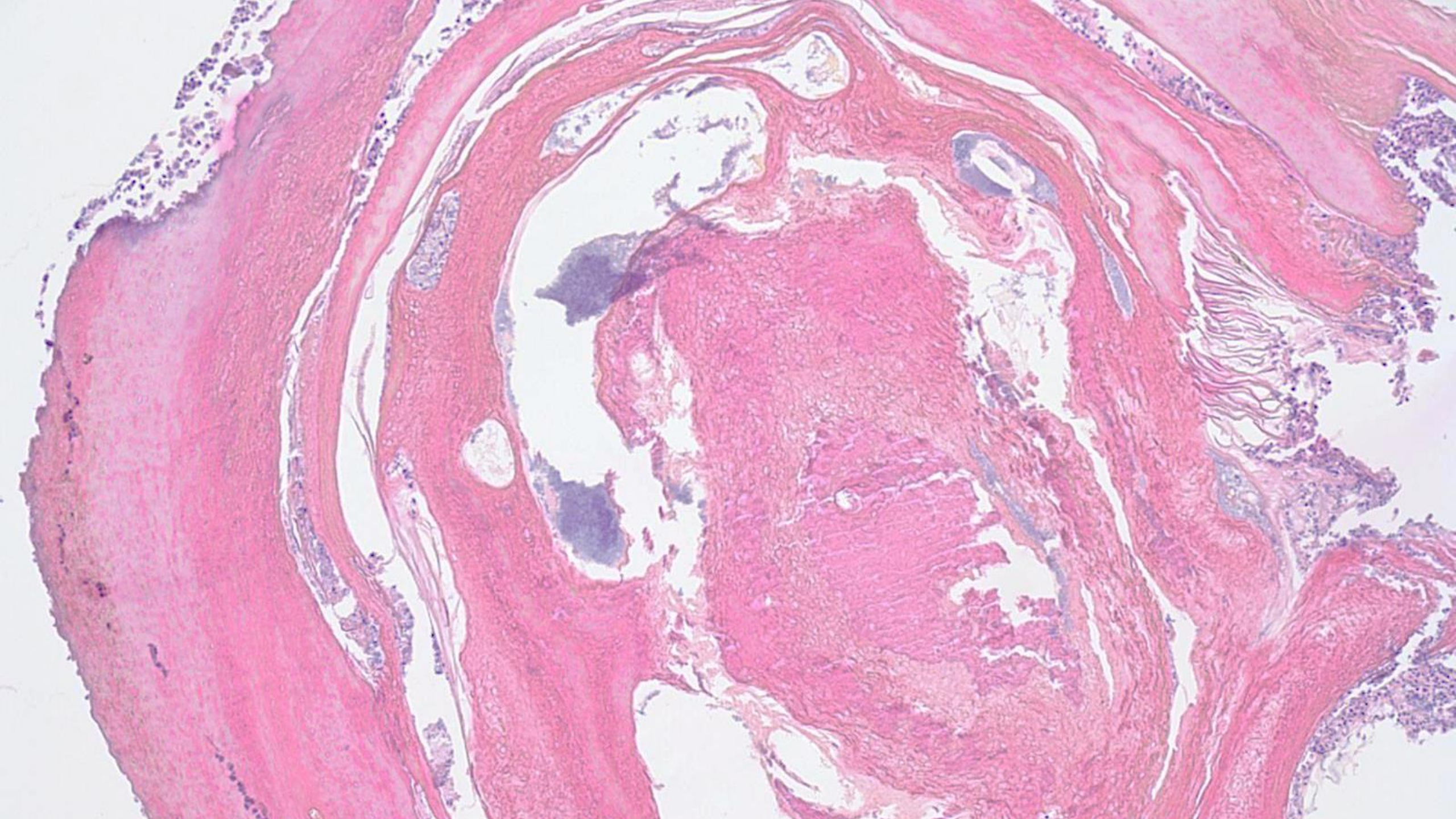
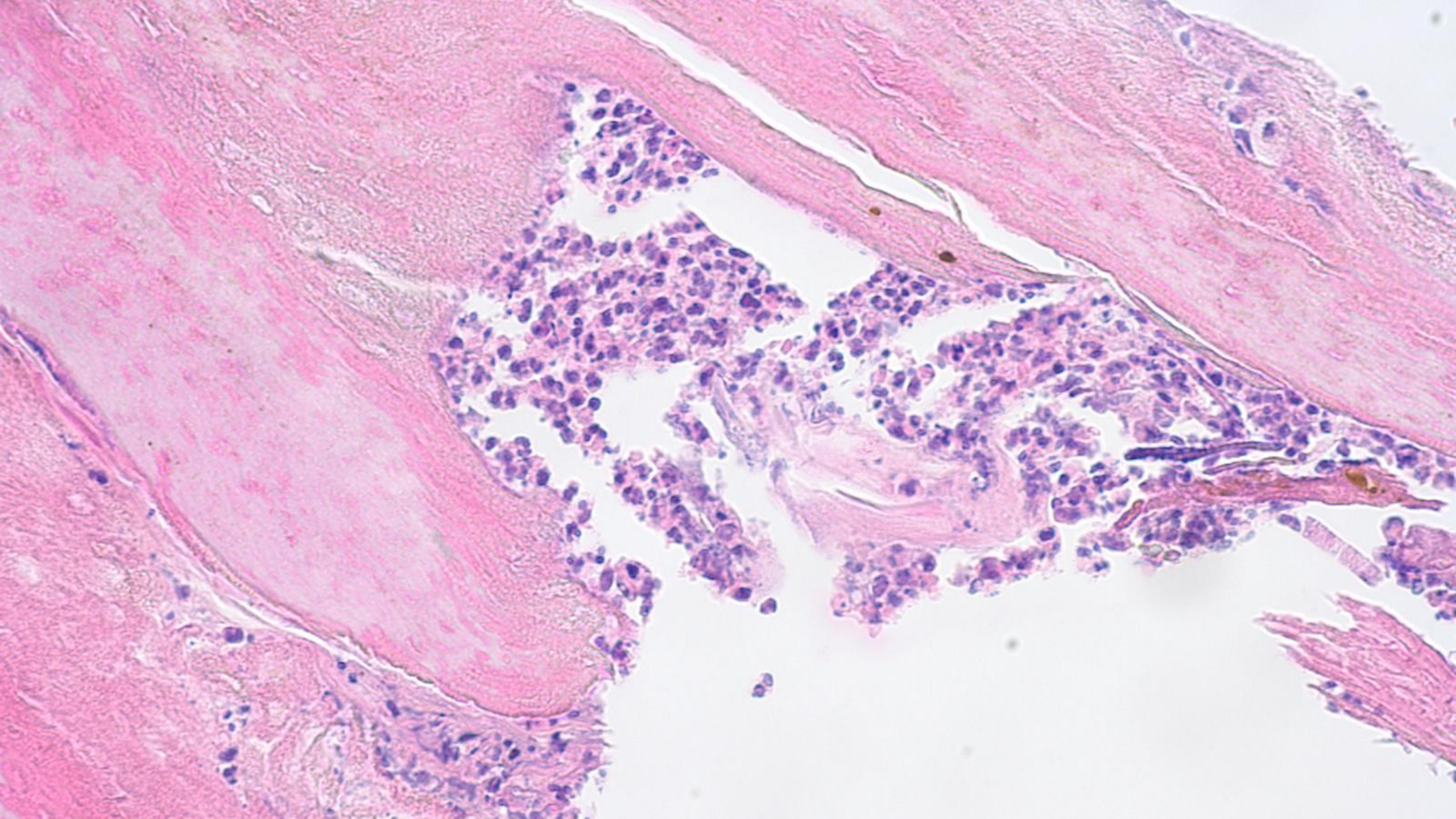
101 CASES DERMATOPATHOLOGY QUIZ CASES 64-76

Soheil S. Dadras MD-PhD





Case 64. 14M Left flank, suspect foreign body. What is your diagnosis?

A. Osteoma cutis

B. Osteochondroma

C. Osteoma

D. Osteosarcoma

E. Chondrosarcoma with osseous differentiation

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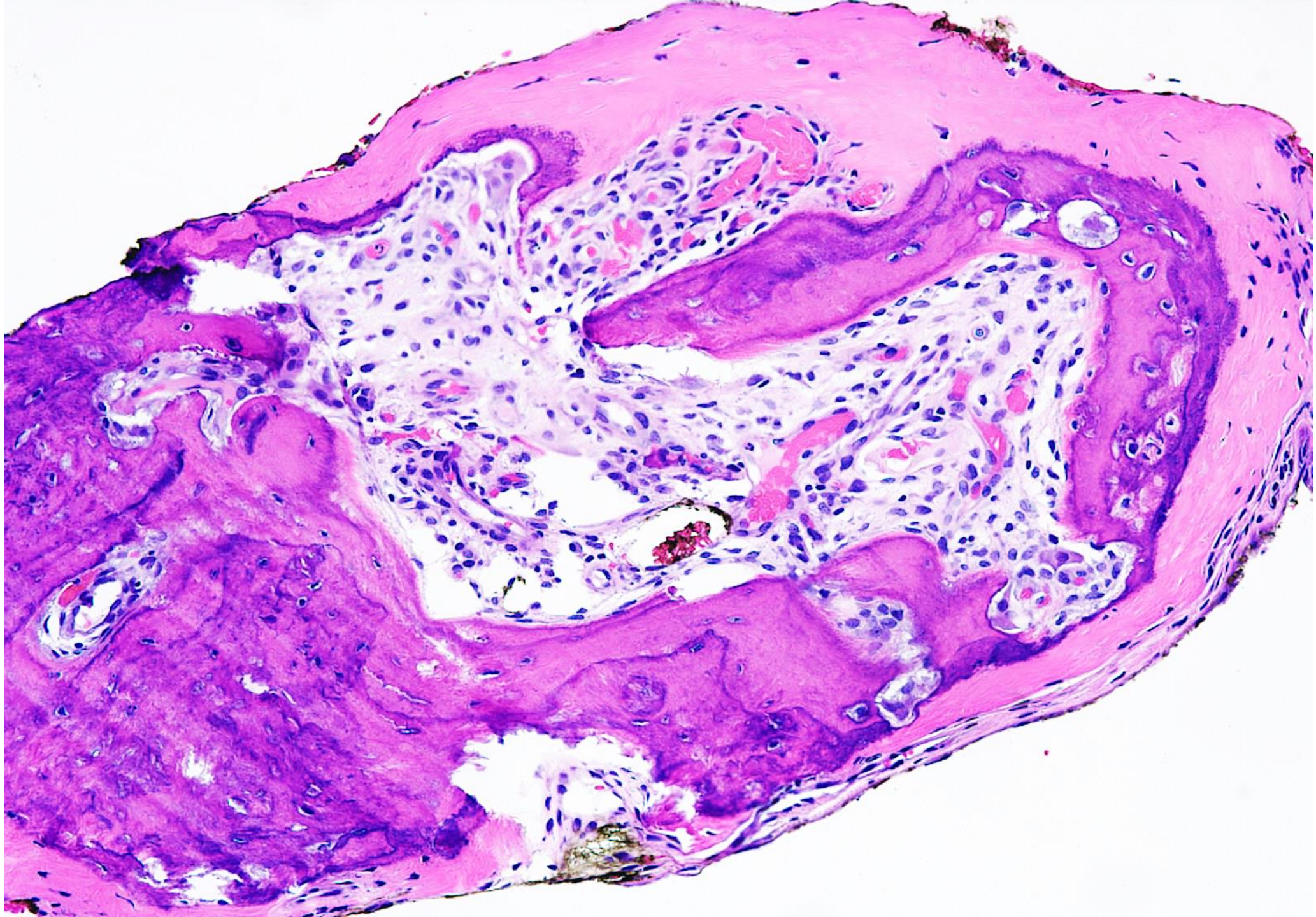

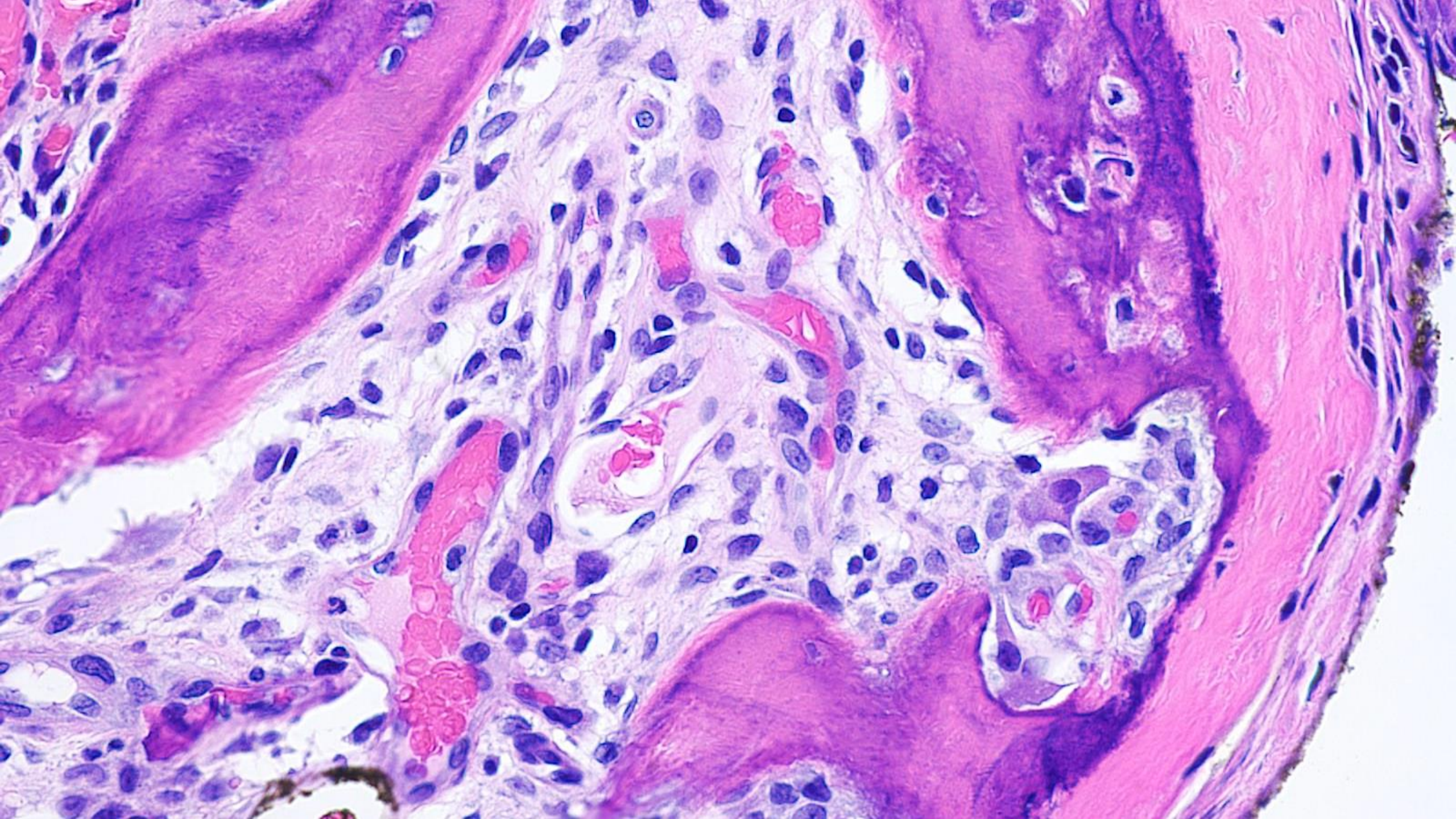

Case 65. 20F Left Plantar Foot, Wart.
What is your diagnosis?

A. Osteoma cutis

B. Osteochondroma

C. Osteoma

D. Osteosarcoma

E. Chondrosarcoma with osseous differentiation

Case 65. 20F Left Plantar Foot, Wart.
What is your diagnosis?

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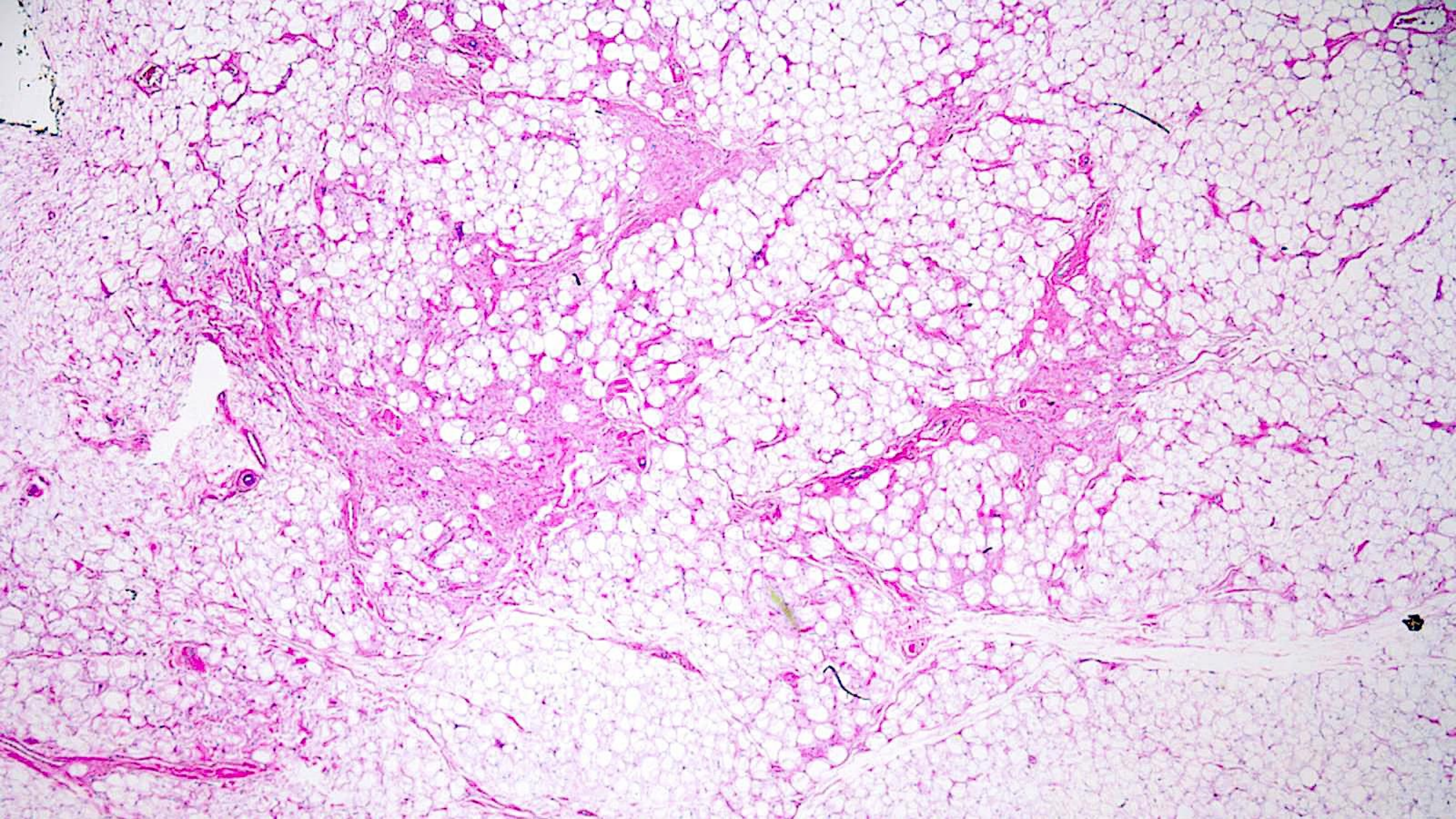

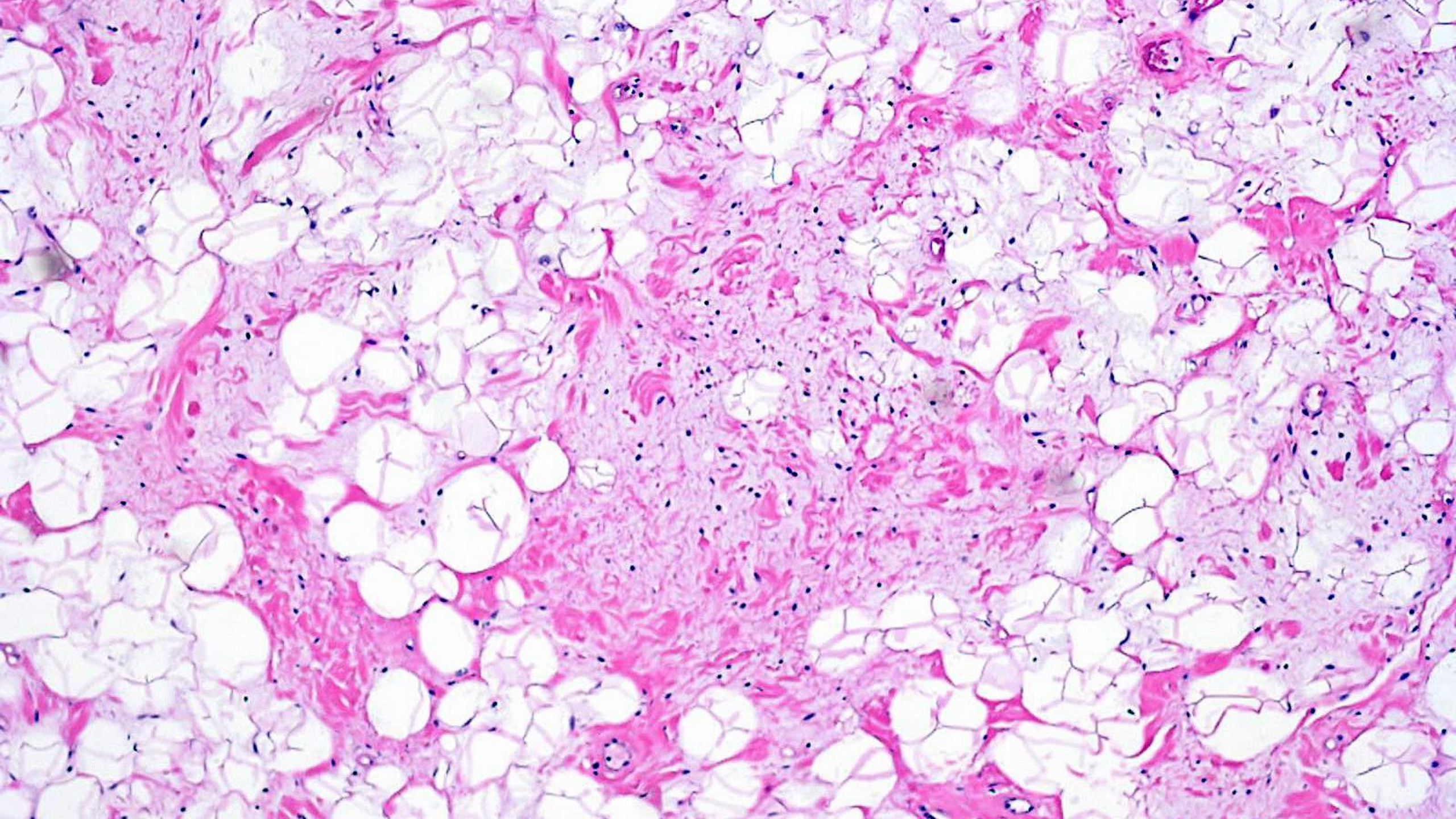

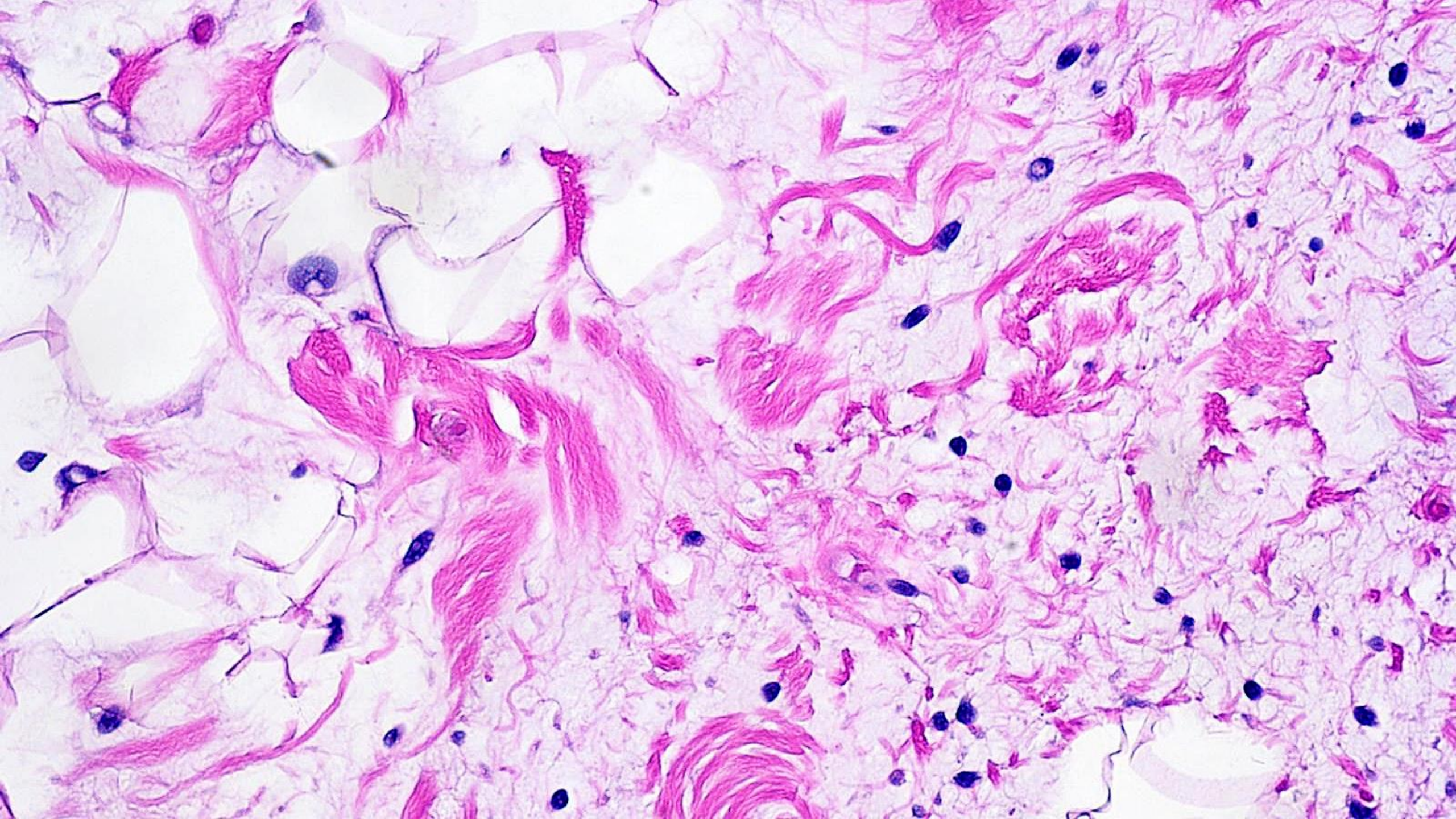

Case 66. 60M, Right Upper Arm Excision. Mass. What is your diagnosis?

A. Myxolipoma

B. Pleomorphic lipoma

C. Spindle cell lipoma

D. Lipoblastoma

E. Well-differentiated Liposarcoma/Atypical lipomatous tumor

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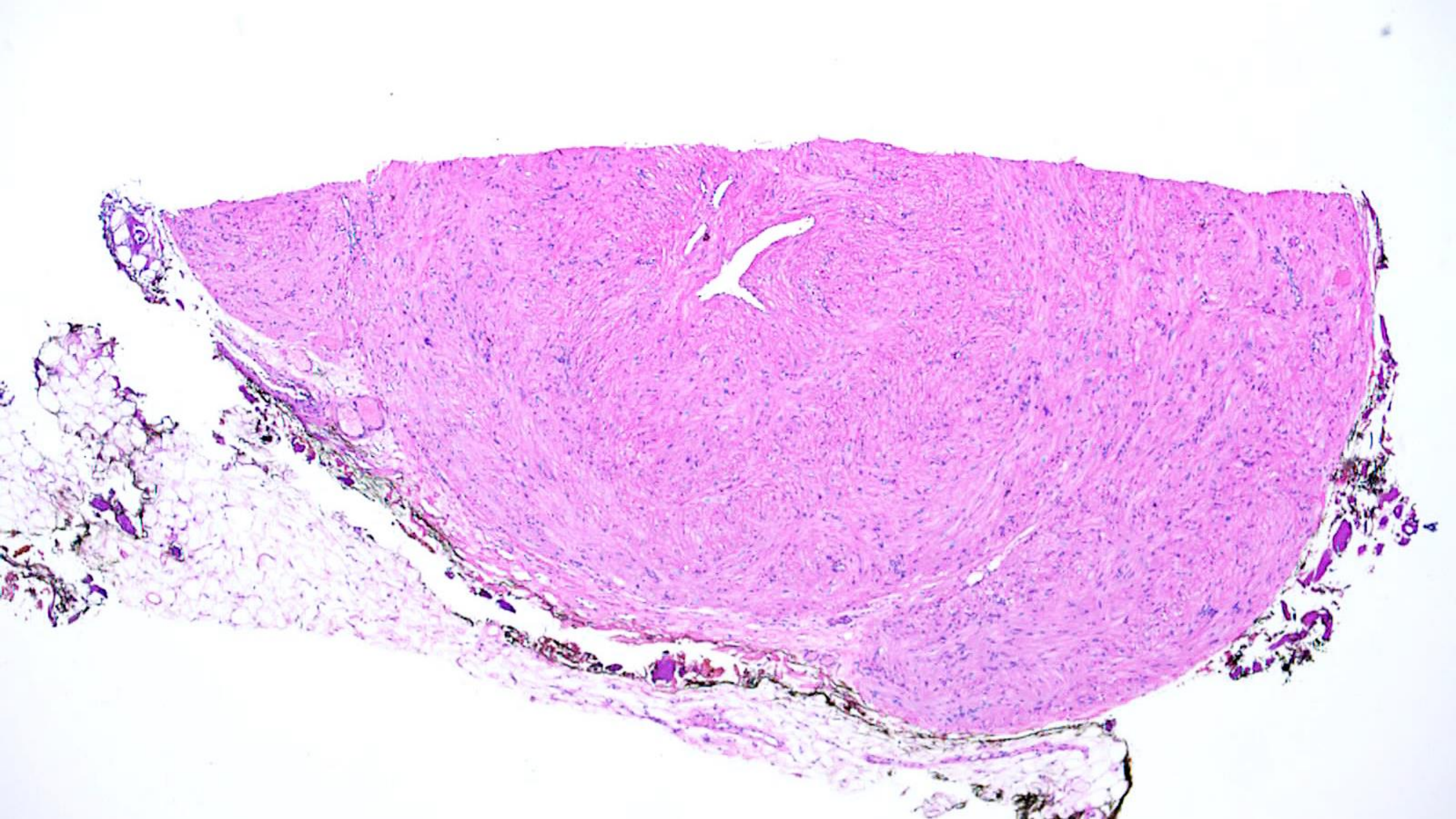

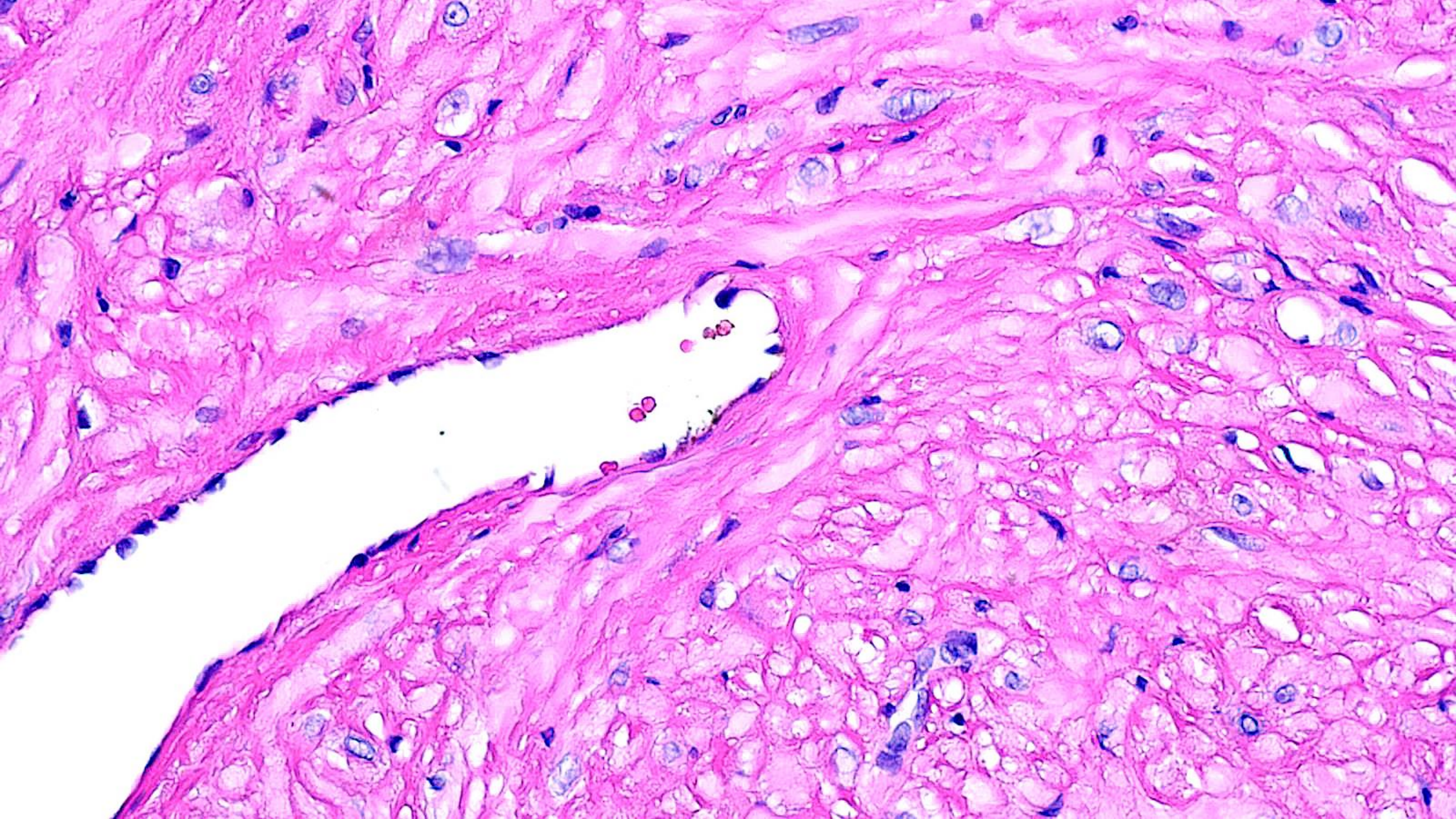

Case 67. 47M, Abdominal wall cyst excision. What is your diagnosis?

A. Pilar leiomyoma

B. Vascular leiomyoma (angiomyoma, angioleiomyoma)

C. Hemangioma

D. Congenital smooth muscle hamartoma

E. Leiomyosarcoma

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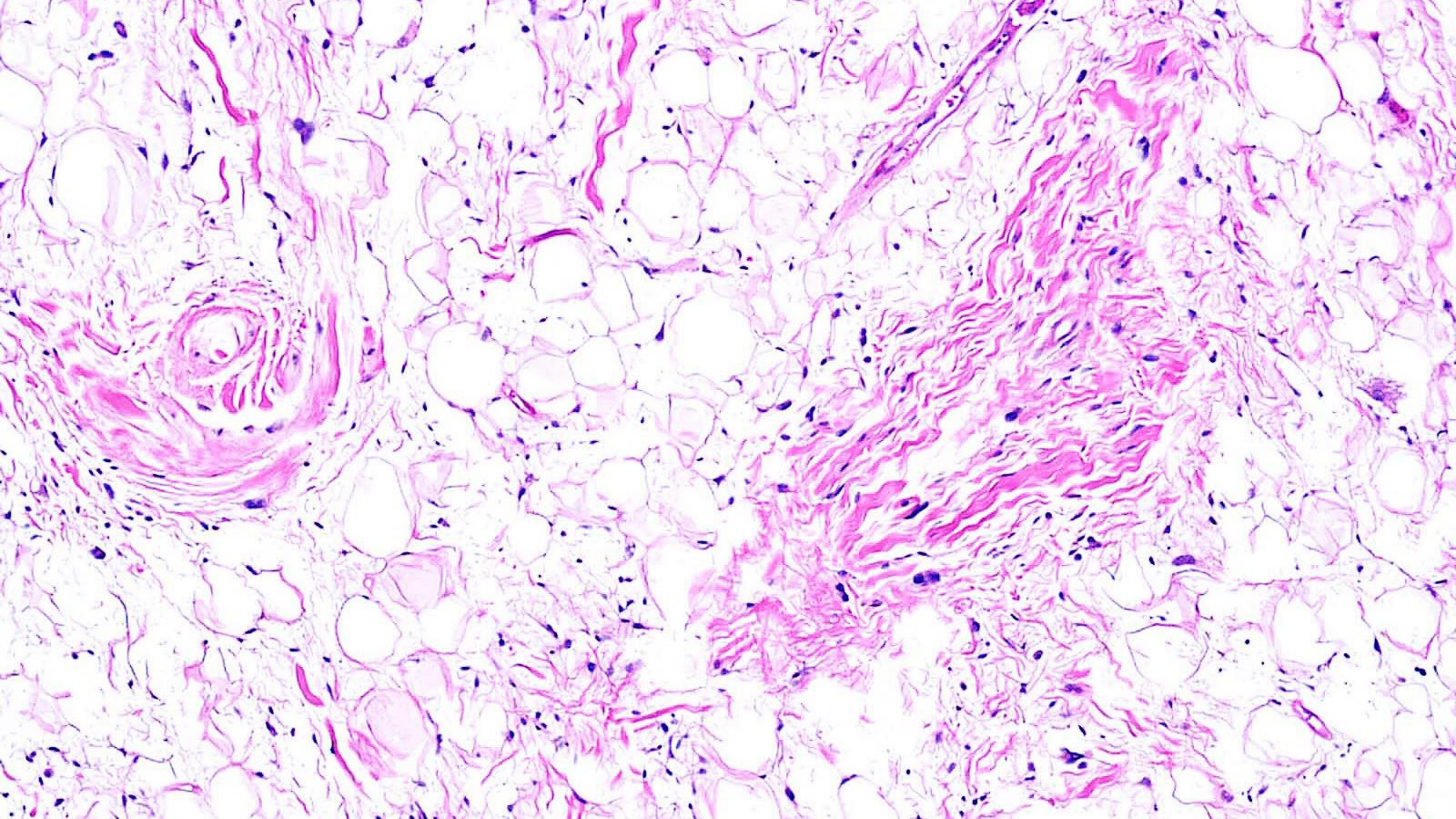

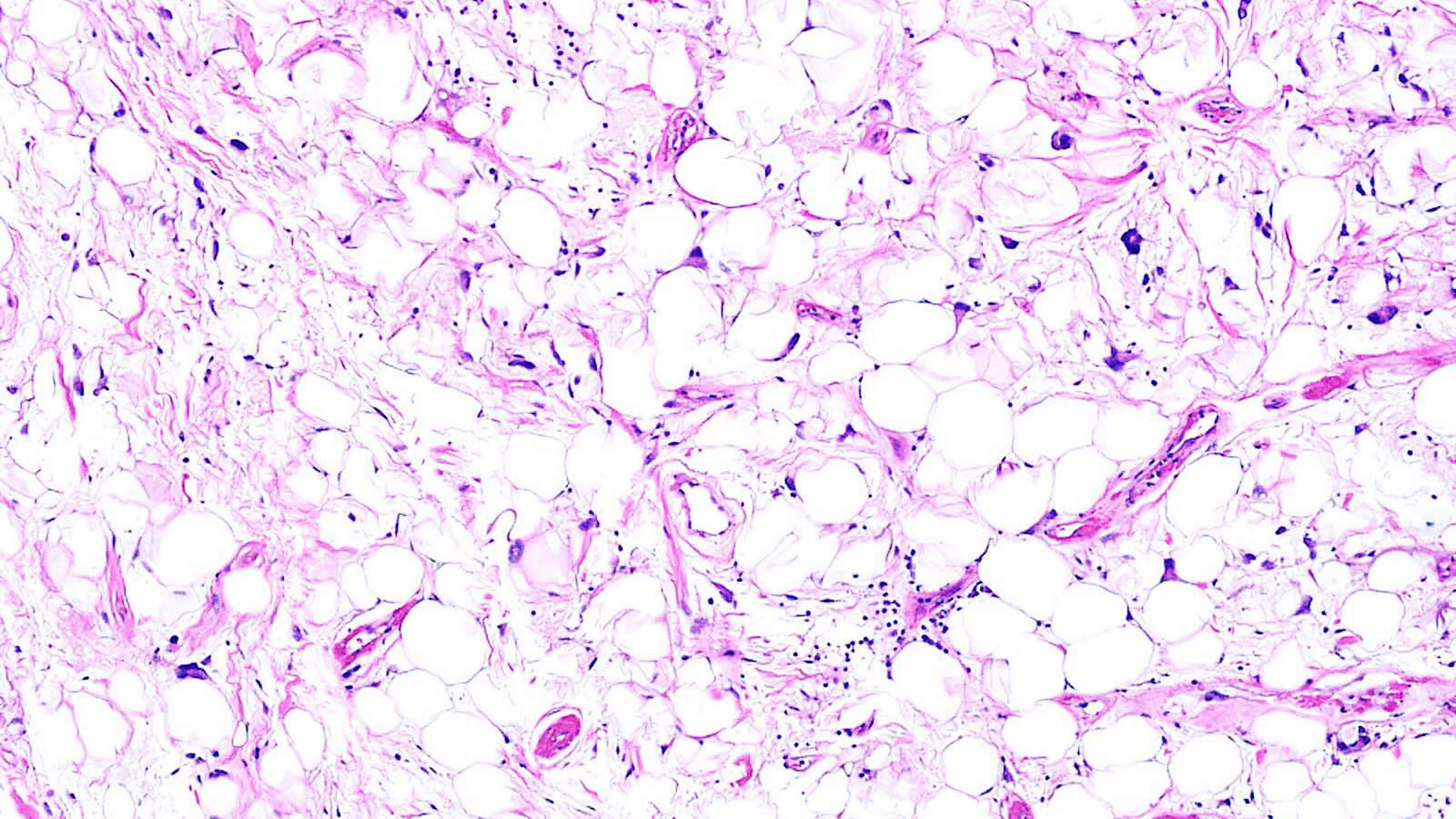

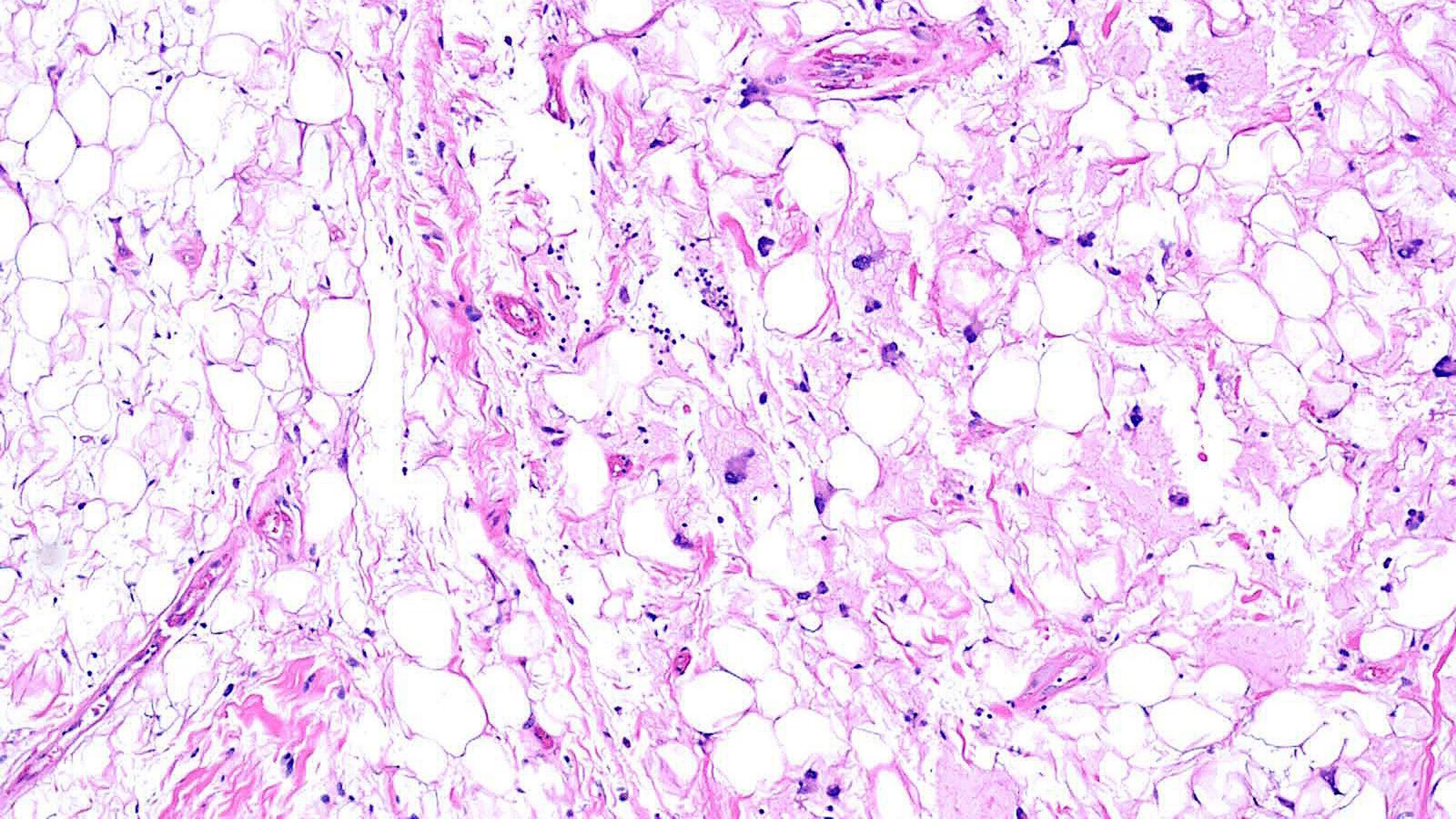

Case 68. 55F, Left Shoulder Excision. Mass. What is your diagnosis?

A. Myxolipoma

B. Pleomorphic lipoma

C. Spindle cell lipoma

D. Lipoblastoma

E. Well-differentiated Liposarcoma/Atypical lipomatous tumor

Case 68. 55F, Left Shoulder Excision. Mass. What is your diagnosis?

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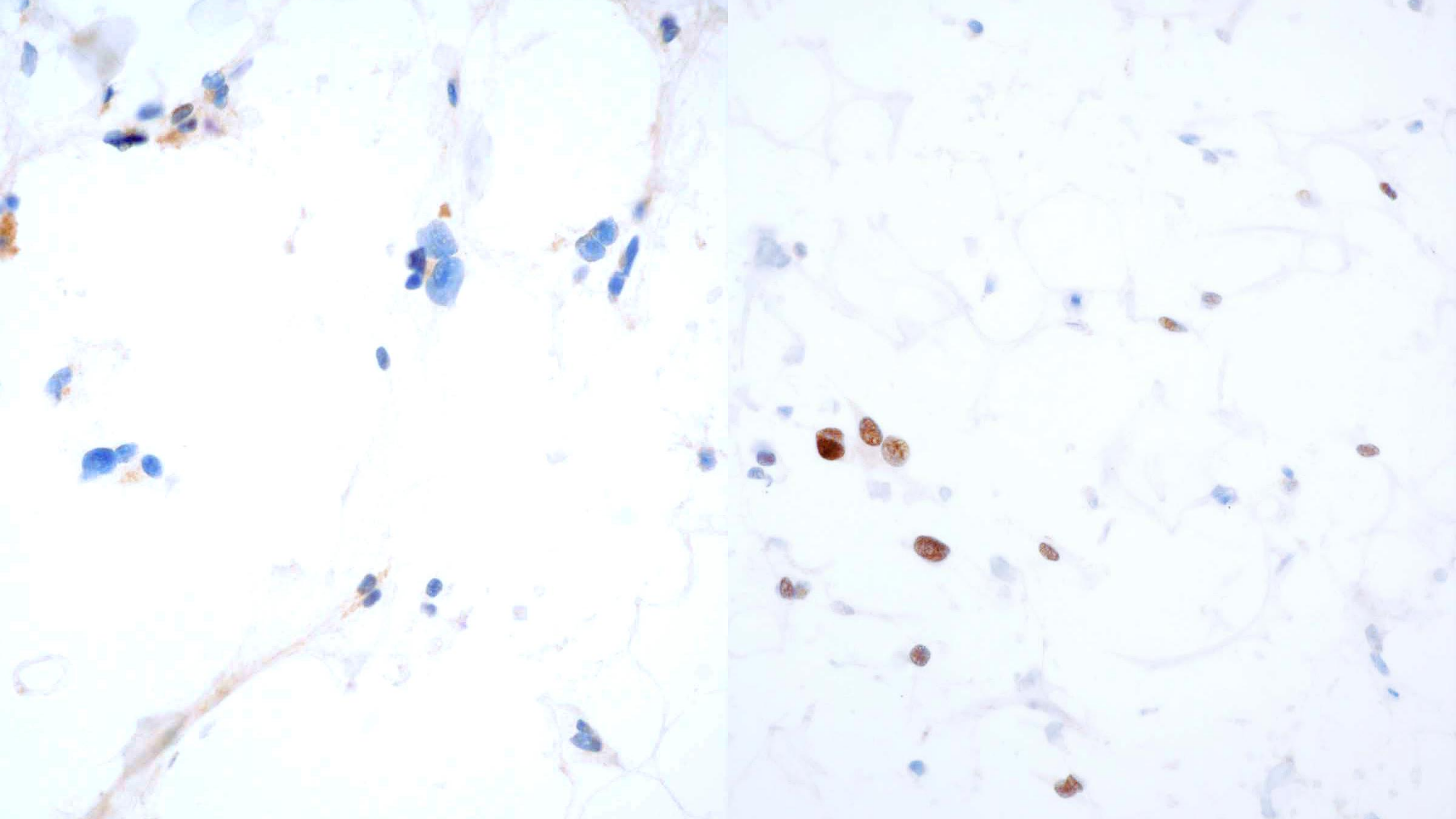

Case 69. 55F, Left Shoulder Excision. Mass (same lesion). What are the two immunohistochemical markers to confirm the diagnosis?

A. MDM2; CKD4

B. MDM2; CDK4/6

C. p53; CDK2

D. p53; CDK4

E. p16; CDK4/6

Case 69. 55F, Left Shoulder Excision. Mass (same lesion). What are the two immunohistochemical markers to confirm the diagnosis?

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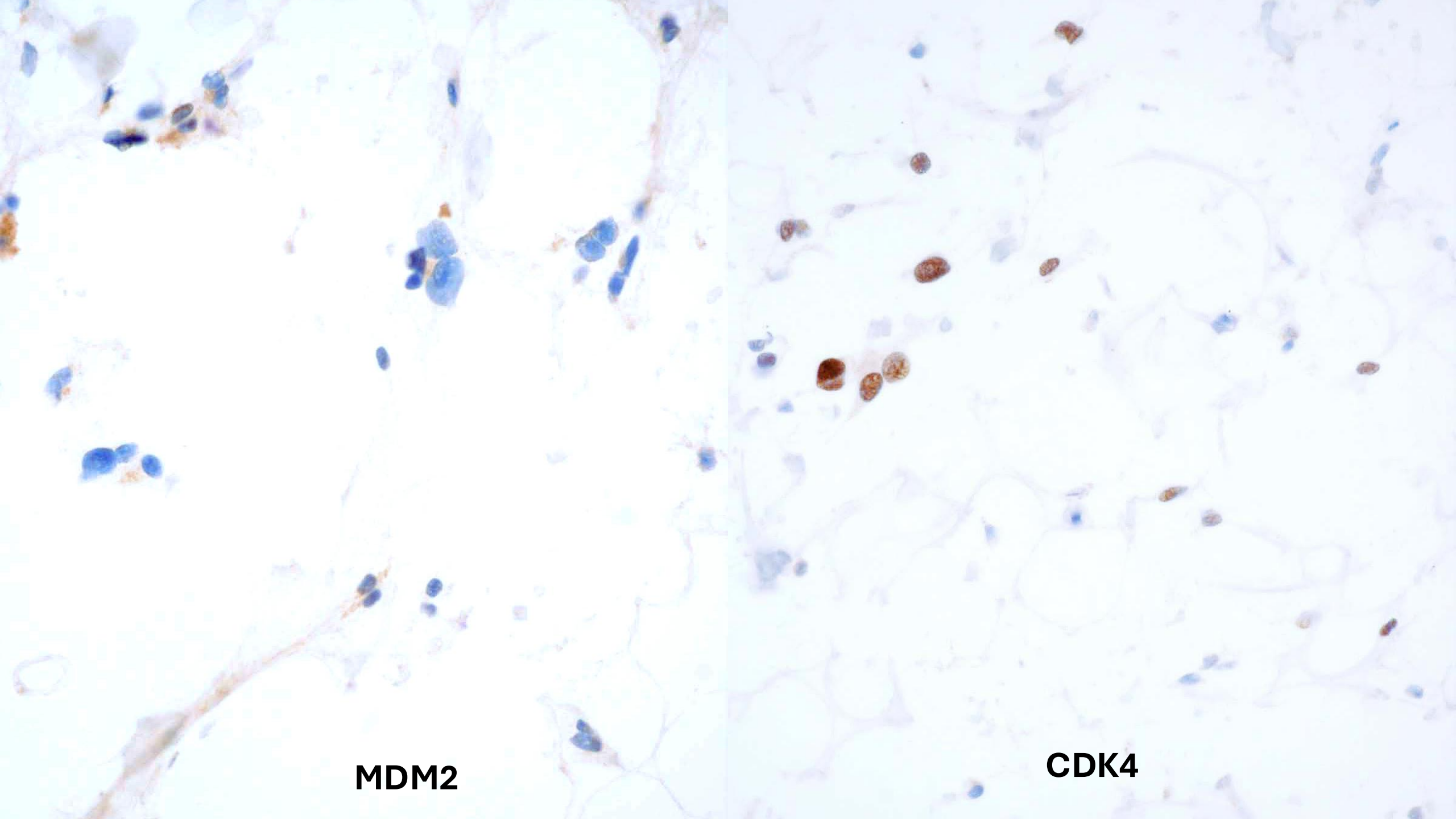

MDM2
CDK4

What is the key genetic abnormality in well-differentiated liposarcoma (WDLS) / atypical lipomatous tumor (ALT)?

Amplification of the 12q14-15 region, which includes:

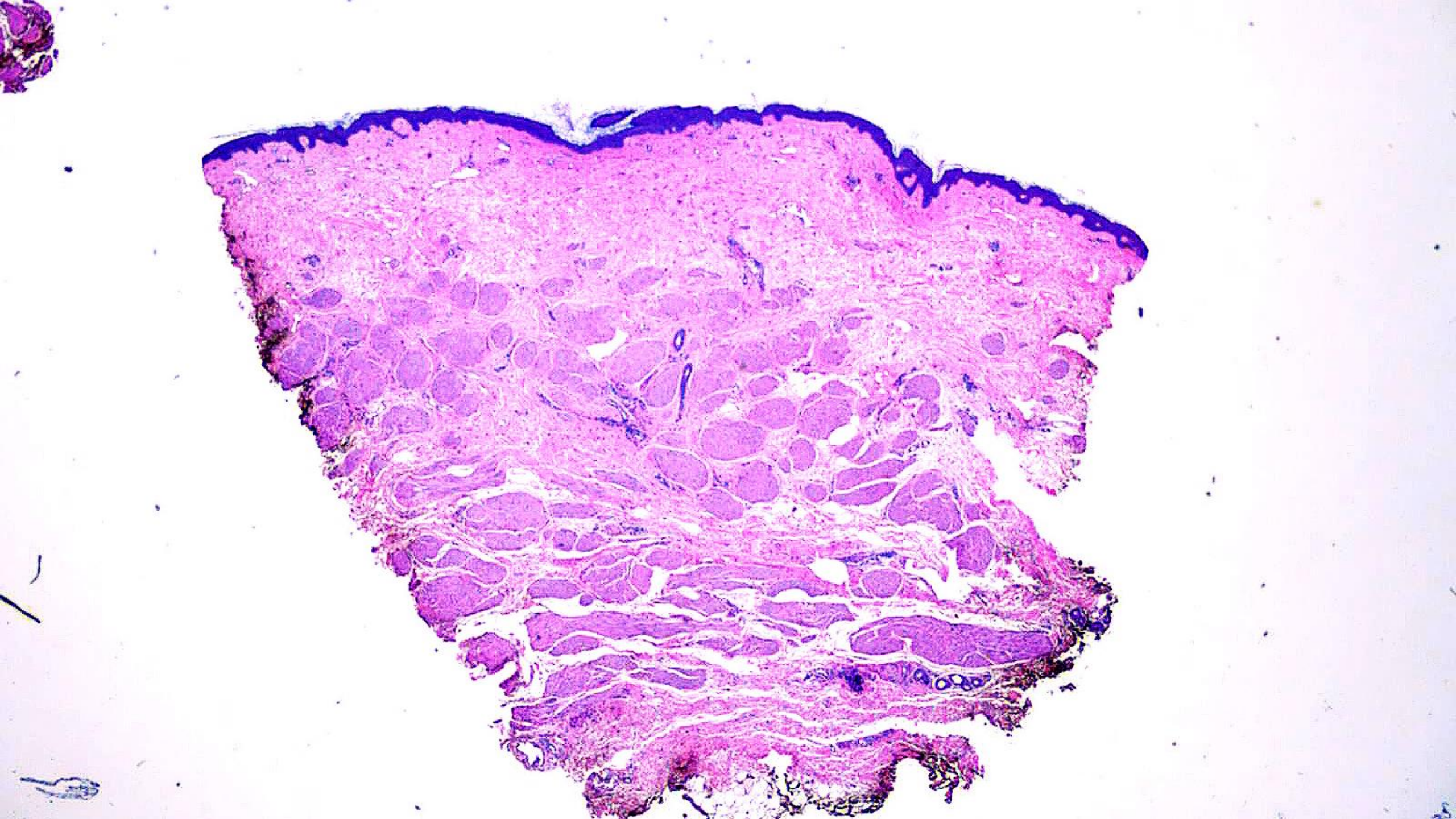
- ***MDM2*** (primary driver gene)
- ***CDK4*** (frequently co-amplified)
- Other genes in the region (e.g., *HMGA2*, *DDIT3*)

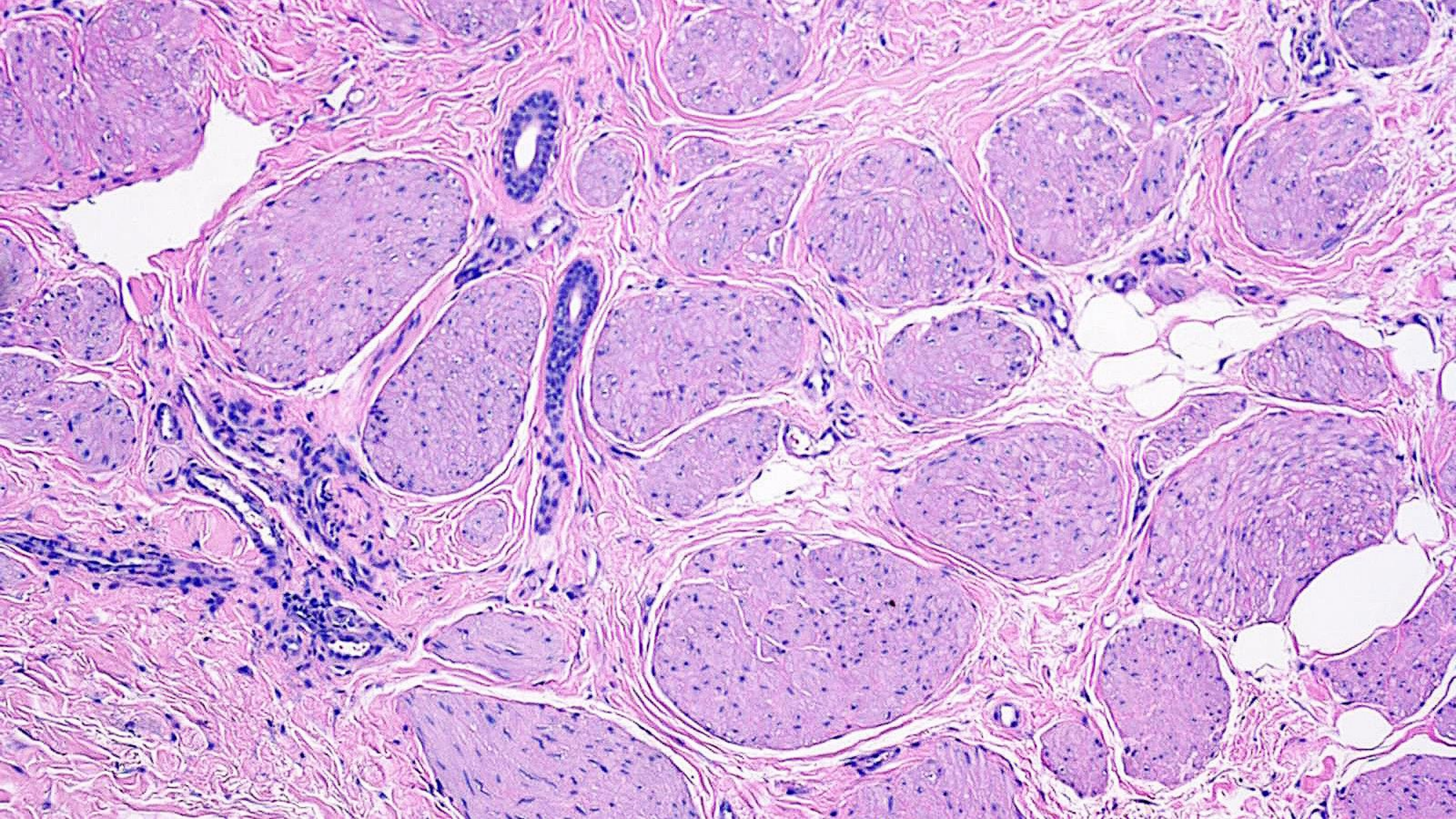
Diagnostic Confirmation Methods:

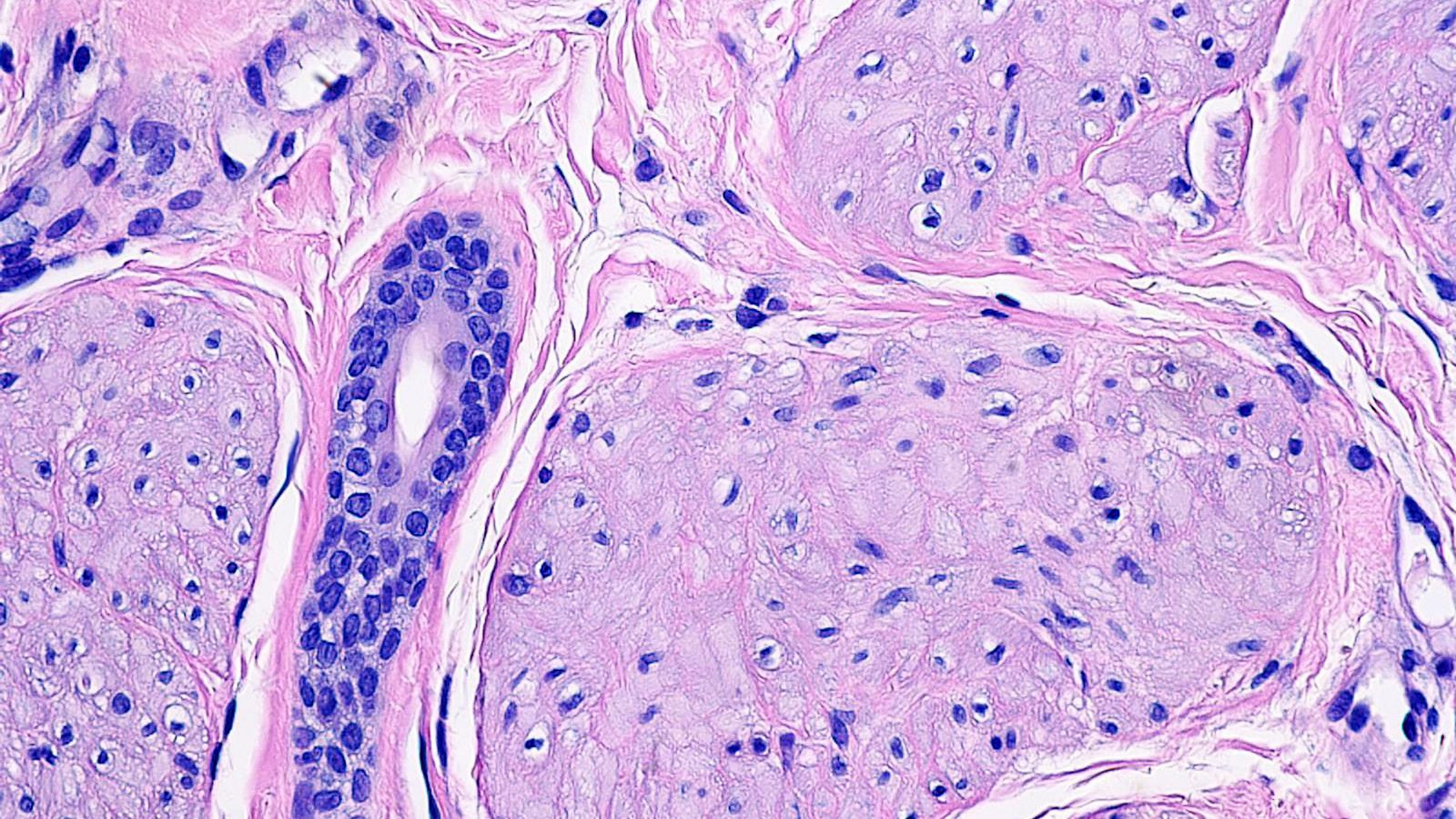
1. **FISH (Fluorescence In Situ Hybridization)** – Gold standard for detecting *MDM2* amplification.
2. **Molecular Testing (e.g., SNP array, NGS)** – Can identify 12q14-15 amplification.
3. **IHC (Immunohistochemistry)** – MDM2 and CDK4 nuclear positivity (supportive but less specific than FISH).

Why This Matters:

- Distinguishes WDLS from benign lipomas (which lack *MDM2* amplification).
- Helps differentiate from other liposarcoma subtypes (e.g., dedifferentiated liposarcoma also has *MDM2* amplification, while myxoid/round cell liposarcoma has *FUS-DDIT3* or *EWSR1-DDIT3* fusions).







Case 70. 79F, Right Breast Biopsy. 1.3 x 0.5 cm; concerning for inflammatory breast carcinoma. What is your diagnosis?

A. Pilar leiomyoma

B. Vascular leiomyoma (angiomyoma, angioleiomyoma)

C. Hemangioma

D. Congenital smooth muscle hamartoma

E. Leiomyosarcoma

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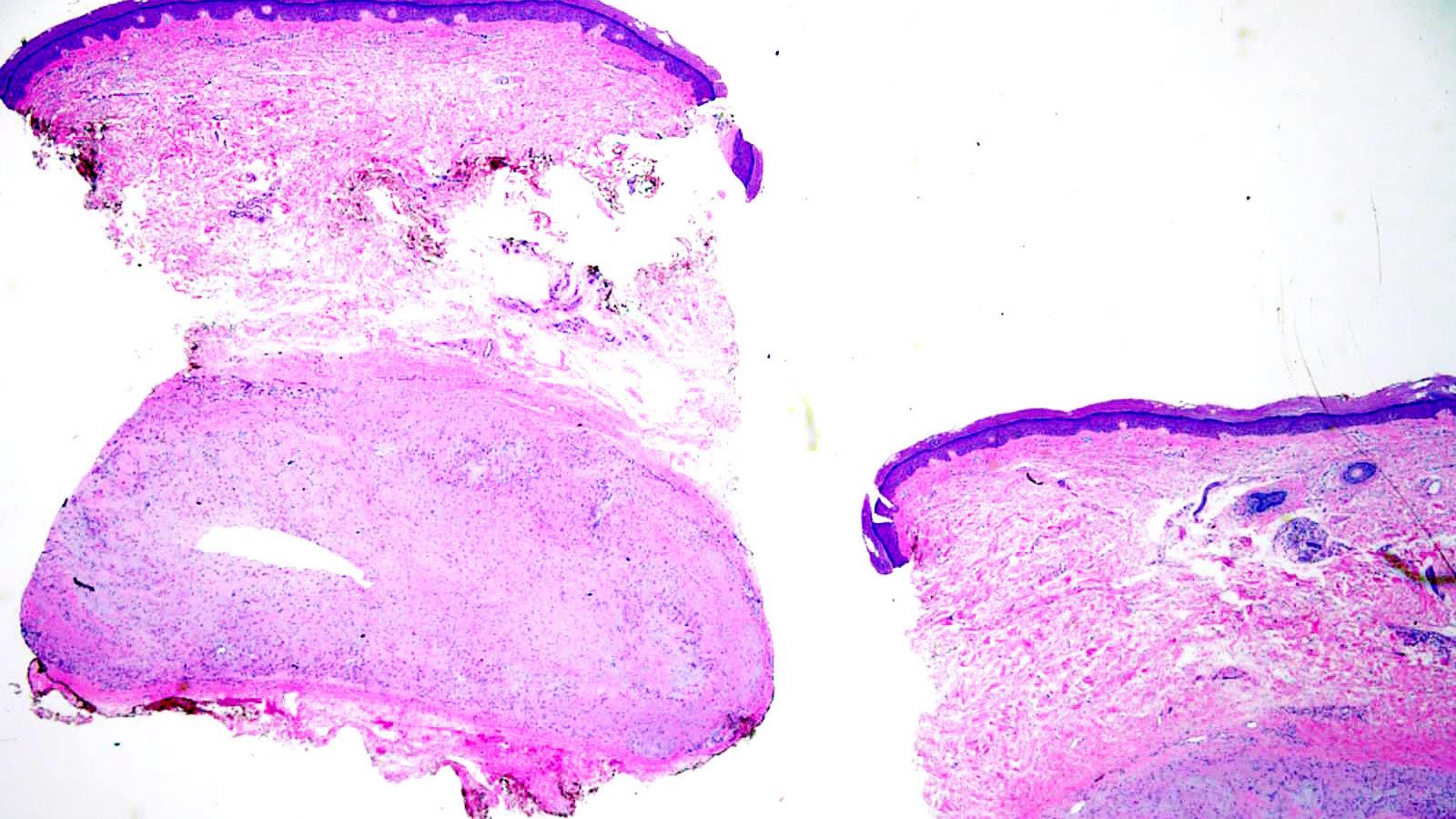

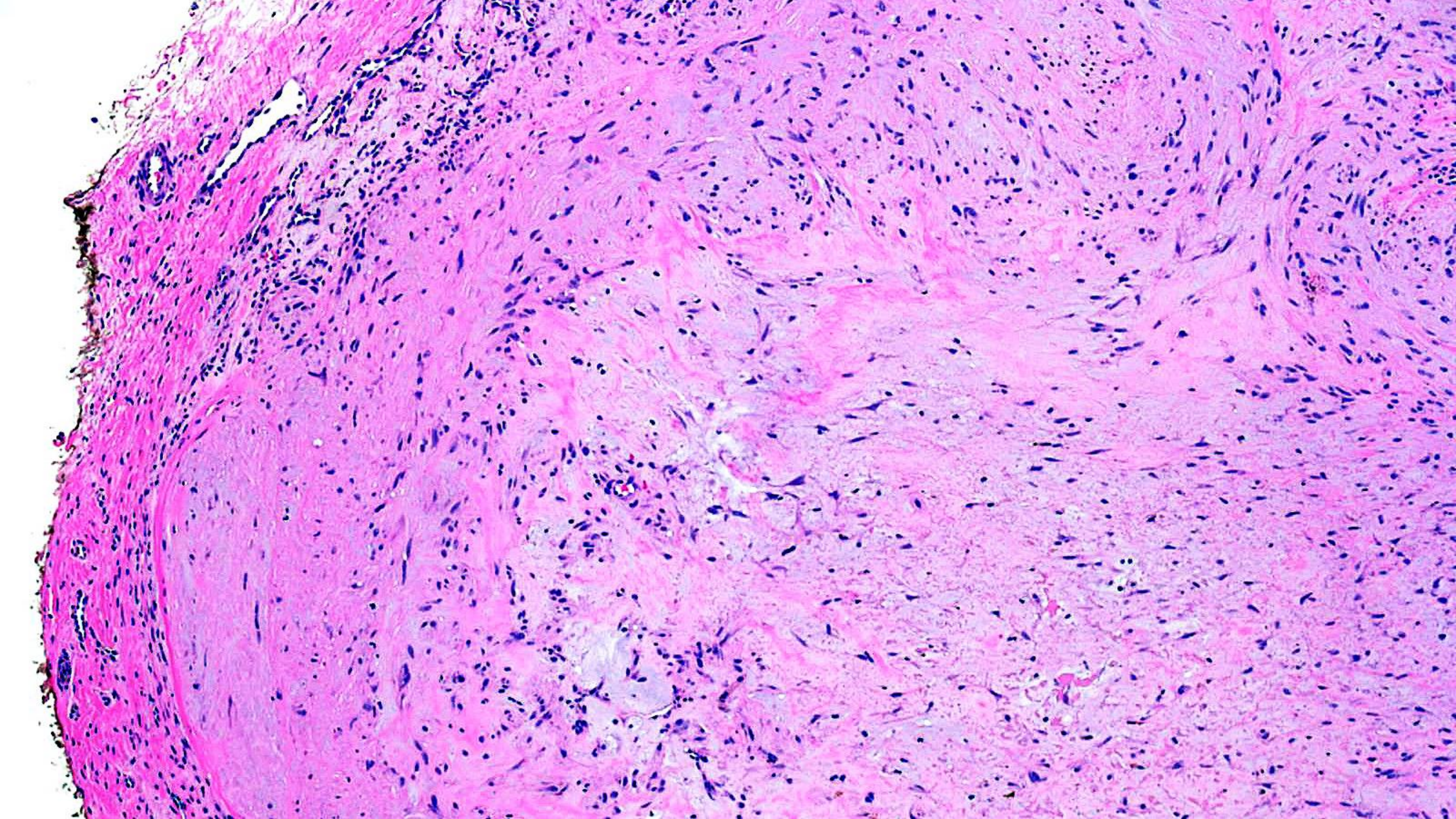

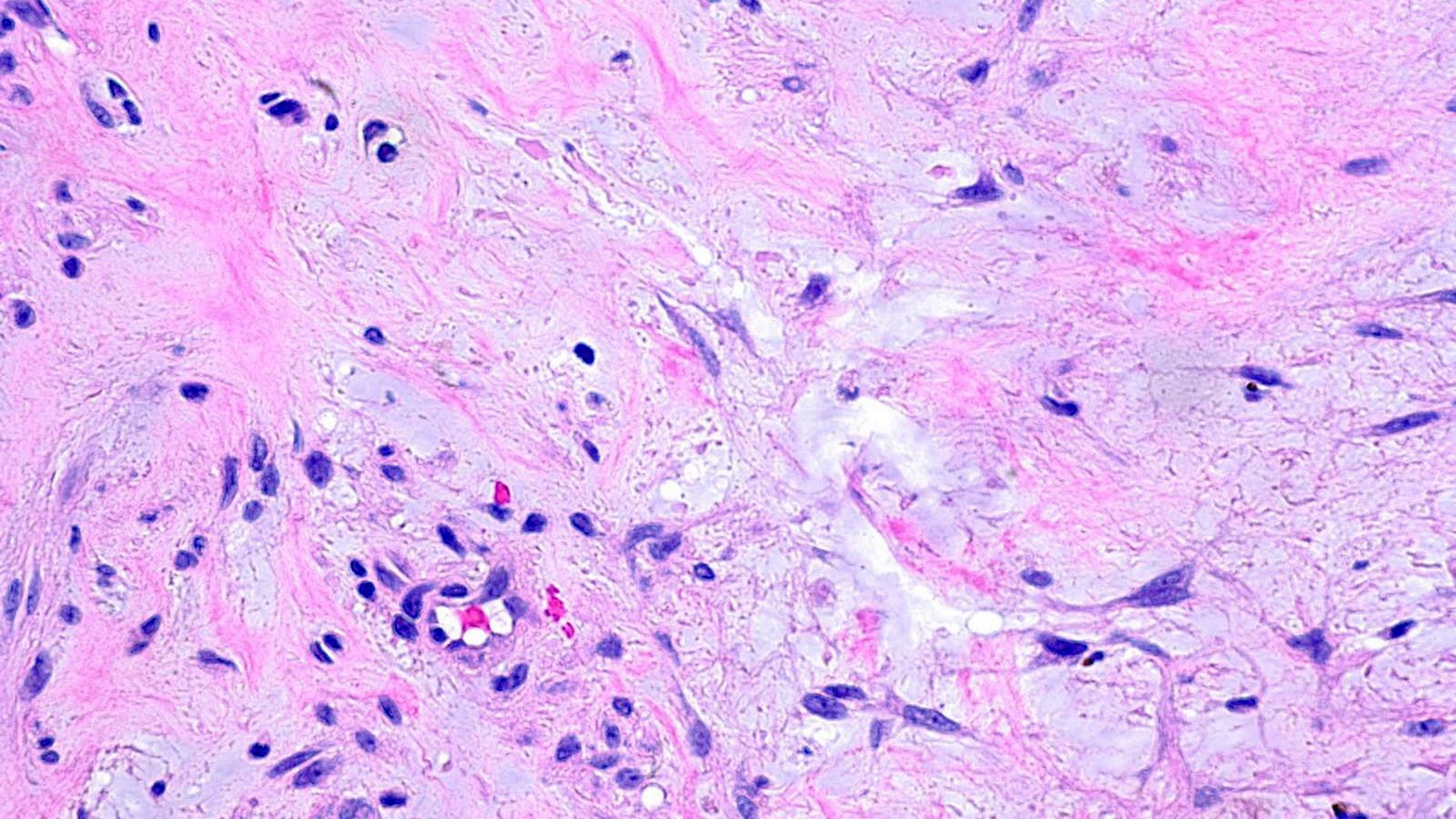

Case 71. 65F, Right Knee Biopsy. R/O EIC vs. DF. What is your diagnosis?

A. Vascular leiomyoma

B. Leiomyosarcoma

C. Atypical chondroma

D. Cutaneous mixed tumor

E. Cutaneous chondroma

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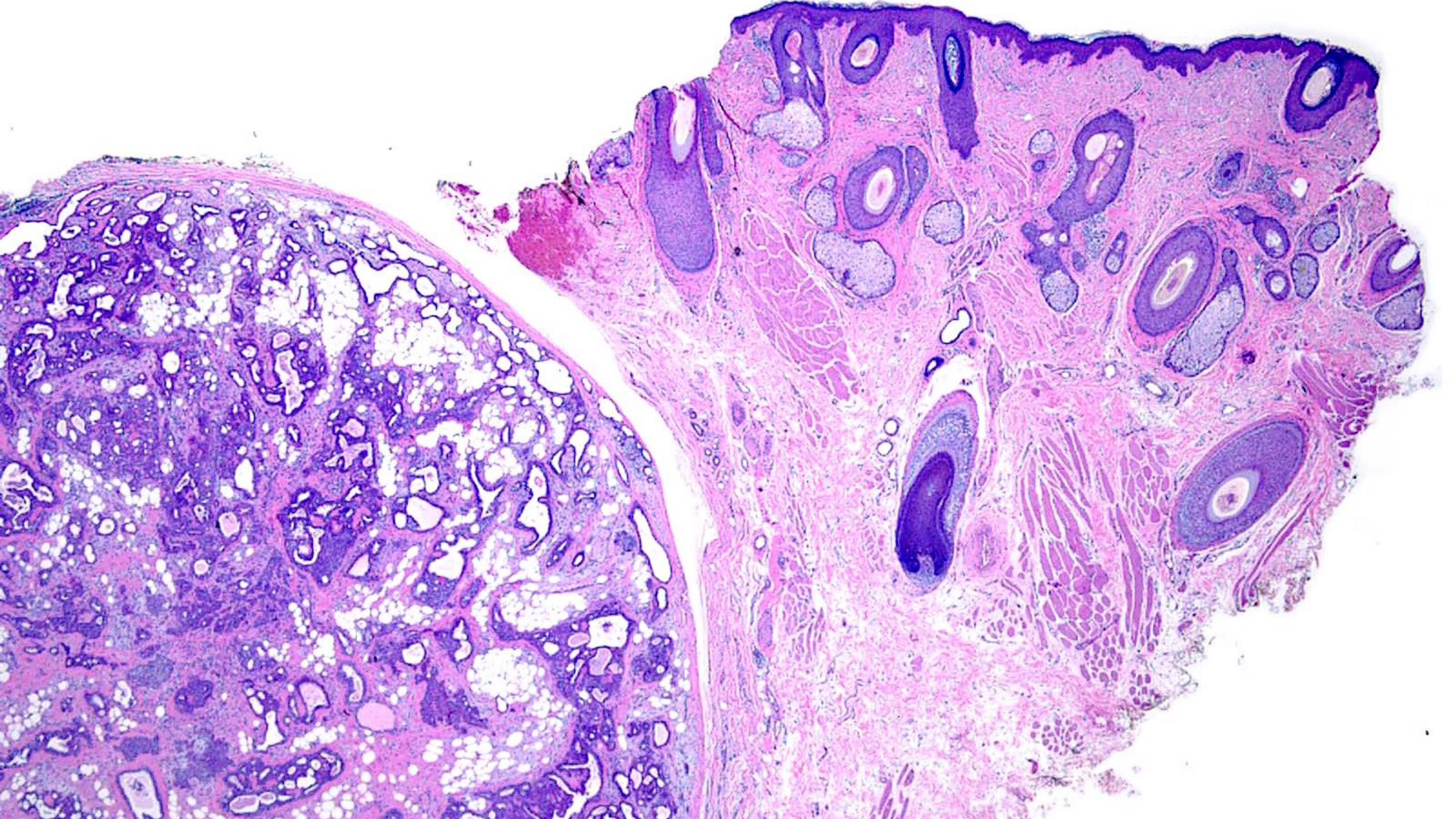

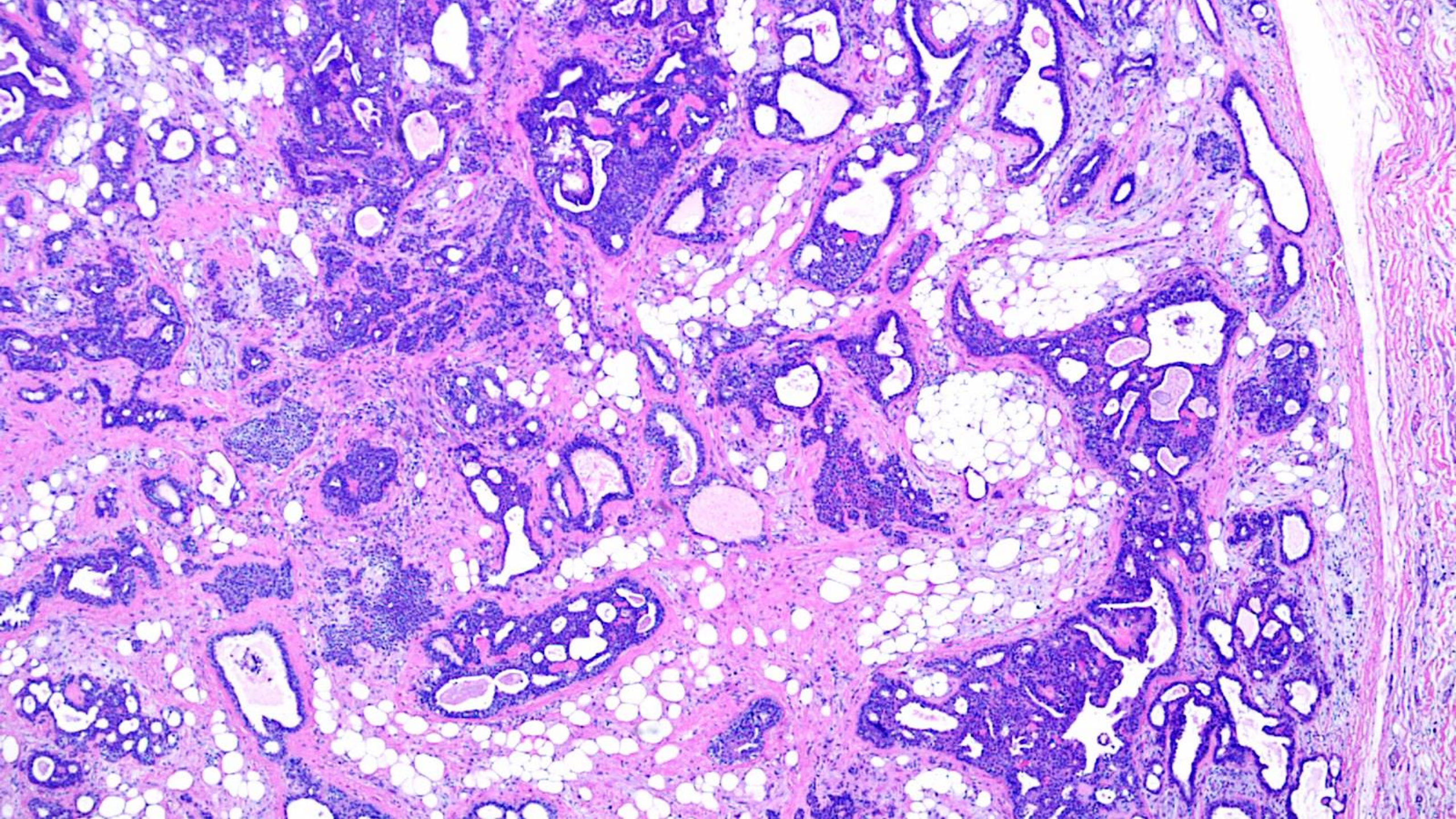

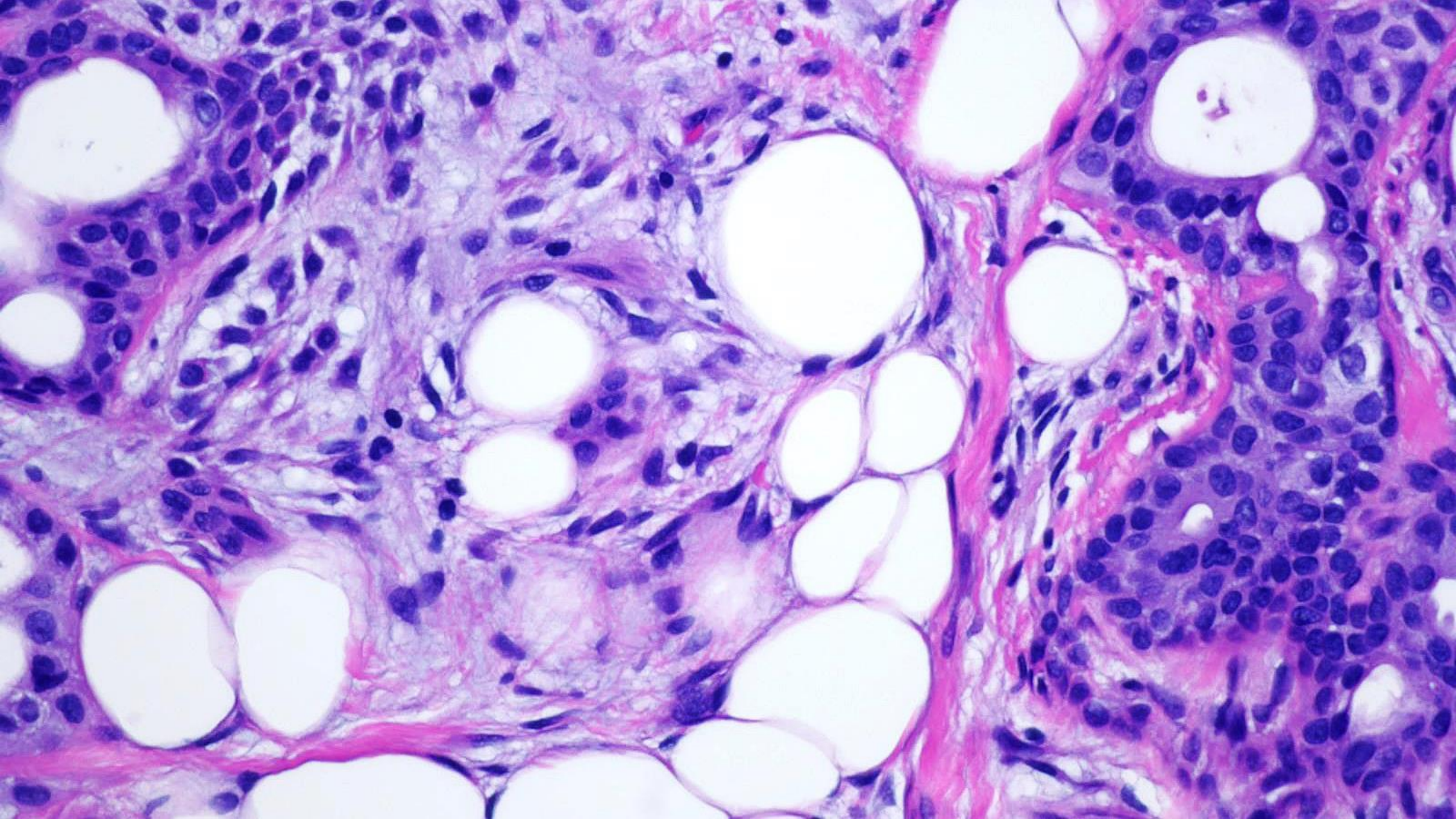

Case 72. 55M, Left Upper Lip Excision; neoplasm of uncertain behavior. What is your diagnosis?

A. Pleomorphic adenoma

B. Eccrine hidradenoma

C. Atypical chondroma

D. Cutaneous mixed tumor

E. Cutaneous chondroma

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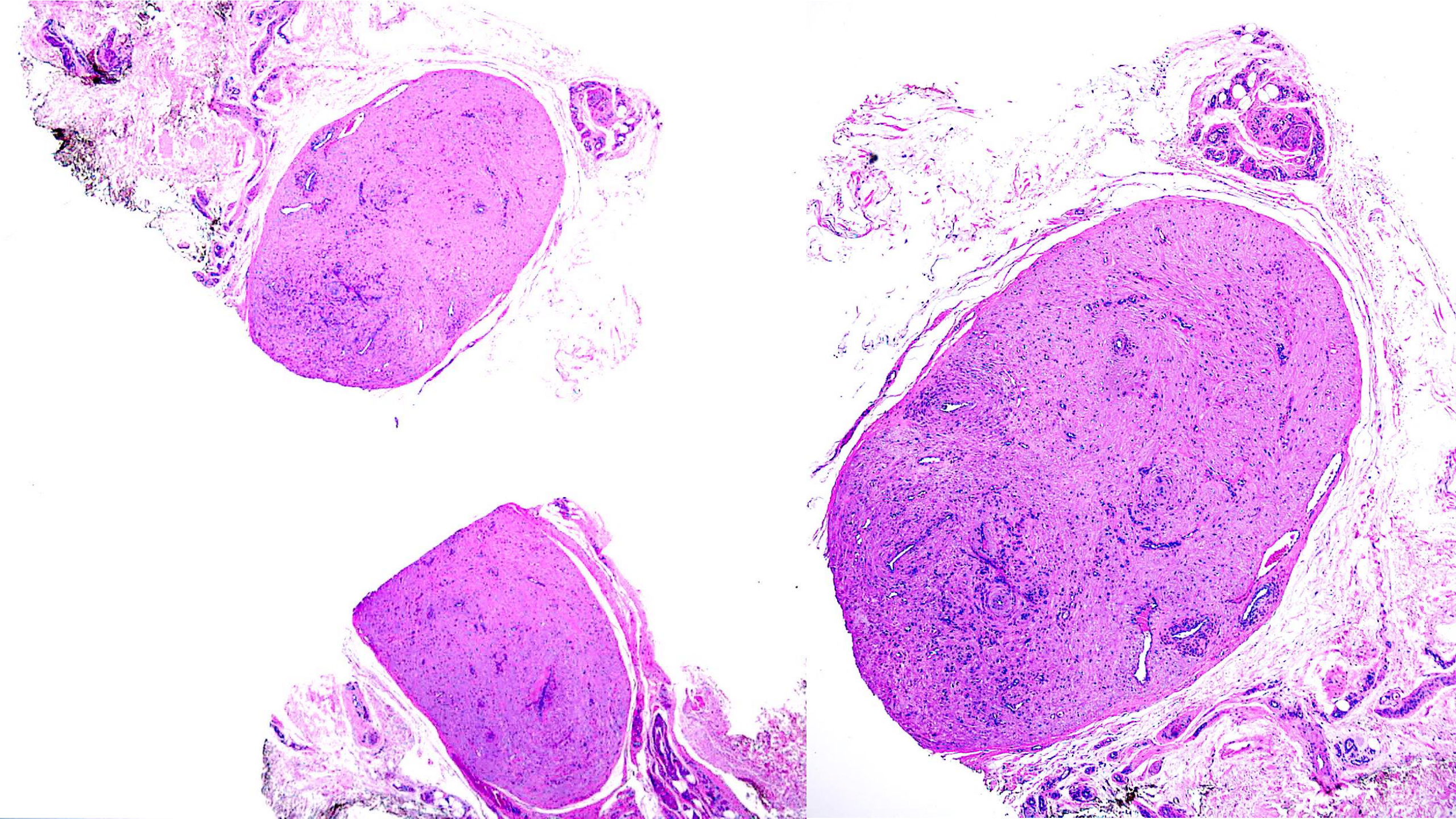

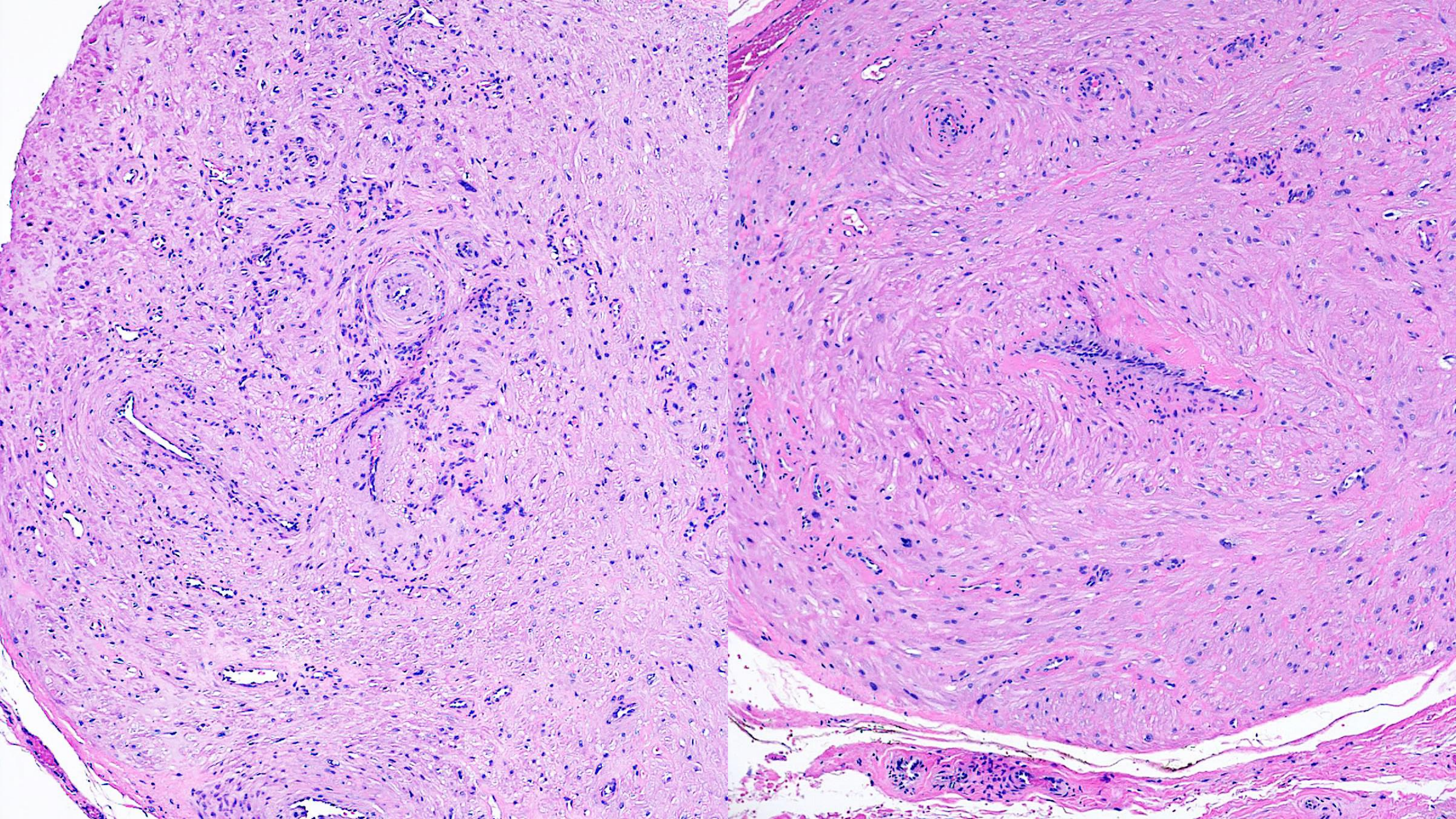

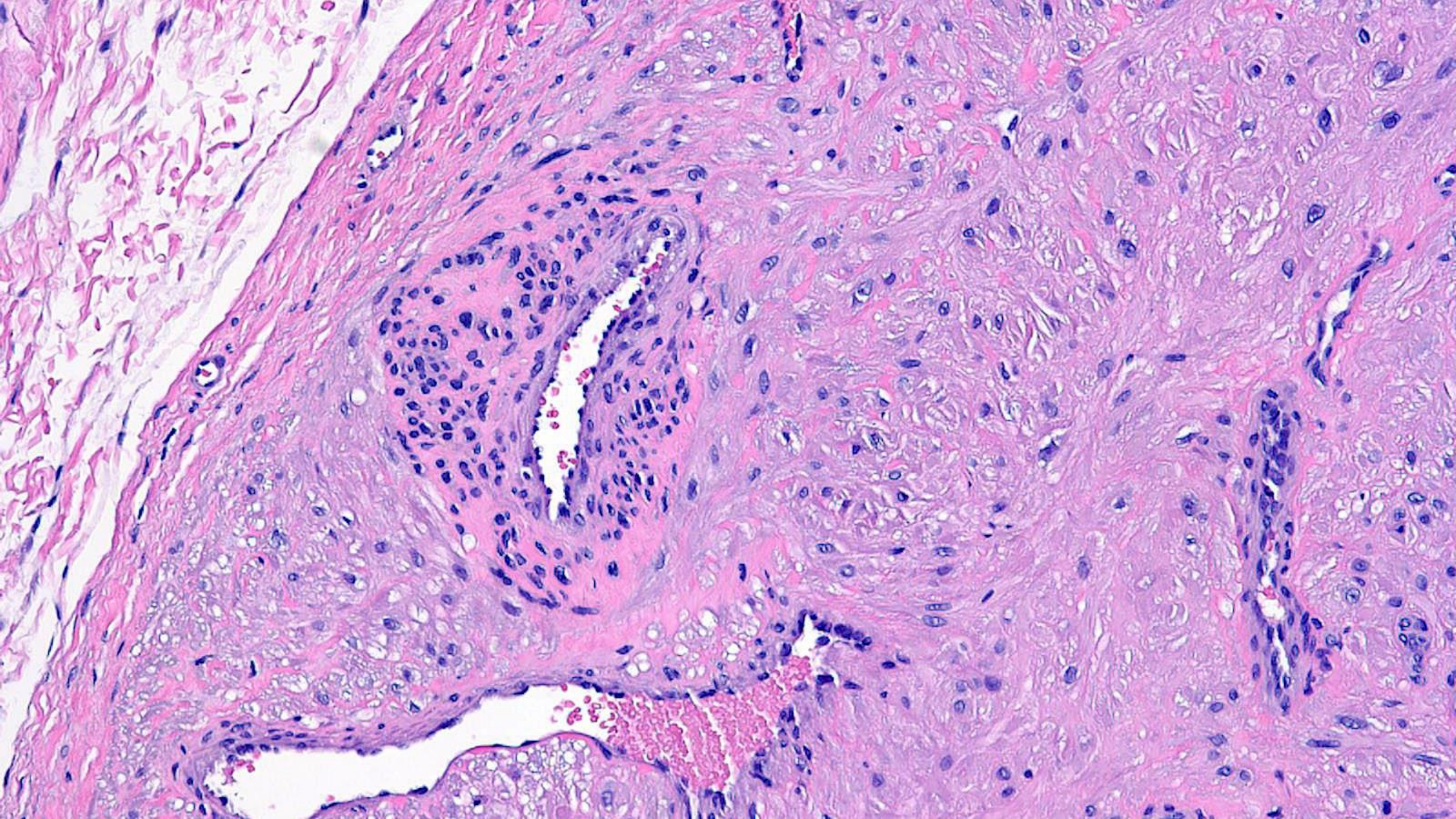

Case 73. 64M, Left Lateral Malleolus Ankle; Nodule, R/O pilar cyst vs. myxoid cyst. What is your diagnosis?

A. Pilar leiomyoma

B. Vascular leiomyoma (angiomyoma, angioleiomyoma)

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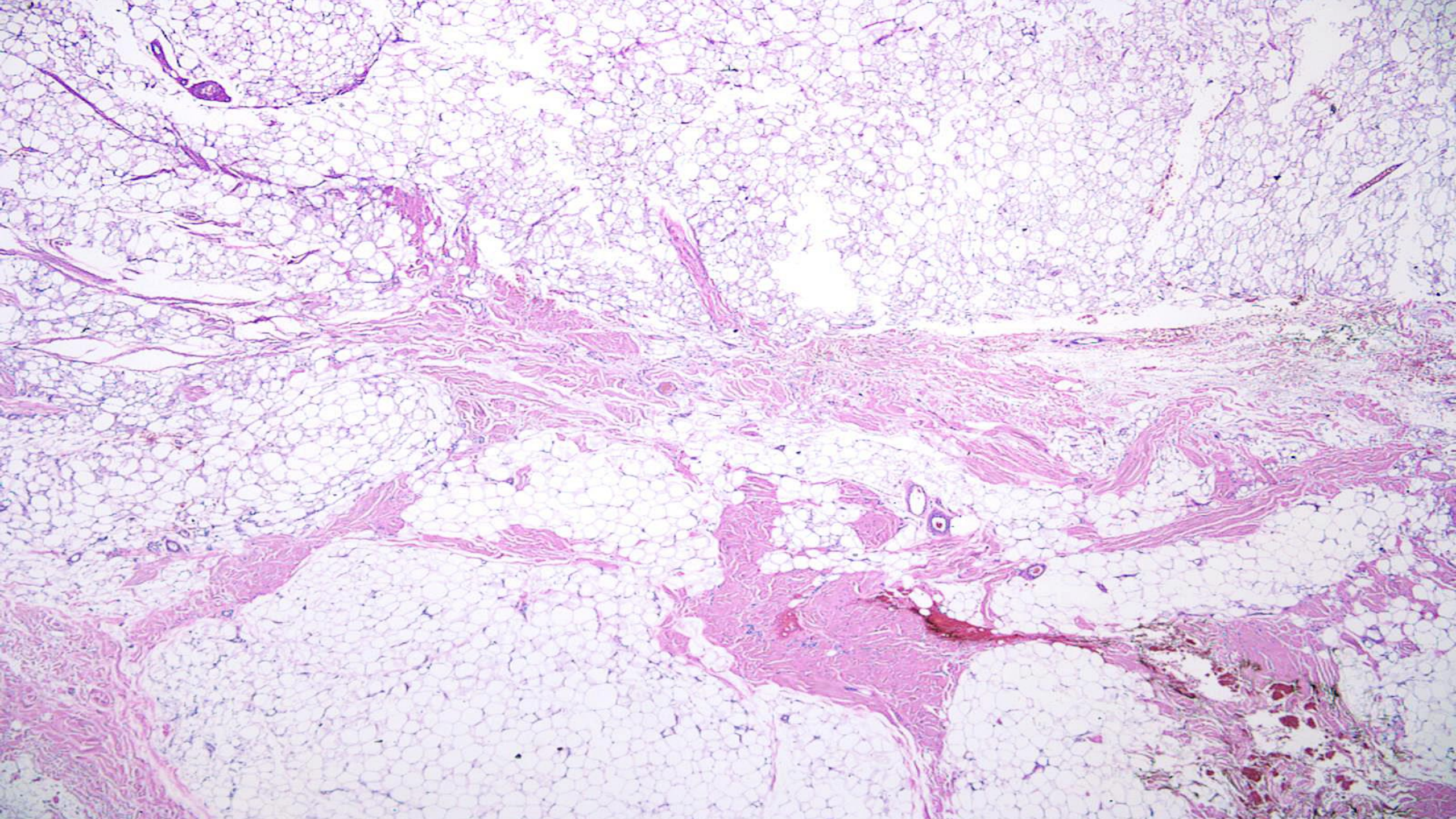

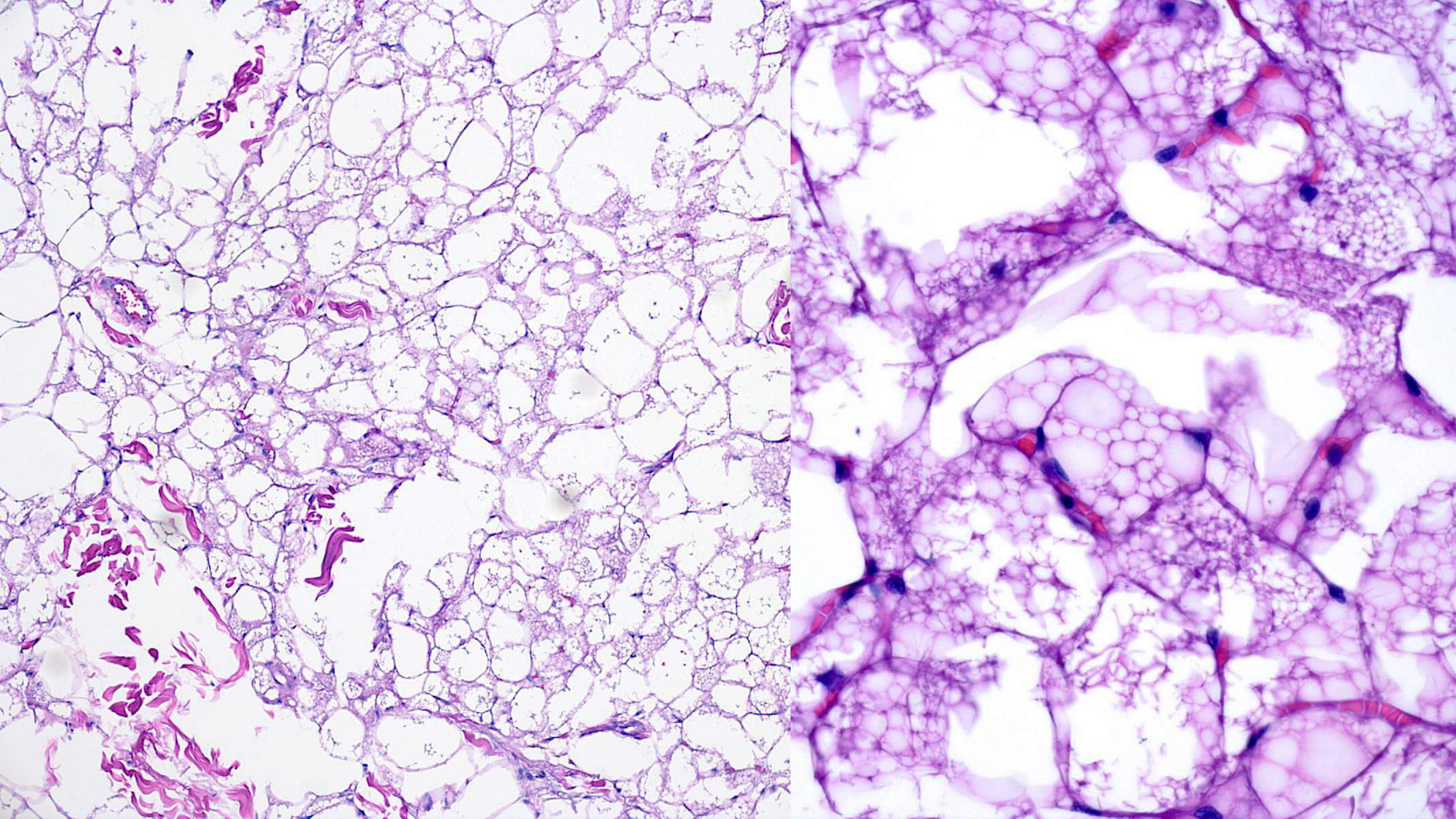

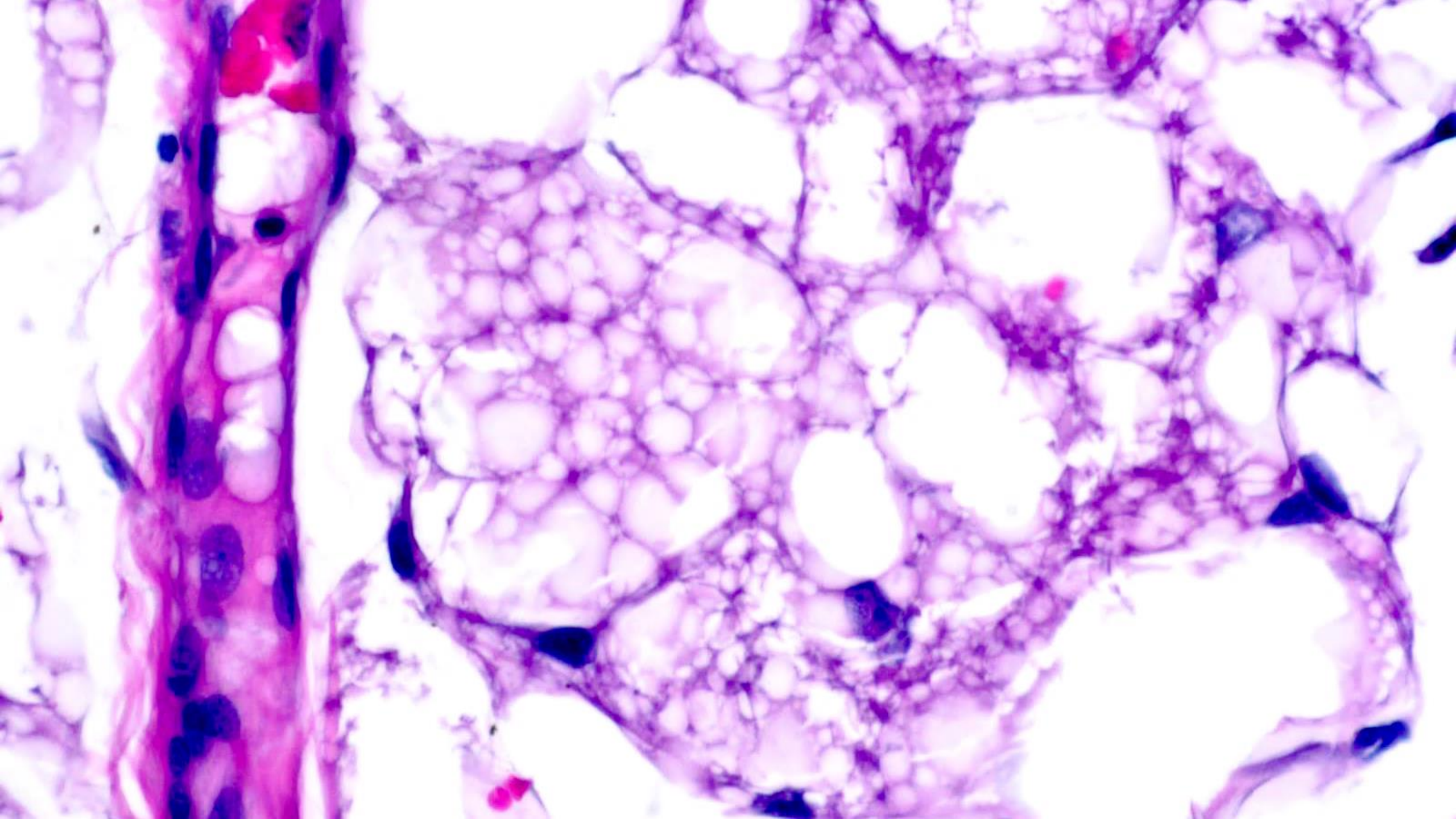

Case 74. 60M, Mid Back Excision; mass 5.0 x 3.0 x 2.0 cm. What is your diagnosis?

A. Granular cell tumor

B. Hibernoma and lipoma hybrid

C. Spindle cell lipoma

D. Lipoblastoma

E. Well-differentiated Liposarcoma/Atypical lipomatous tumor

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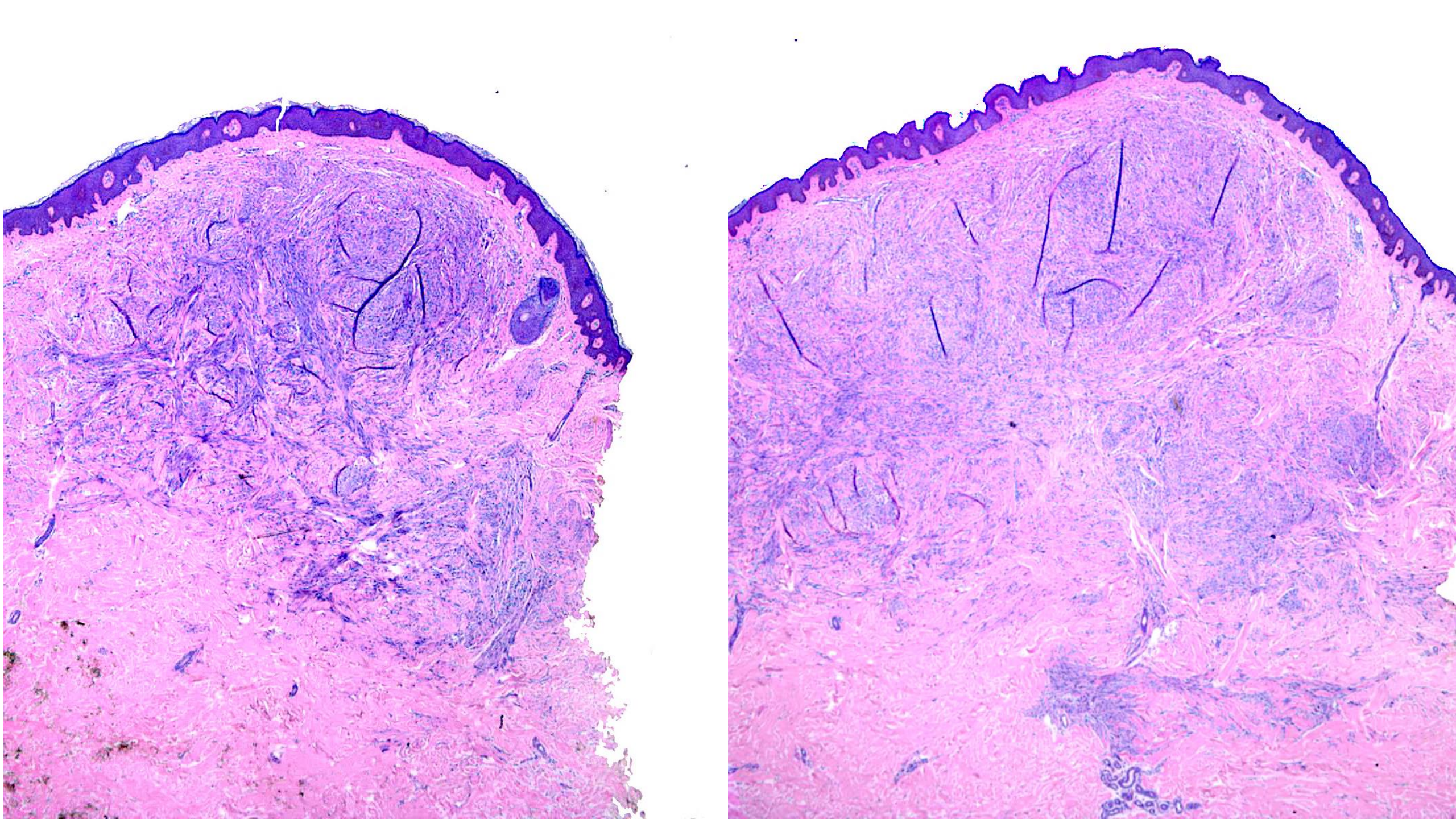

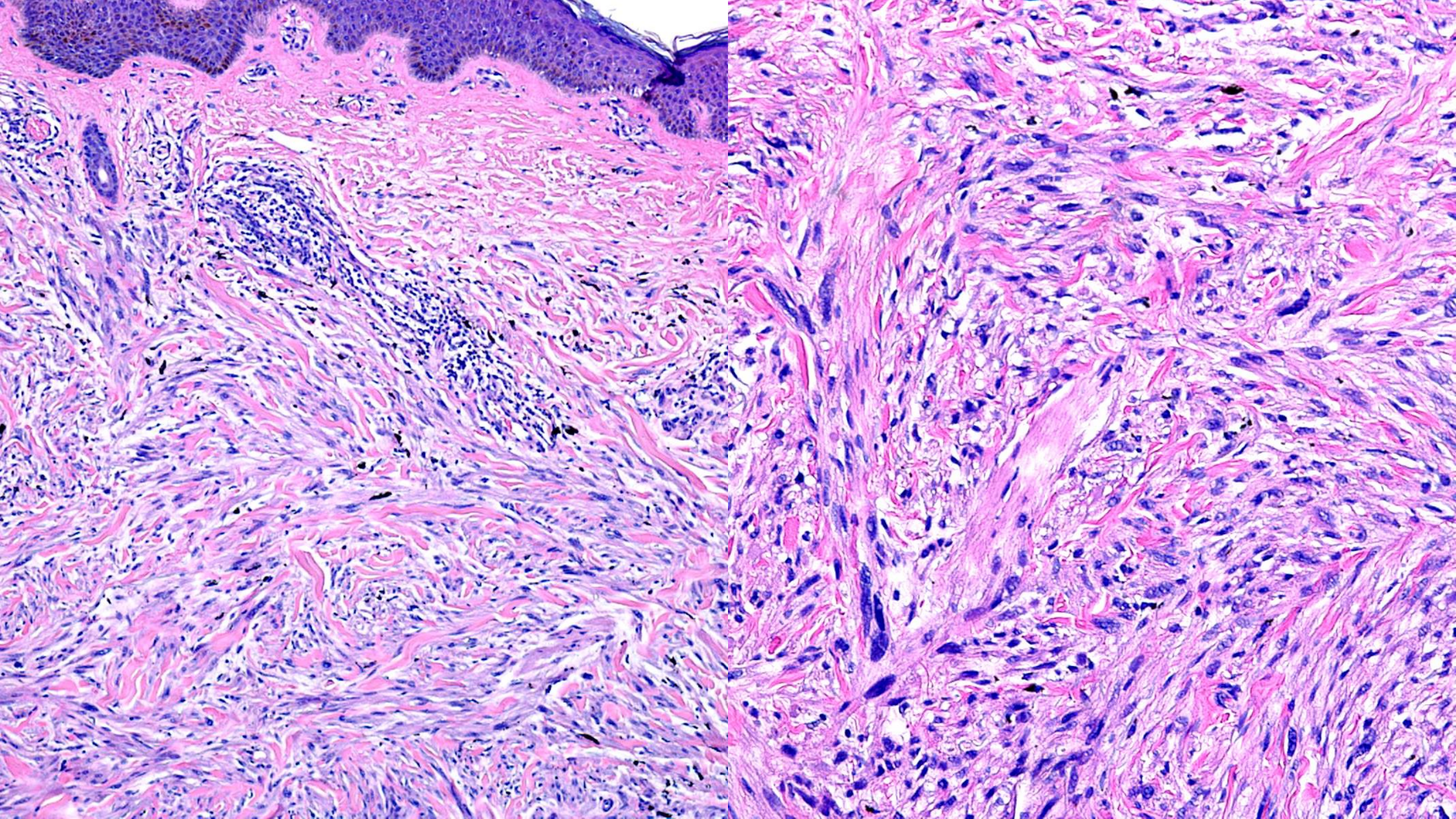

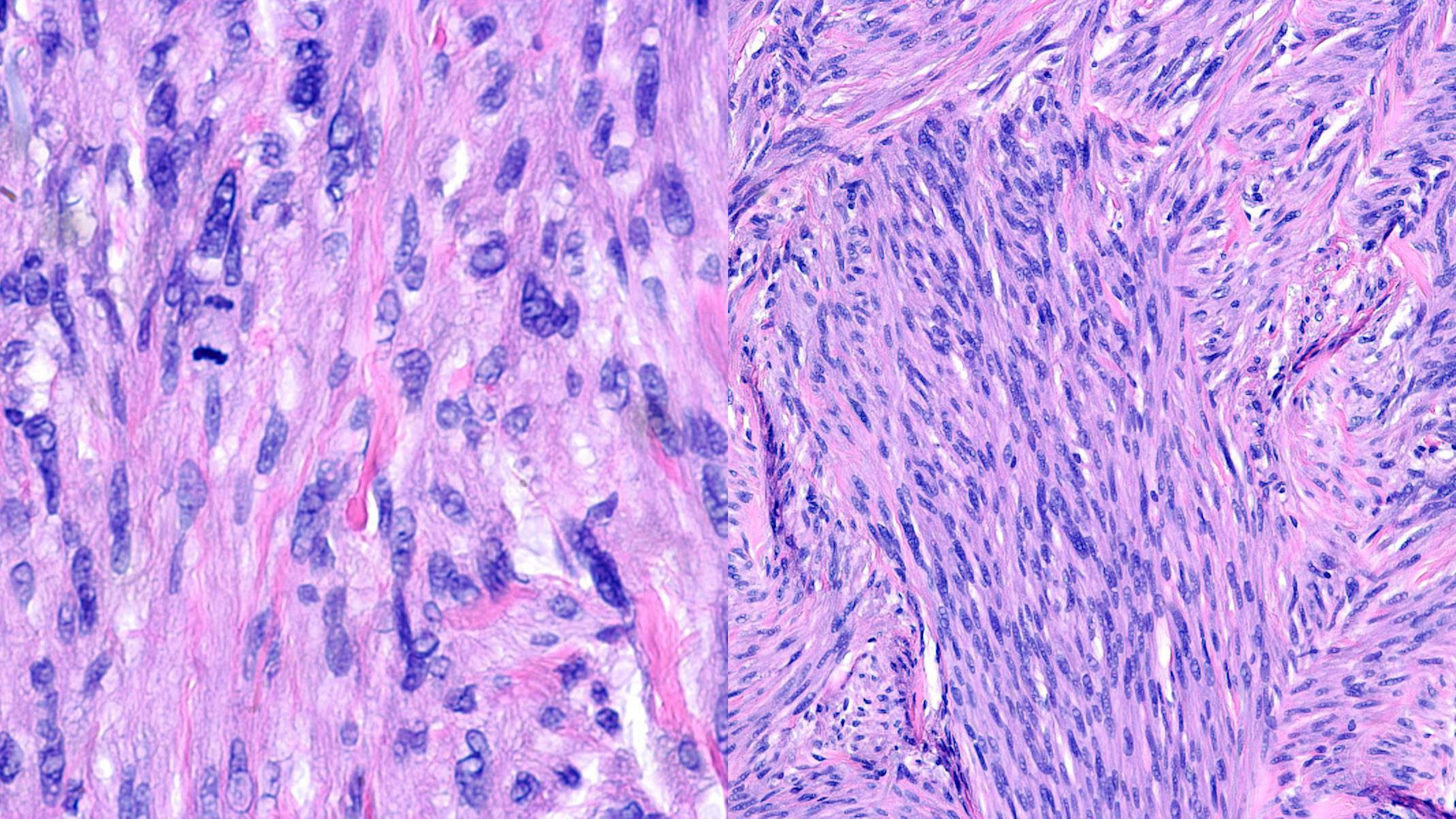

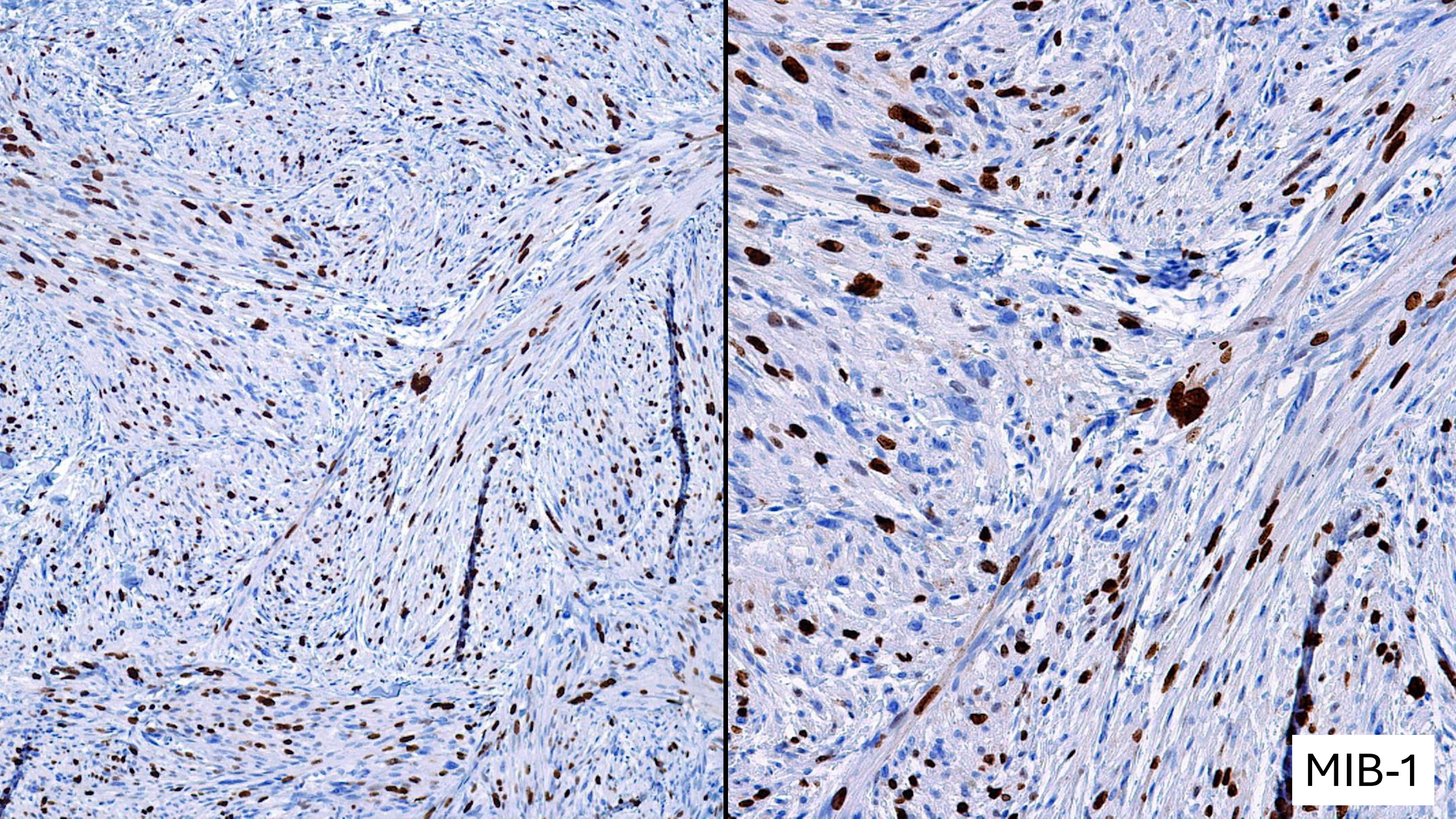
MIB-1

Case 75. 63M, Left Upper Arm Excision; 8-mm dense, tender mass. What is your diagnosis?

A. Pilar leiomyoma

B. Cellular dermatofibroma

C. Dermatofibrosarcoma protuberans

D. Atypical intradermal smooth muscle neoplasm

E. Cutaneous leiomyosarcoma

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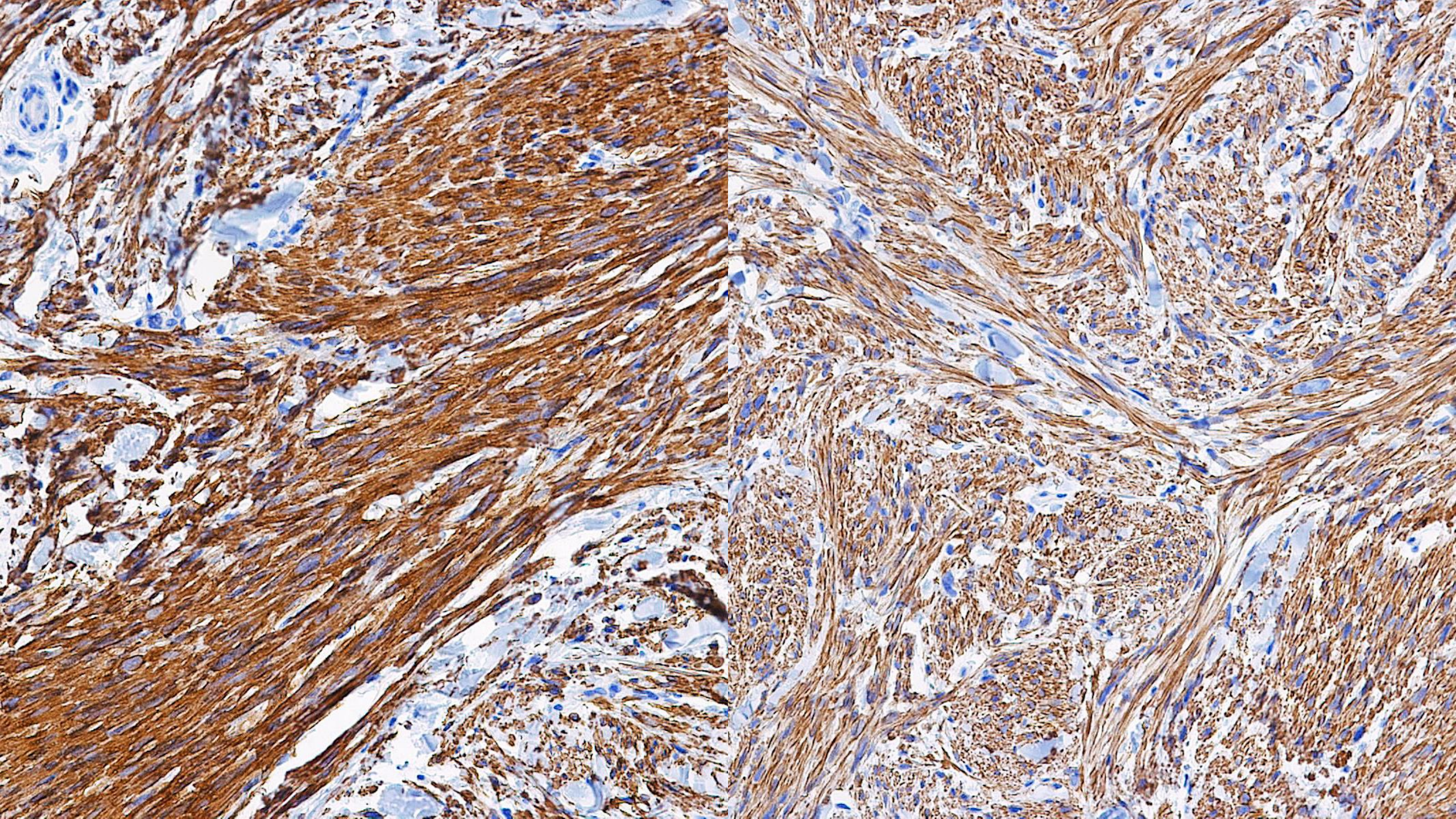

Case 76. What are two widely used IHC markers to verify smooth muscle differentiation?

A. S100, Smooth muscle actin (SMA)

B. S100, Smooth muscle myosin heavy chain (SMMHC)

C. S100, Desmin

D. Desmin, Smooth muscle myosin heavy chain (SMMHC)

E. Desmin, Myogenin

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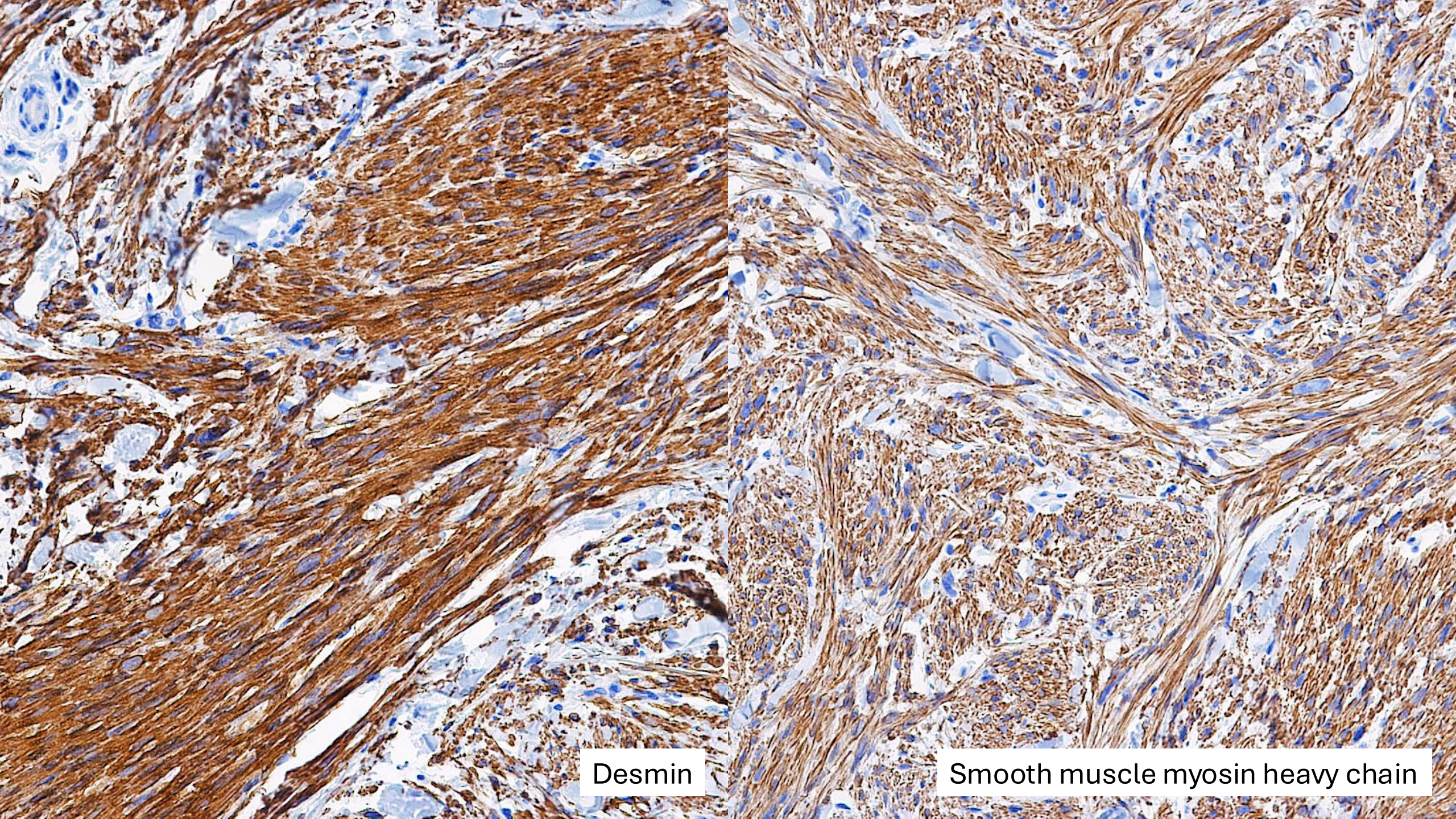
Desmin
Smooth muscle myosin heavy chain

The two most specific immunohistochemical (IHC) markers for smooth muscle differentiation are:

1. **Smooth Muscle Myosin Heavy Chain (SMMHC, MYH11)

- **Highly specific** for smooth muscle cells.
- More specific than **SMA (Smooth Muscle Actin)**, which can also label myofibroblasts and pericytes.
- Expressed in **vascular smooth muscle**, **myometrium**, and **leiomyomas/leiomyosarcomas**.

2. **Caldesmon (h-Caldesmon, the high-molecular-weight isoform)

- **Specific for smooth muscle** and **myoepithelial cells**.
- Helps distinguish true smooth muscle tumors (e.g., leiomyoma/leiomyosarcoma) from myofibroblastic proliferations (which are typically **SMA+ but h-Caldesmon–**).

Additional Useful (But Less Specific) Markers:

- **Smooth Muscle Actin (SMA)** – Sensitive but not entirely specific (also positive in myofibroblasts).
- **Desmin** – Often co-expressed but also seen in skeletal muscle and some myofibroblastic tumors.

Best Practice:

- For **definitive smooth muscle differentiation**, use **SMMHC + h-Caldesmon** as the most specific combination, supplemented by **SMA** and **desmin** for sensitivity.