MHICC Case 4

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*M*ulti-institutional *H*ematopathology *I*nteresting *C*ase *C*onference

University Health Network

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August 2025

Clinical History

- 44M initially presented in February 2024 with left neck mass + enlarged tonsils
- CT: :hypoattenuating lesion in left level 2 neck with thin rim enhancement measuring 3.2 x 2.8 x 4.3 cm and enlarged bilateral palatine tonsils —> biopsy (flow cytometry not performed)

Diagnosis:

LEFT+RIGHT TONSIL MASS:

- DIFFUSE LARGE B-CELL LYMPHOMA, GERMINAL CENTER TYPE, see note

Note: Immunohistochemical stains show that the cells are positive for CD45, CD20, CD19, CD79a, PAX5, CD10, BCL2(diffuse), BCL6(>70%), and C-MYC (>70%). CD43, CD23, and cyclinD1 show dim to negative staining. The cells are negative for MUM1, CD30, CD21, EBER SOX10, pancytokeratin, and p16. Kappa and lambda are difficult to interpret due to high background staining, but the malignant cells appear to be kappa restricted. Ki67 proliferation index within the abnormal population is approximately 60-70%.

Clinical History

- Molecular requested

Final Diagnosis:

LEFT+RIGHT TONSILLAR MASS, BIOPSY:

- HIGH GRADE B-CELL LYMPHOMA WITH MYC AND BCL2 REARRANGEMENTS

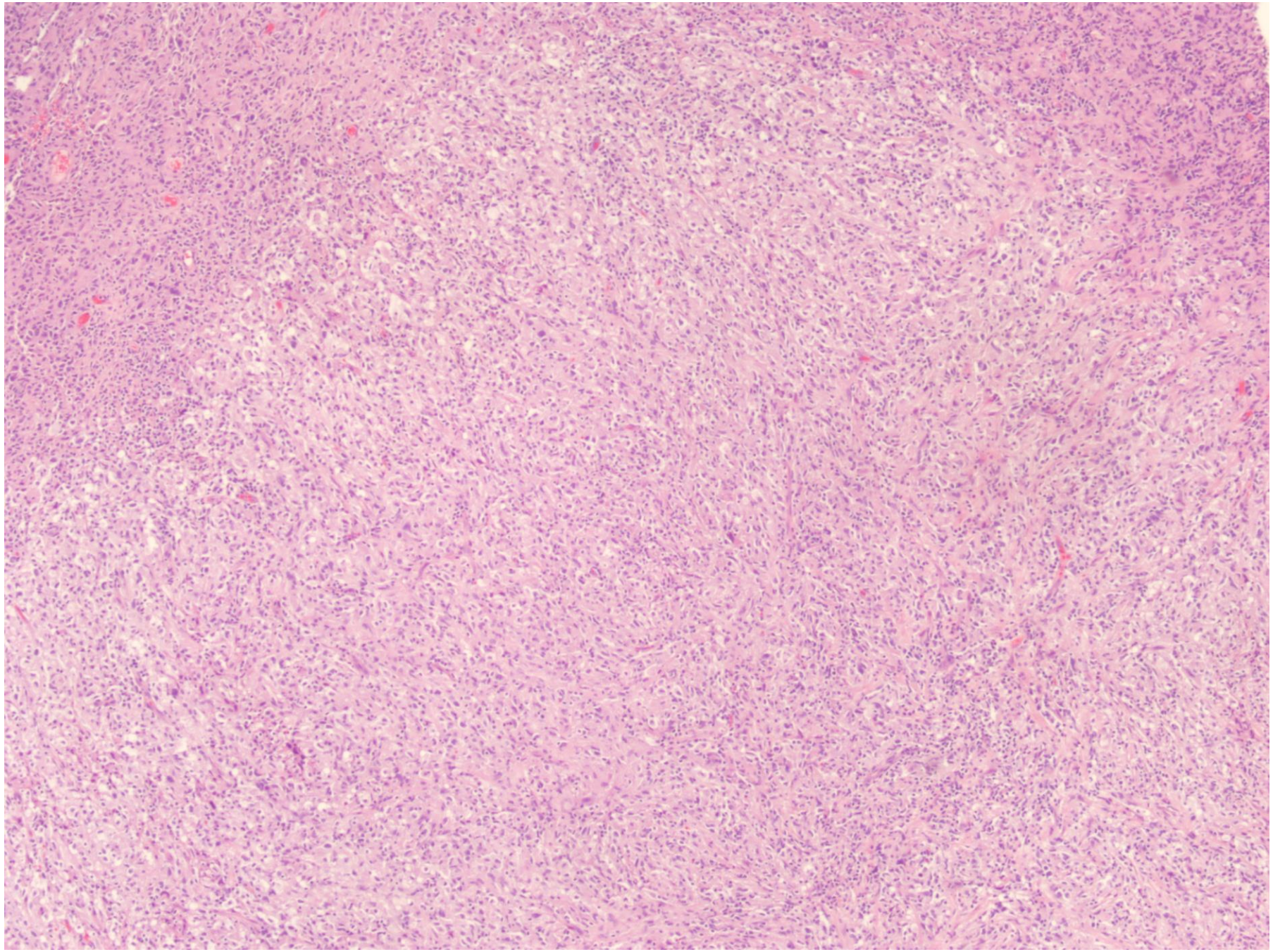
- R-CHOP x 6, completed July 2024
- PET in August 2024 revealed no residual disease

Clinical History

- In November 2024, pt reported a progressively growing neck mass (left level II)
- Trial of antibiotics showed no improvement and mass continued to increase in size
- Biopsy was performed
- No tissue taken for flow cytometry

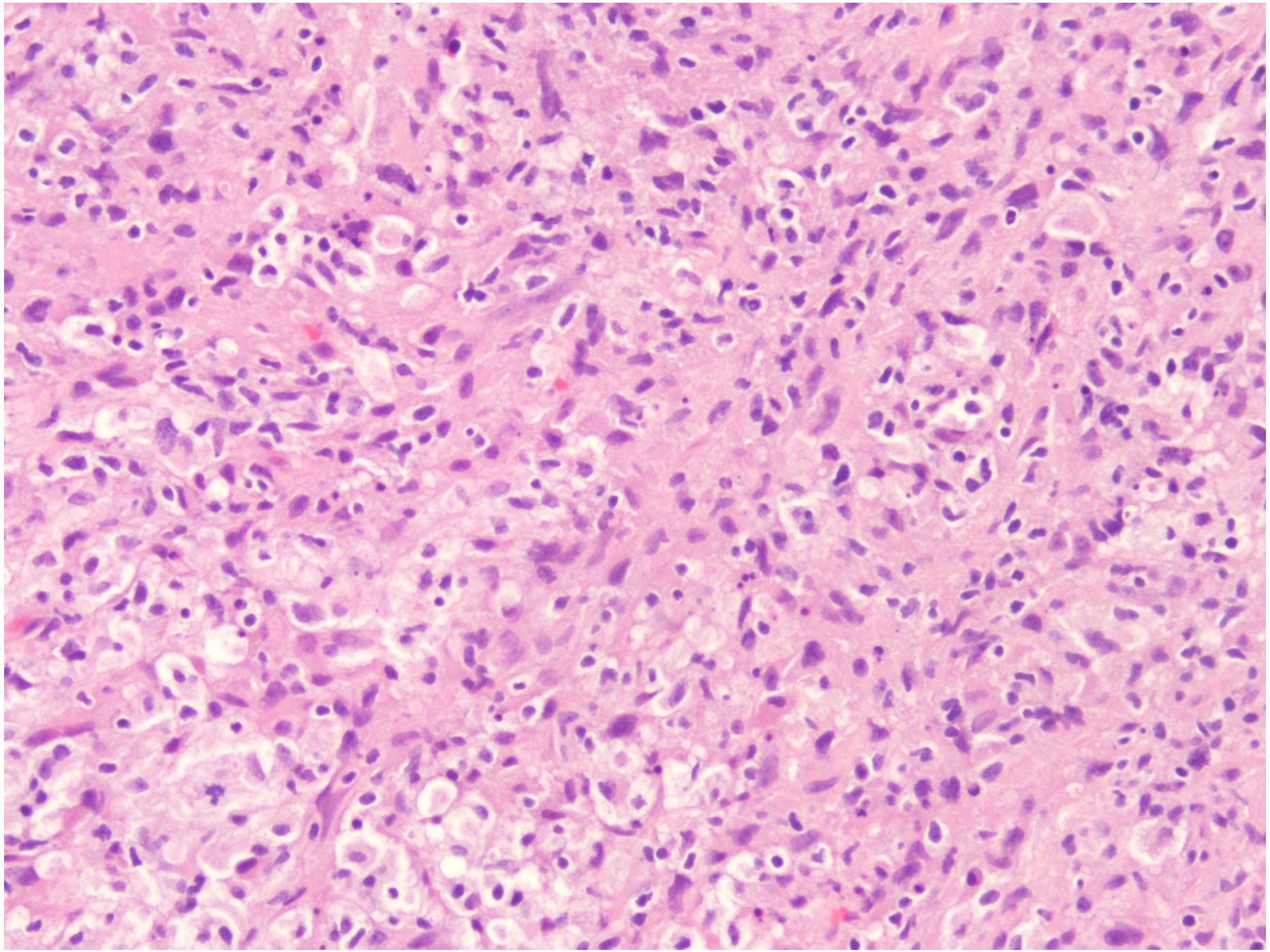
Histology

5X

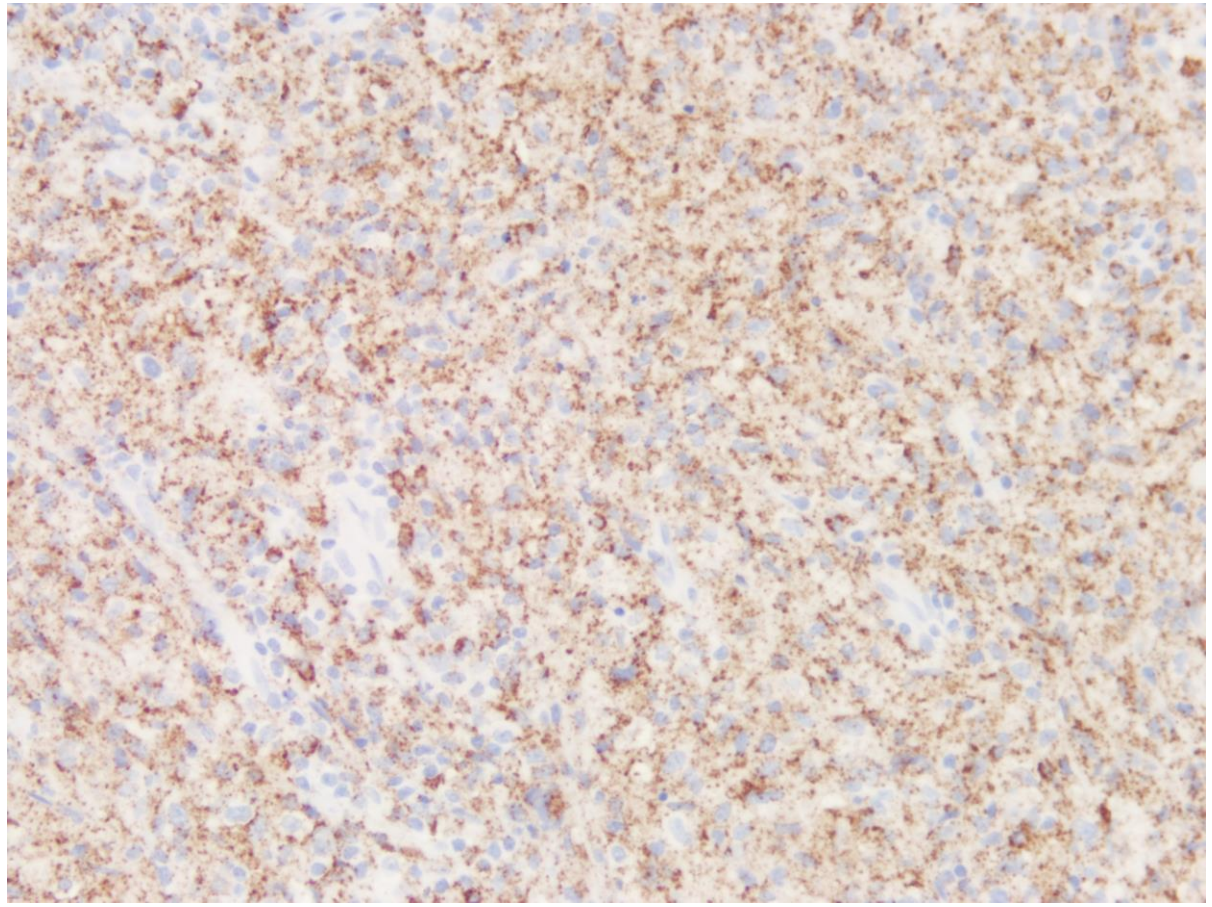


Histology

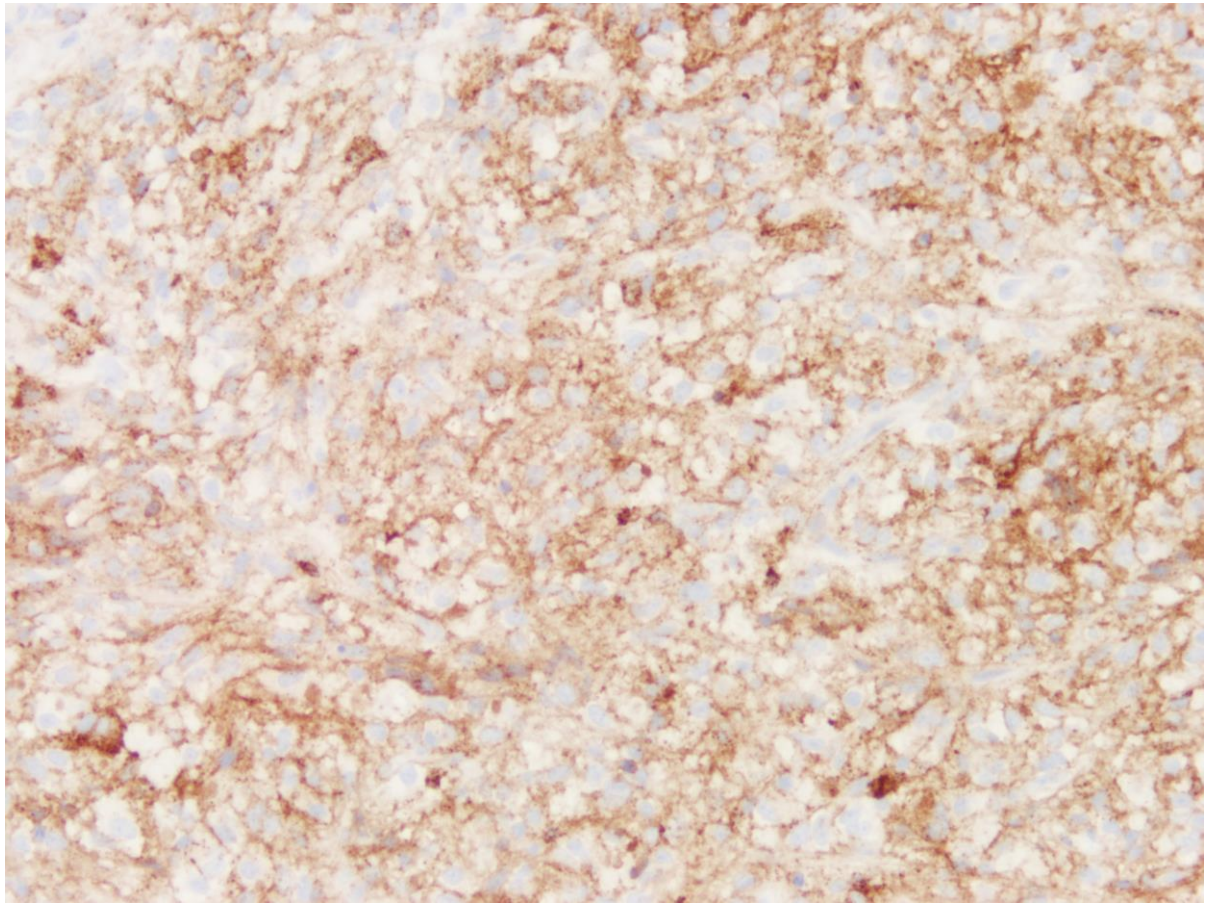
20X



IHC

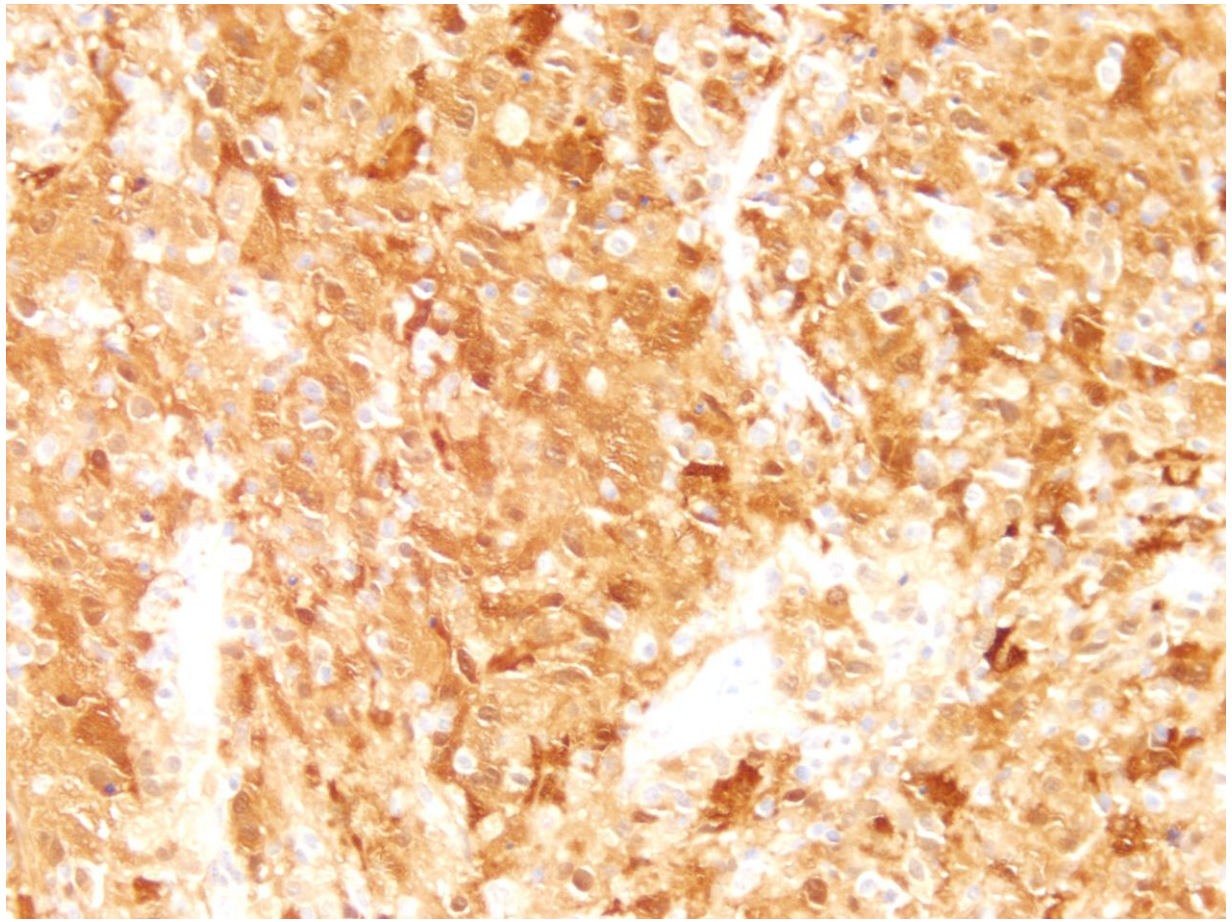


CD68, 40X

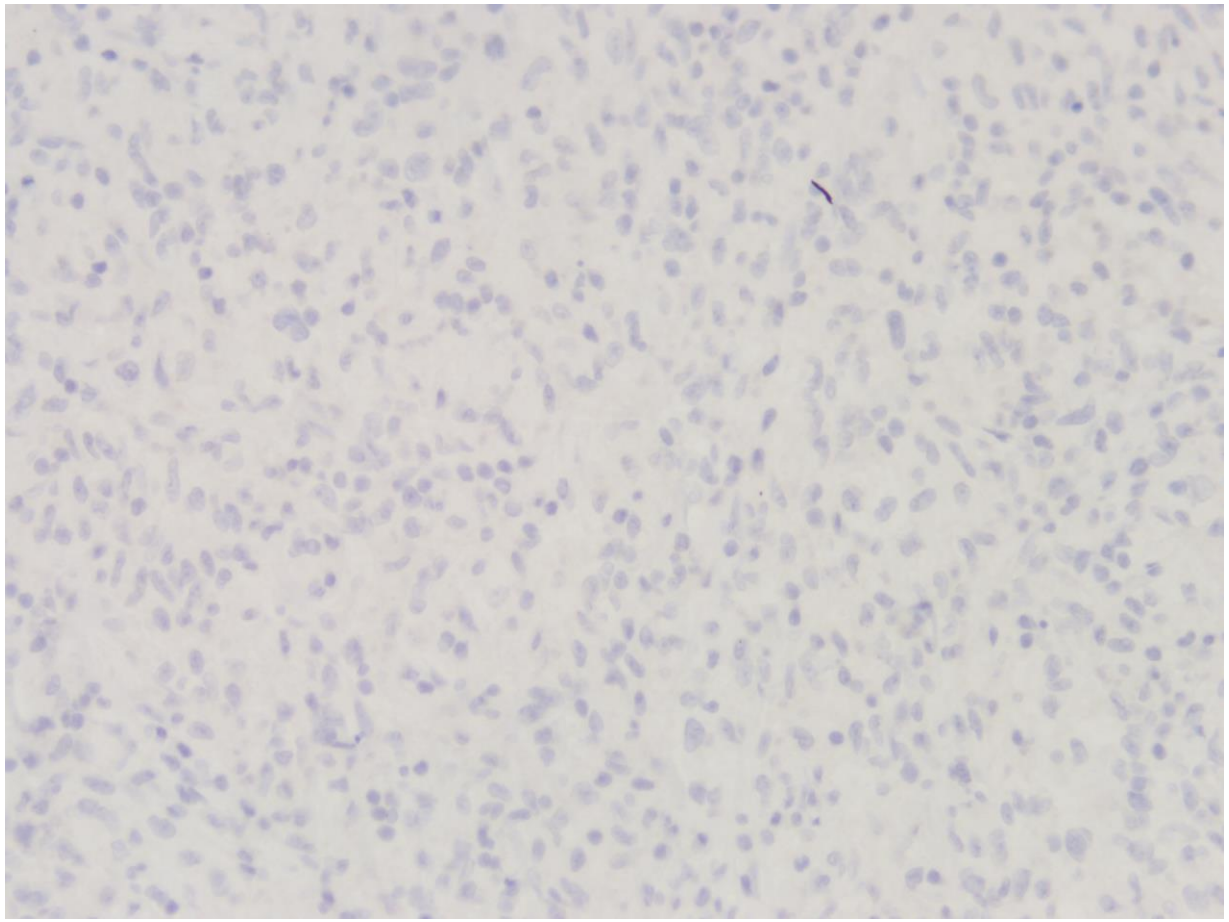


CD163, 40X

IHC

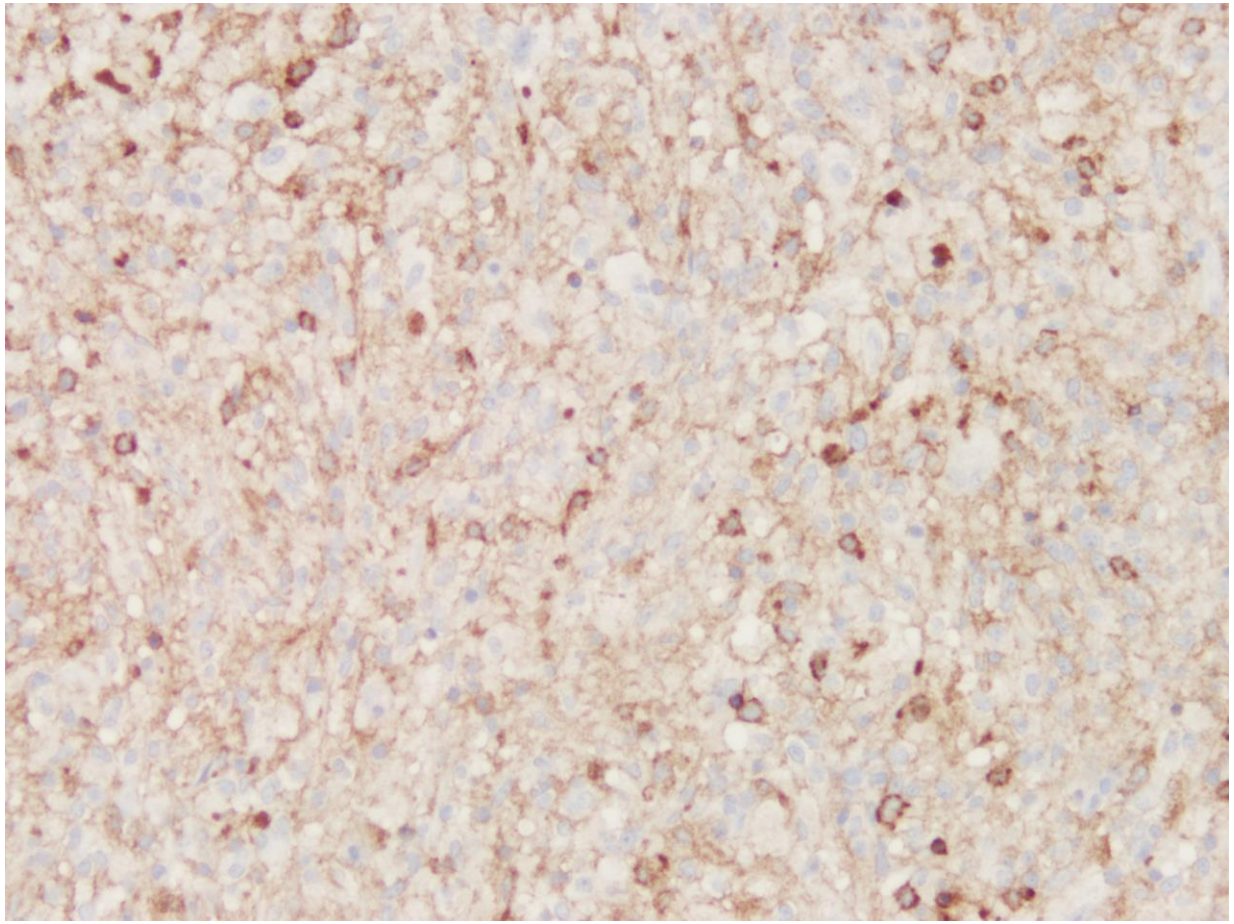


S100, 20X

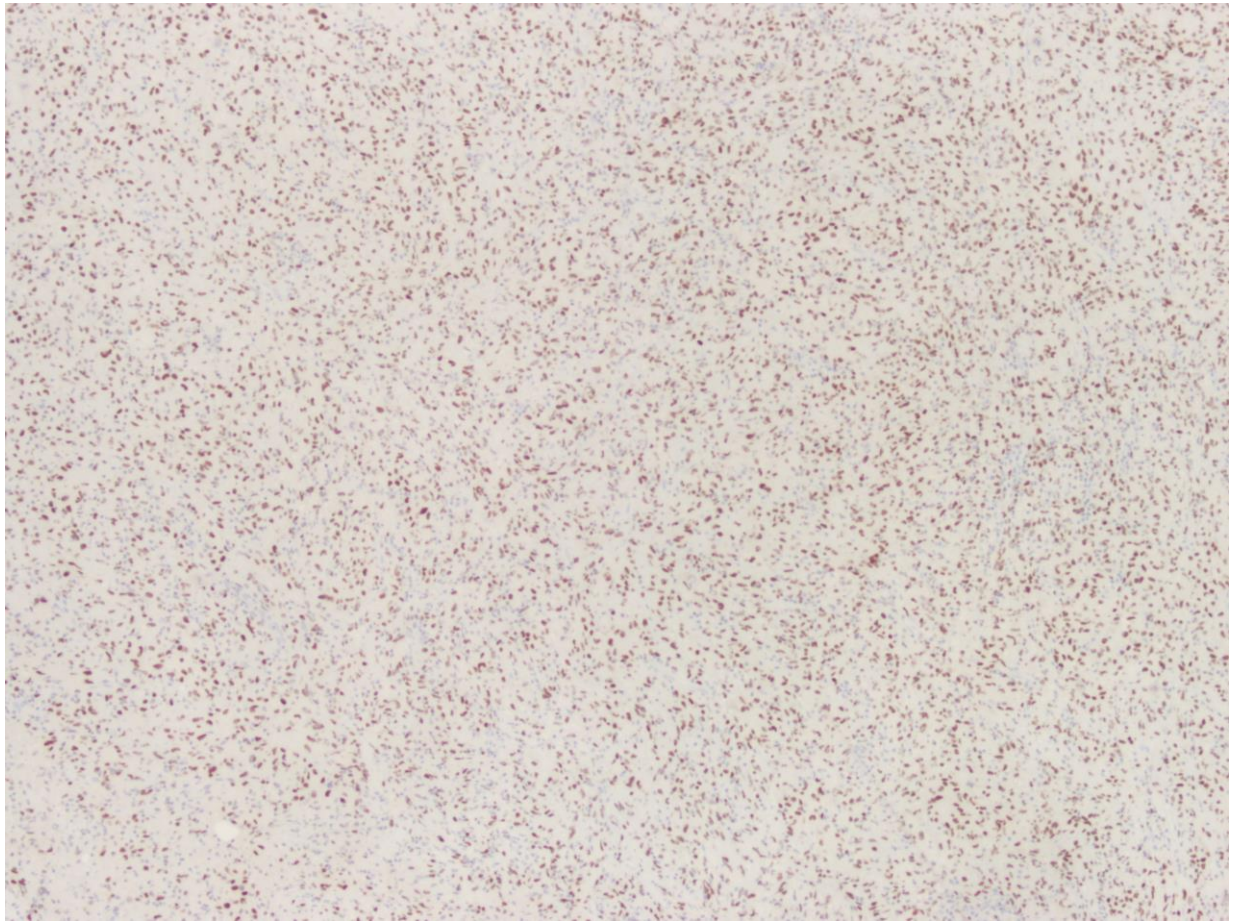


CD1a, 20X

IHC

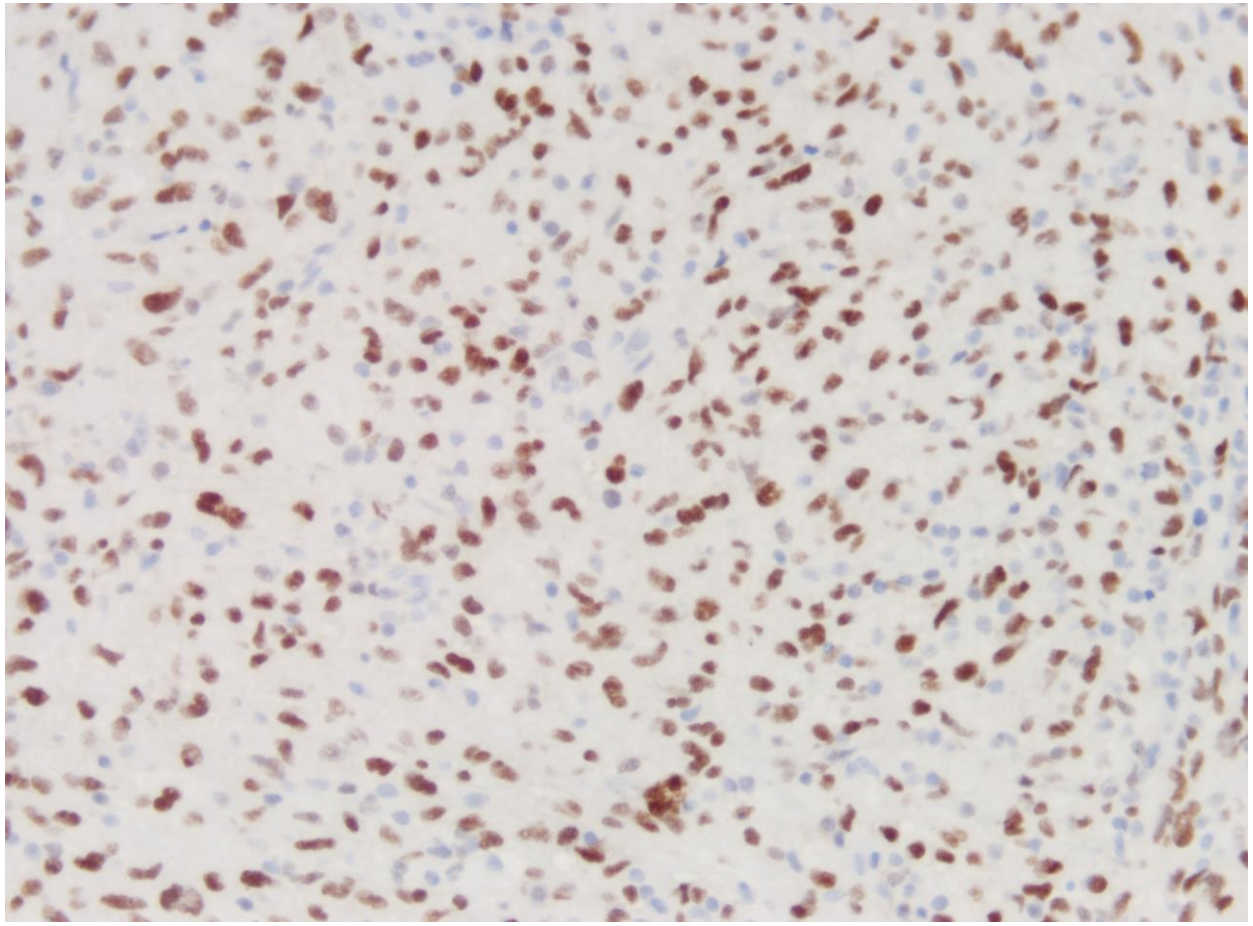


CD33, 20X

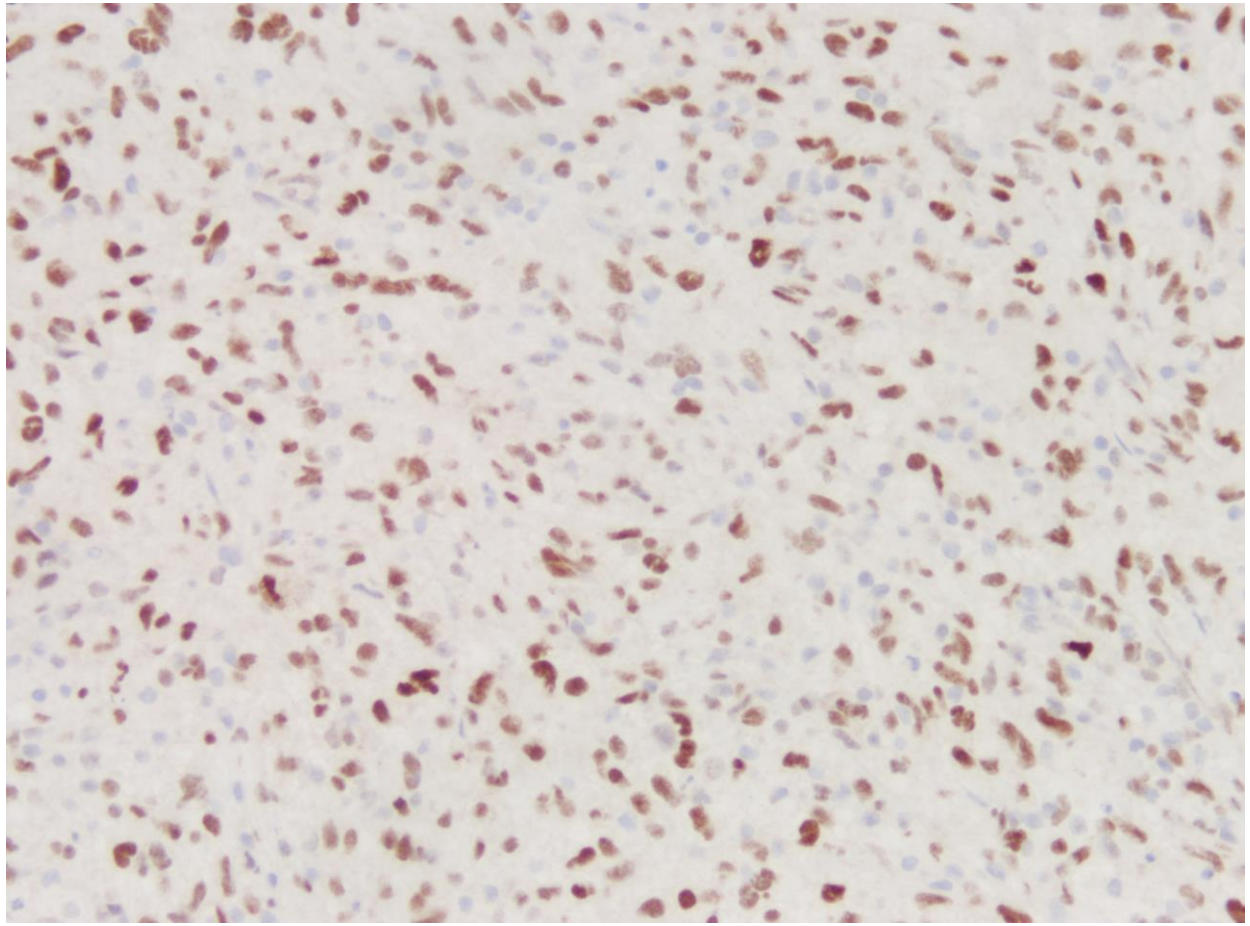


OCT2, 20X

IHC



OCT2, 20X



BCL6, 20X

Immunohistochemistry

Positive: CD4, CD14, CD33, CD45, CD68 (subset), CD163, BCL2, BCL6, MYC (~20% of cells), OCT2, S100

Negative: CD1a, CD3, CD10, CD15, CD19, CD20, CD21, CD30, CD34, CD56, CD61, CD79a, CD117, EBER(ISH), MPO, MUM1, PAX5, AE1/AE3, BRAF, CAM5.2, SOX10

p53: wildtype

Ki67: 20-30%

No acid-fast bacilli, fungal organisms or spirochetes identified by Ziehl-Neelsen, GMS, and Treponema IHC

Molecular Studies

- BCL2 rearrangement
- MYC and BCL6 gains
- Clonal IGH gene rearrangement
- T-cell clonality negative

NGS

Gene	cDNA	Protein	VAF	AMP/ASCO/CAP Tier
KMT2D	c.5707C>T	p.Arg1903*	0.1969	Tier I
MAP2K1	c.361T>A	p.Cys121Ser	0.212	Tier I
CREBBP	c.95C>G	p.Ser32*	0.1728	Tier II
STAT3	c.1840A>C	p.Ser614Arg	0.1951	Tier II

Diagnosis

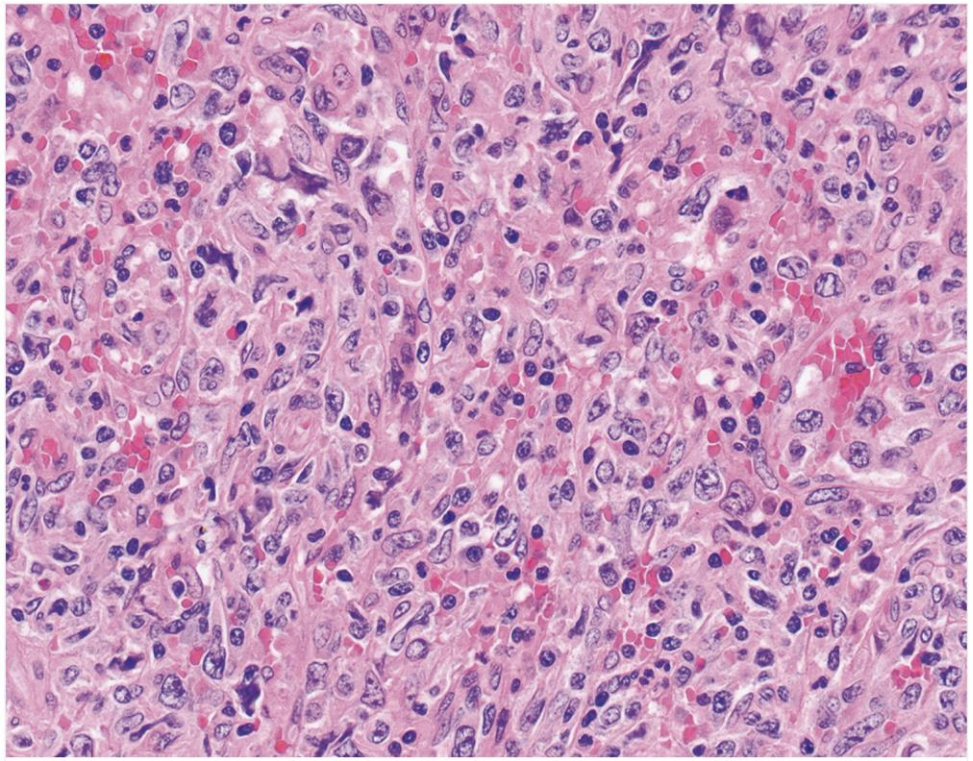
Lymph node, neck, left, incisional biopsy:

- Interdigitating dendritic cell sarcoma
- See comment

Comment: The patient has a known history of diffuse large B-cell lymphoma with MYC and BCL2 rearrangements. Molecular studies performed support a B-cell lineage origin. The presence of shared molecular alterations suggests transdifferentiation from the previously diagnosed DLBCL.

Interdigitating Dendritic Cell Sarcoma

- Very rare malignancy; less than 100 cases reported in the literature[1] (2018)
- Typically involves a solitary lymph node, but extranodal sites reported
- Histology demonstrates pleomorphic spindled to epithelioid cells, abundant cytoplasm, arranged in sheets or fascicles
- IP: S100+, CD68+, lysozyme+, CD4+, CD45+, CD1a-, CD207-, CD21-, CD23-, CD35-, B-/T-cell antigens-, CD30-, MPO-
- Ddx: histiocytic sarcoma, langerhans cell sarcoma, indeterminate dendritic cell tumour, spindle cell melanoma, etc.



Xiao-Qui, L., Calaminici, M., Wang, H.Y., Hung, Y.P. Histiocytic/dendritic cell neoplasms. WHO Classification of Tumours Editorial Board. Haematolymphoid tumours [Internet]. Lyon (France): International Agency for Research on Cancer; 2024 [cited 2025 Aug 18]. (WHO classification of tumours series, 5th ed.; vol. 11).

Interdigitating Dendritic Cell Sarcoma

- 13% have associated hematological malignancies; CLL/SLL being the most common[2]
    - May or may not have clonal relationship[3]
- Mutations and rearrangements in MAPK pathway frequently reported in both de novo cases and cases of transdifferentiation[2,4]
- Transdifferentation into interdigitating dendritic cell sarcoma has most often been reported in the setting of small B cell lymphomas[5]
- Transdifferentiation from DLBCL less frequently described

Transdifferentiation from DLBCL to IDCS

2018: Ochi et al. describe first case of DLBCL transdifferentiating to IDCS

- 52M, HIV+, presenting with LAD which was subsequently diagnosed as DLBCL (CD10+, CD20+, BCL6+, MYC+, BCL2-, EBER-) and which demonstrated MYC translocation by FISH
- Underwent first line chemo and achieved remission shortly, however ultimately relapsed and received salvage chemo + ASCT
- UGI on day 35 post-ASCT demonstrate submucosal lesions of the stomach, biopsy was performed and cells were S100+, fascin+, CD163+, focal CD68+, lysozyme-, CD1a-, CD207-, CD20-, CD21-, MPO-, PAX5-; diagnosed as IDCS with histiocytic differentiation

Transdifferentiation from DLBCL to IDCS

2018: Ochi et al. describe first case of DLBCL transdifferentiating to IDCS

- Investigated for clonal relationship between 2 tumours
- IGH gene rearrangement analysis by PCR revealed identical peaks in both tumors
- FISH performed on FFPE using MYC (8q24) break apart probes revealed that both DLBCL and IDCS demonstrate MYC translocation
- These results suggest a clonal relationship between 2 tumours

References

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Questions/Comments?