

Thymomy

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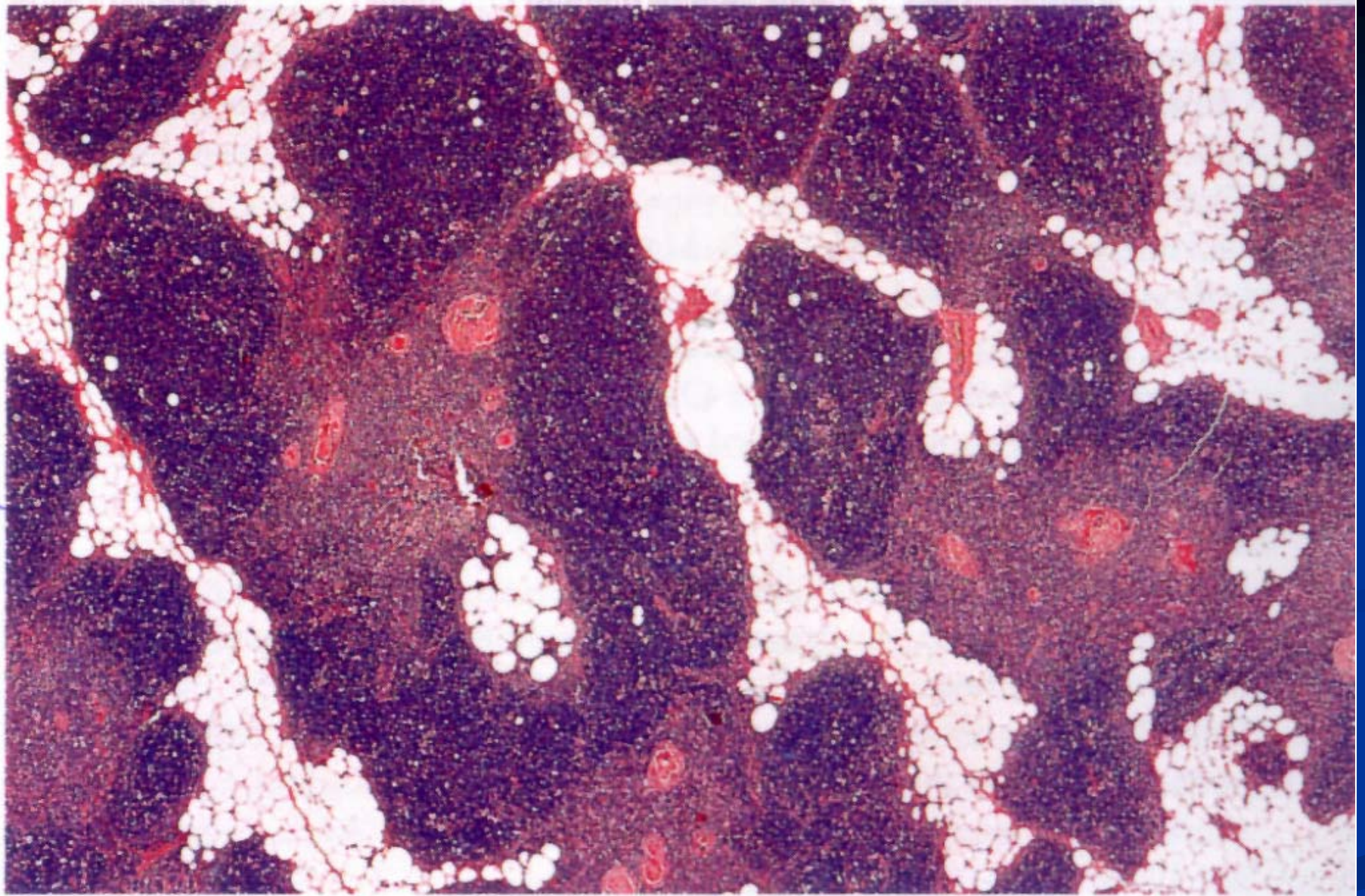


Fig. 21C.1 The normal thymus. The thymic lobules are separated by fat and comprise a dark-staining cortex and a lighter-staining medulla.

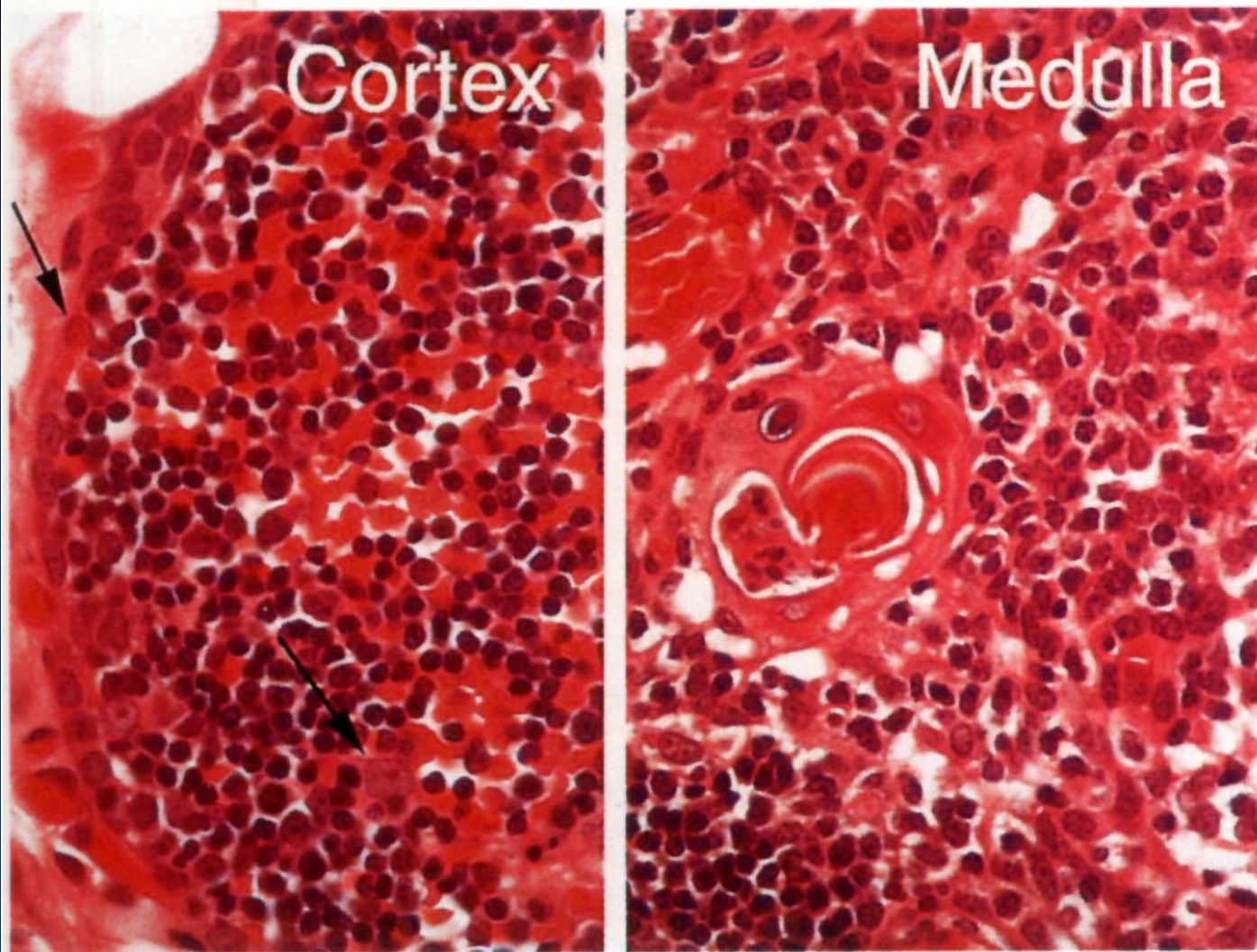


Fig. 21C.2 The normal thymus. Left: The cortex is lymphocyte-rich, and the thymic epithelial cells are barely discernible by their larger pale nuclei (arrow). The epithelial cells form a row immediately beneath the capsule (arrow). Right: The medulla is characterized by less dense packing of the cells and the presence of Hassall's corpuscles.

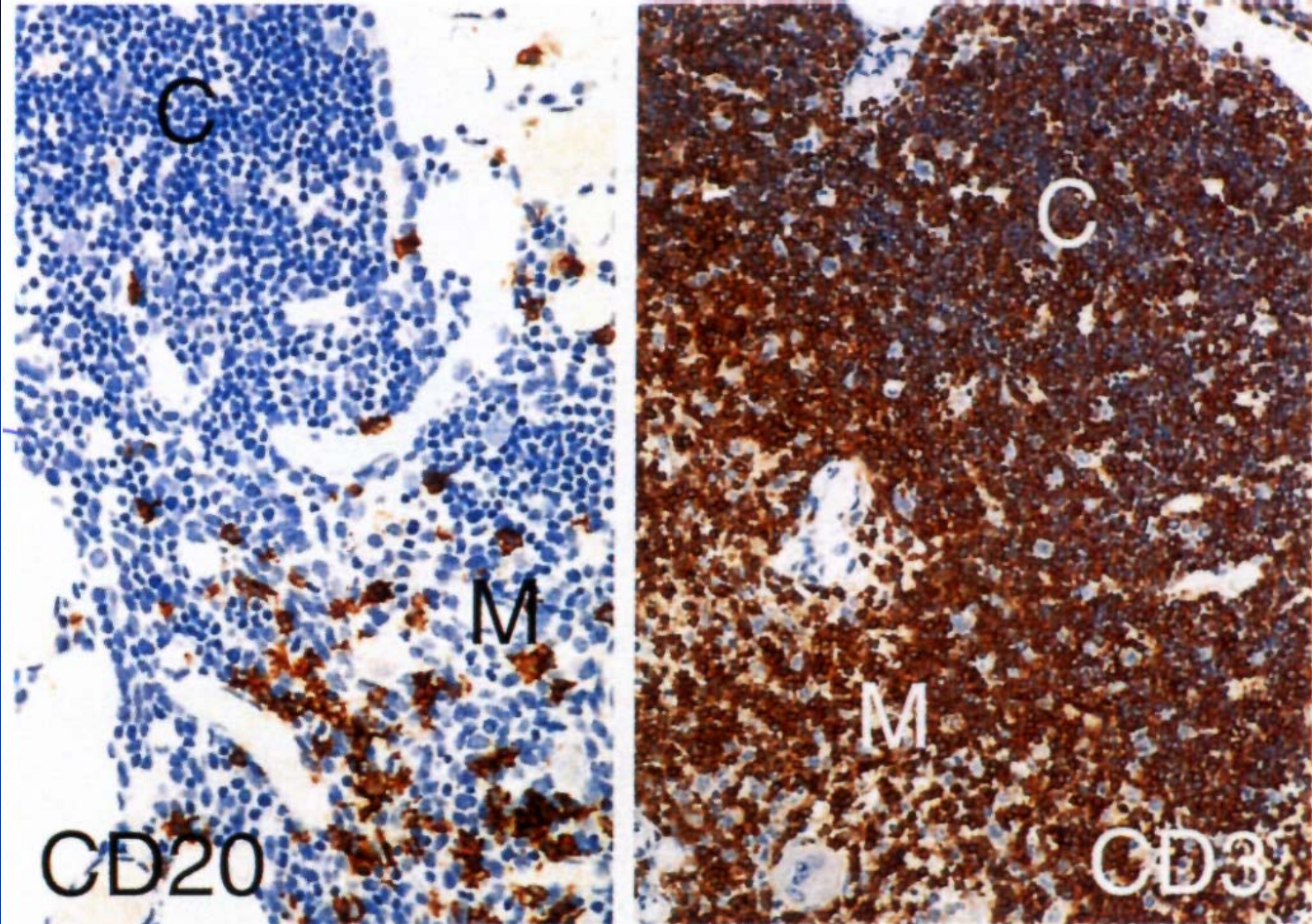


Fig. 21C.4 Immunostaining of the normal thymus. Left: Immunostaining for CD20 shows that some B cells are present in the medulla (M), but they are very rare in the cortex (C). Right: Immunostaining for CD3 shows numerous T cells in both the cortex (C) and medulla (M). The cortical thymocytes show slightly less intense staining for CD3 compared with the medullary thymocytes.

Table 21C.1 Classification of tumors of the thymus (modified from the WHO Classification)

Epithelial tumors

1. Thymoma*

- Type A (medullary)
- Type AB (mixed)
- Type B1 (predominantly cortical; organoid)
- Type B2 (cortical)
- Type B3 ("well-differentiated thymic carcinoma")

2. Thymic carcinoma (type C thymoma)

- Squamous cell carcinoma
- Lymphoepithelioma-like carcinoma
- Sarcomatoid carcinoma, spindle cell carcinoma, and carcinosarcoma
- Clear cell carcinoma
- Basaloid carcinoma
- Mucoepidermoid carcinoma
- Papillary carcinoma
- Undifferentiated carcinoma
- Adenocarcinoma

3. Thymic epithelial tumor with features borderline between thymoma and thymic carcinoma

Neuroendocrine tumors

1. Carcinoid tumor

- Classic
- Spindle cell
- Pigmented
- With amyloid
- Atypical
- Mucinous

2. Small cell carcinoma

3. Large cell neuroendocrine carcinoma

Germ cell tumors

1. Seminoma (germinoma)

2. Embryonal carcinoma

3. Yolk sac tumor

4. Choriocarcinoma

5. Teratoma

- Mature teratoma
- Immature teratoma
- Teratoma with additional malignant component:
 - a. type I: with another germ cell tumor, e.g. seminoma, yolk sac tumor

b. type II: with a non-germ-cell epithelial component, e.g. adenocarcinoma, squamous cell carcinoma

c. type III: with a malignant mesenchymal component, e.g. rhabdomyosarcoma, angiosarcoma

d. type IV: with any combination of the above (most commonly type I + III)

6. Non-teratomatous mixed germ cell tumor

Lymphoid, histiocytic, and dendritic cell tumors

1. Hodgkin's lymphoma (especially nodular sclerosis)

2. Mediastinal large B-cell lymphoma

3. T-lymphoblastic lymphoma

4. Extranodal marginal zone B-cell lymphoma of MALT type

5. Langerhans cell histiocytosis

6. True histiocytic lymphoma (which may complicate germ cell tumor)

7. Follicular dendritic cell tumor

8. Other lymphoid, histiocytic, or dendritic cell tumors

Mesenchymal tumors

1. Lipoma

2. Thymolipoma

3. Thymoliposarcoma

4. Solitary fibrous tumor

5. Malignant rhabdoid tumor

6. Synovial sarcoma

7. Other mesenchymal tumors

Tumor-like lesions

1. True thymic hyperplasia

2. Lymphoid hyperplasia (lymphofollicular thymitis)

3. Multilocular thymic cyst

Thymic or related branchial pouch tumors occurring in the neck

1. Ectopic hamartomatous thymoma

2. Ectopic cervical thymoma

3. Spindle epithelial tumor with thymus-like differentiation (SETTLE)

4. Carcinoma showing thymus-like differentiation (CASTLE)

Metastatic tumors

Unclassified tumors

*All thymomas should be evaluated for the degree of invasiveness (see Table 21C.8).

Thymomy

- Nádory z thymických epiteliálních buněk (bez ohledu na přítomnost non-neoplastických lymfocytů).
- Vzácnější tumory, 1-5/1000000.
- V každém věku, ale peak 55-65 let.
- Velmi vzácné u dětí/adolescentů.
- Bez pohlavní predilekce.



Fig. 21C.22 Non-invasive thymoma. The external surface of a resected thymoma typically has a smooth bosselated appearance.



Fig. 21C.23 Thymoma. The cut surface is diagnostic of thymoma. Variable-sized, jigsaw puzzle-like, tan-colored tumor nodules are demarcated by whitish fibrous septa.

Histologické typy

- A: blandní vřetenité nebo oválné buňky
- B: okrouhlé a/nebo polygonální buňky
B1-B3 dle zastoupení non-
-neoplastických lymfocytů a stupně
atypií neoplastických buněk

- C: dnes se nežívá, jde o thymický karcinom.

Thymom typ A

- Syn. vřetenobuněčný, medullární thymom
- Mikroskopicky složen s blandních vřetenitých/oválných buněk „organoidně“ uspořádaných.
- Lymfocyty ojedinělé nebo žádné.

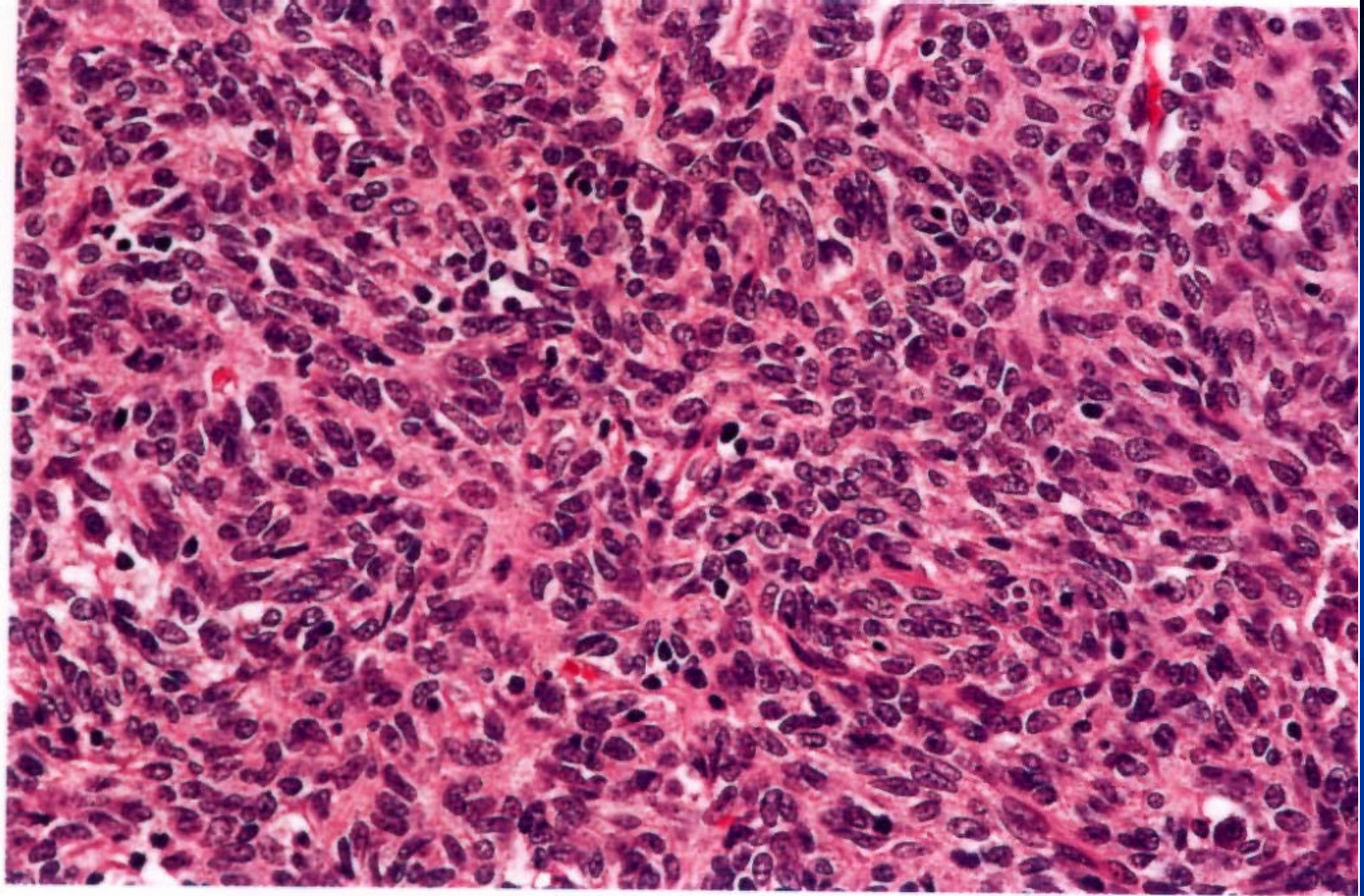
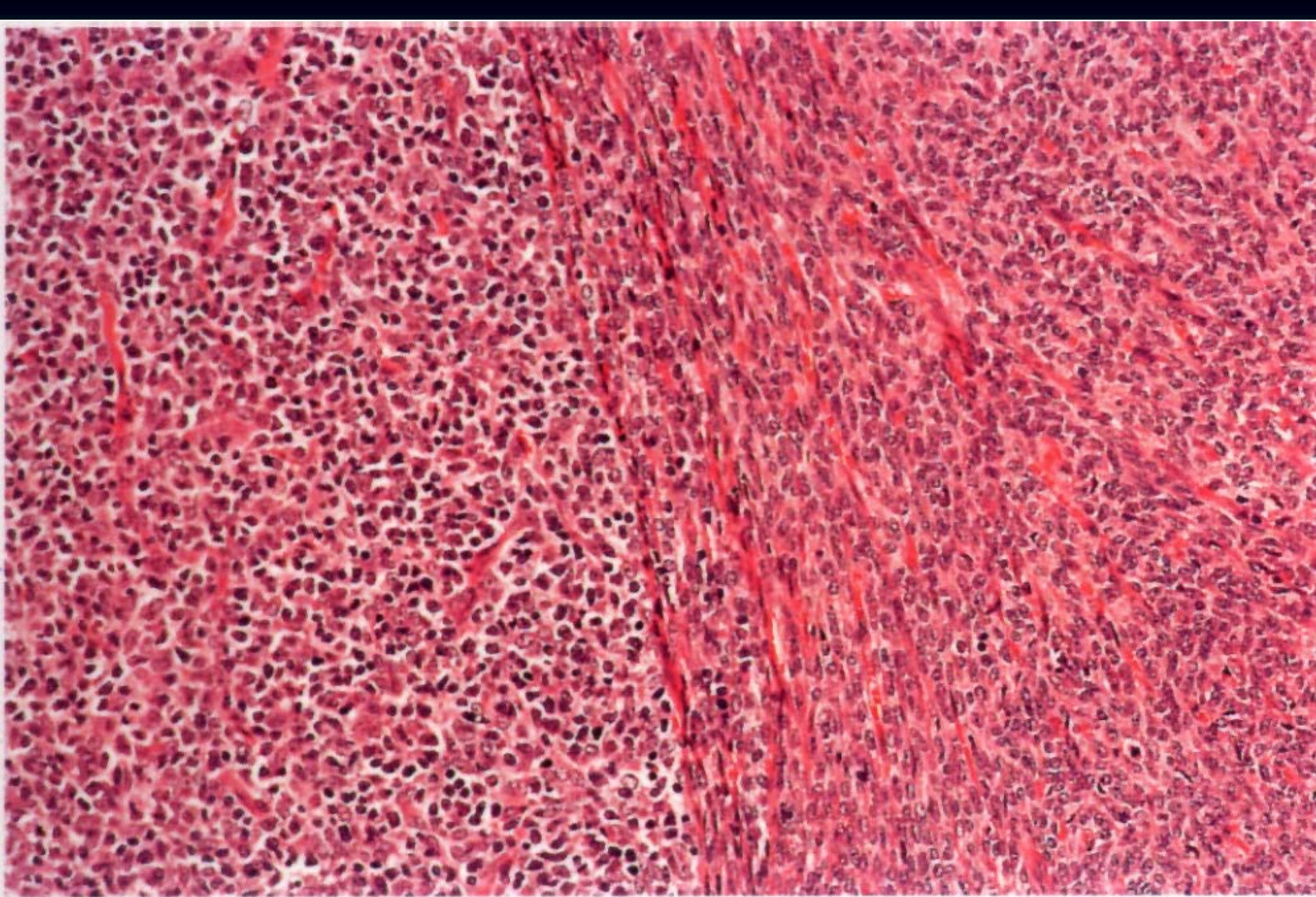


Fig. 21C.7 Type A thymoma. The spindly tumor cells form short fascicles or are haphazardly distributed. They have uniform elongated nuclei and fairly dense chromatin. Note absence of mitotic figures. Characteristically, there are few intermingled lymphocytes.

Thymom typ AB

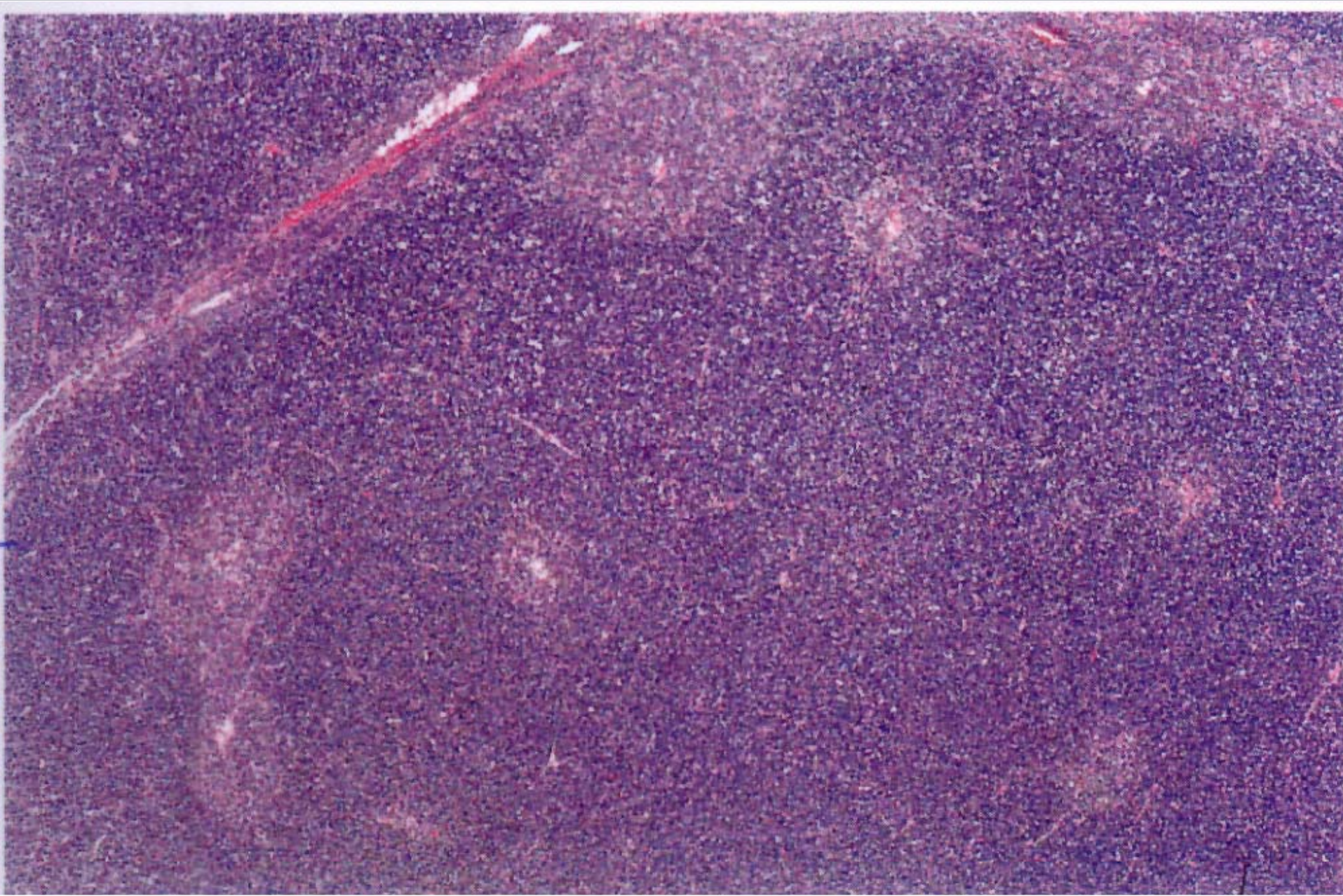
- Syn. smíšený thymom
- Složek z komponenty A (chudé na lymfocyty) a B (bohaté na lymfocyty).

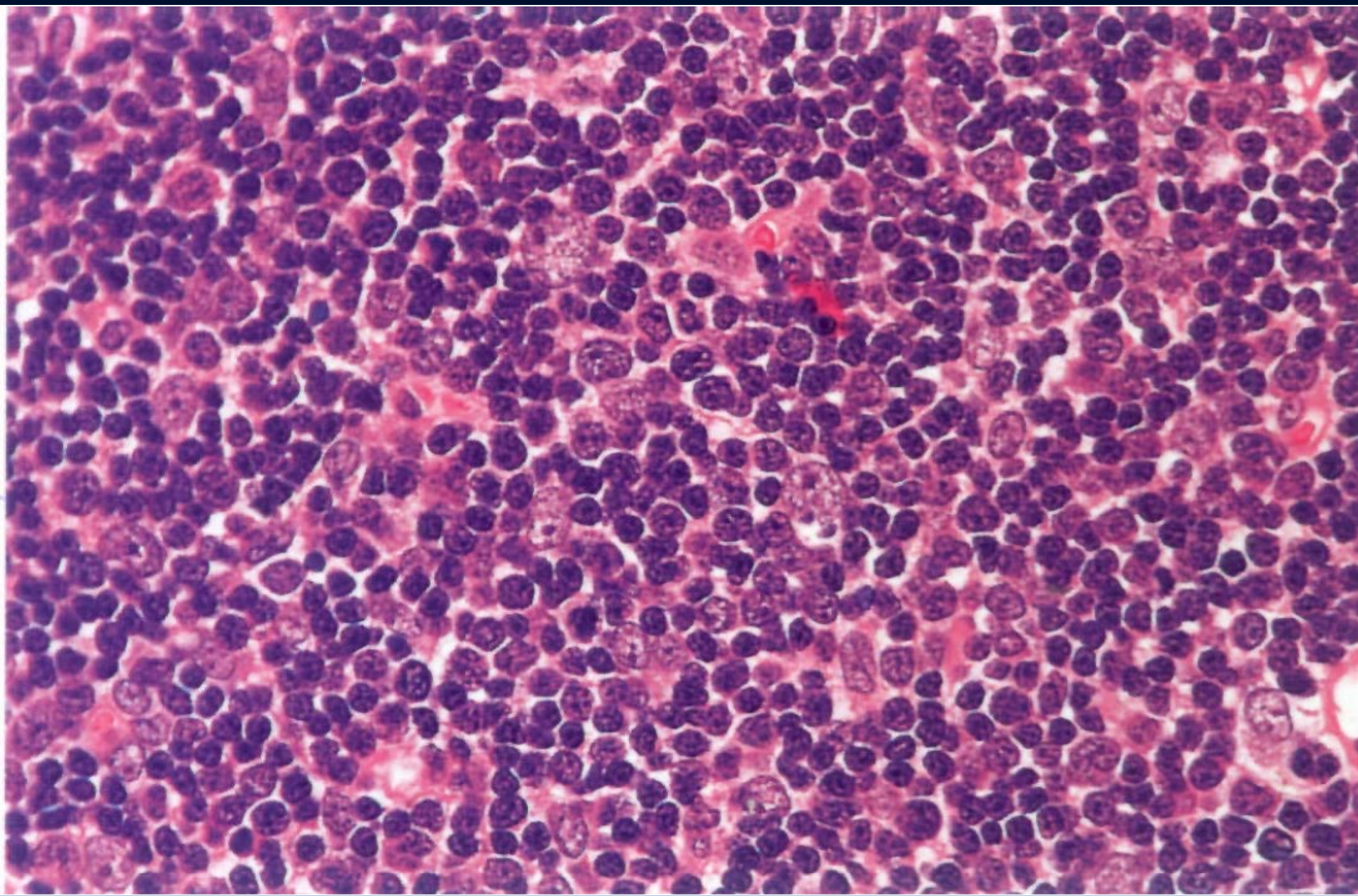


A

Thymom typ B1

- Syn. thymom bohatý na lymfocyty, lymfocytární thymom, predominantně kortikální thymom
- Mikroskopicky připomíná kortex thymu, s prominentní populací lymfocytů a ojedinělými, malými epiteliálními neoplastickými buňkami.





Thymom B2

- Syn. kortikální, smíšeně lymfocytární a epiteliální thymom.
- Mikroskopicky sice převaha non neoplastických lymfocytů, ale neoplastické epiteliální buňky jsou větší, s měchýřkovitým jádrem a výraznými jadérky, tvoří volnou síť.

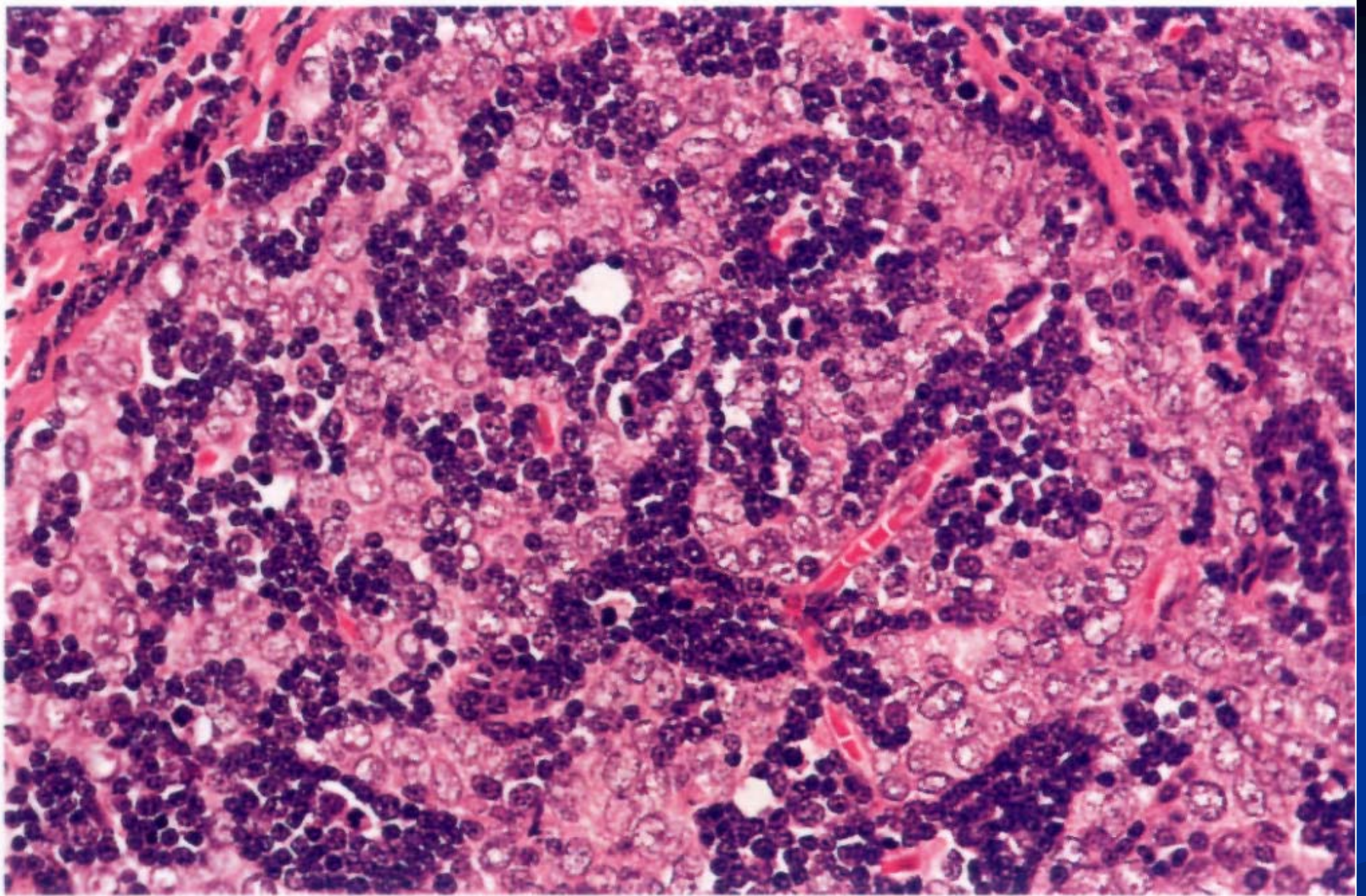


Fig. 21C.18 Type B2 thymoma. The epithelial cells form discrete groups, and thus it is relatively easy to recognize the epithelial nature of this case.

Thymom typ B3

- Syn. epitheliální thymom, dobře diferencovaný thymický karcinom
- Epiteliální neoplastické buňky převažují, tvoří až plochy, non-neoplastické lymfocyty v menšině.

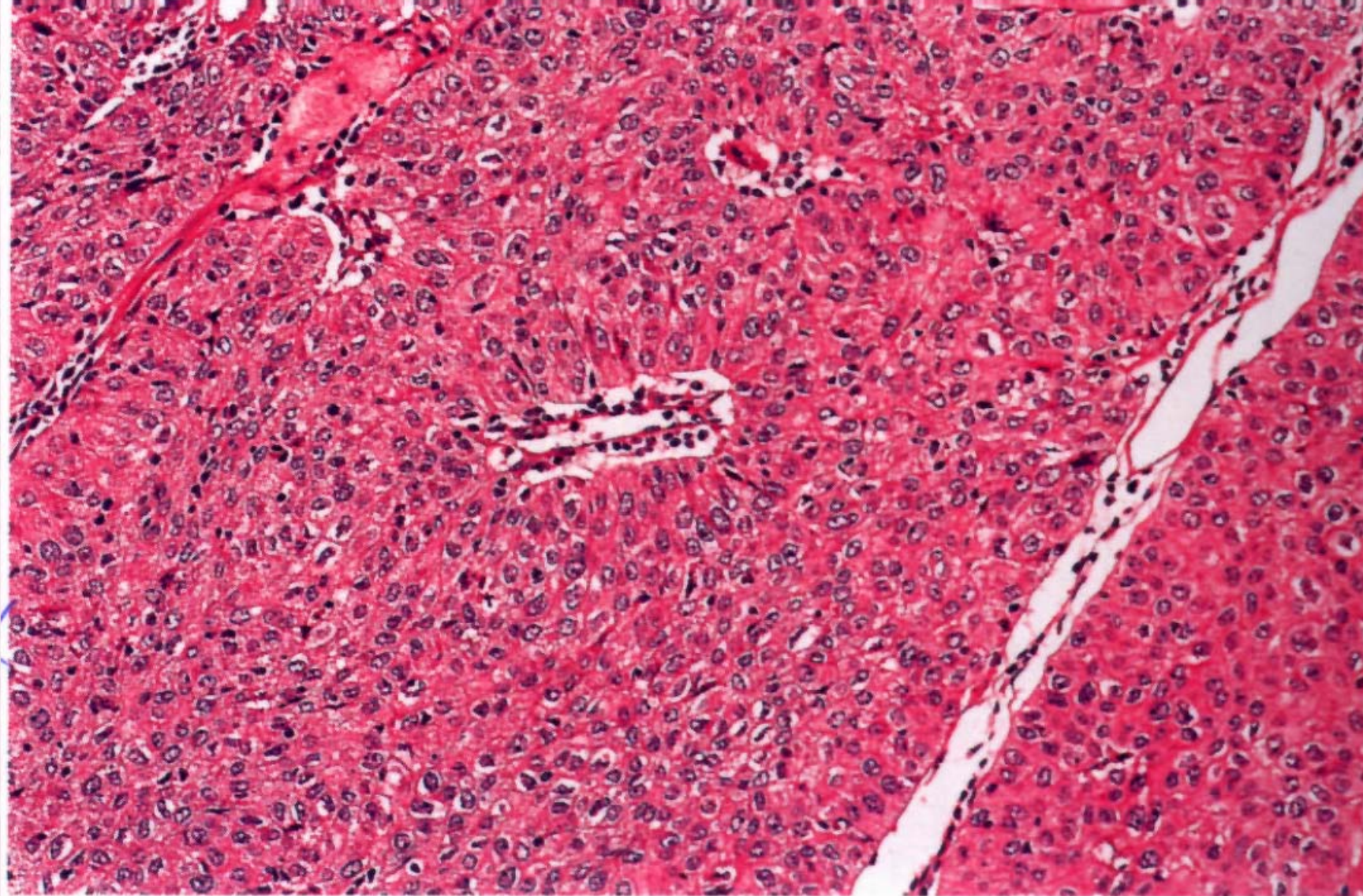


Fig. 21C.19 Type B3 thymoma. This comprises lobules of polygonal epithelial cells with few admixed lymphocytes. Note the palisading of cells around the narrow perivascular space in the center field.

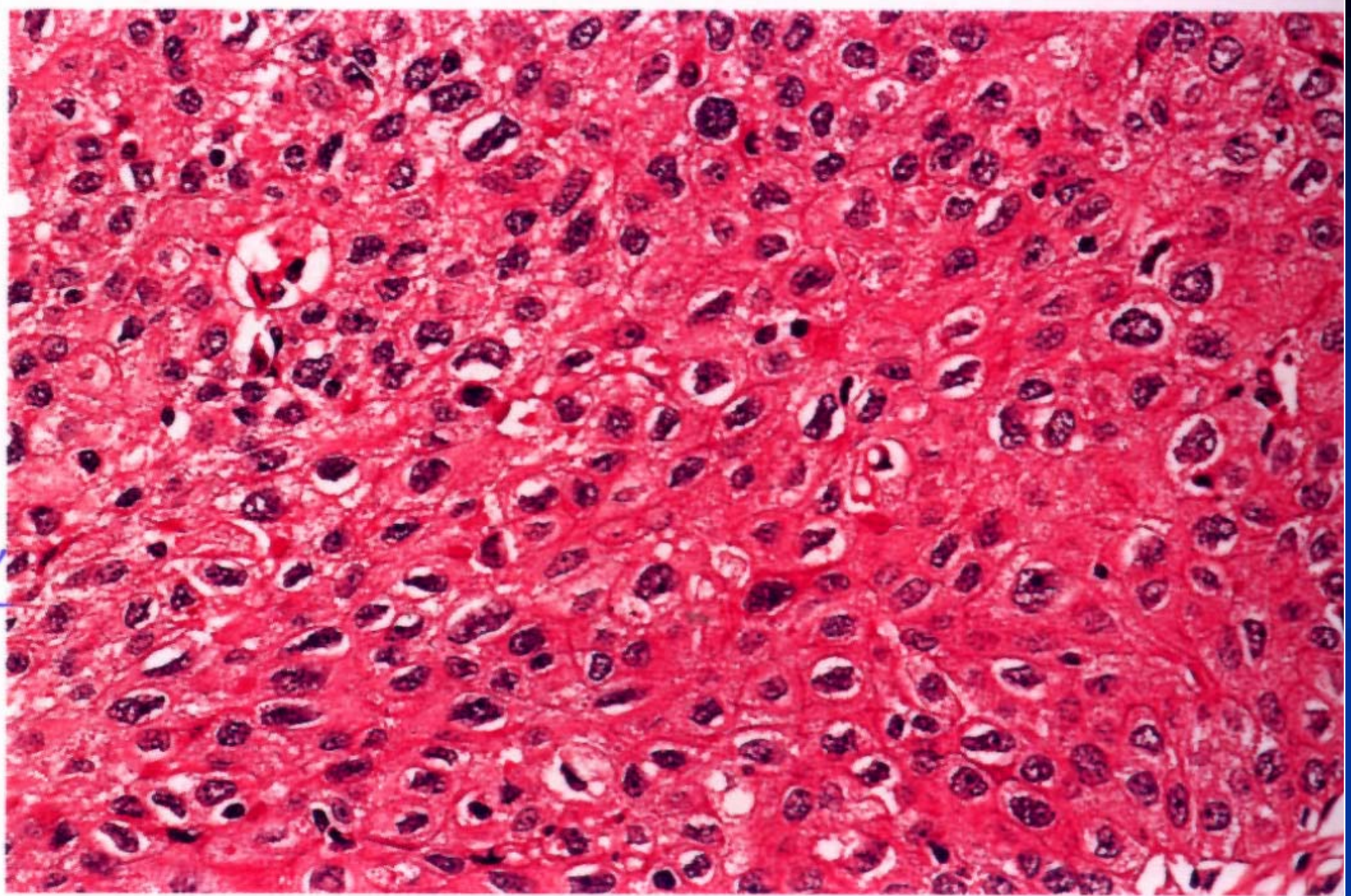


Fig. 21C.20 Type B3 thymoma. The polygonal cells have oval to irregular nuclei and eosinophilic cytoplasm. Note resemblance of some of the cells to koilocytes, due to the presence of nuclear crenation and perinuclear cytoplasmic clearing.

Vzácnější typy thymomů

- Mikronodulární thymom s lymfoidním stromatem
- Metaplastický thymom
- Mikroskopický thymom
- Sklerozující thymom
- Lipofibroadenom

Karcinomy thymu

- Dlaždicobuněčný karcinom
- Basaloidní karcinom
- Mukoepidermoidní karcinom
- Lymfoepithelioma-like karcinom
- Sarkomatoidní karcinom
- Světlobuněčný karcinom
- Papilární adenokarcinom
- Karcinom s translokací t(15,19)
- Nediferencovaný karcinom

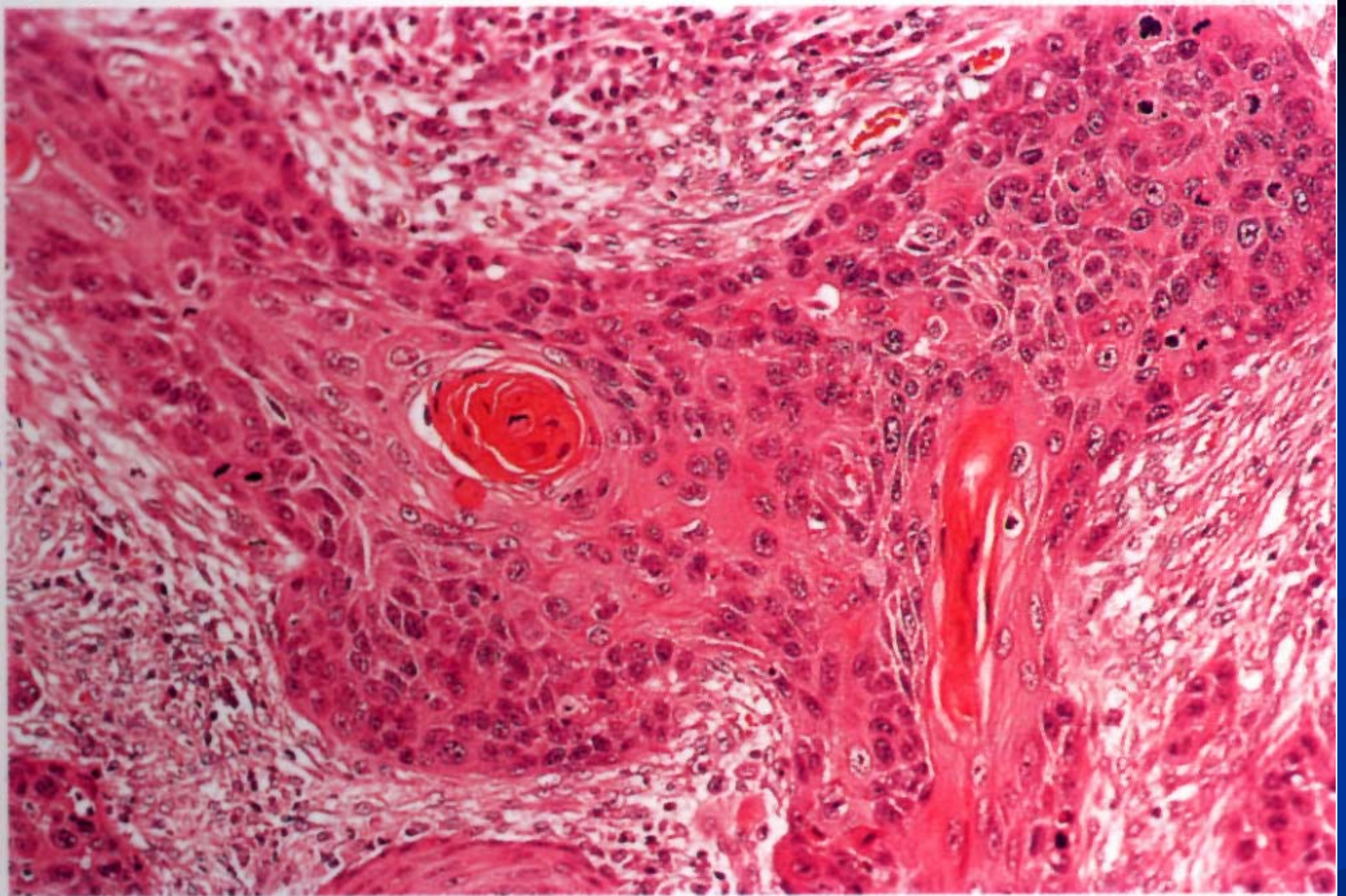


Fig. 21C.34 Thymic squamous cell carcinoma. This example shows keratinization. Note the desmoplastic stroma with infiltration by lymphocytes and plasma cells.

Souhrn

- Thymomy
- A
- AB
- B1
- B2
- B3
- Vzácné thymomy
- Thymické karcinomy