female)
NK cell lymphoma



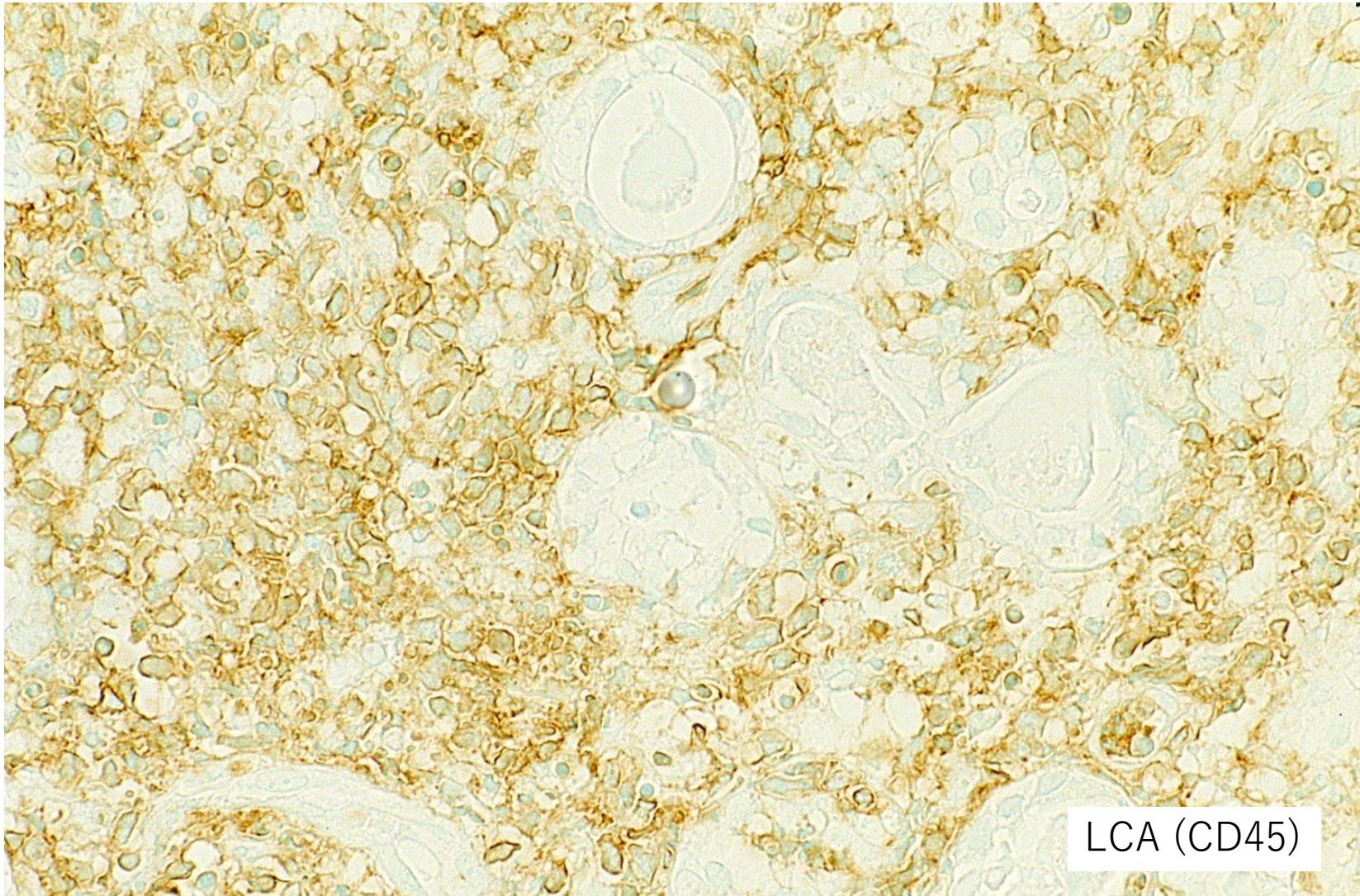
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffuse lymphomatous invasion provoked focal coagulation necrosis, related to the angiocentric lymphomatous involvement (H&E-1c).

Case 1:
(70 y-o female)
NK cell lymphoma



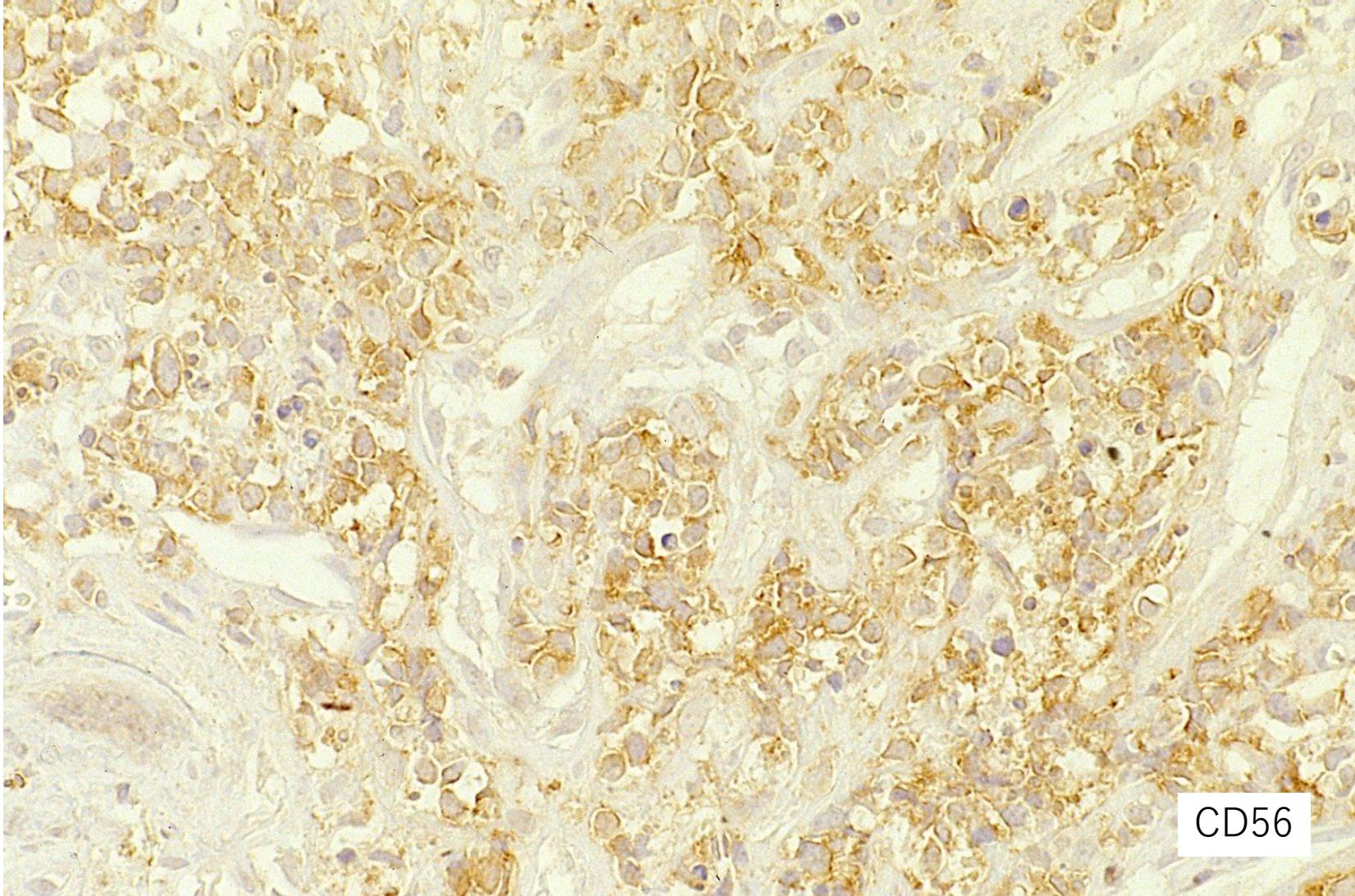
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffusely infiltrating lymphoma cells are small to medium-sized and show hyperchromasia and anisonucleosis (H&E-1d).

Case 1:
(70 y-o female)
NK cell lymphoma



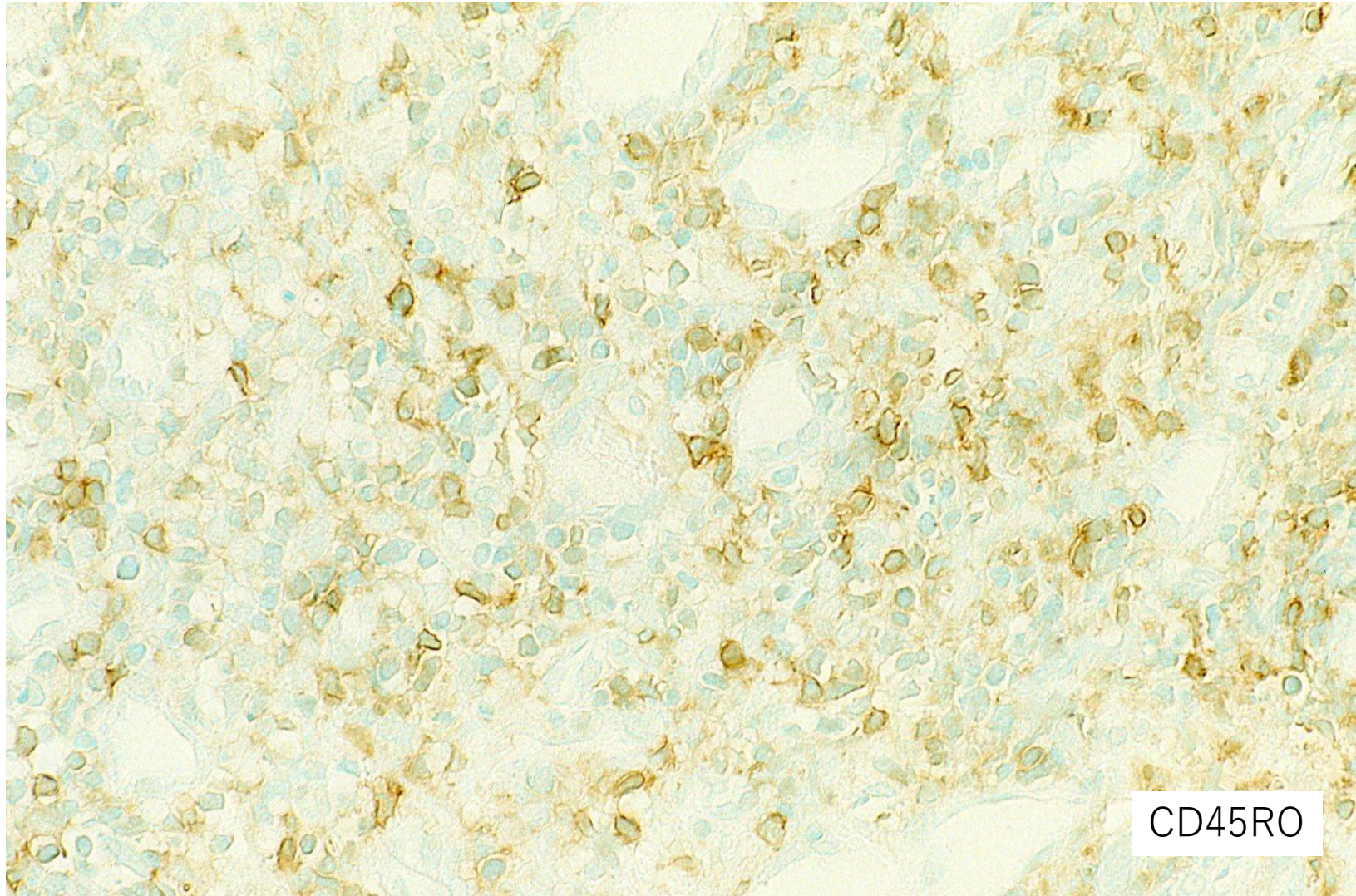
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffusely infiltrating medium-sized lymphoma cells are immunoreactive for LCA (CD45) (immunostaining for CD45).

Case 1:
(70 y-o female)
NK cell lymphoma



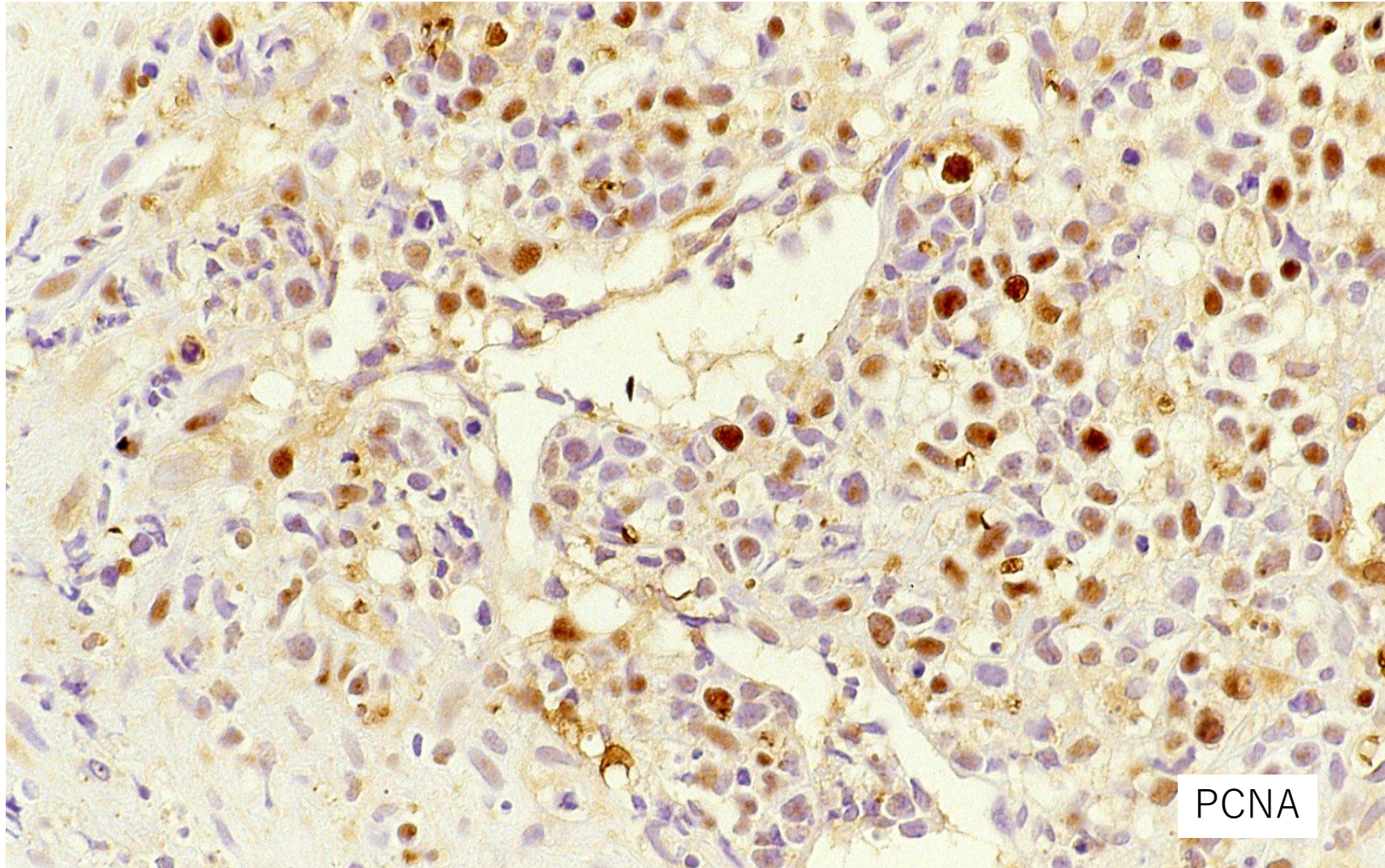
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffusely infiltrating medium-sized lymphoma cells are immunoreactive for CD56 (NCAM), a representative NK cell marker (immunostaining for CD56).

Case 1:
(70 y-o female)
NK cell lymphoma



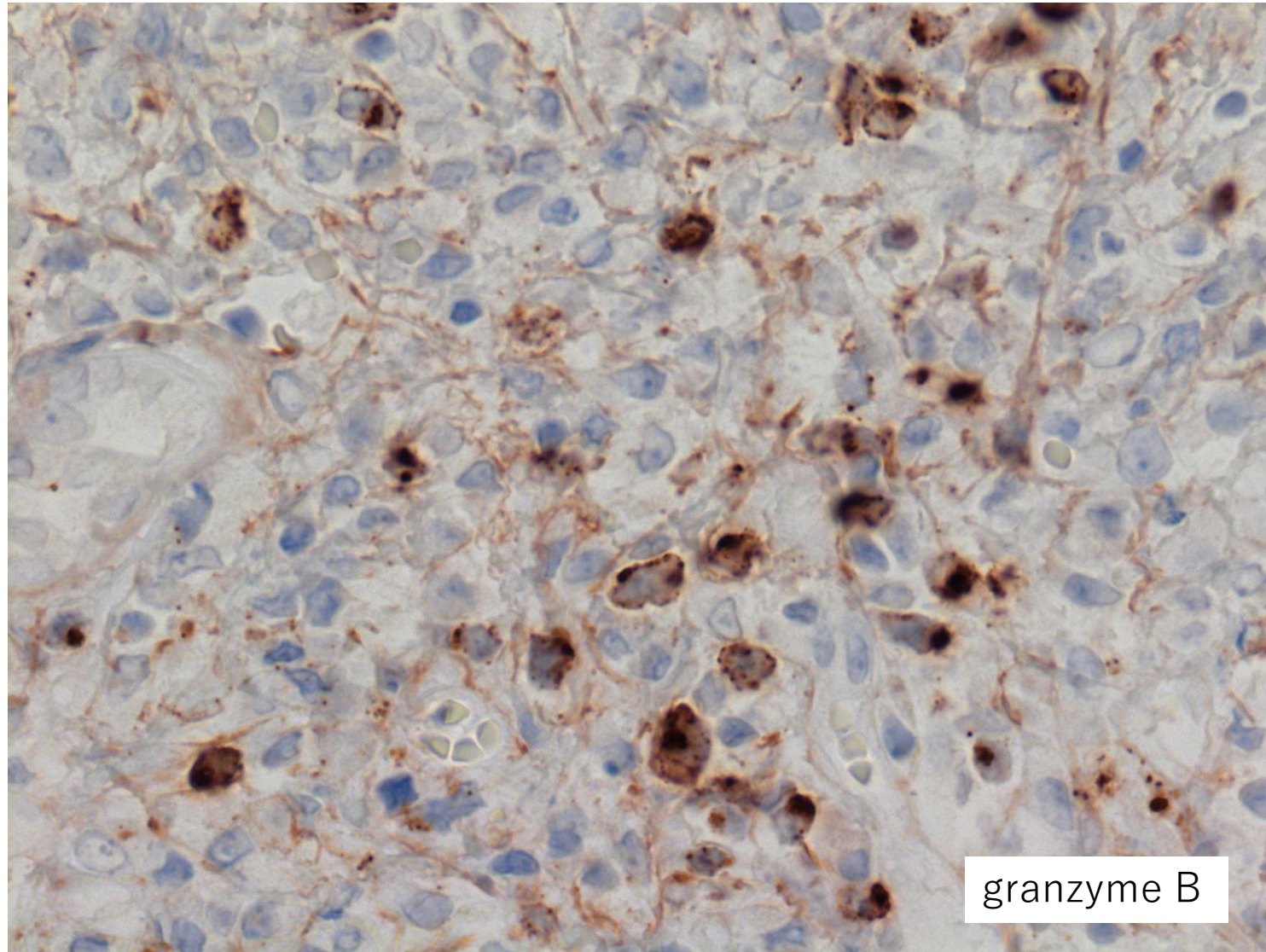
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. CD45RO is expressed in small-sized lymphoid cells, probably representing reactive (non-neoplastic) T-cells,, while the medium-sized cells are negative (immunostaining for CD45RO).

Case 1:
(70 y-o female)
NK cell lymphoma



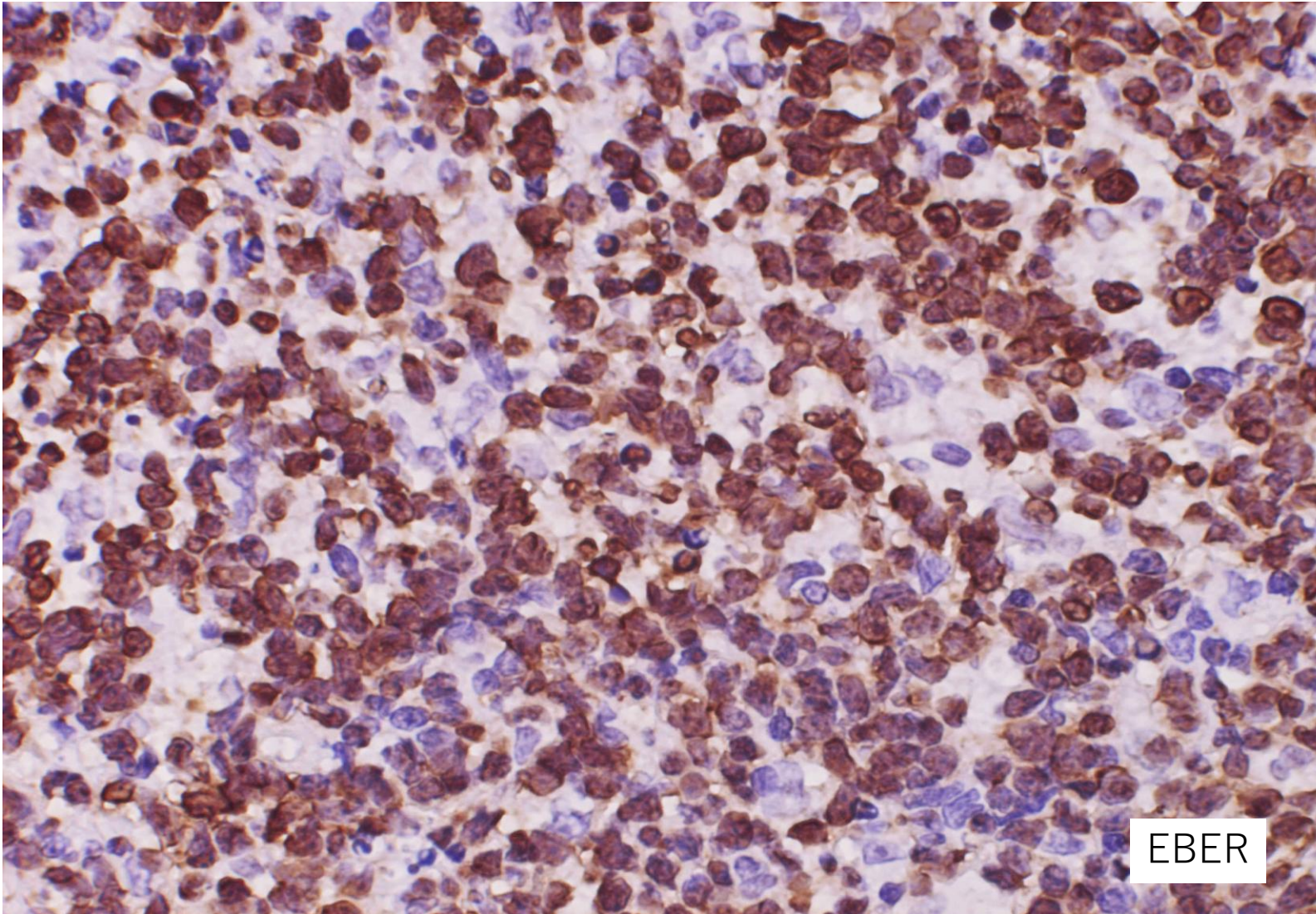
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Proliferating cell nuclear antigen (PCNA) is expressed in a considerable number of lymphoma cell nuclei around 60% (immunostaining for PCNA).

Case 1:
(70 y-o female)
NK cell lymphoma



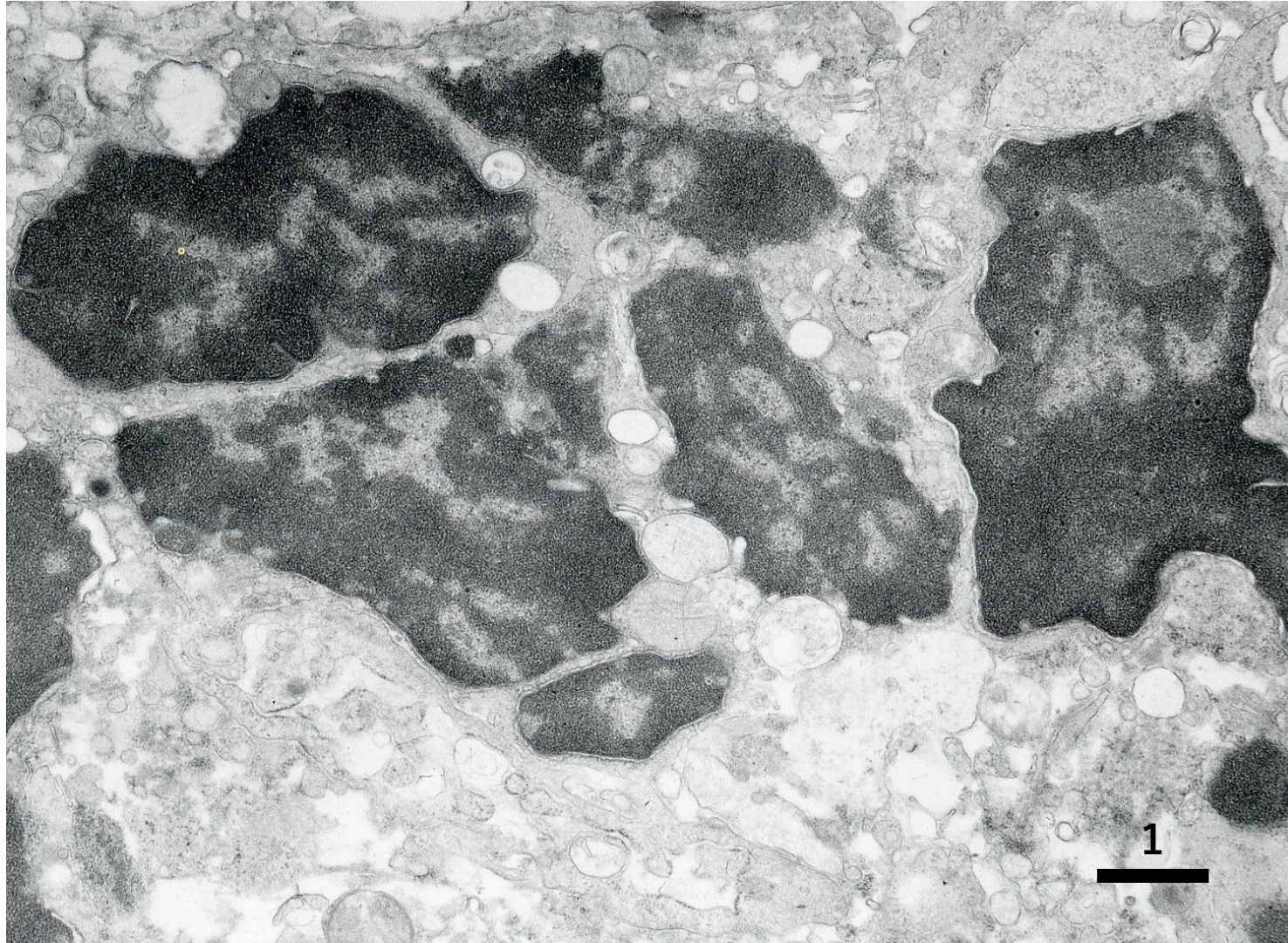
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffusely infiltrating medium-sized lymphoma cells express granzyme B, a representative cytotoxic marker (immunostaining for granzyme B).

Case 1:
(70 y-o female)
NK cell lymphoma



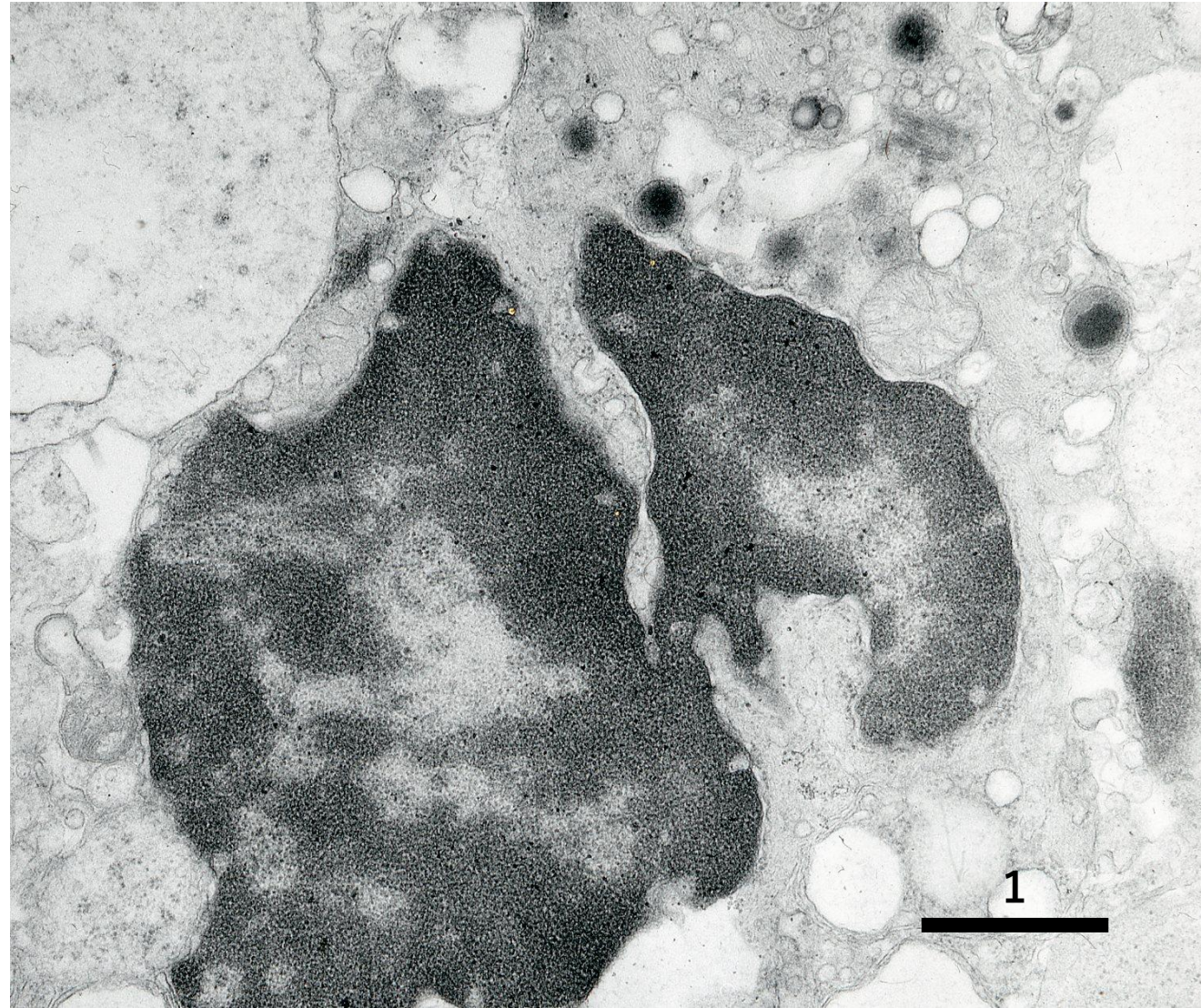
NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. Diffusely infiltrating medium-sized lymphoma cells express EBER in the nuclei. EBER is consistently positive in NK/T-cell lymphoma of the nasal cavity (ISH for EBER).

Case 1:
(70 y-o female)
NK cell lymphoma



Ultrastructure of NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. The medium-sized lymphoma cells possess indented and irregular-shaped nuclei with increased heterochromatin. A few cytoplasmic granules are seen (TEM-1).

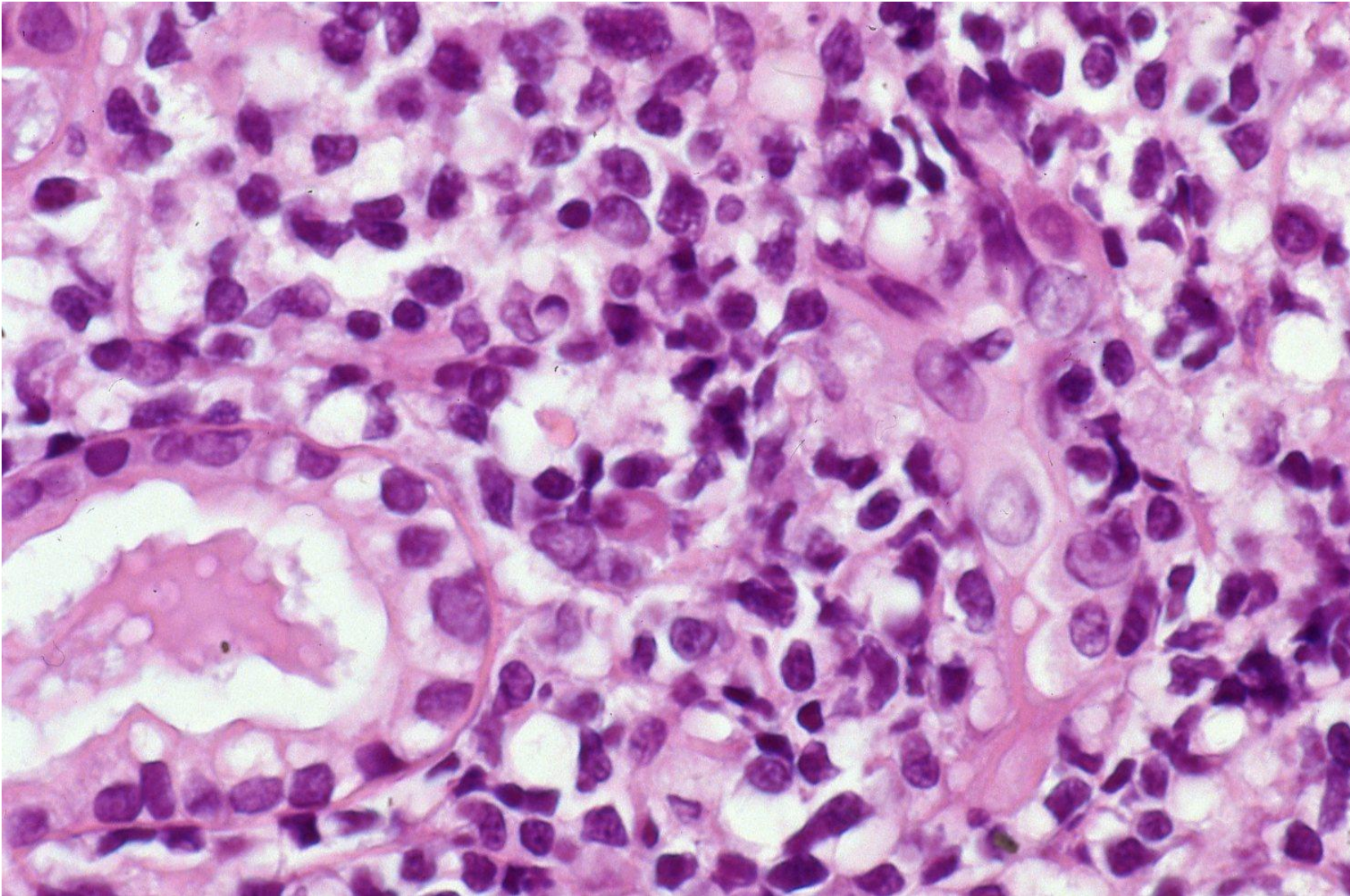
Case 1:
(70 y-o female)
NK cell lymphoma



Ultrastructure of NK cell lymphoma of the nasal cavity seen in a 70 y-o female patient. The medium-sized lymphoma cells possess indented and irregular-shaped nuclei with increased heterochromatin. Cytoplasmic granules contain cytotoxic substances (TEM-2).

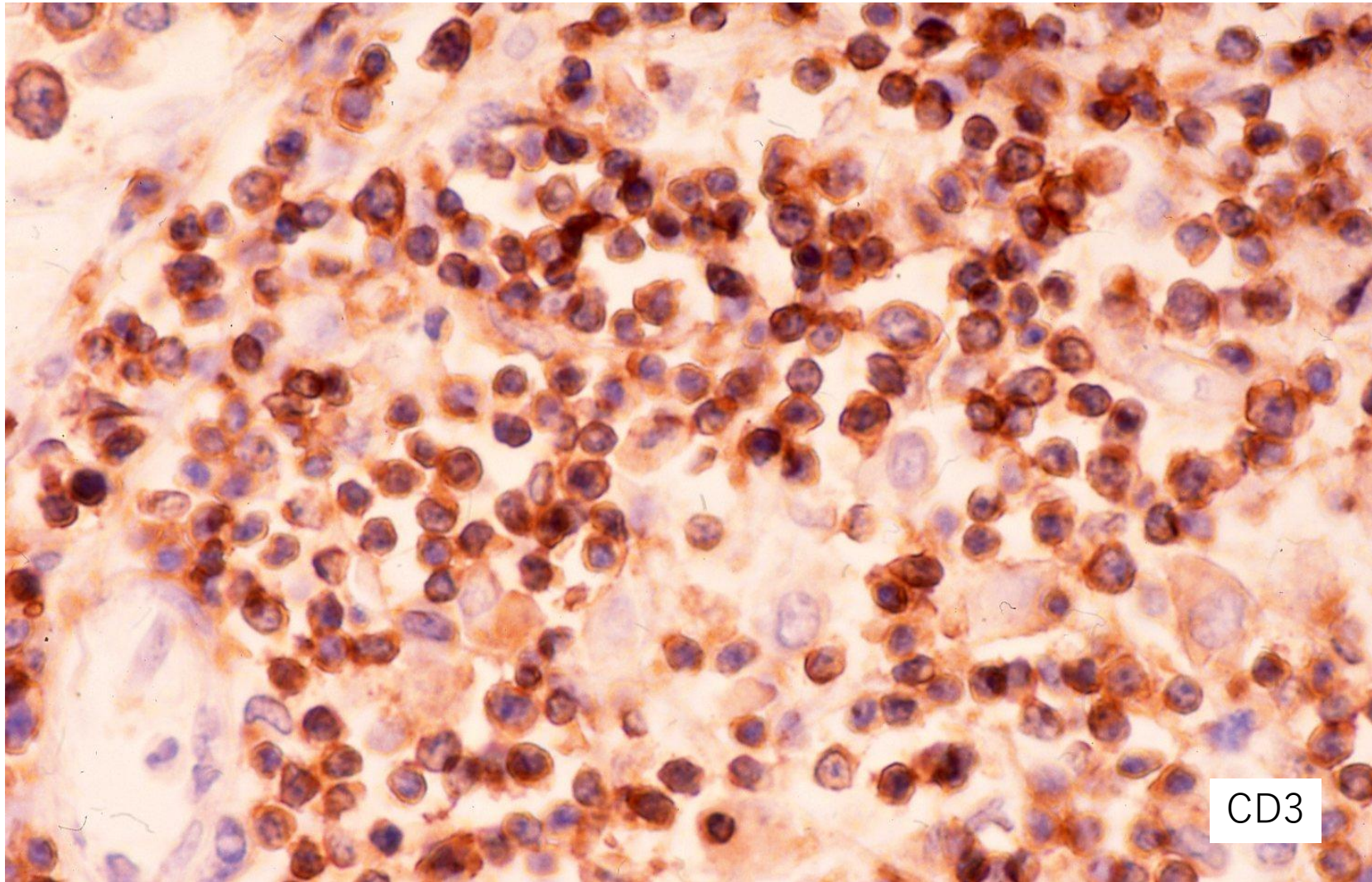
Case 2:
(50 y-o male)
Cytotoxic
T-cell lymphoma

50M



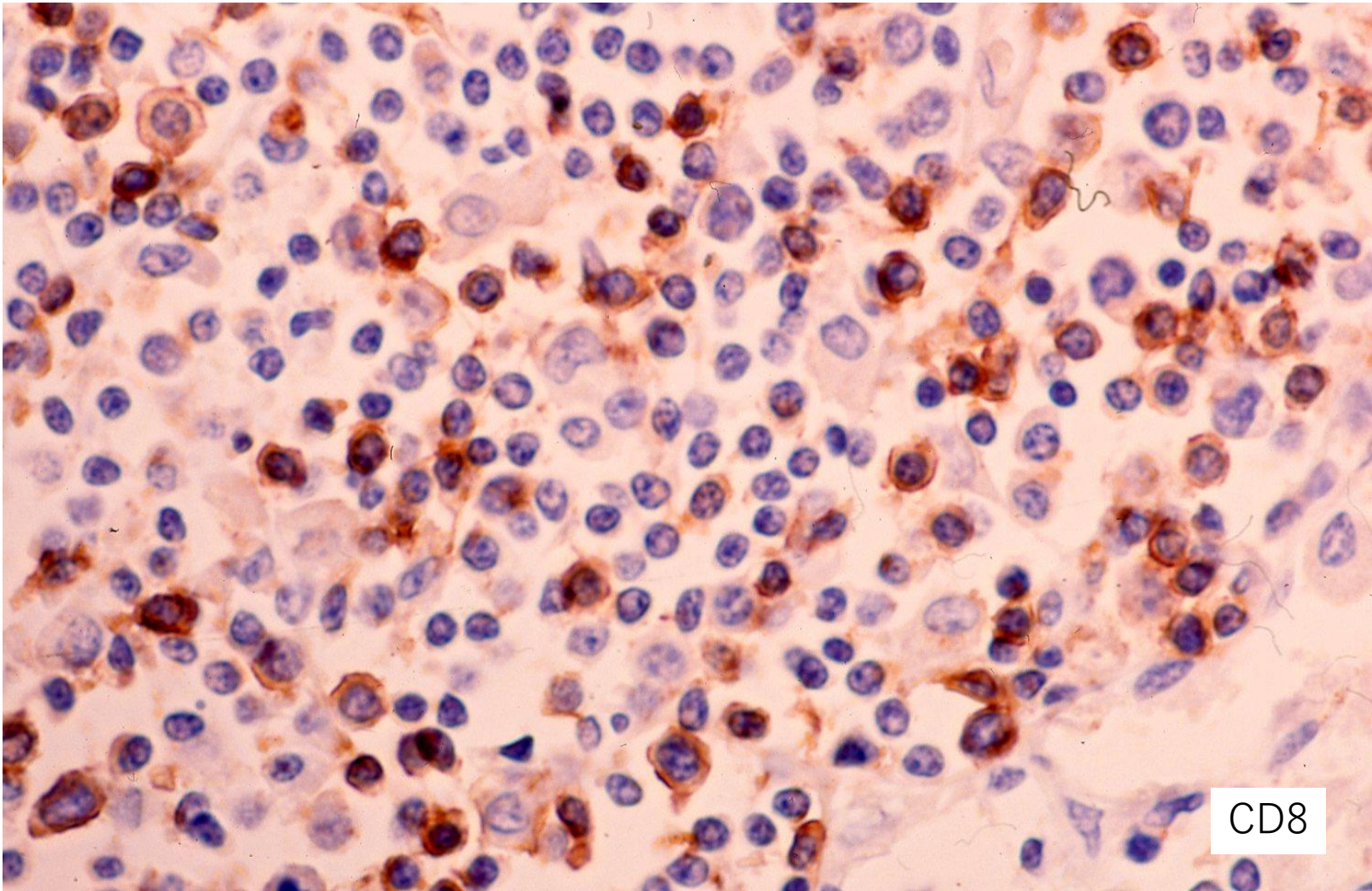
Cytotoxic T-cell lymphoma of the nasal cavity seen in a 50 y-o male patient. Diffuse infiltration of medium-sized lymphoid cells is seen in the nasal mucosa. The irregular-shaped hyperchromatic nuclei are discerned (H&E-2a).

Case 2:
(50 y-o male)
Cytotoxic
T-cell lymphoma



Cytotoxic T-cell lymphoma of the nasal cavity seen in a 50 y-o male patient. Diffusely infiltrating medium-sized lymphoid cells express CD3 on the plasma membrane (immunostaining for CD3).

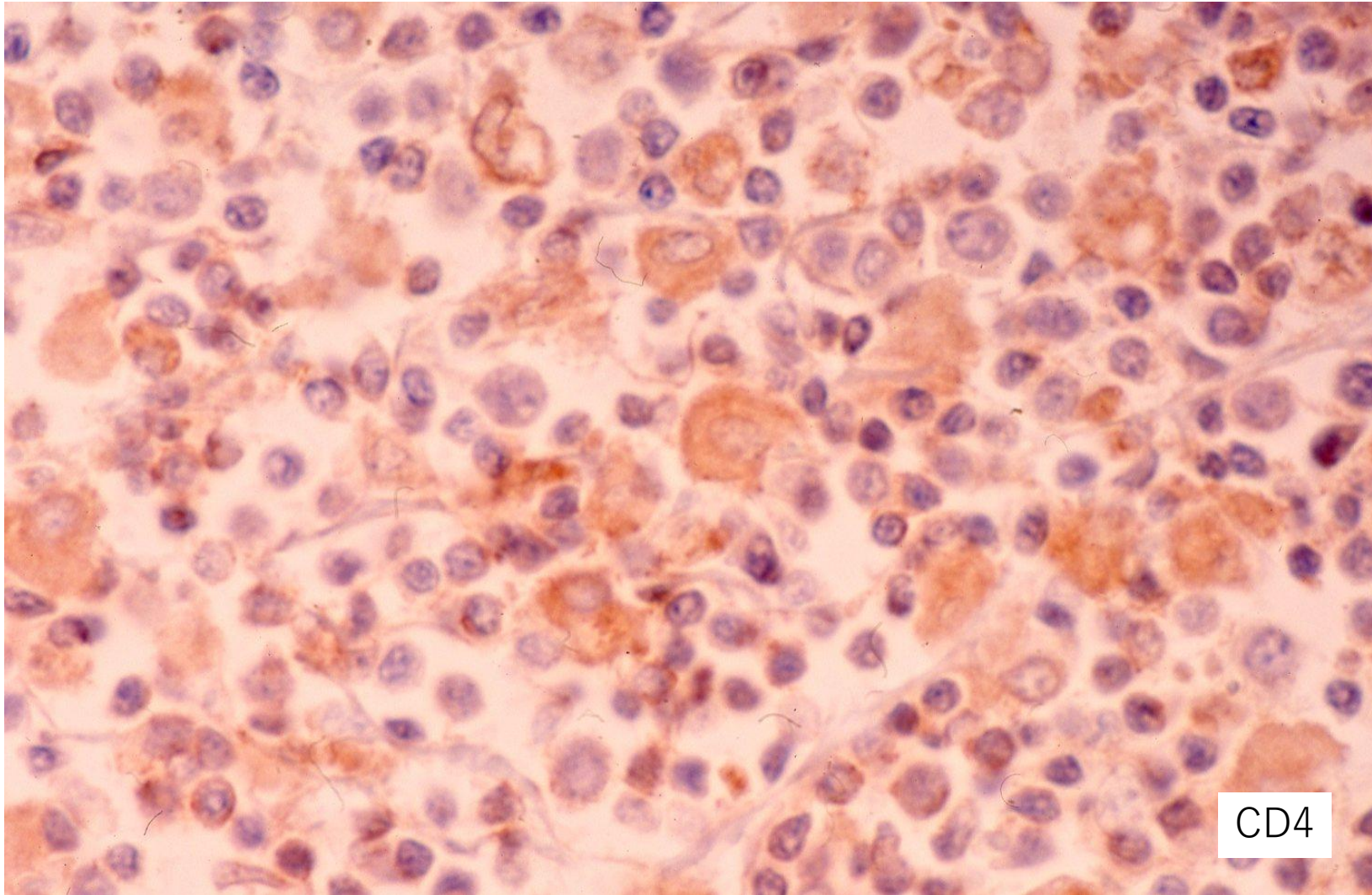
Case 2:
(50 y-o male)
Cytotoxic
T-cell lymphoma



CD8

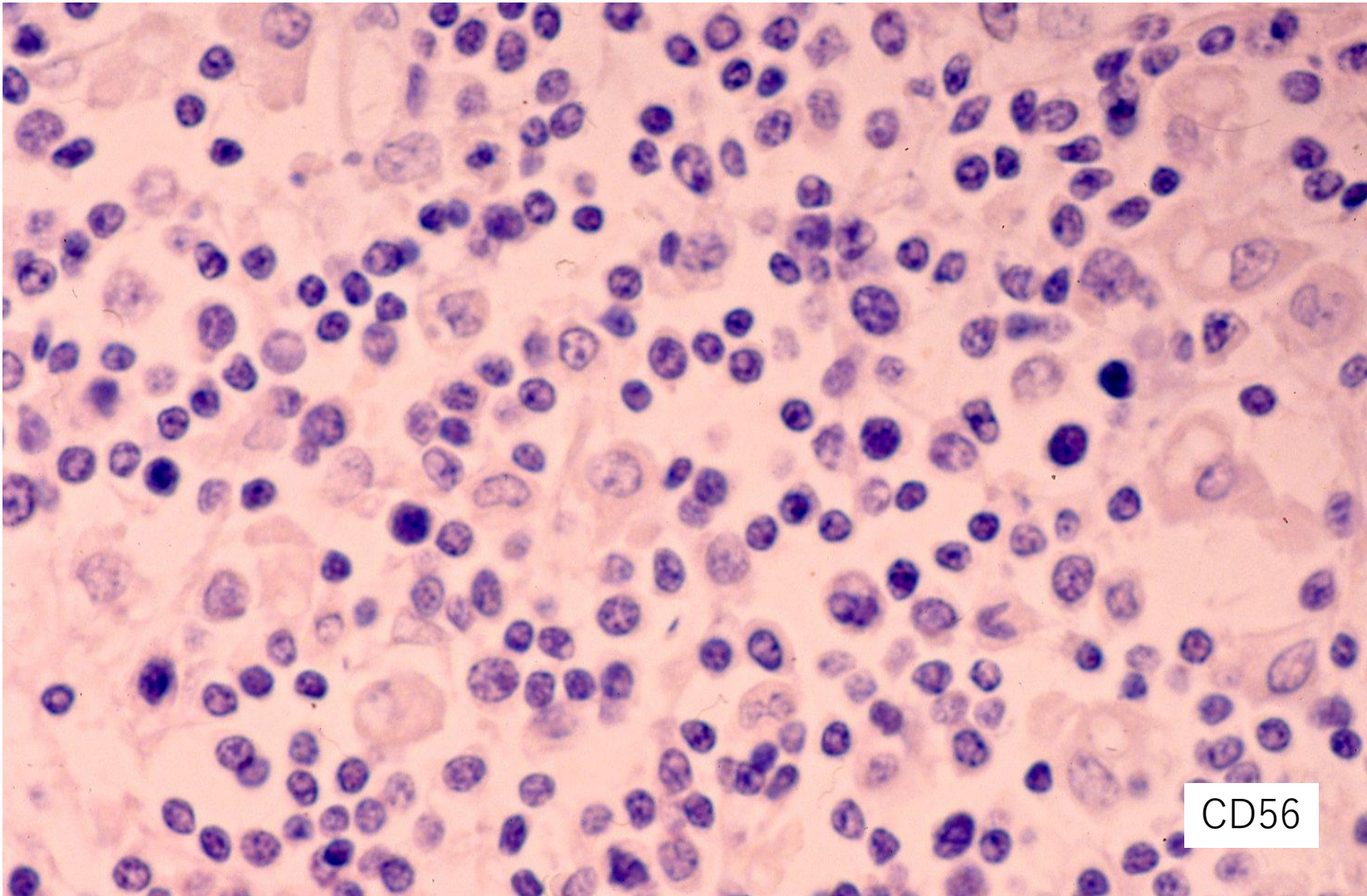
Cytotoxic T-cell lymphoma of the nasal cavity seen in a 50 y-o male patient. A considerable number of diffusely infiltrating medium-sized lymphoid cells express CD8 on the plasma membrane (immunostaining for CD8).

Case 2:
(50 y-o male)
Cytotoxic
T-cell lymphoma



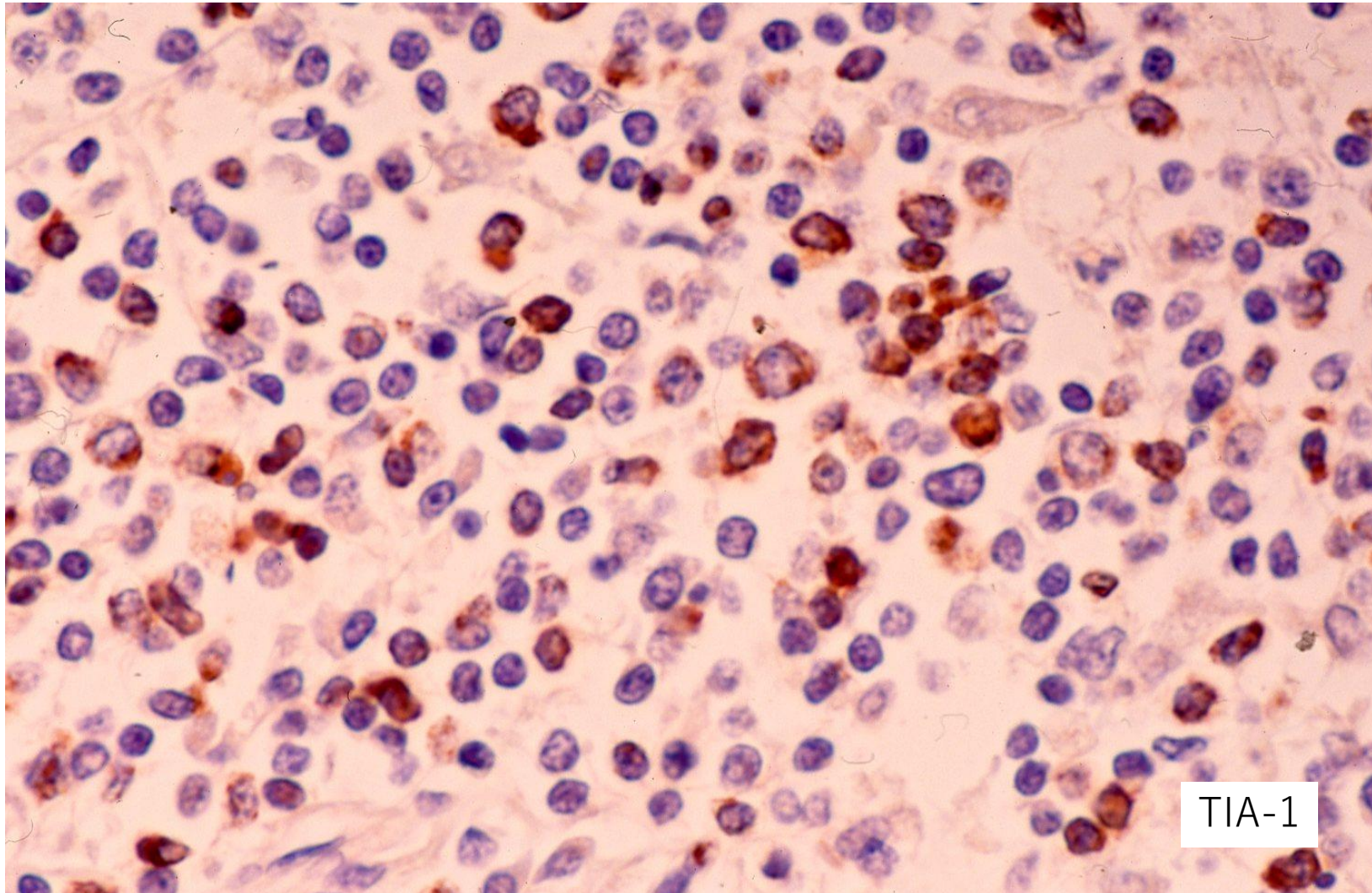
Cytotoxic T-cell lymphoma of the nasal cavity seen in a 50 y-o male patient. Diffusely infiltrating medium-sized lymphoid cells lack CD4 expression. A small number of small-sized lymphocytes and macrophages are positive for CD4 (immunostaining for CD4).

Case 2:
(50 y-o male)
Cytotoxic
T-cell lymphoma



Cytotoxic T-cell lymphoma of the nasal cavity seen in a 50 y-o male patient. Diffusely infiltrating medium-sized lymphoid cells lack the expression of CD56 (immunostaining for CD56).

Case 2:
(50 y-o male)
Cytotoxic
T-cell lymphoma



TIA-1

Cytotoxic T-cell lymphoma of the nasal cavity seen in a 50 y-o male patient. Diffusely infiltrating medium-sized lymphoid cells possess TIA-1 granules in the cytoplasm (immunostaining for T-cell intracytoplasmic antigen: TIA-1).