Sarcomatoid neoplasms of the pleura

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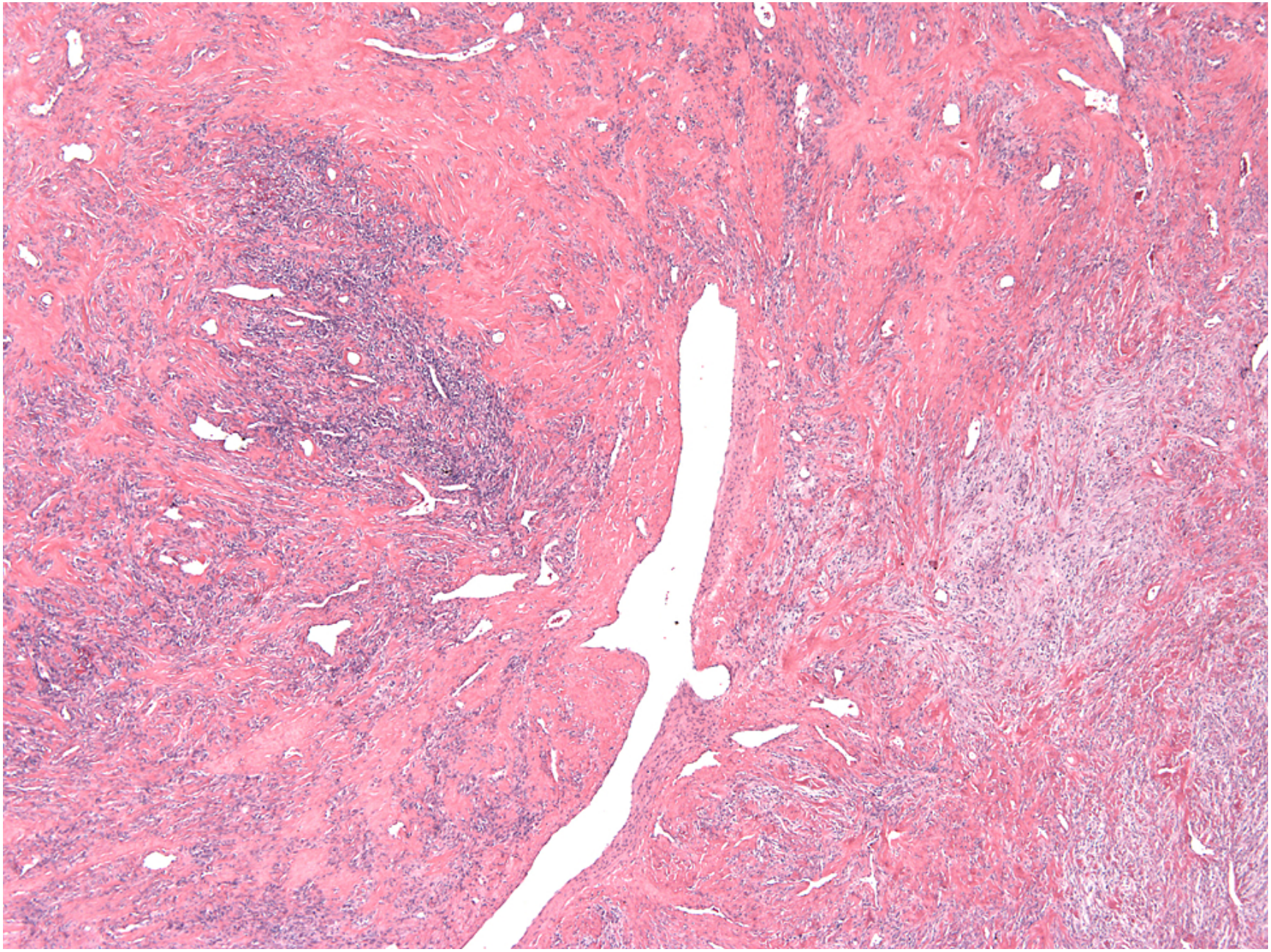
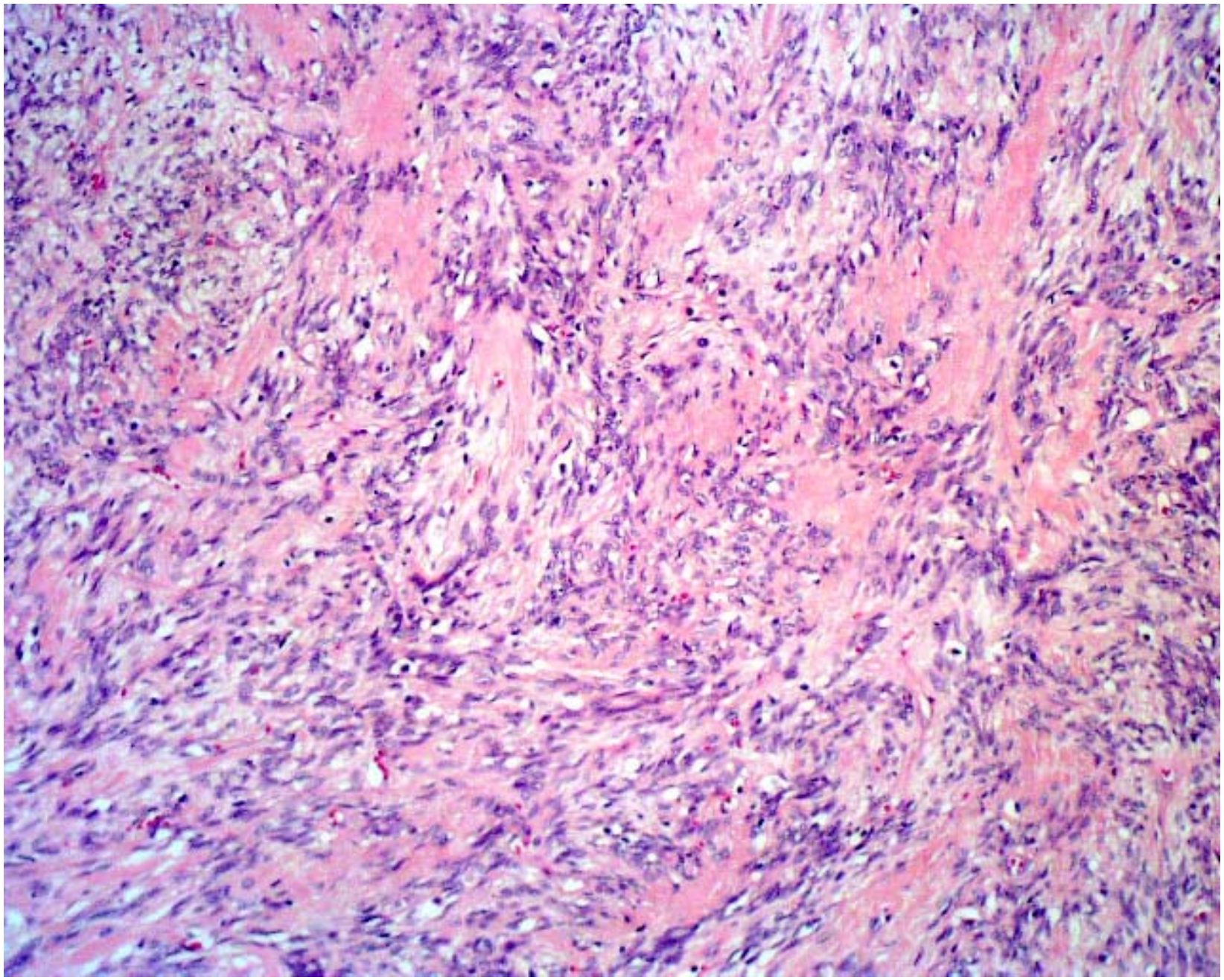
Sarcomatoid neoplasms of the pleura (spindle cell morphology)

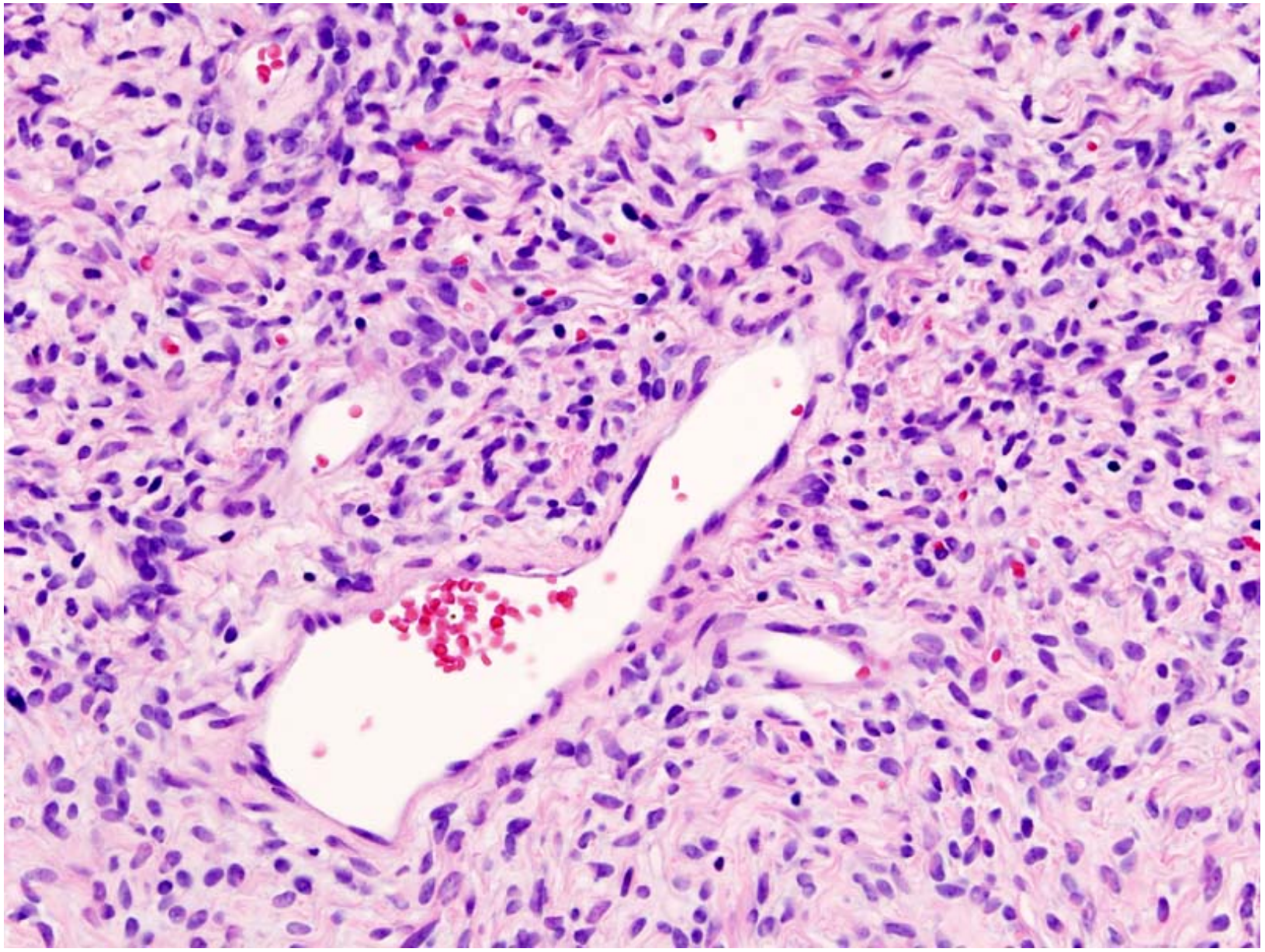
- Sarcomatoid malignant mesothelioma
- Sarcomatoid carcinoma
- Solitary fibrous tumor
- Synovial sarcoma
- Desmoid

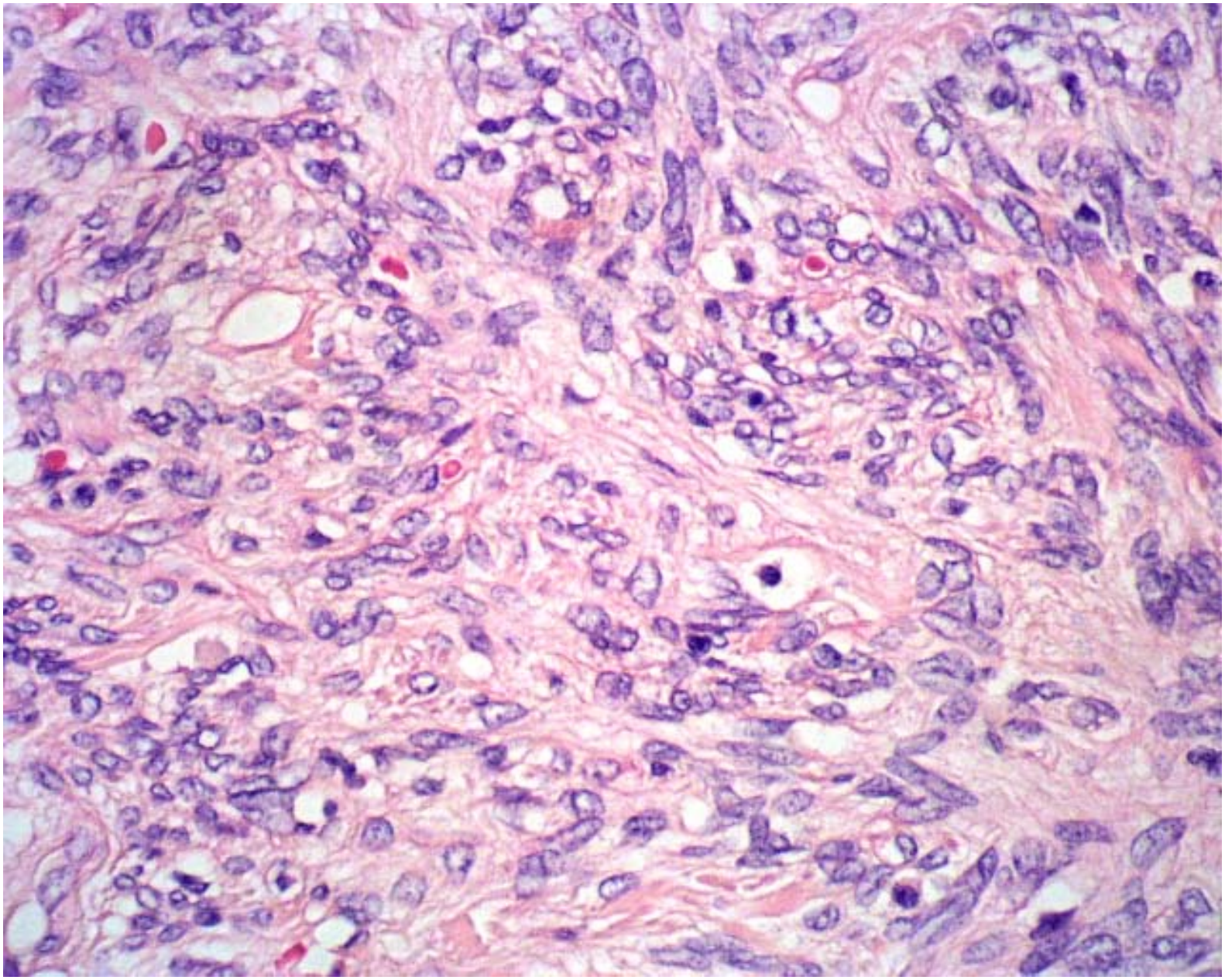
Solitary fibrous tumor

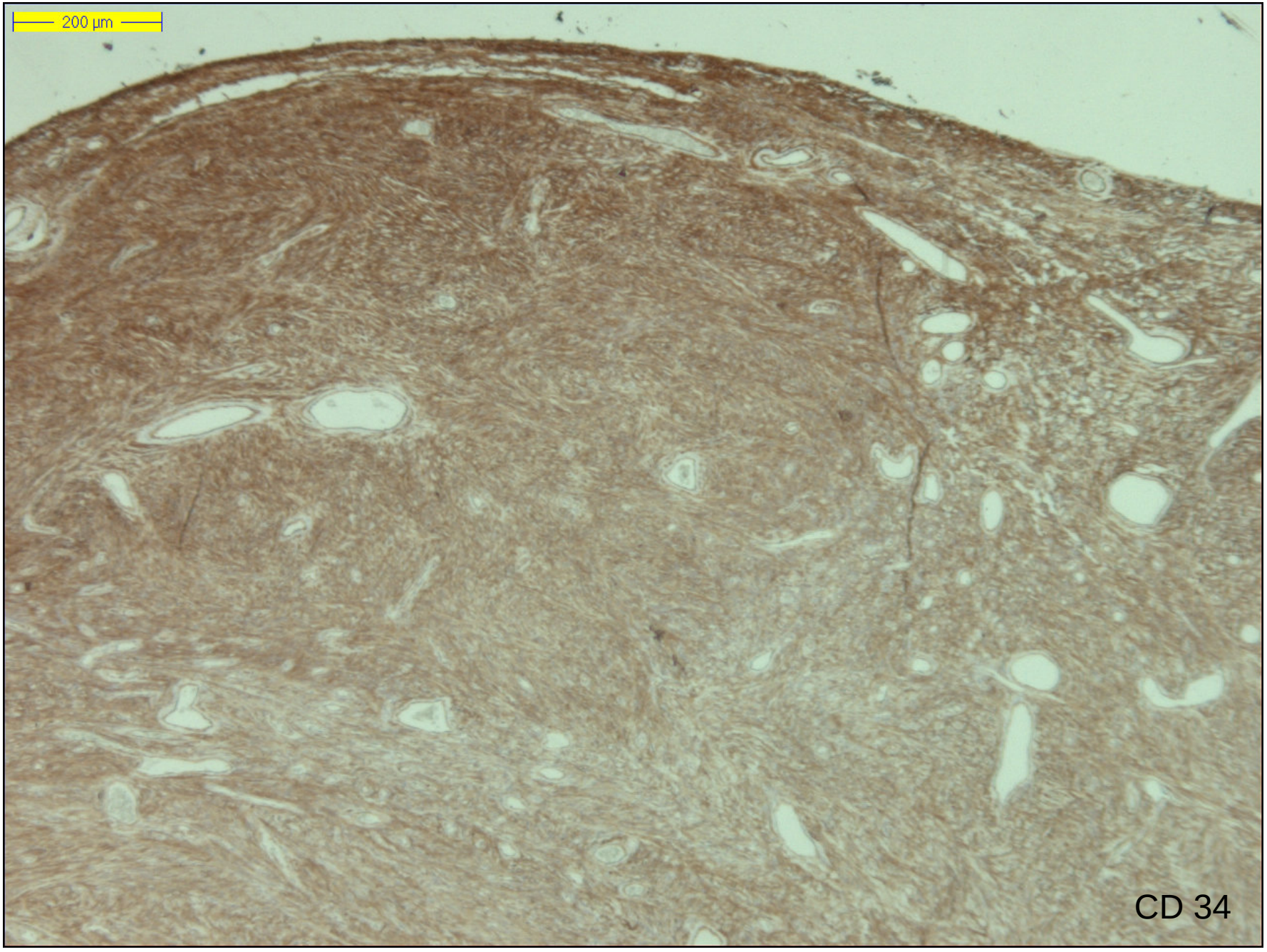
- Well circumscribed mass
- “Patternless pattern”
- Hemangiopericytoma-like pattern
- Spindle shaped to oval “dull” cells often with a fibroblast-like appearance
- Dense wirelike bands of collagen
- IHC: CD34+ (> 95%), BCL2+ en CD99+. S100 -, EMA-, CK-pan -, Beta-Cater





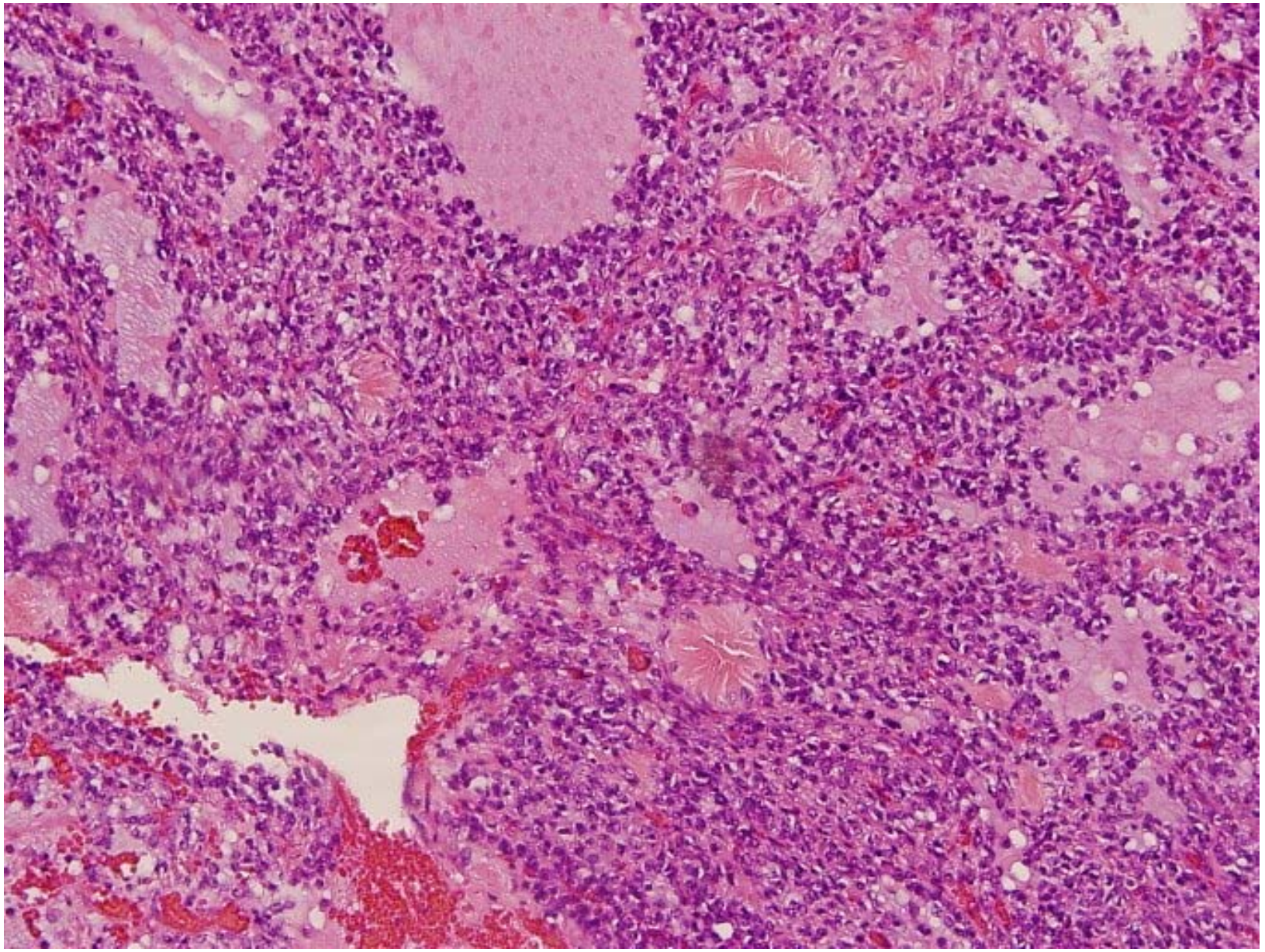


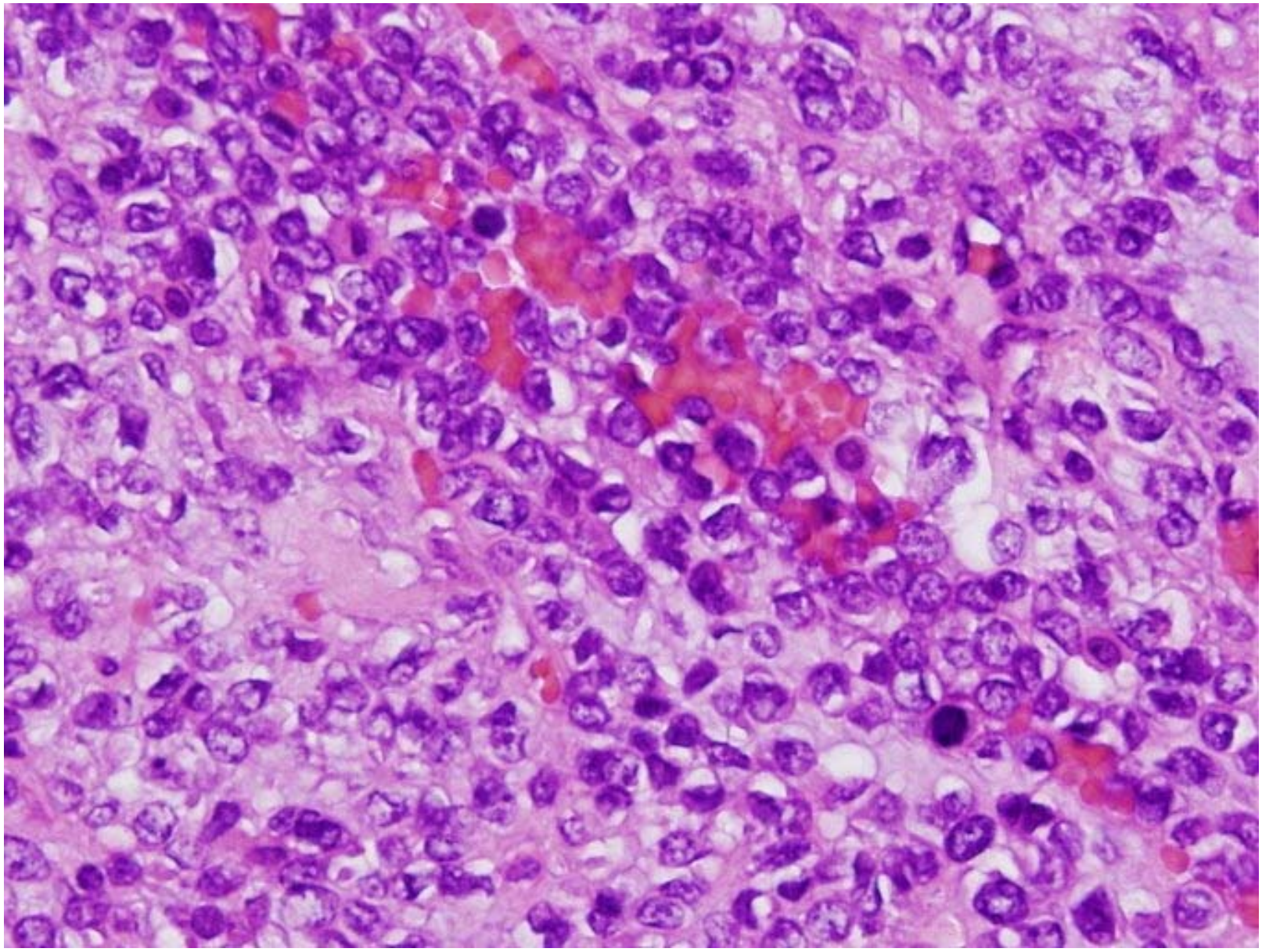



200 µm
CD 34

Solitary fibrous tumor: malignant morphology

- Increased cellularity
- Pleomorphism, increased nuclear to cytoplasmic ratio, less prominent collagen, hyperchromatic nuclei, prominent nucleoli
- Tumor necrosis
- **>4 mitotic figures per 2mm2**
- High p53 expression (?) (group William Travis)
- Loss of CD34 expression (“dedifferentiation”)
- Biological behavior as a spindle cell sarcoma

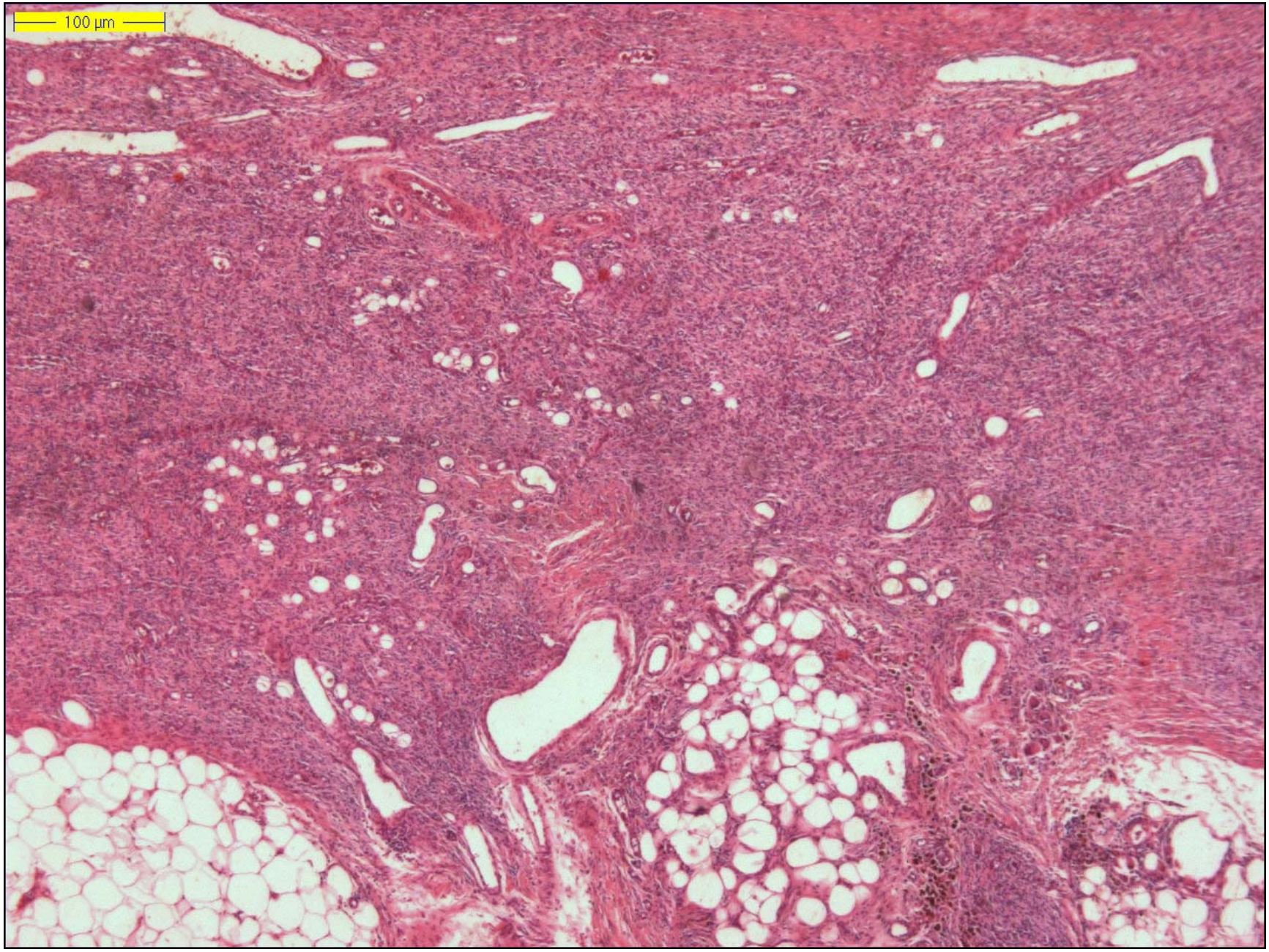




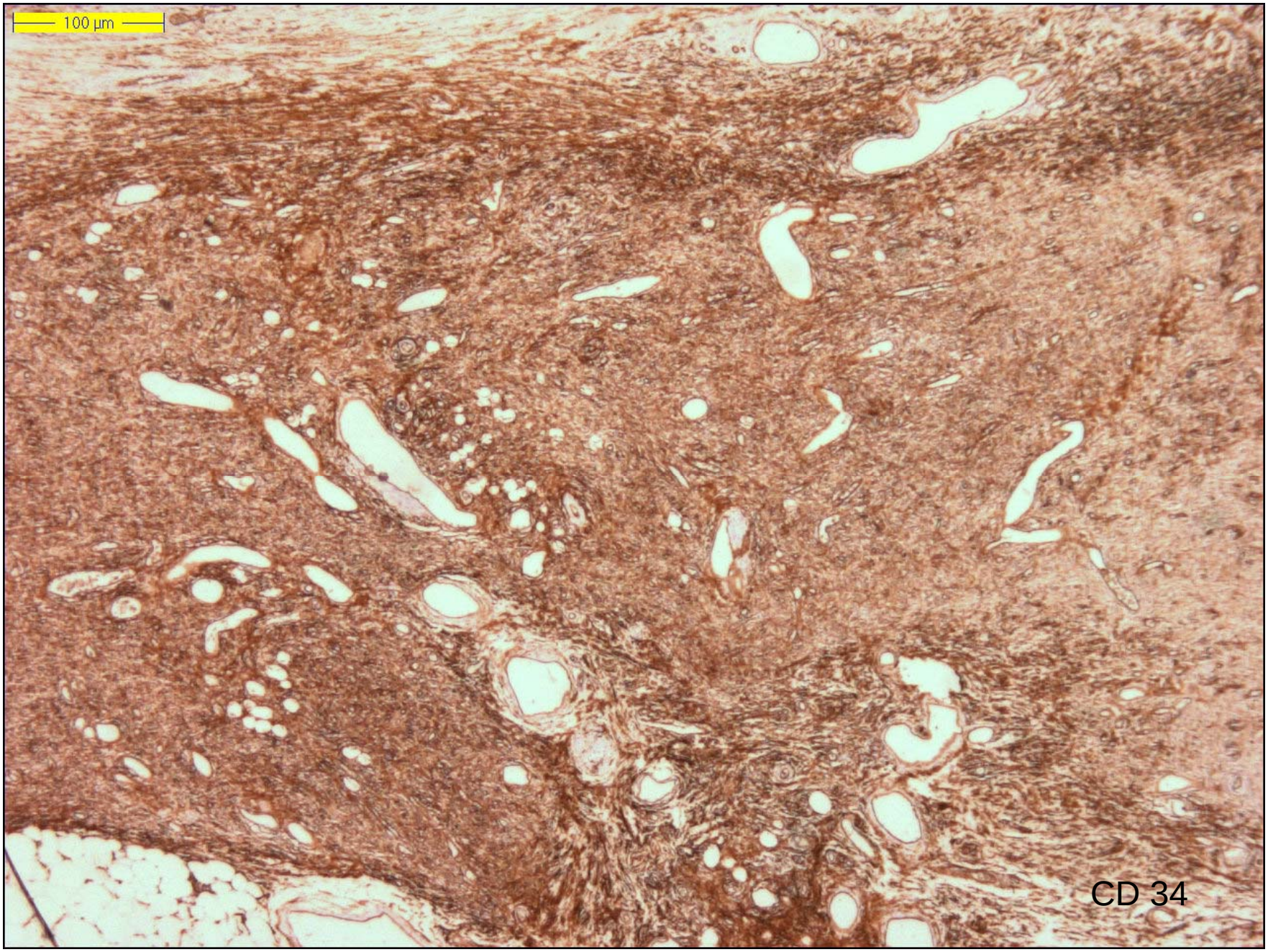
Solitary fibrous tumor: differential diagnosis

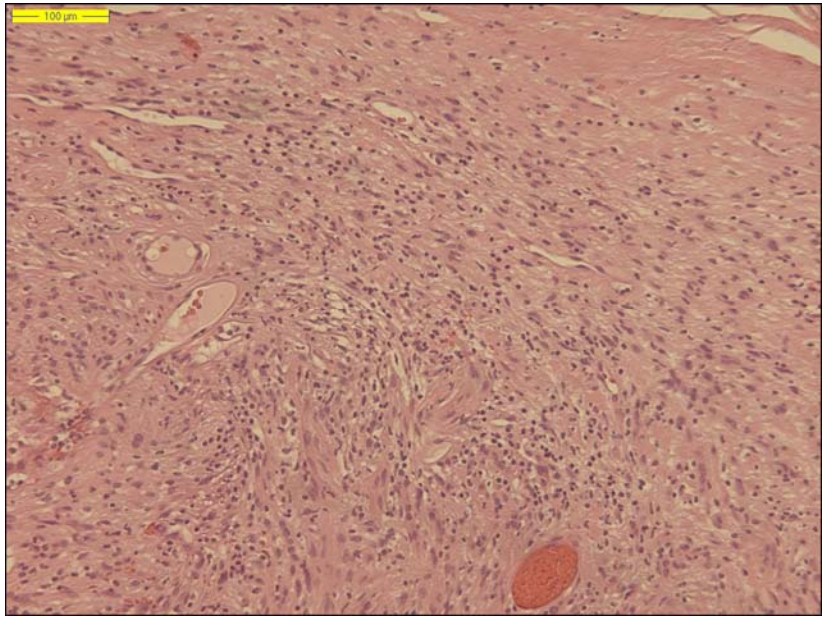
- Synovial sarcoma (CD34-, CK-pan/EMA+)
- Leiomyoma/leiomyosarcoma (SMA, desmin+)
- Schwannoma (strong S100+)
- Thymoma (CK-pan +)
- Dermatofibrosarcoma protuberans (DFSP) (especially in a subcutaneous spindle cell tumor) (also CD34+)
- Desmoid (Beta-Catenin+)
- Spindle cell rhabdomyosarcoma (young patients!) (desmin+, myogenin+)

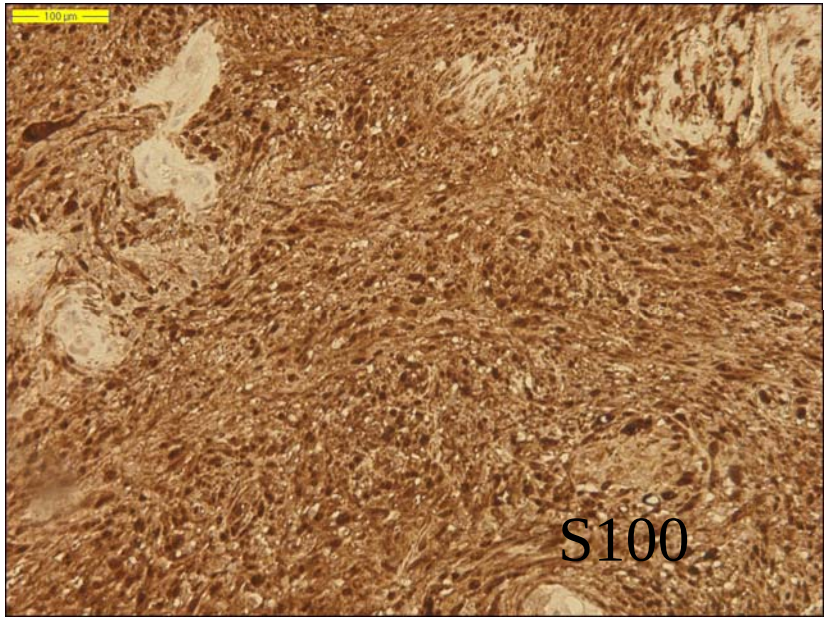
UZA
kennis / ervaring / zorg



Dermatofibrosarcoma protuberans


100 µm
CD 34

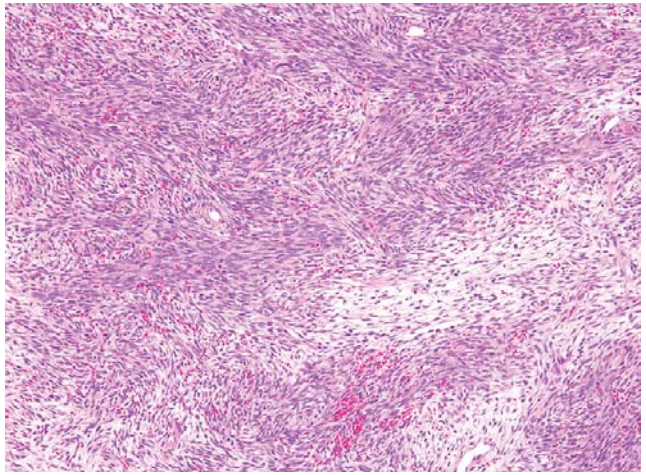


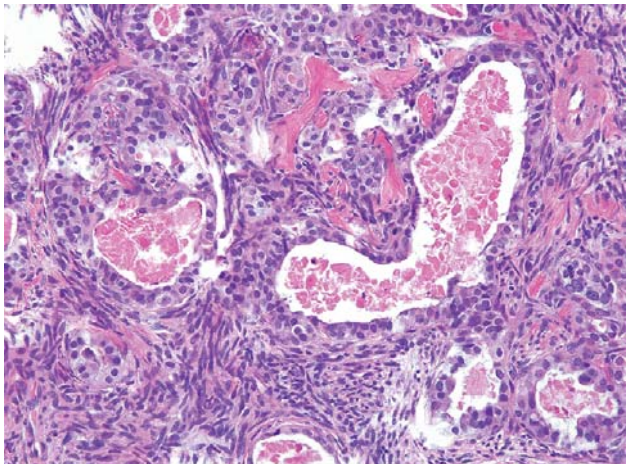


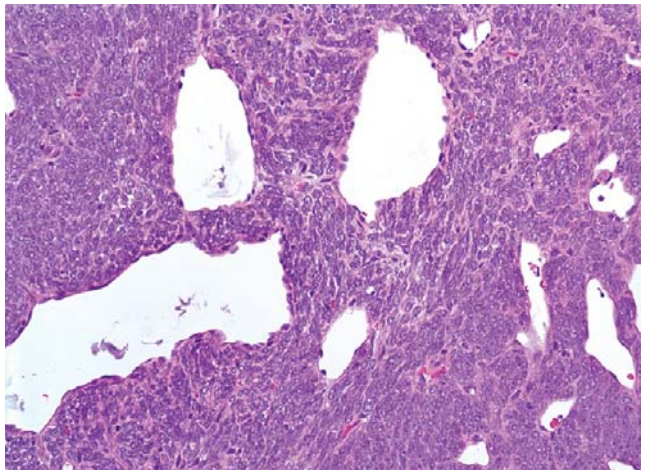
schwannoma

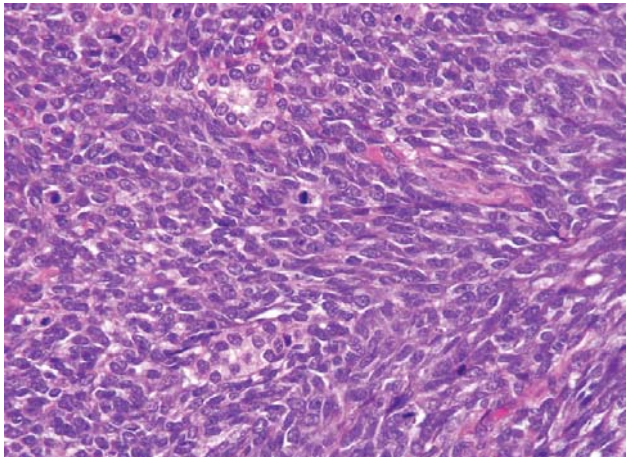
Synovial sarcoma

- Younger patients
- Usually localized masses without diffuse pleural thickening
- Monophasic (spindle) or biphasic
- Spindle (neural-like) and/or epithelioid cells
- Hemangiopericytoma-like growth pattern
- Fascicular/herringbone pattern
- Calcifications
- Collagen depositions
- Perivascular condensation of tumor cells
- IHC: CK-pan/EMA+, CD34-, cave S100+
- Molecular: t(X;18)

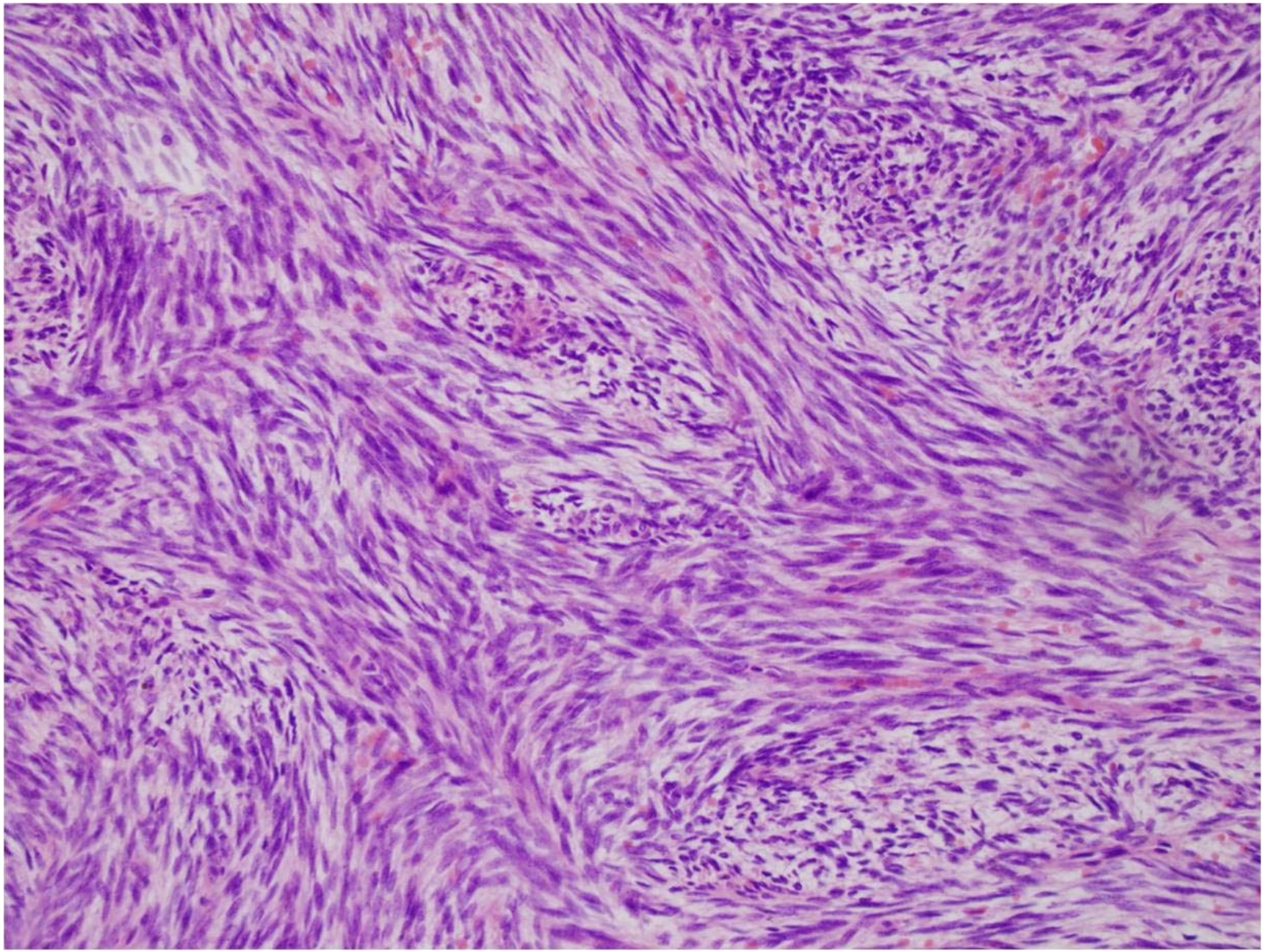


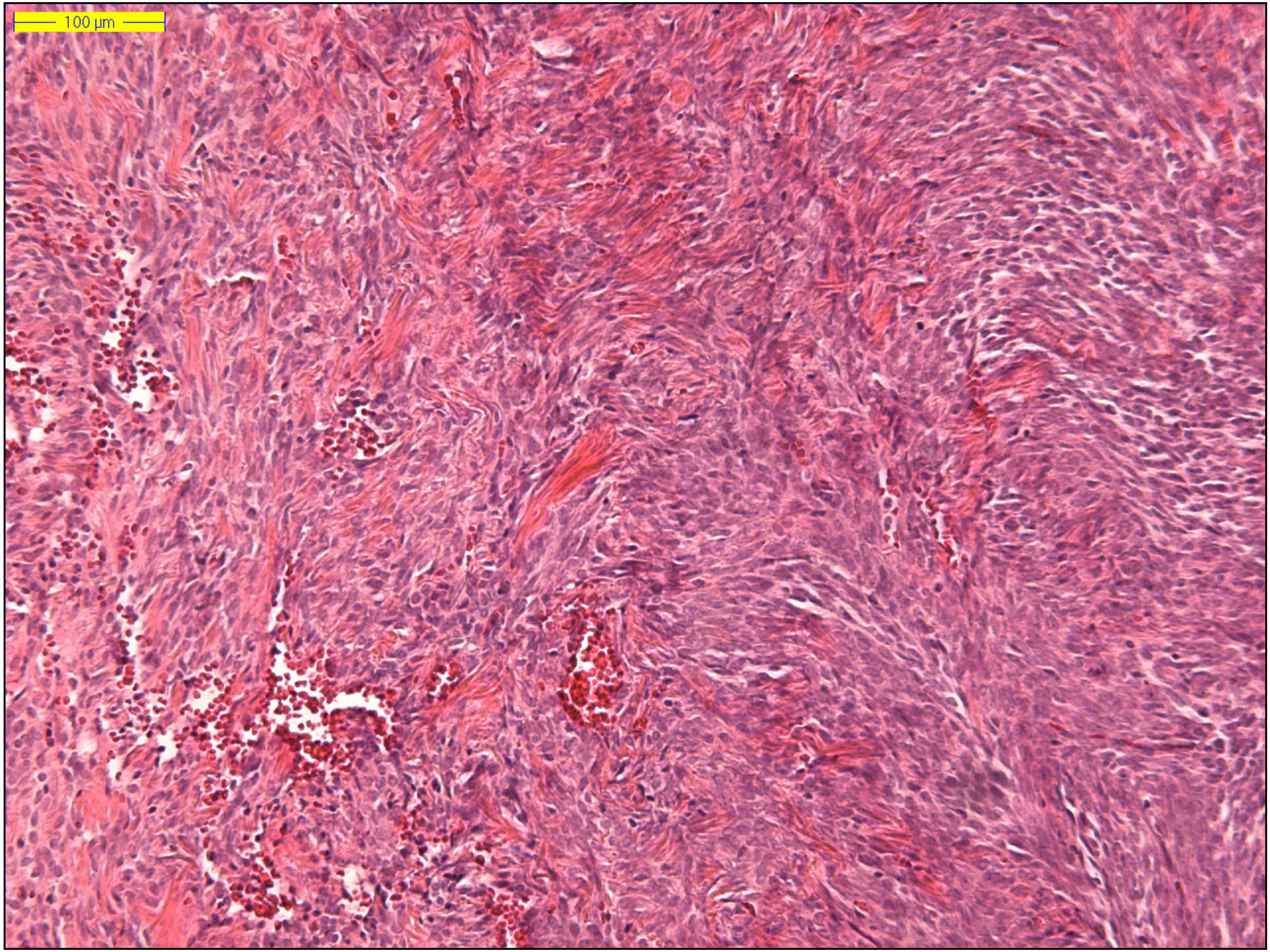






Synovial sarcoma

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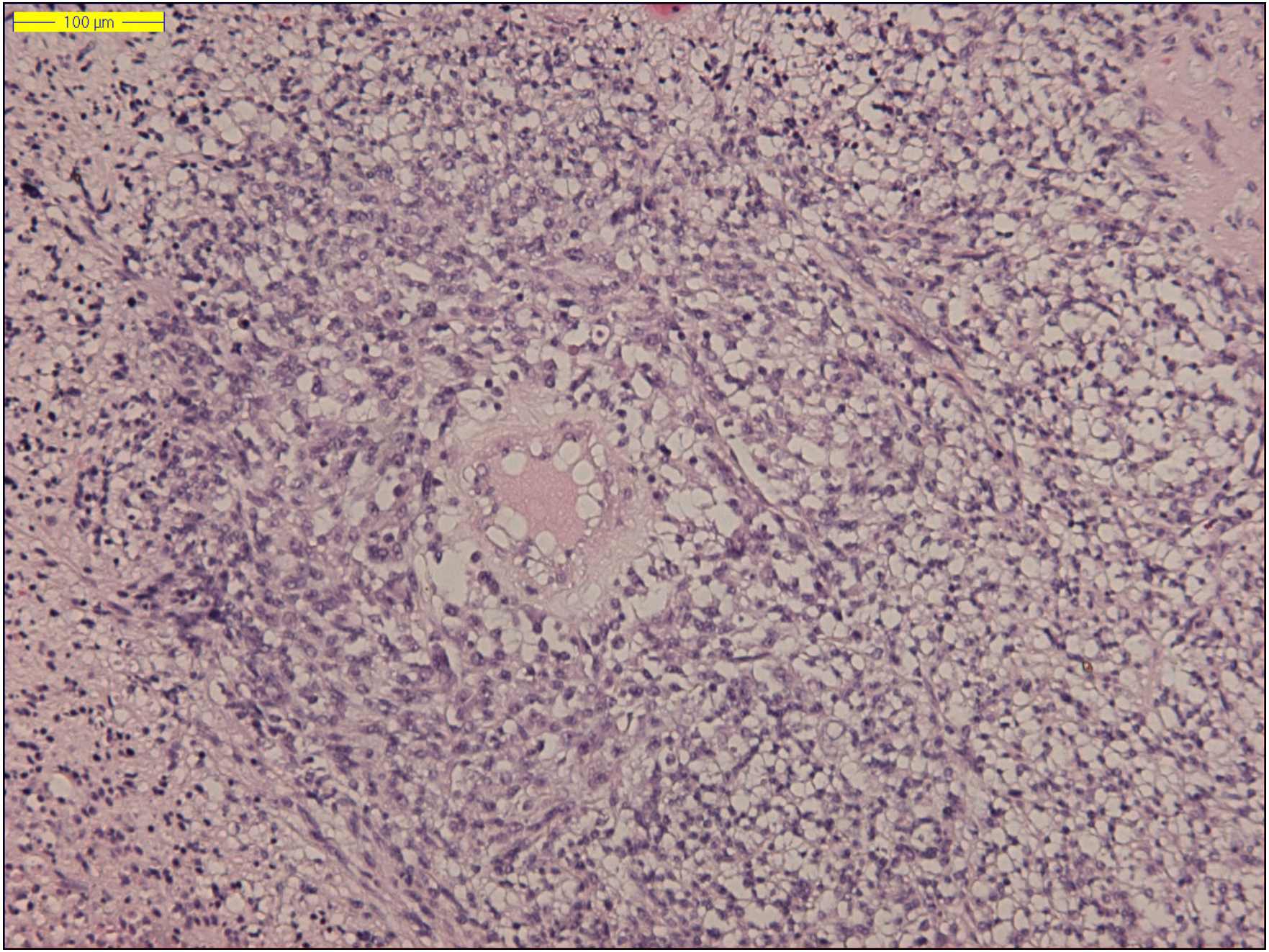
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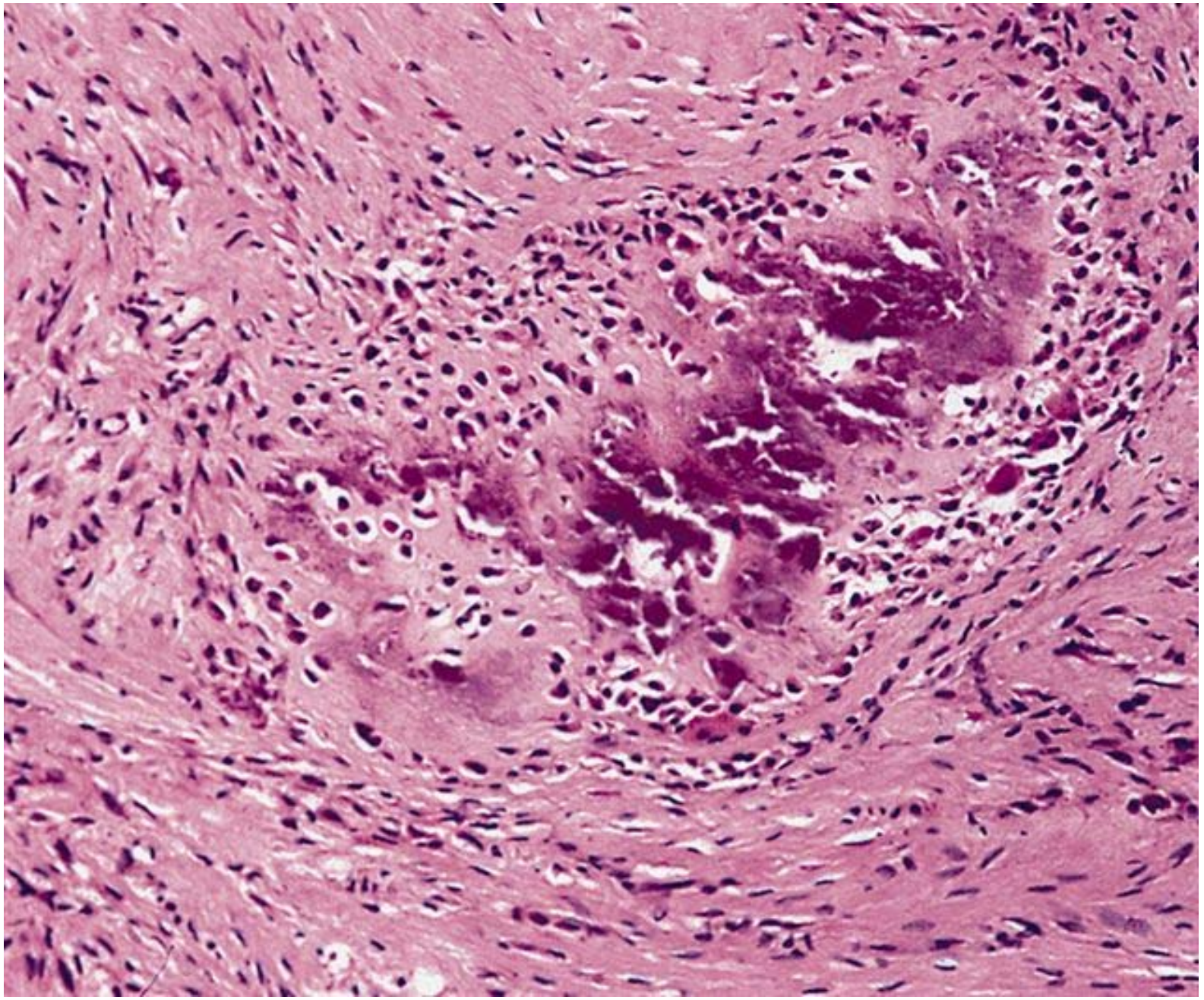
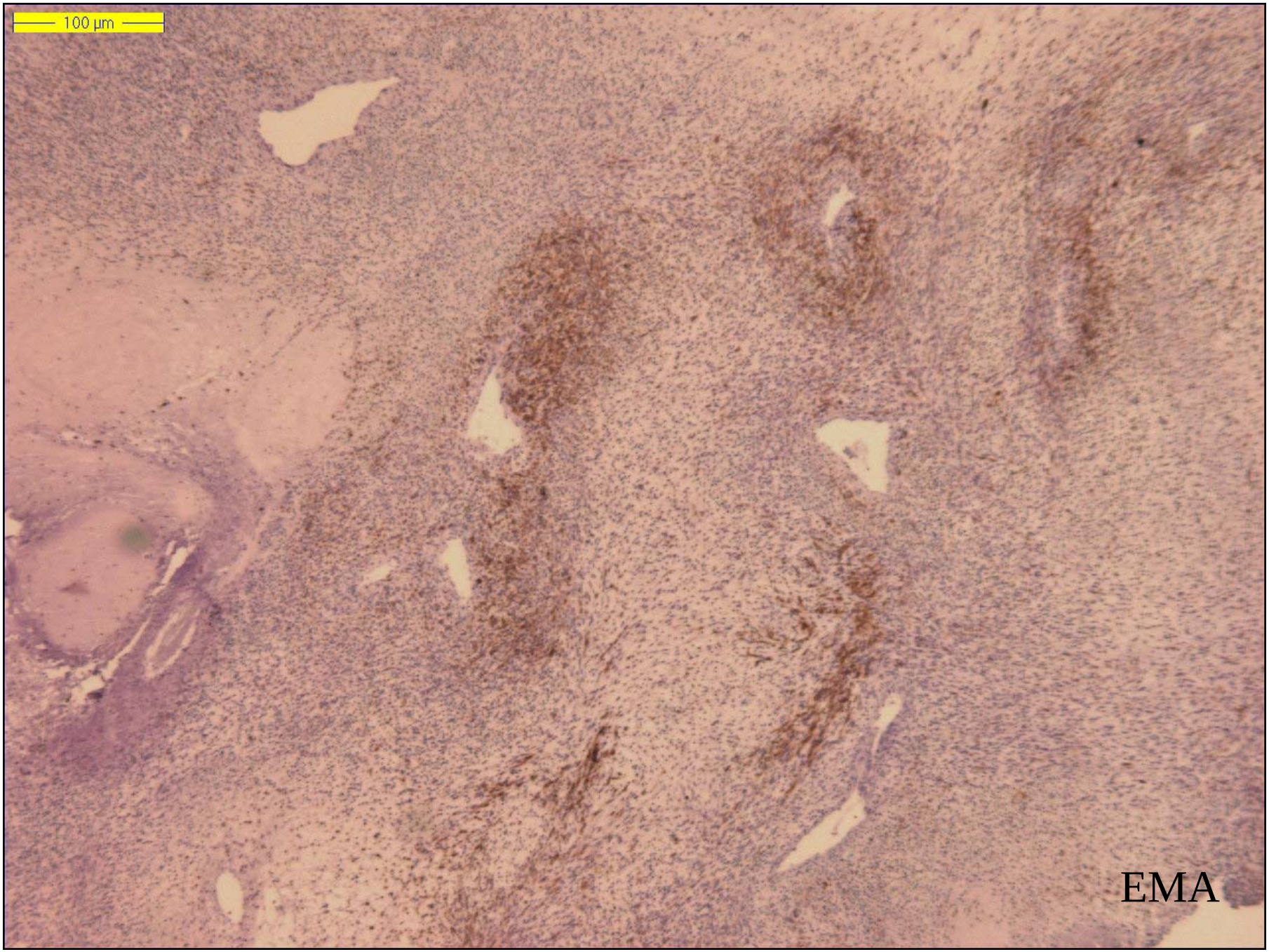
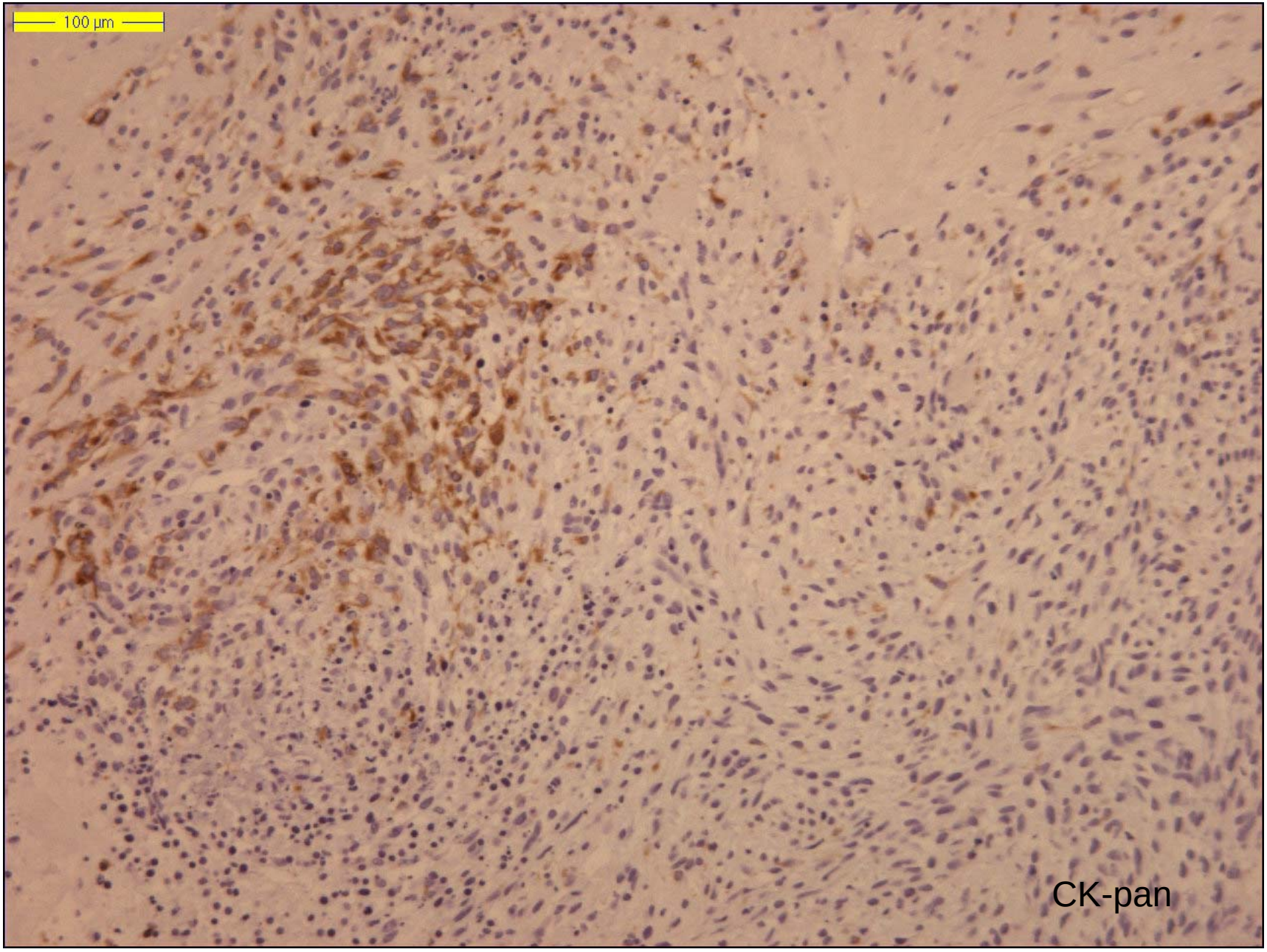
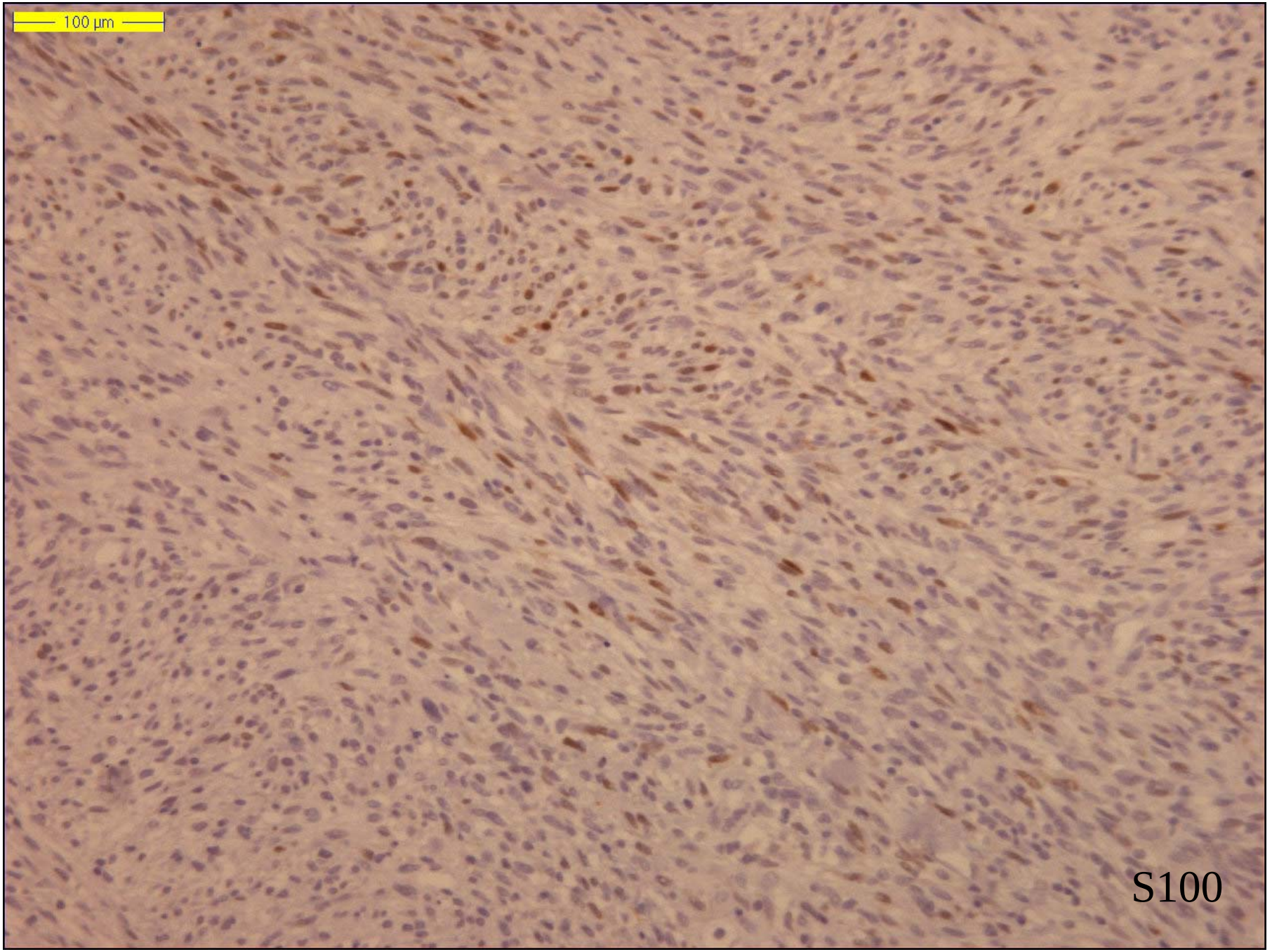
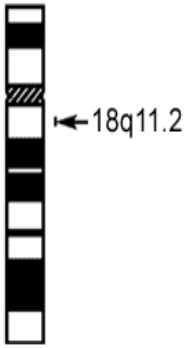


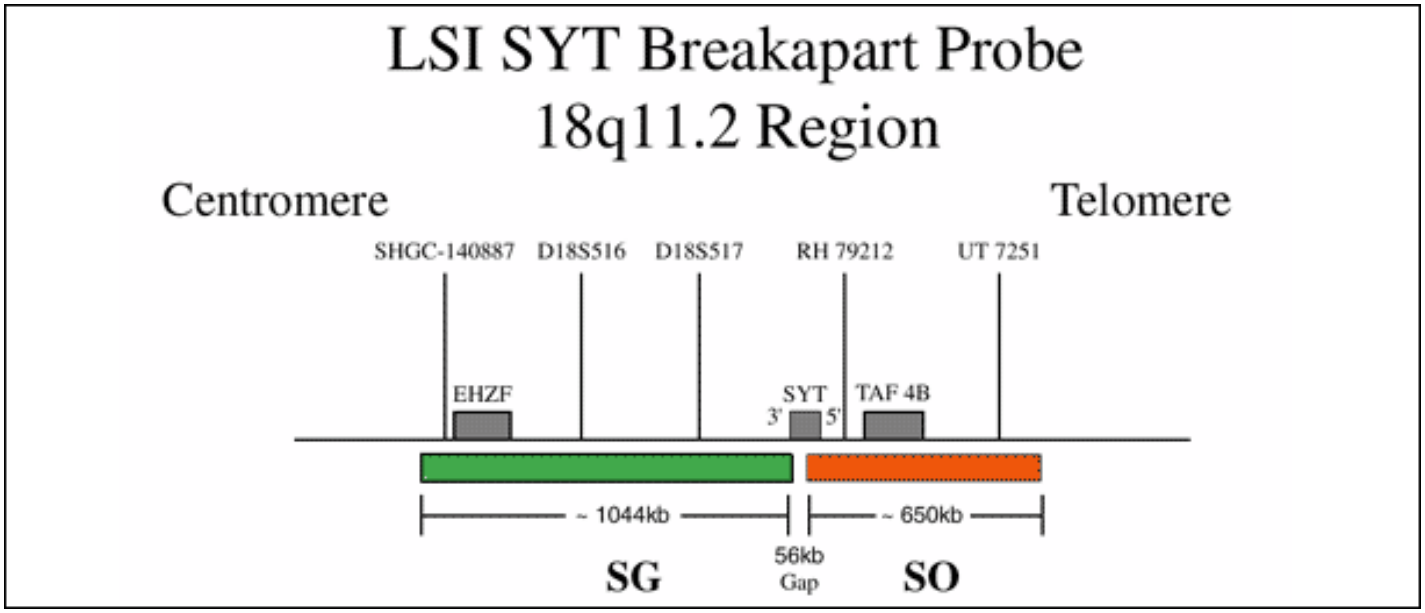

100 µm
EMA

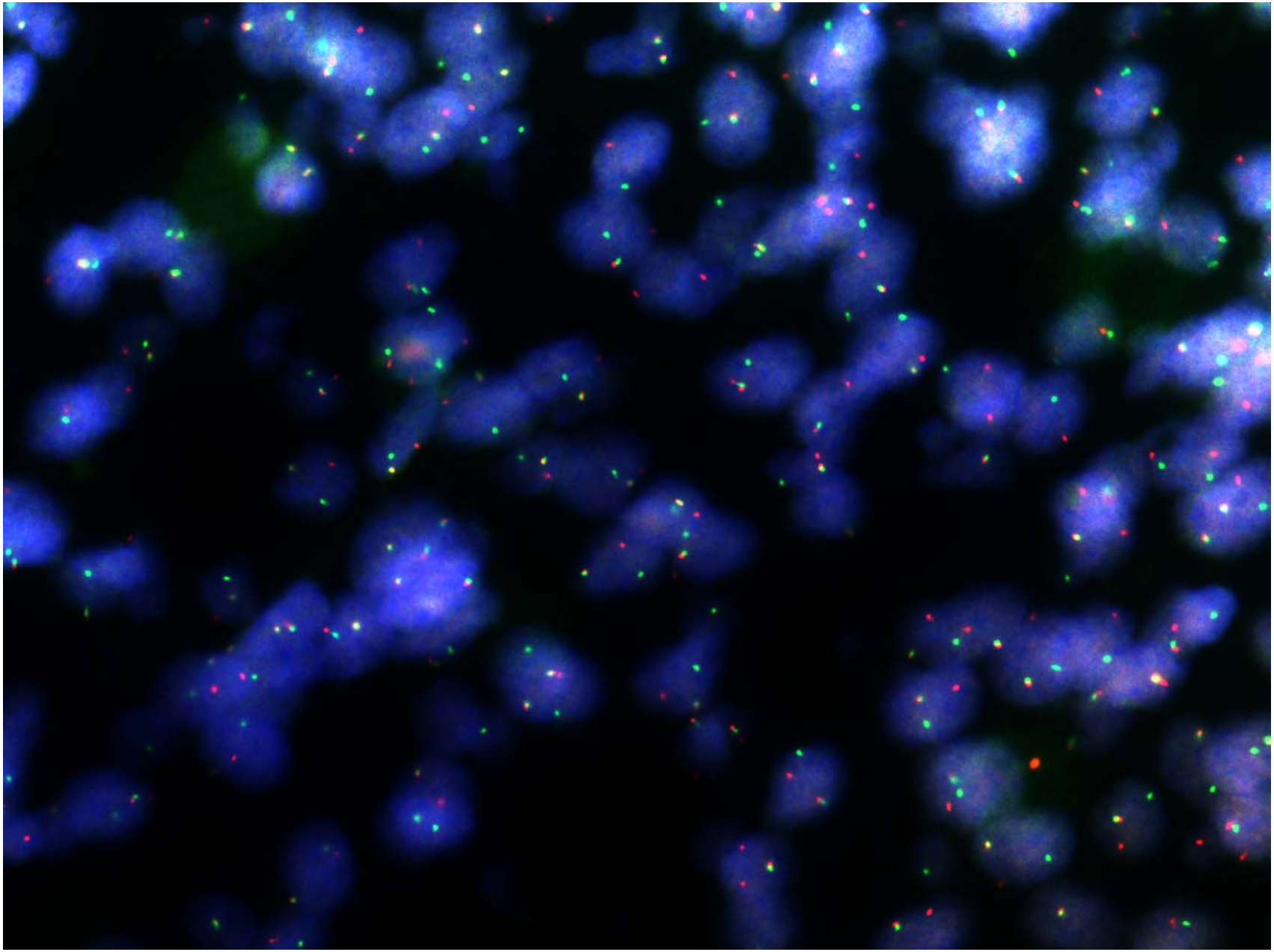

100 µm
CK-pan

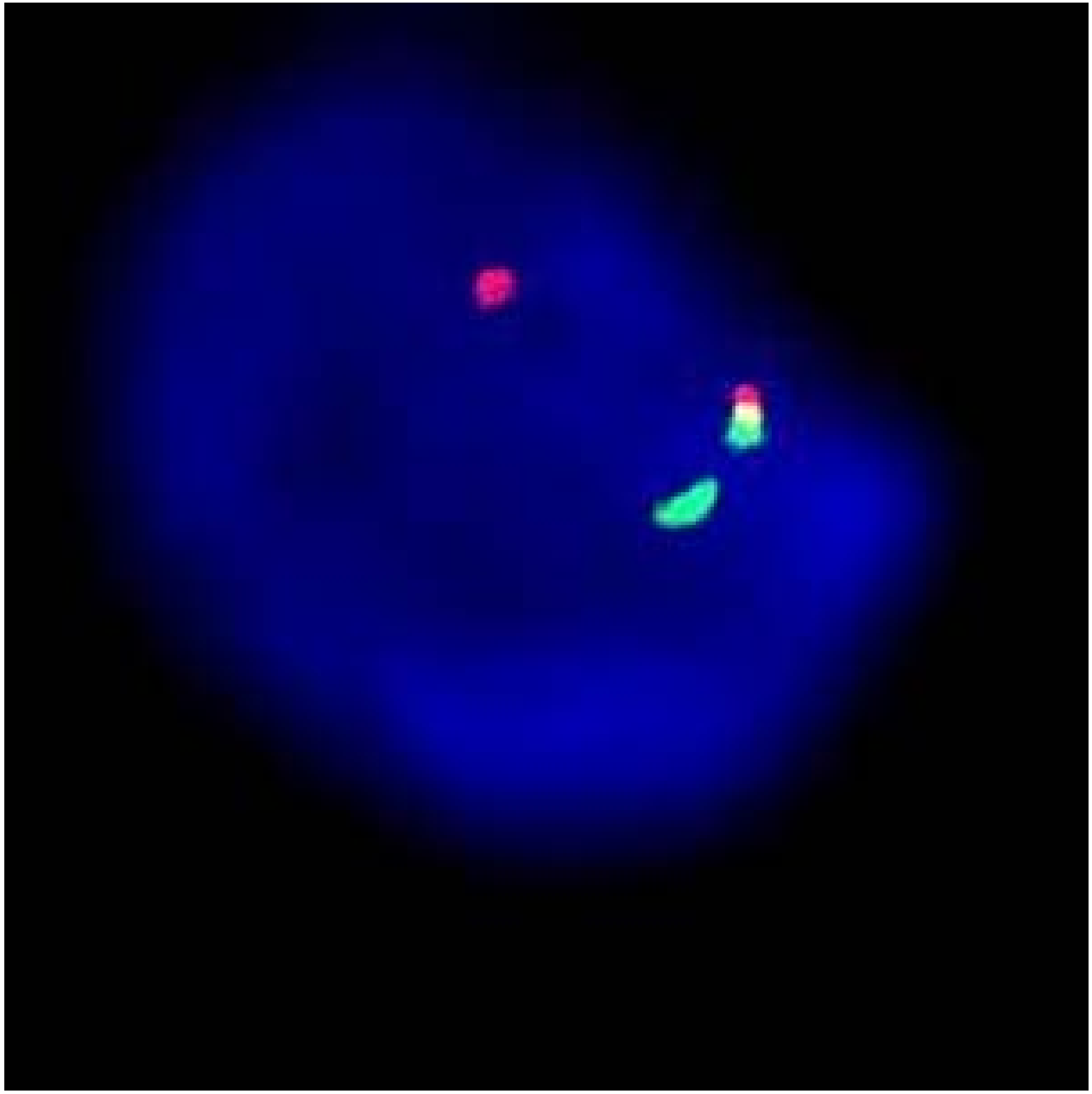

100 µm
S100

T(X,18) translocation FISH procedure (1)





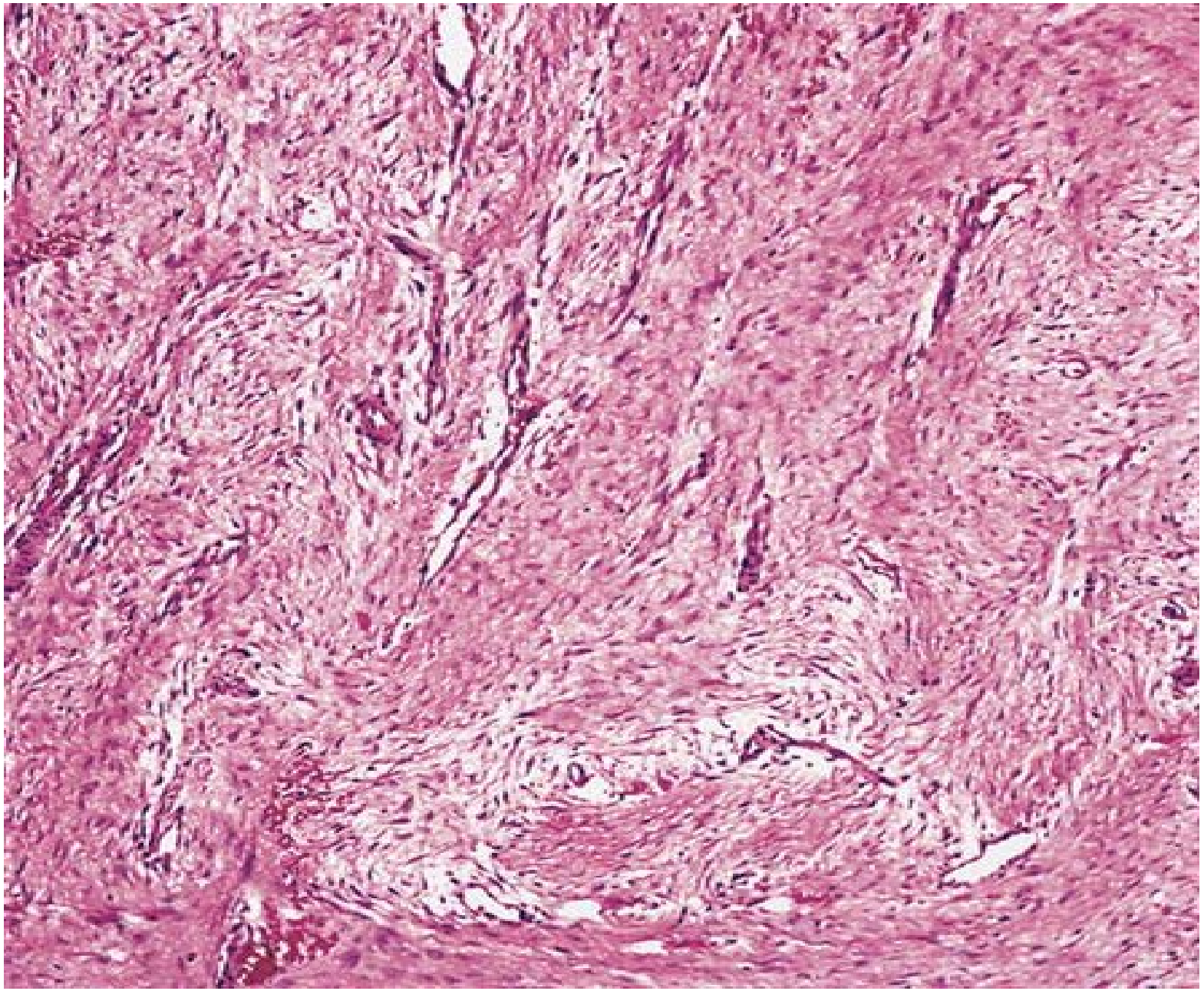




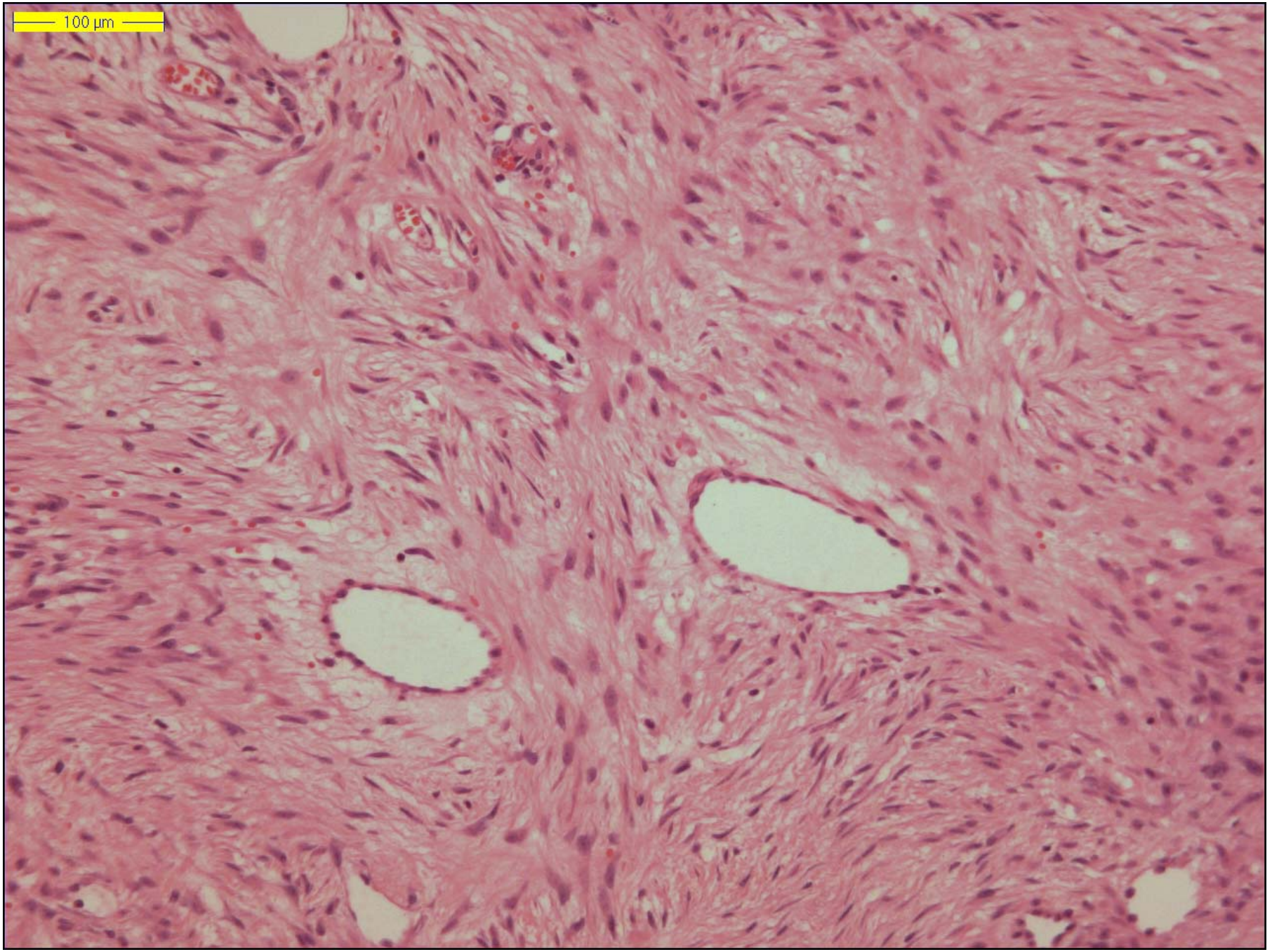
kennis / ervaring / zorg

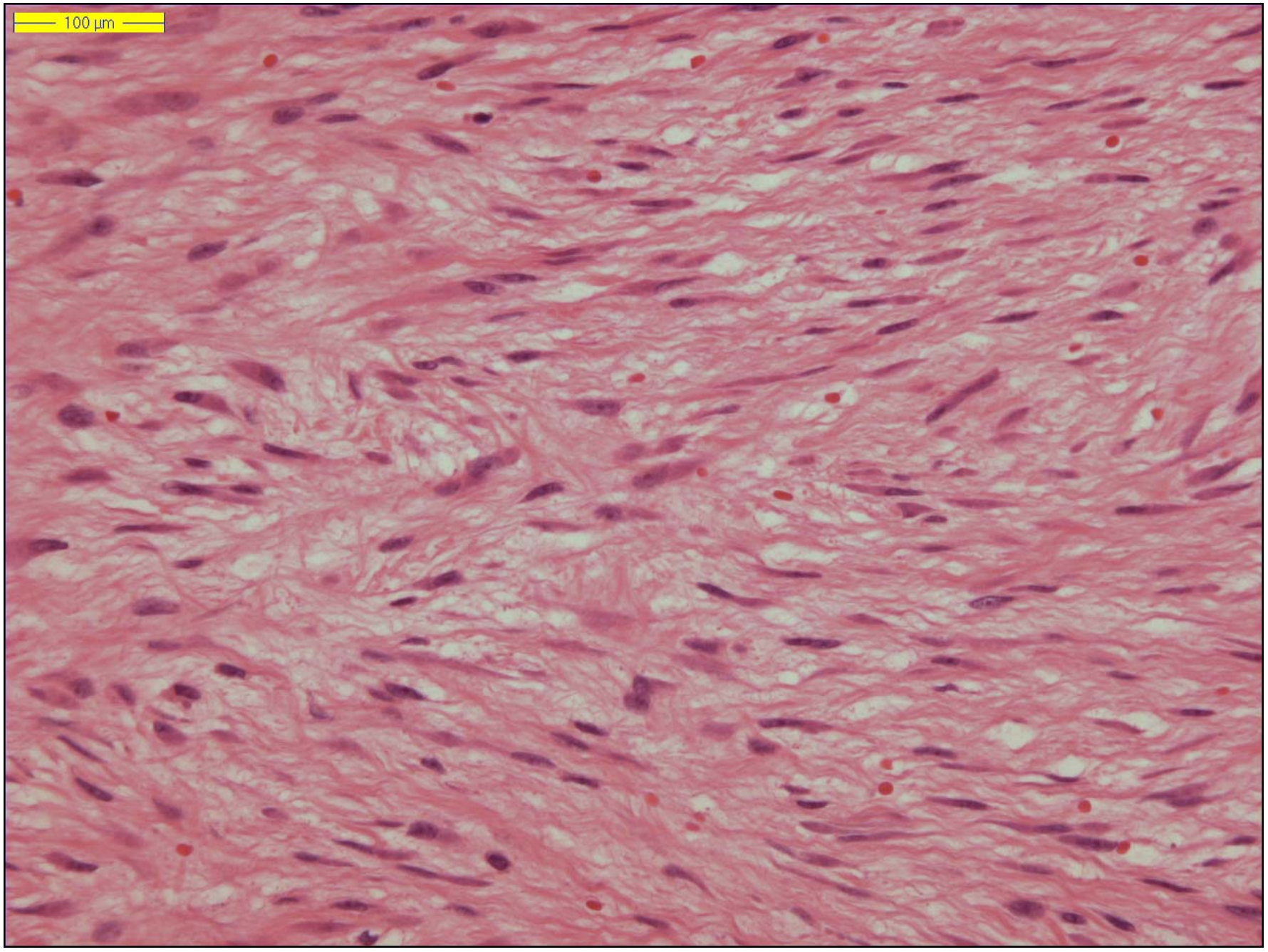
Desmoid fibromatosis

- Poorly circumscribed tumor
- Diffuse infiltration of the fat and striated muscles
- Uniform “pencil-like”spindle cells surrounded by abundant collagen (hyalinization, keloid-like areas), myxoid changes
- Long and dilated vessels
- Inflammatory infiltrate
- IHC: Beta-Catenin + (nuclear)



Desmoid fibromatosis


100 µm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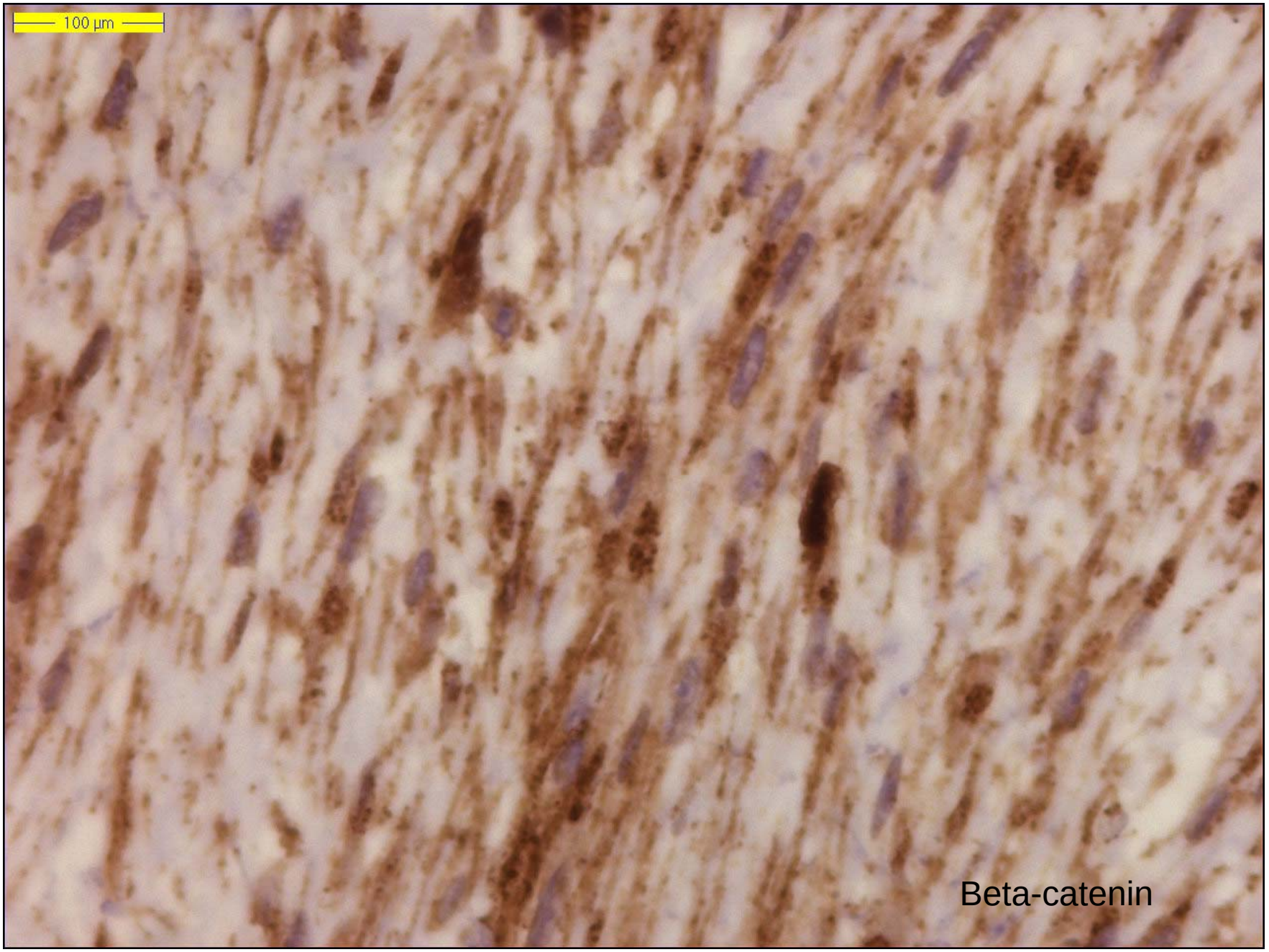

100 µm
Beta-catenin

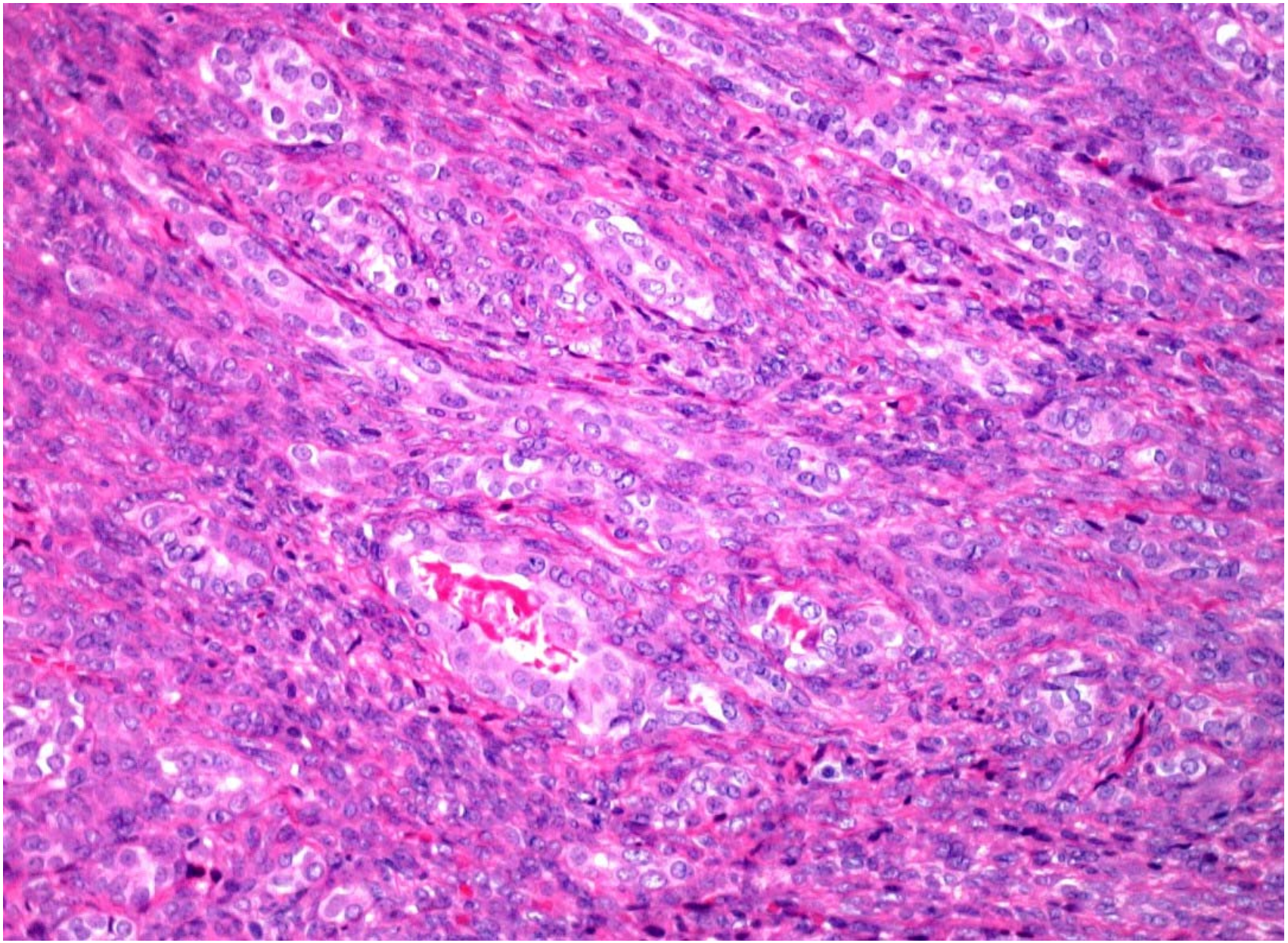
immunohistochemistry

- CD34
- S100
- CK-pan
- EMA
- SMA
- Desmin (myogenin)
- (Beta-Catenin)

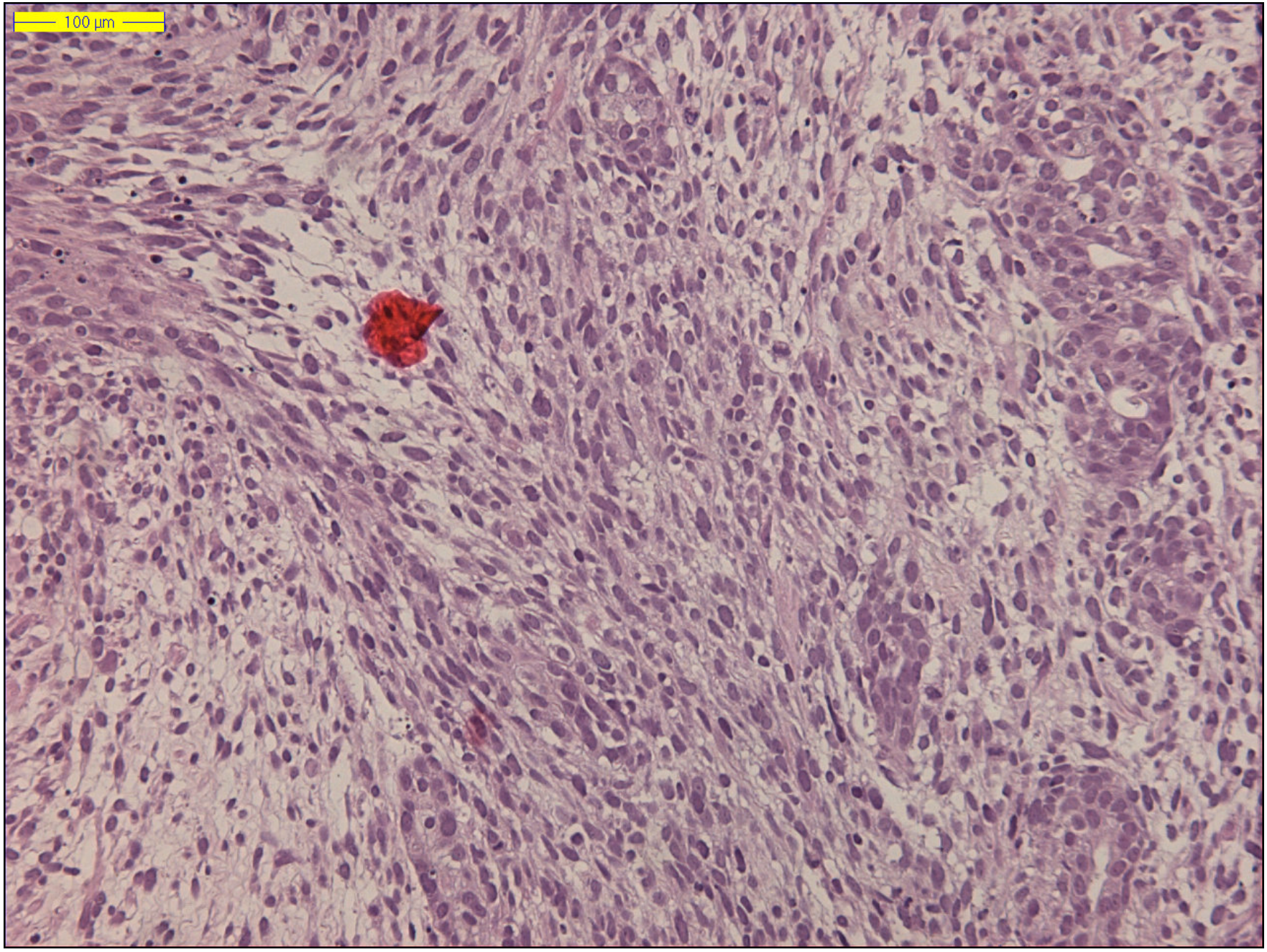
Sarcomatoid neoplasms of the pleura: epithelioid cell morphology

- Biphasic synovial sarcoma (EMA/ CK-pan+, t(X;18))
- Malignant melanoma (S100, HMB45 and Melan A+)
- Epithelioid vascular tumor (epithelioid hemangio-endothelioma, epithelioid angiosarcoma) (CD31 and CD34+) (*cave CK-pan positivity in angiosarcoma!)*
- Epithelioid sarcoma (CK-pan/EMA+ and CD34+)

→**rule out a carcinoma and mesothelioma!!**



Biphasic synovial sarcoma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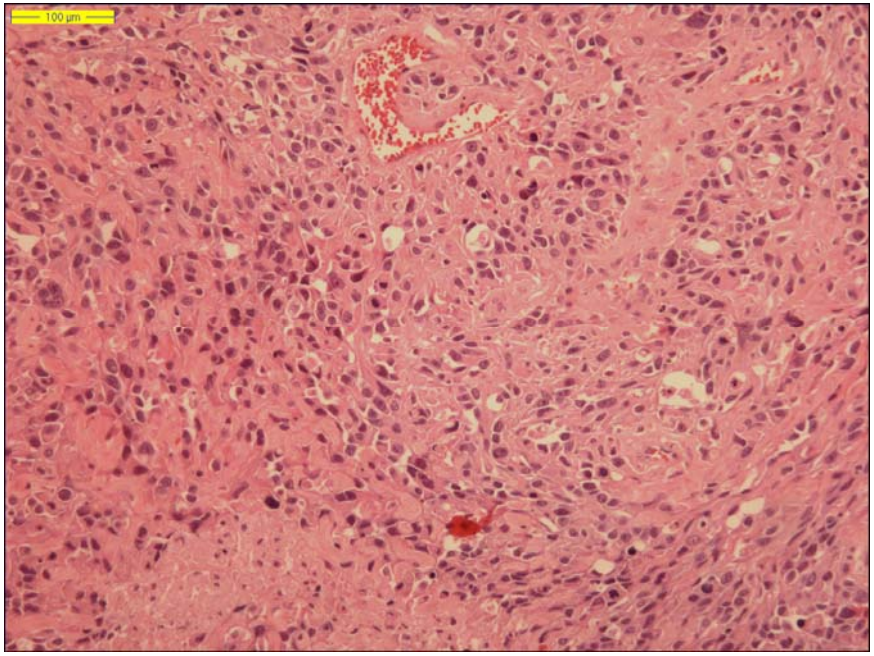

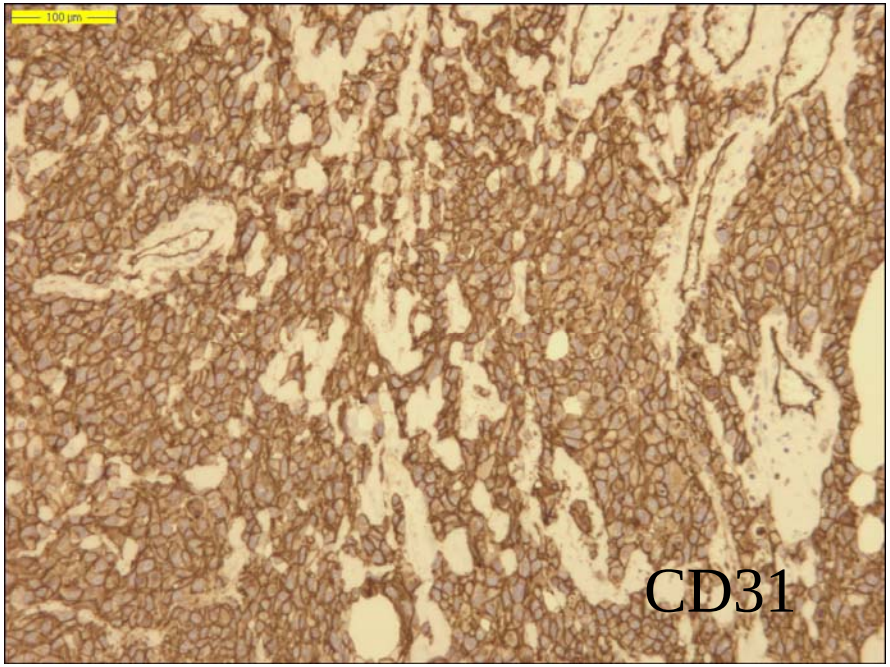

Epithelioid angiosarcoma