CASE OF THE MONTH FEBRUARY 2021

Dr. Garima Durga
Consultant Histopathology
RGCIRC

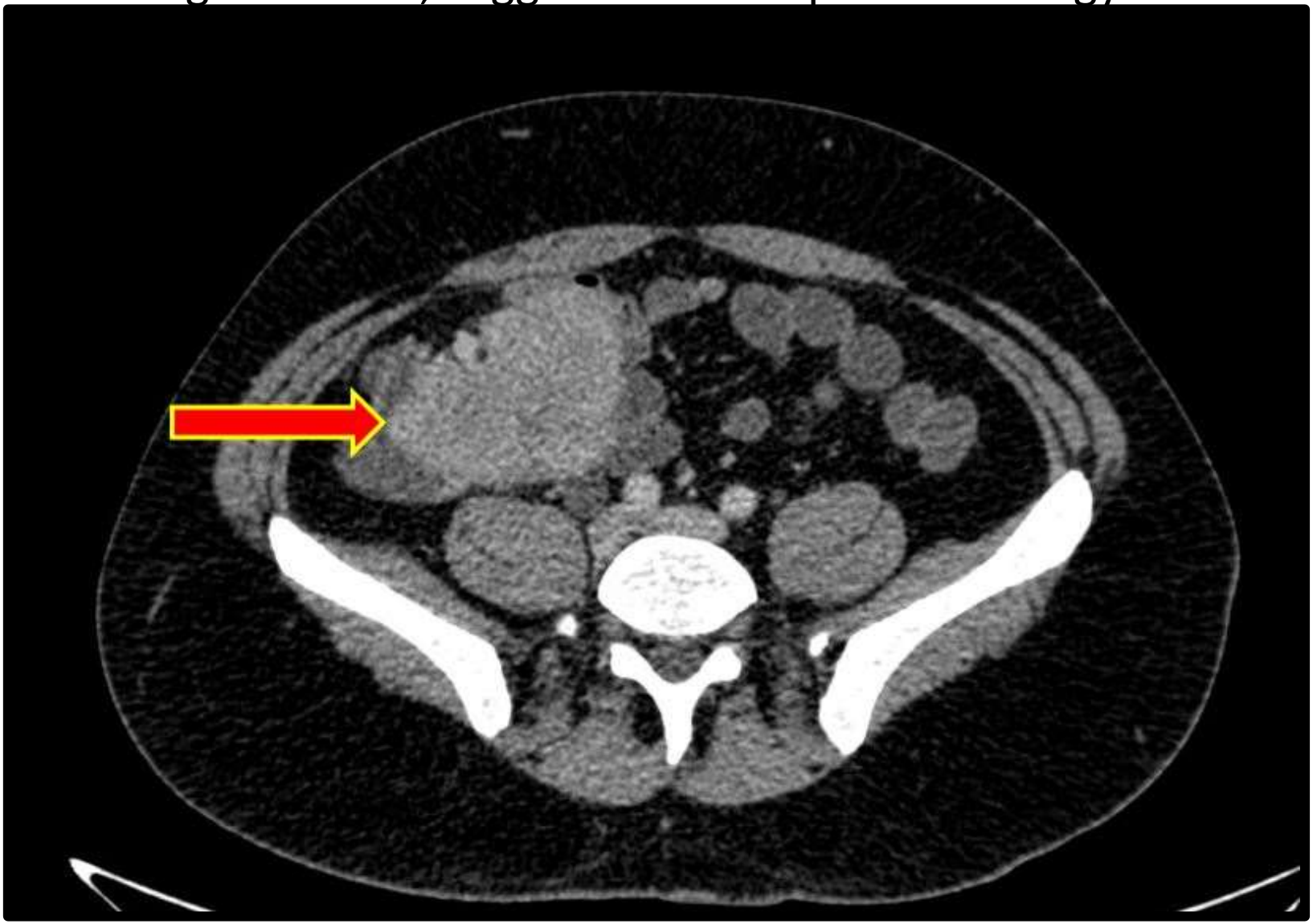
- 32 yr/M
- Chief complaints: pain abdomen since 3 days
- No other complaints like constipation/ loose stools/ nausea/vomiting/ abdominal distension/bleeding PR/ mucous discharge

- Past history: h/o bleeding PR 1.5 yrs back
- No h/o fever/jaundice/DM/HTN/TB/asthma/ previous surgeries

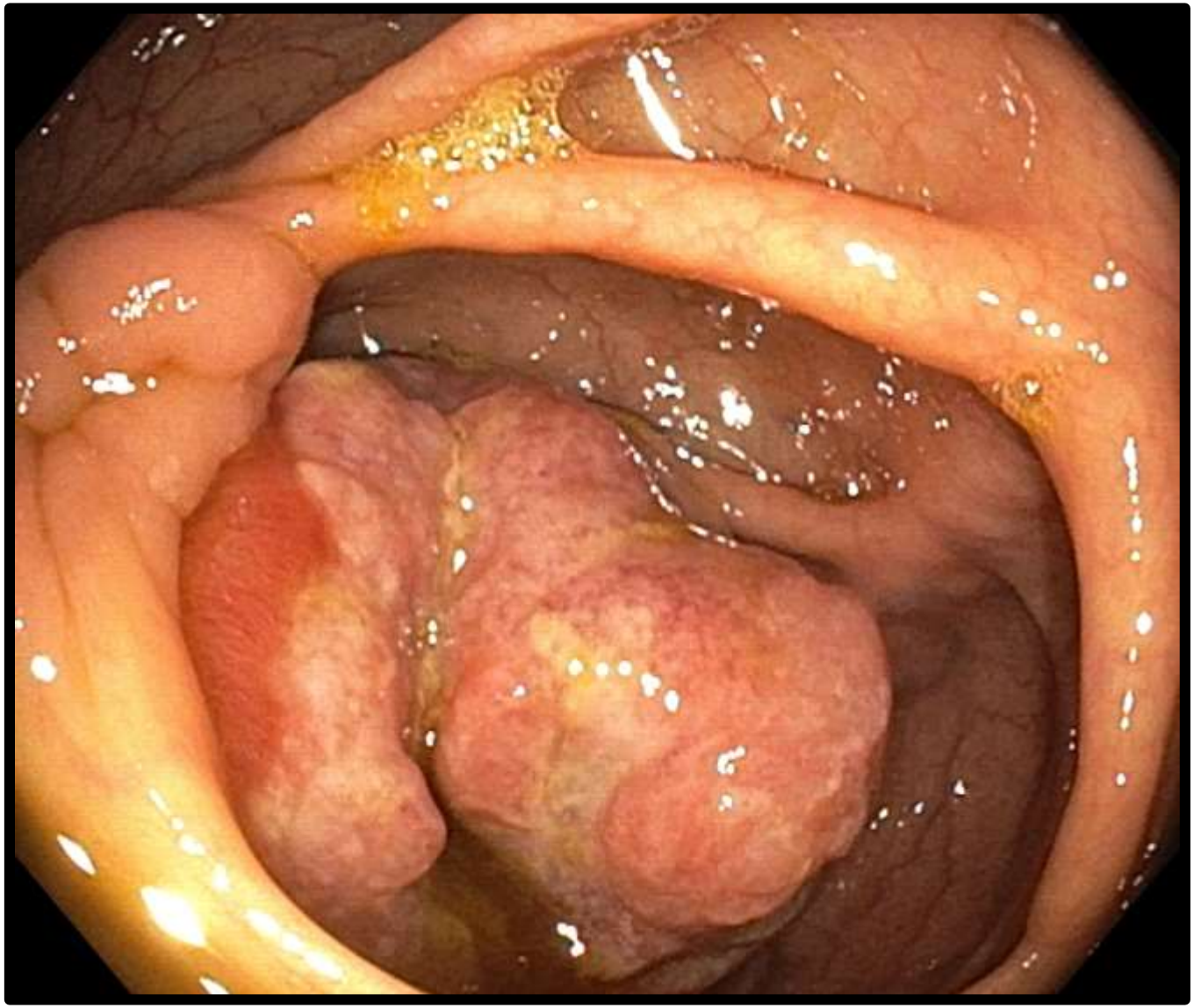
On Examination…

- Young patient, ECOG-0
- No pallor/icterus/lymphadenopathy
- P/A: soft mild tenderness in rt iliac fossa
- No mass/organomegaly/free fluid

CECT abdomen shows a Large homogenous enhancing mass involving terminal ileum, ileocecal junction, cecum, appendix, measuring 8 x 7.5cm, suggestive of neoplastic etiology

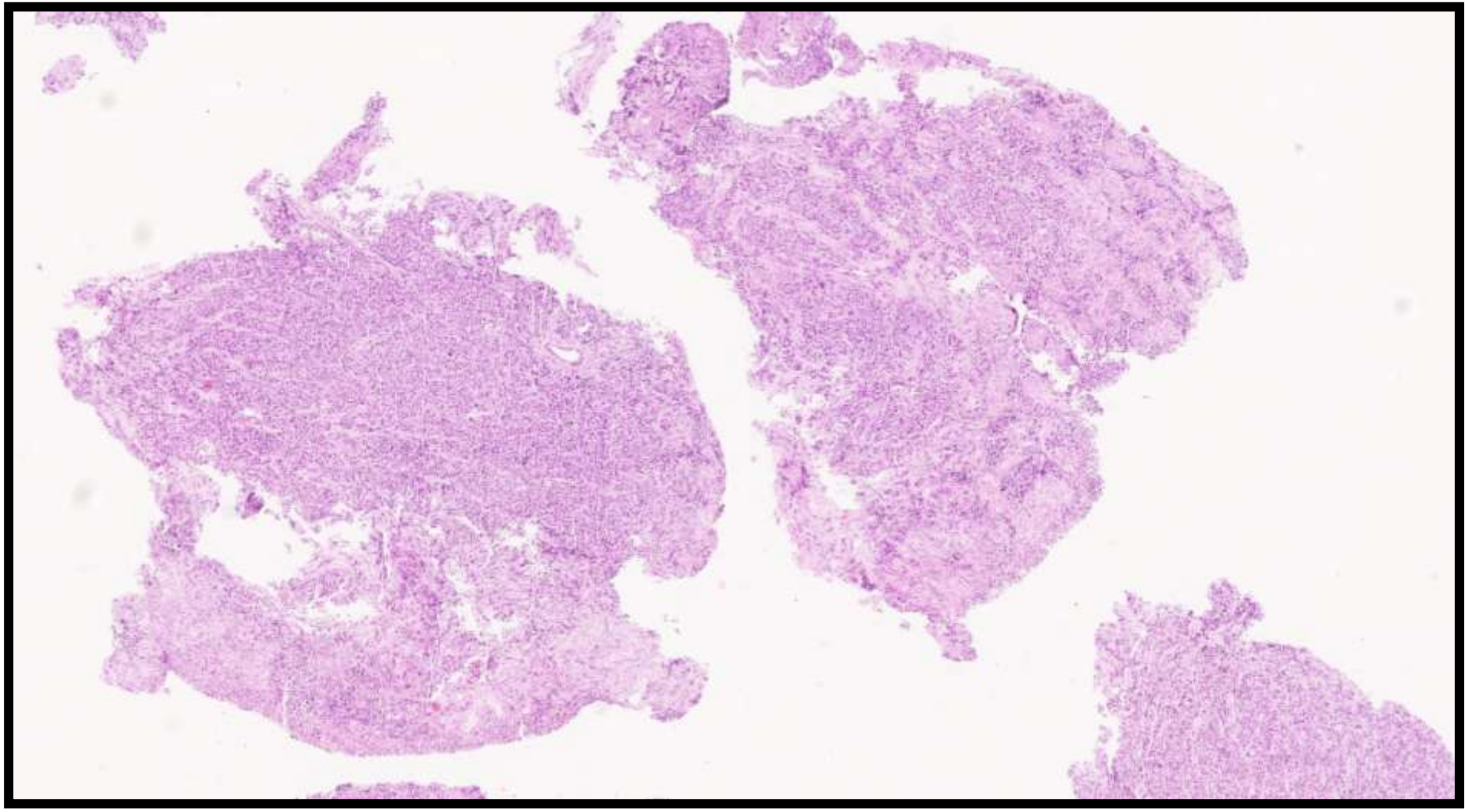


Endoscopy shows a large ulceroproliferative growth in caecum

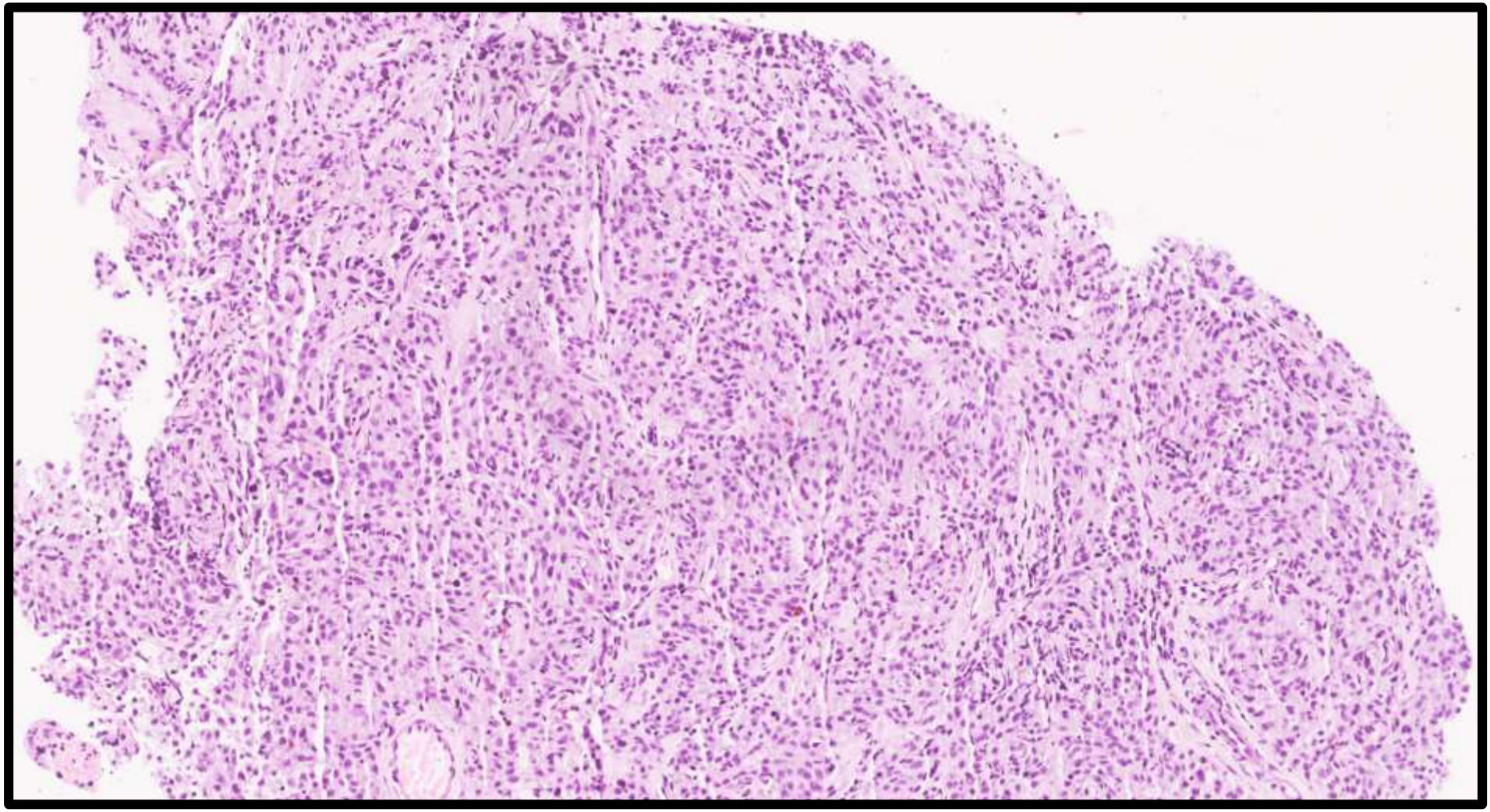


Provisional diagnosis: ? ca cecum/ appendiceal neoplasm/ lymphoma

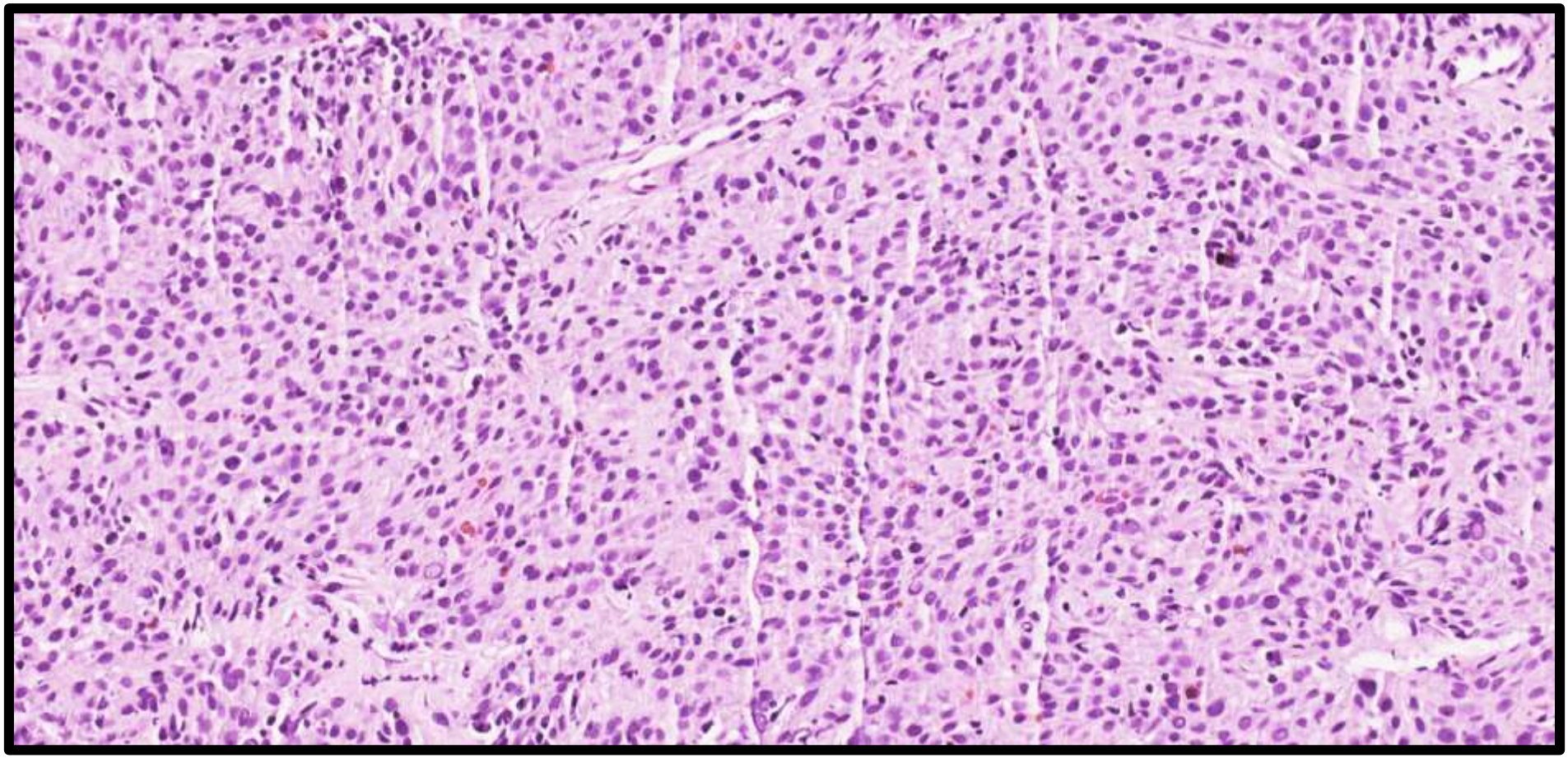
UNDERWENT ENDOSCOPIC BIOPSY



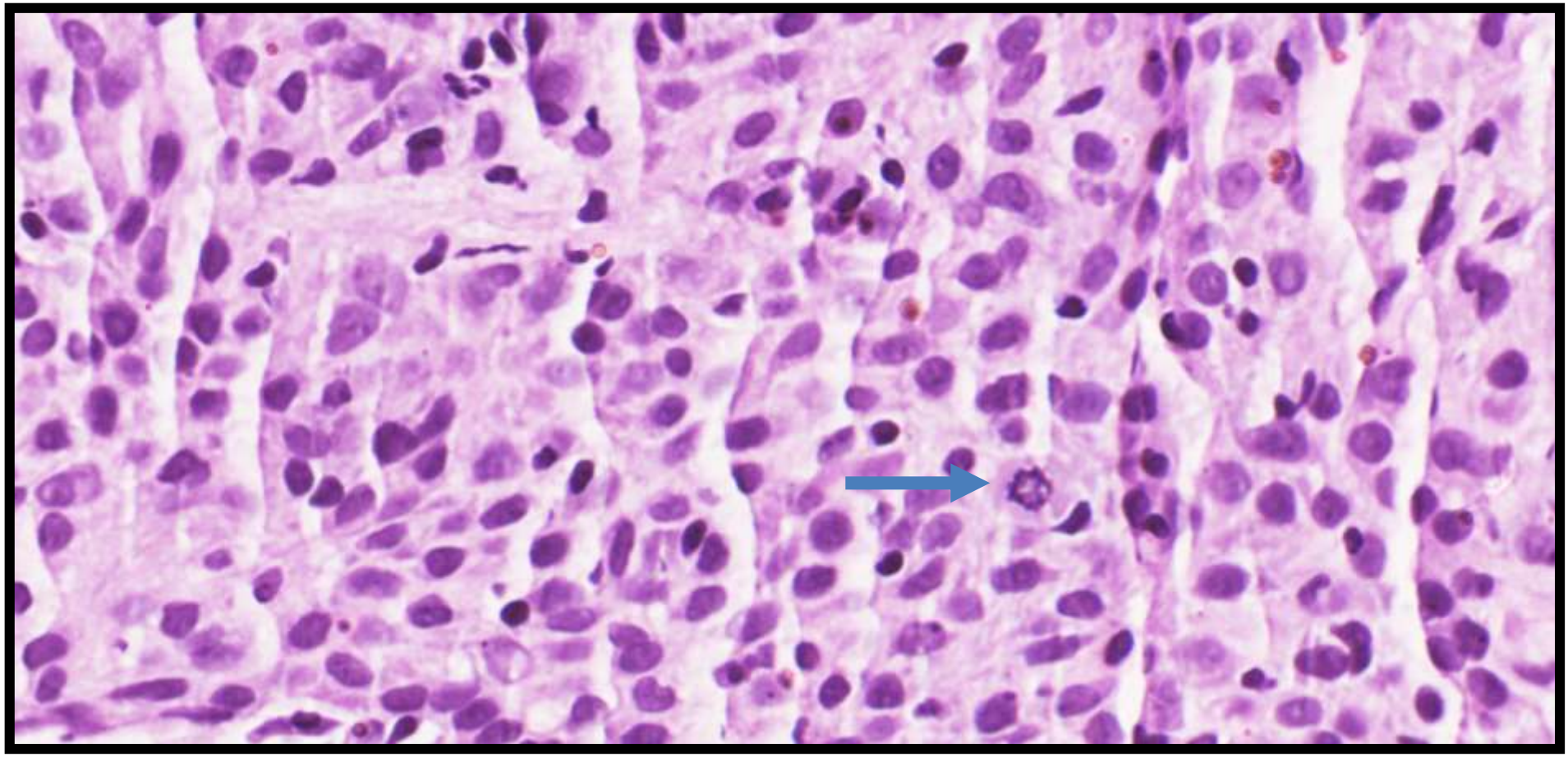
Sections show multiple ulcerated bits of neoplastic tissue. No native tissue identified.



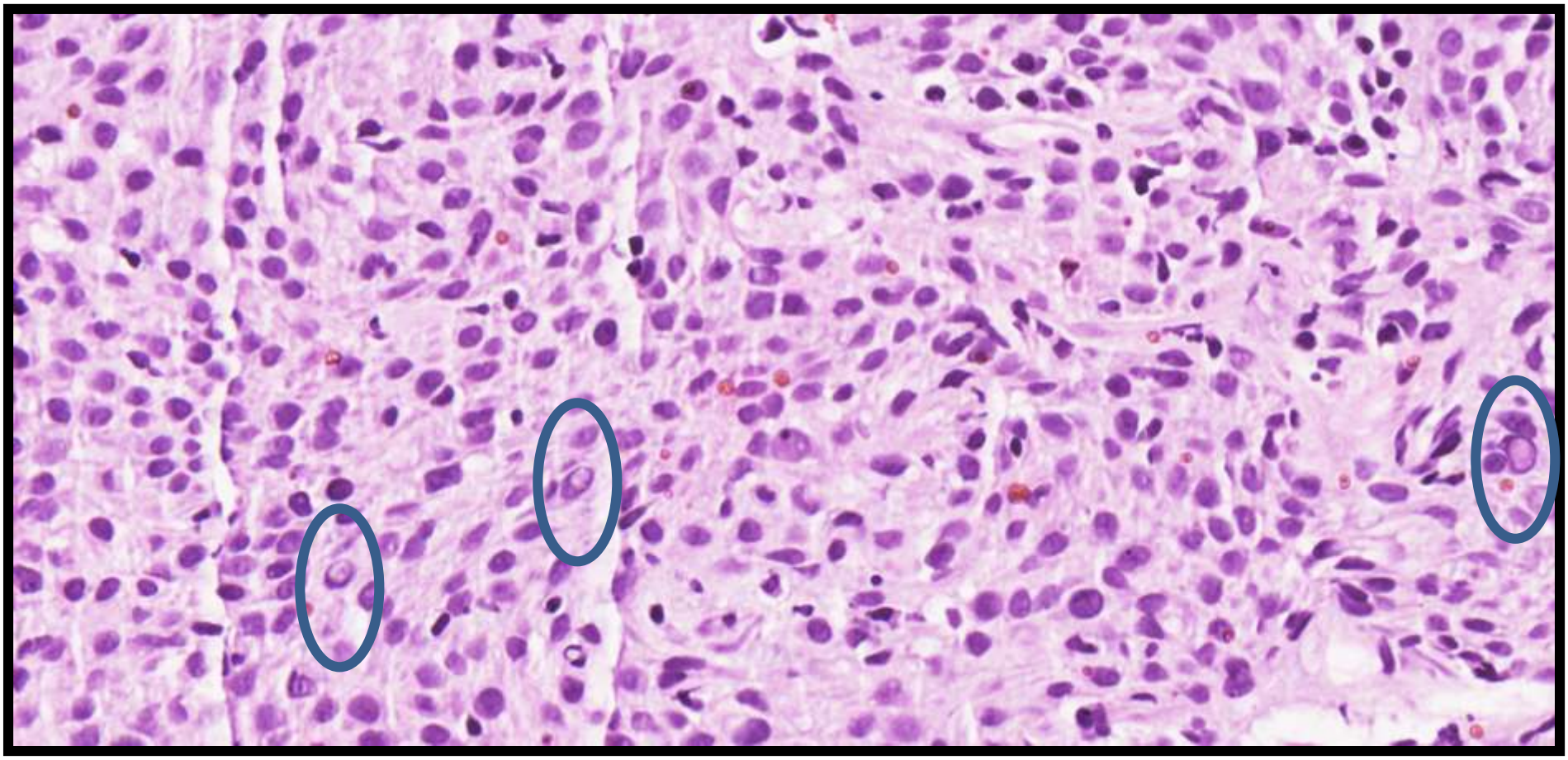
Tumor is composed of cells arranged in closely packed nests and peritheliomatous pattern.



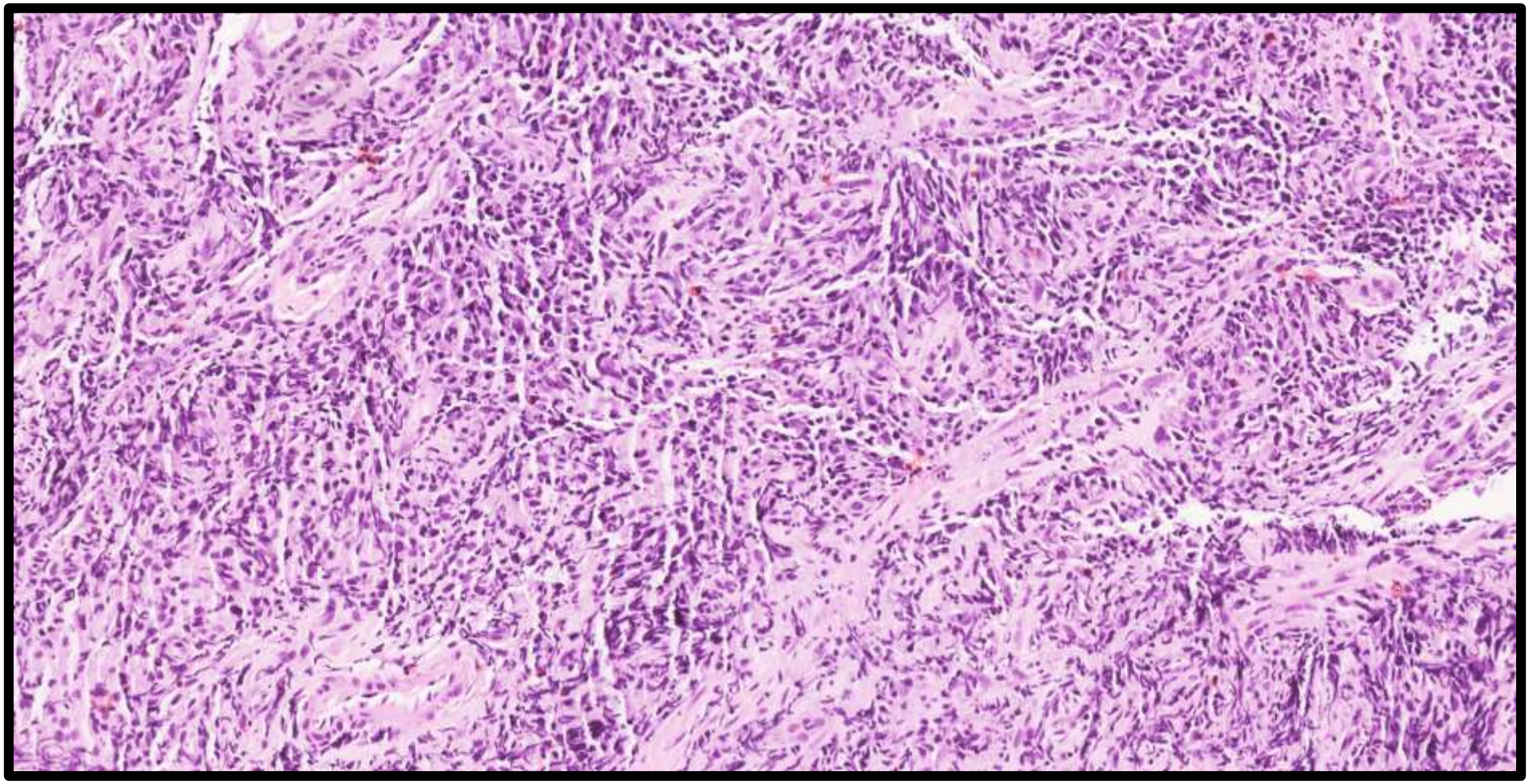
Monomorphic cells with syncytial cytoplasm, round to oval nuclei, finely granular chromatin, inconspicuous nucleoli.



Monomorphic with syncytial cytoplasm, round to oval nuclei, finely granular chromatin, inconspicuous nucleoli.
Mitotic figure marked by arrow.



Prominent intranuclear inclusions noted.



Focal areas showed dense infiltration by lymphoplasmacytic cells (displaying crush artefact)

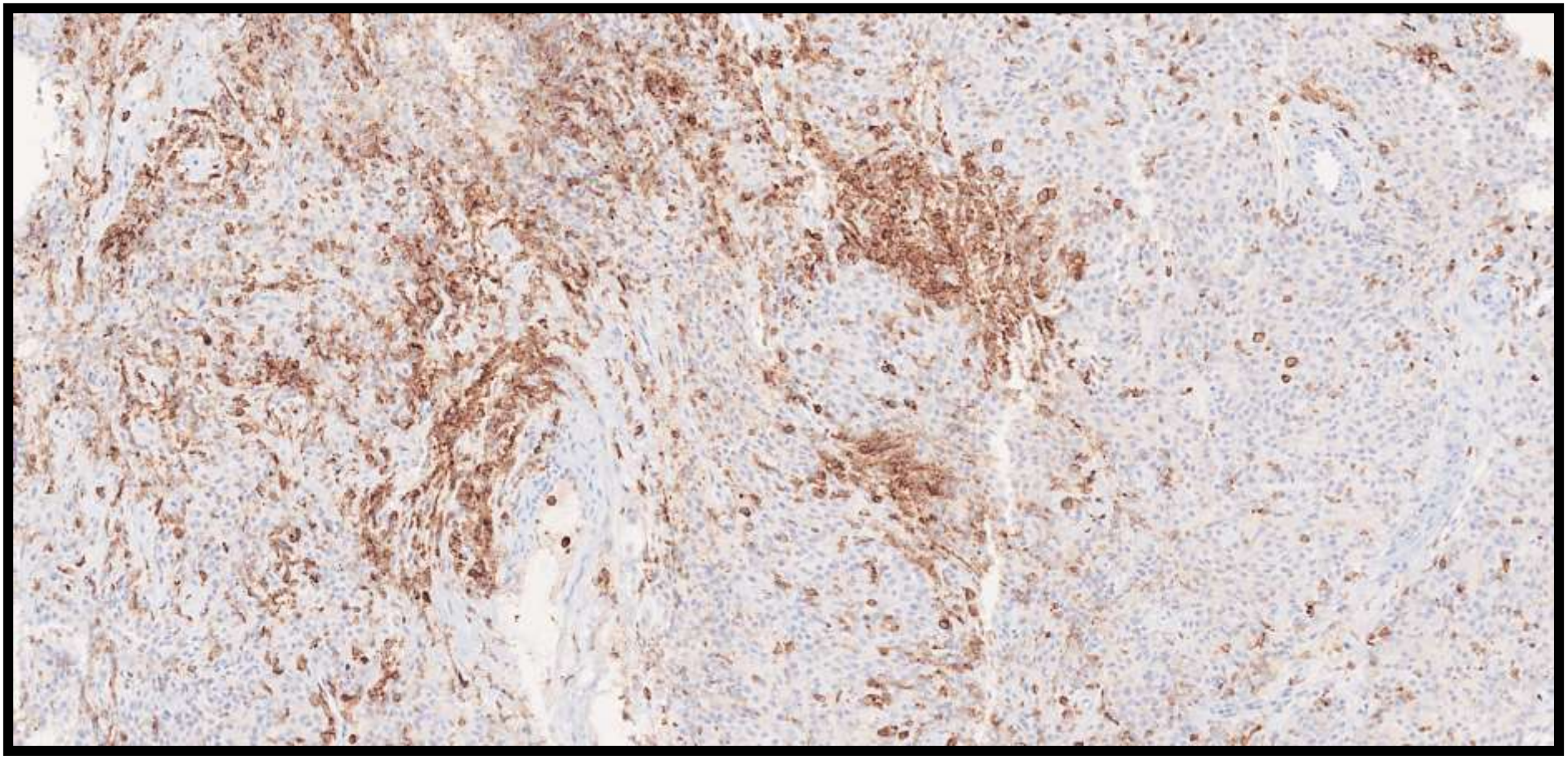
Morphological D/D

- Neuroendocrine tumor
- GIST
- Melanoma
- Poorly differentiated carcinoma/sarcoma
- Lymphoma

Immunohistochemistry

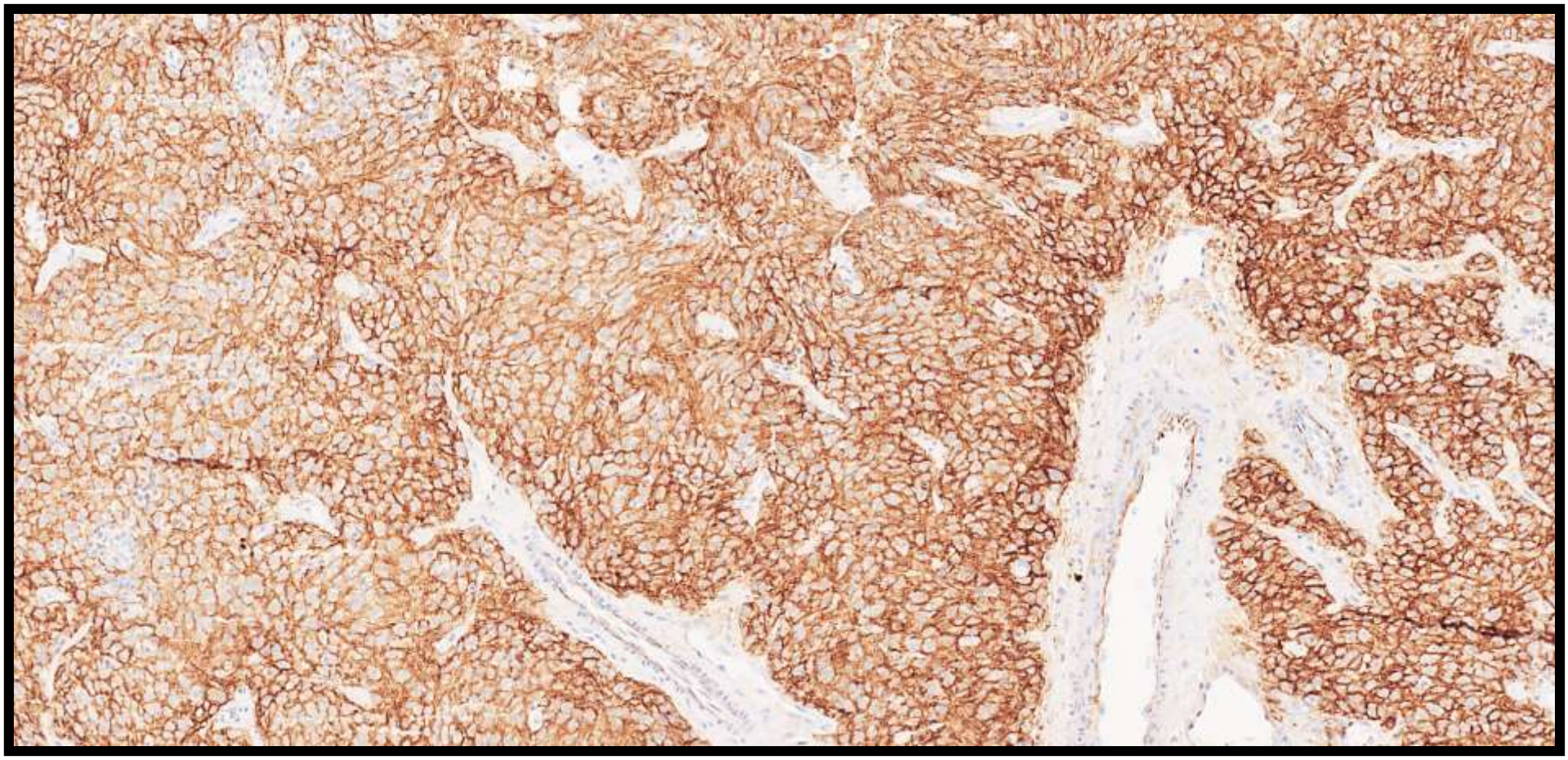
- Initial IHC panel included CK, LCA, S-100, Synaptophysin, SALL4 & DOG1 for which tumor was negative.
- LCA highlighted the background lymphoid cells.

INITIAL IHC PANEL (ALL NEGATIVE)

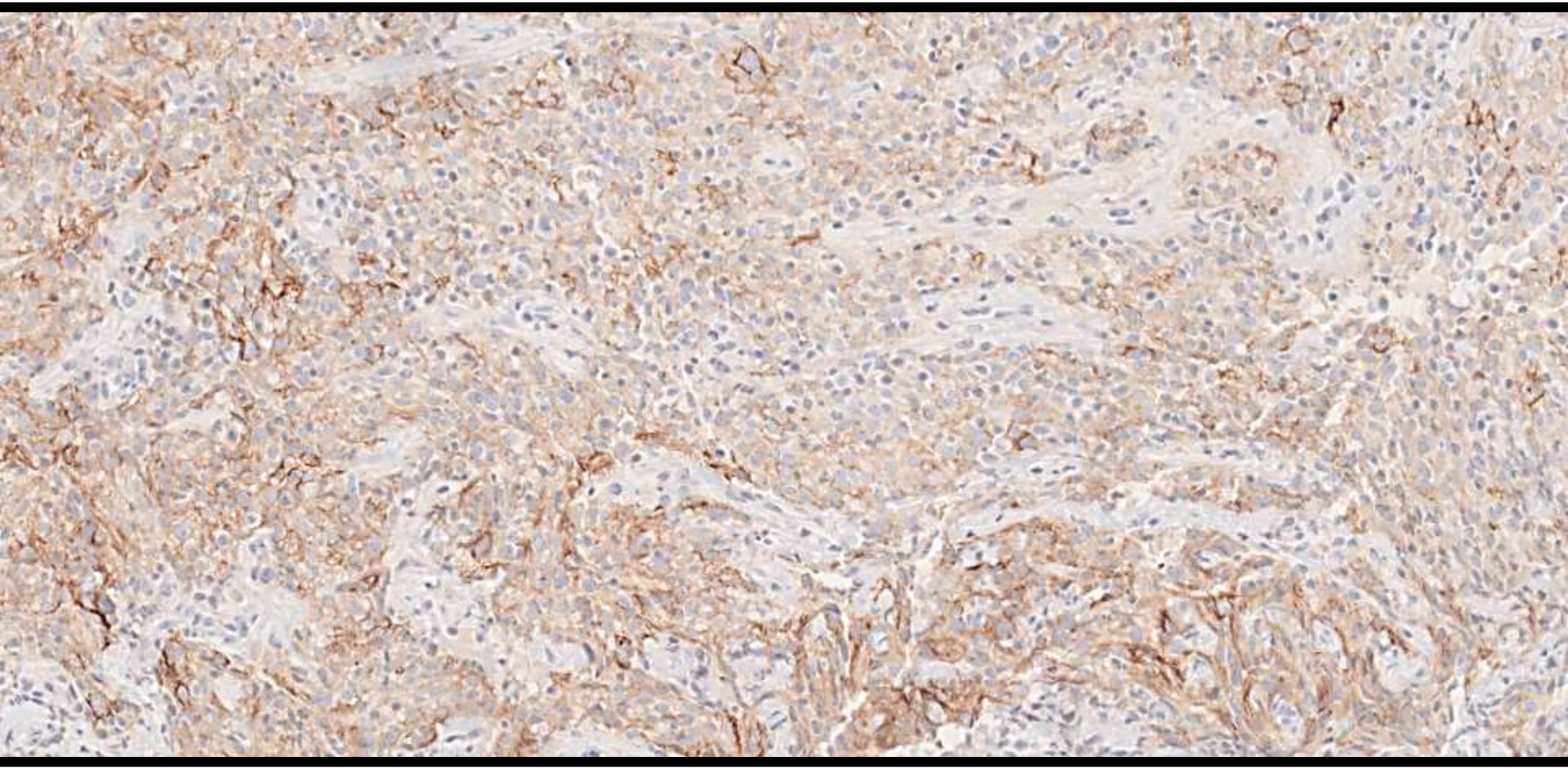


LCA highlights the prominent background lymphoid cells.

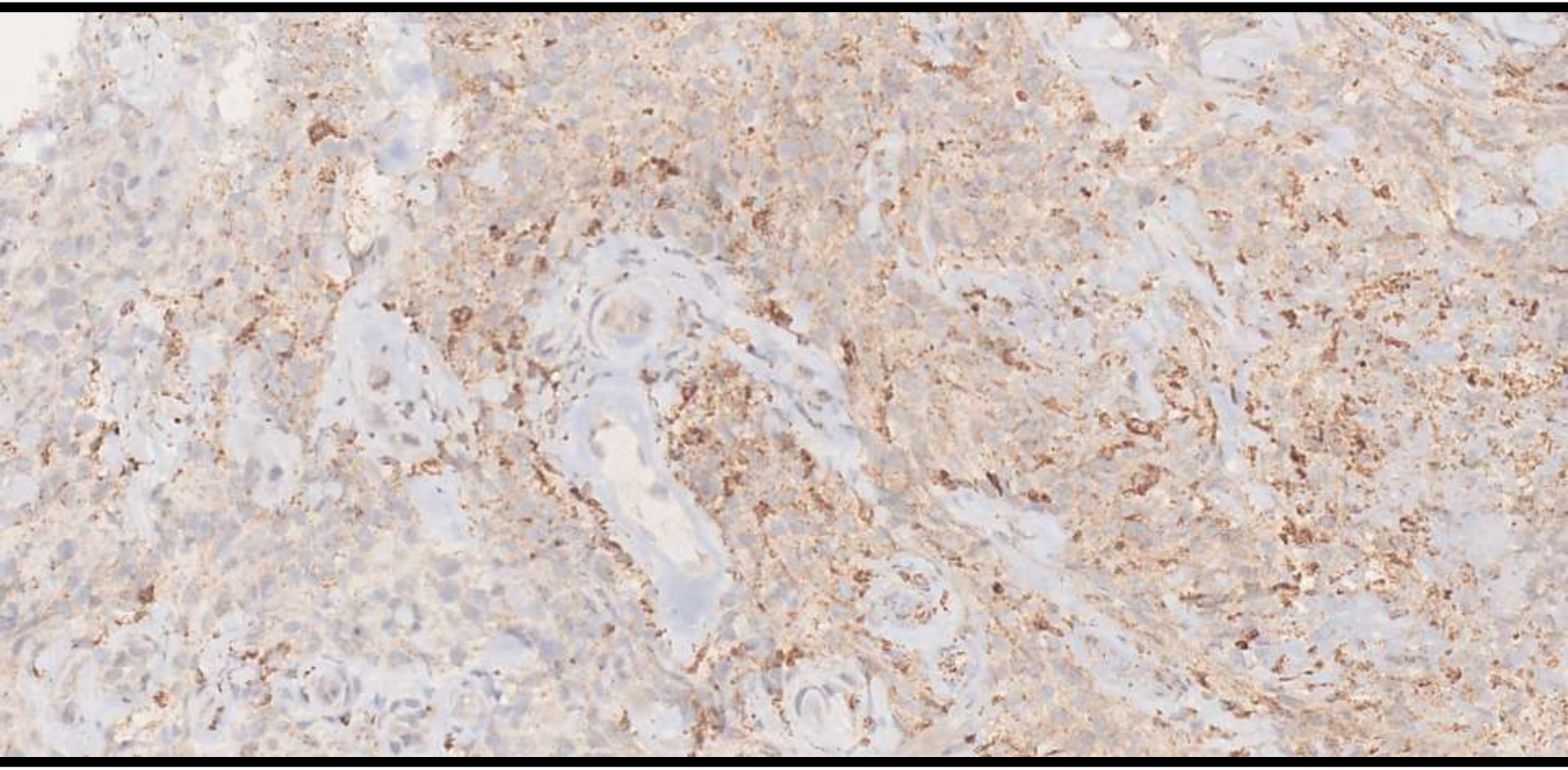
- Further IHC panel included melanocytic markers (HMB45, MELAN-A, SOX10), mesenchymal markers (SMA, DESMIN, ERG1, C-KIT), EMA & chromogranin which were all negative.
- Keeping in mind the morphological findings of presence of intranuclear inclusions & background lymphocytes & IHC results, a possibility of **FOLLICULAR DENDRITIC CELL SARCOMA was considered.**
- On subsequent IHC, the tumor cells were found to be positive for CD21, CD23 & CD68.
- EBV by ISH study was negative.
- Ki67 Index was ~40-50%.



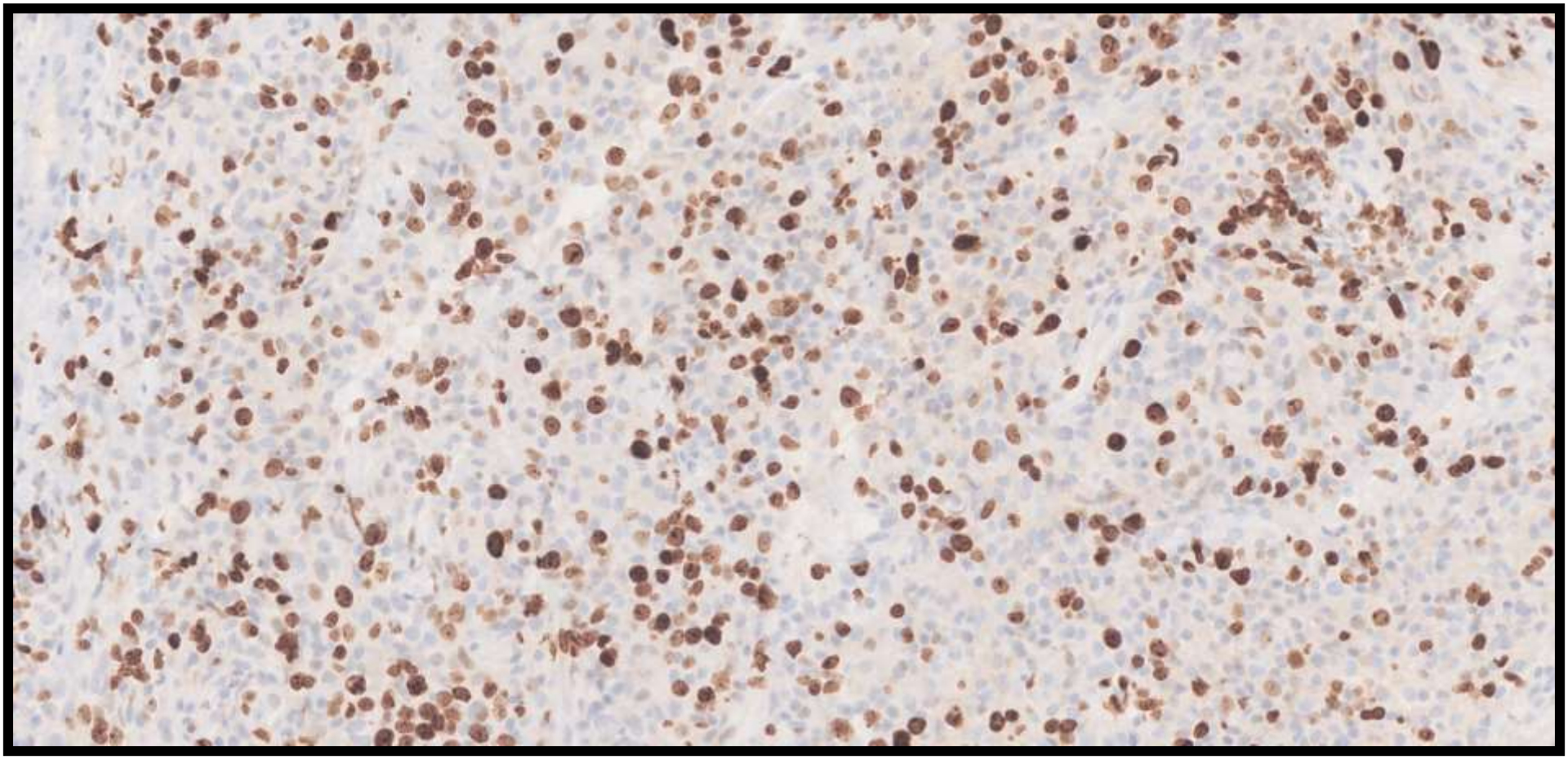
CD21



CD23



CD68



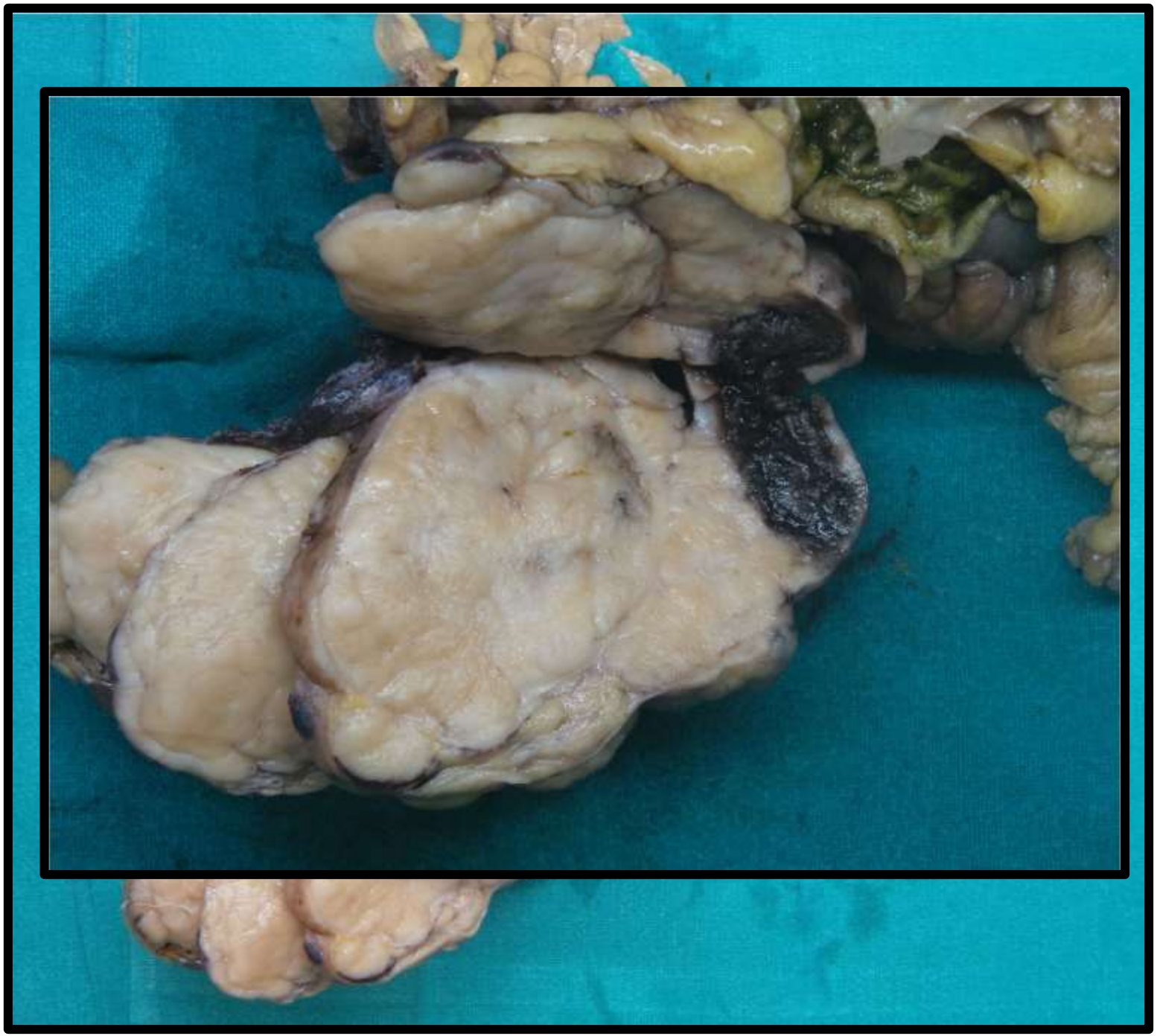
KI67

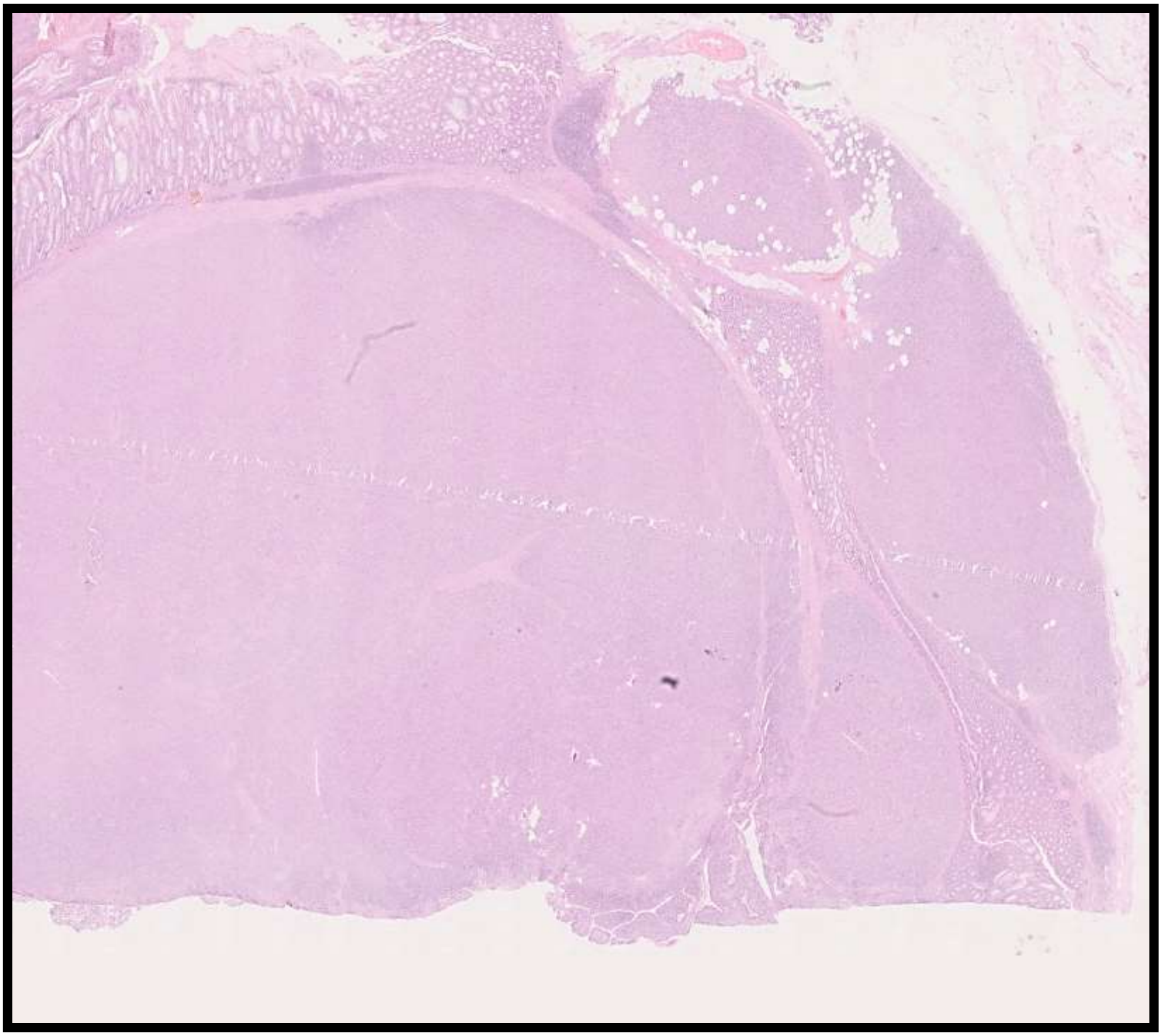
Final opinion

FOLLICULAR DENDRITIC CELL SARCOMA

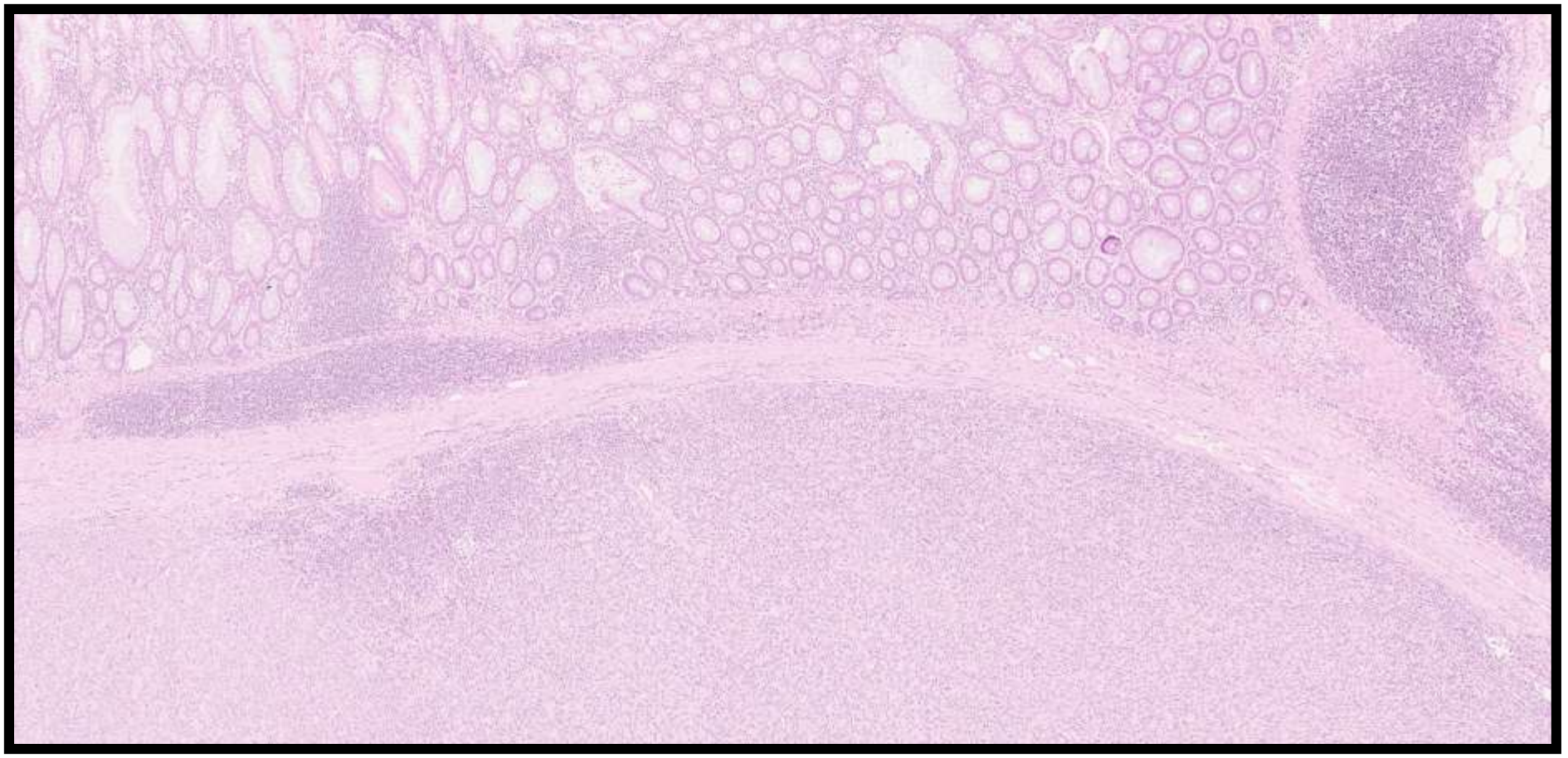
Resection specimen

- Right hemicolectomy
- Polypoidal exophytic mass measuring 10 x 8 x 6cm involving ileocaecal junction, caecum & appendix
- Cut surface fleshy, grey white with areas of hemorrhage

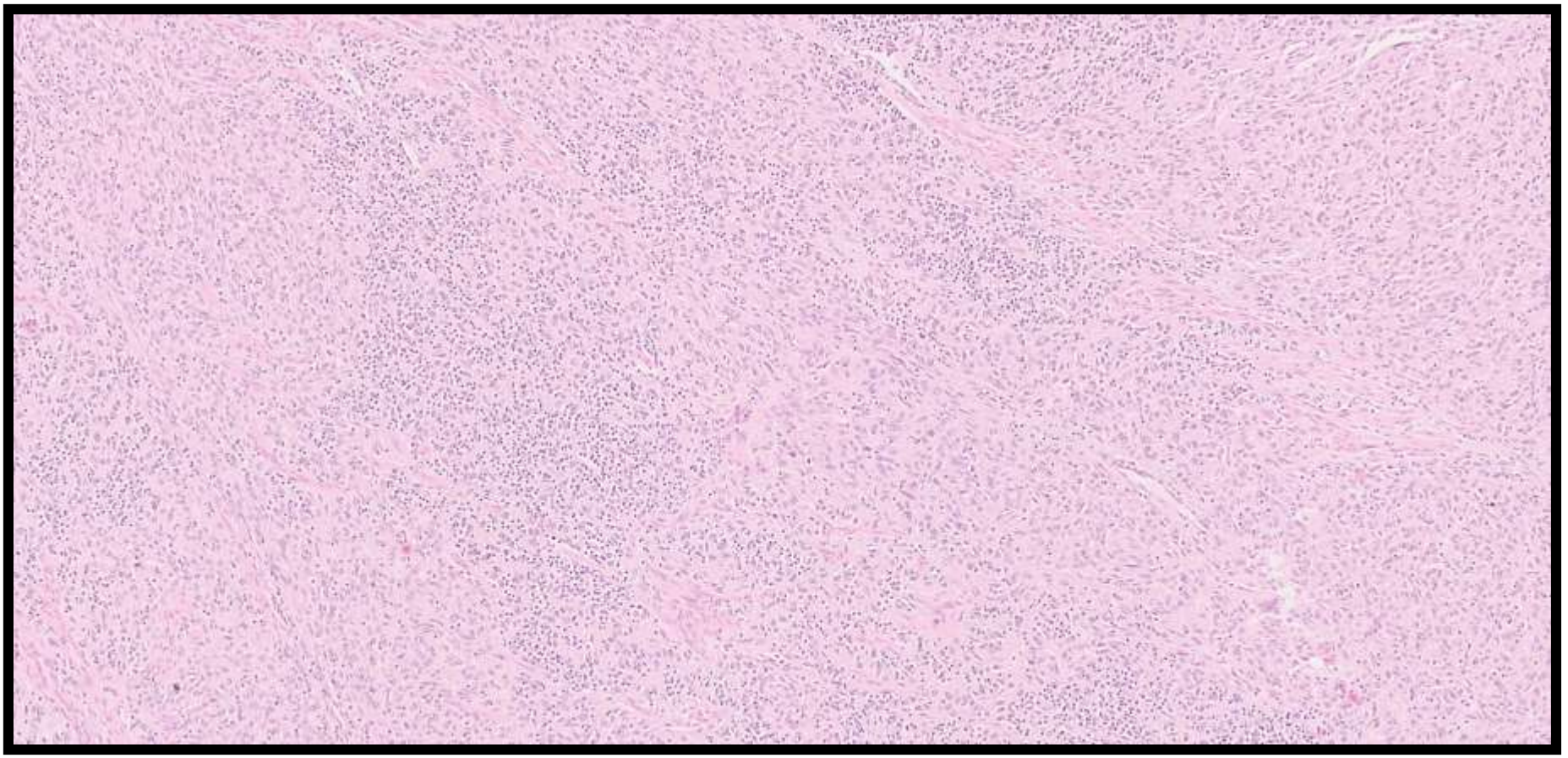




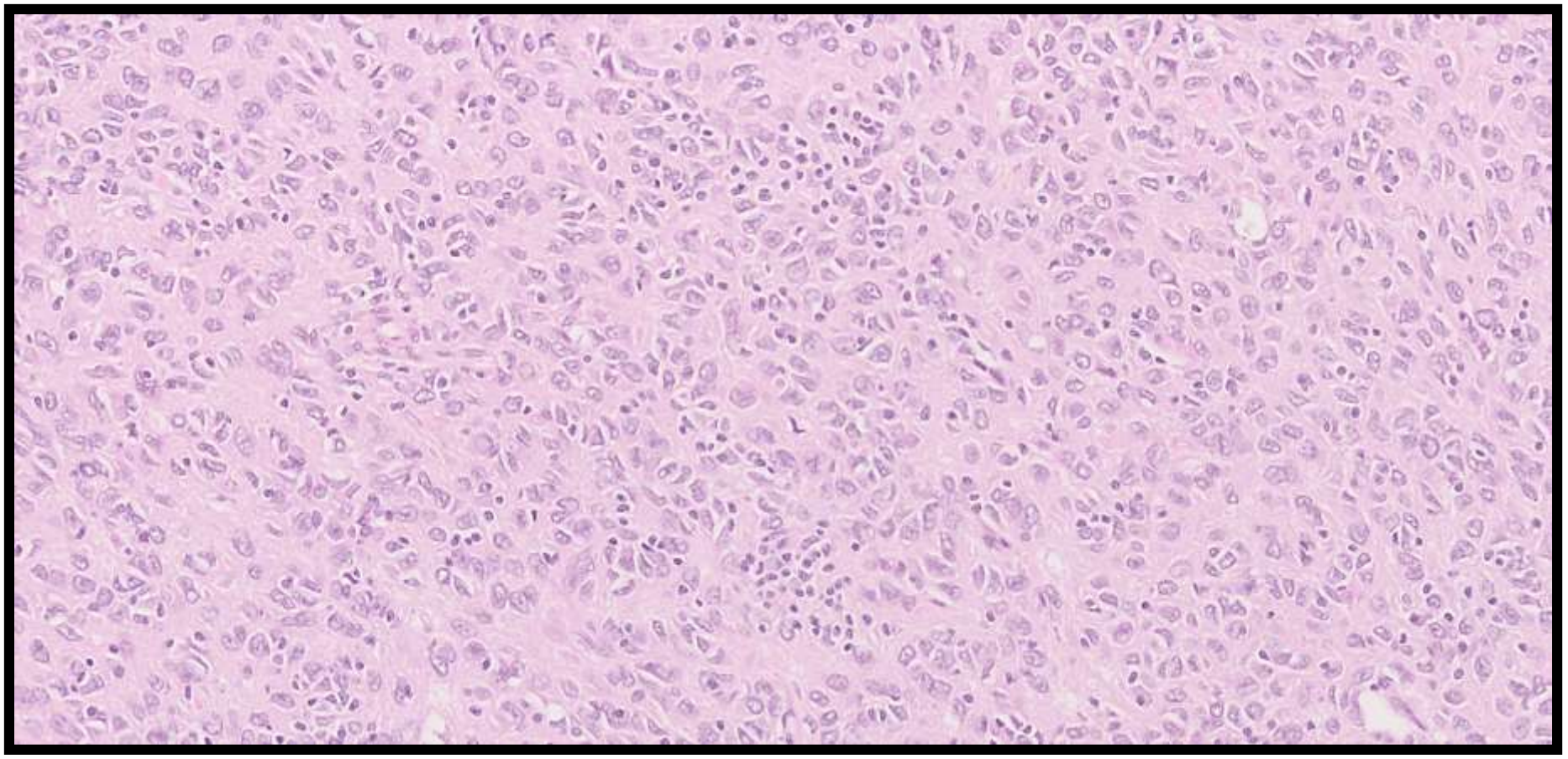
Caecal wall with polypoidal ulcerated mass displaying transmural involvement.



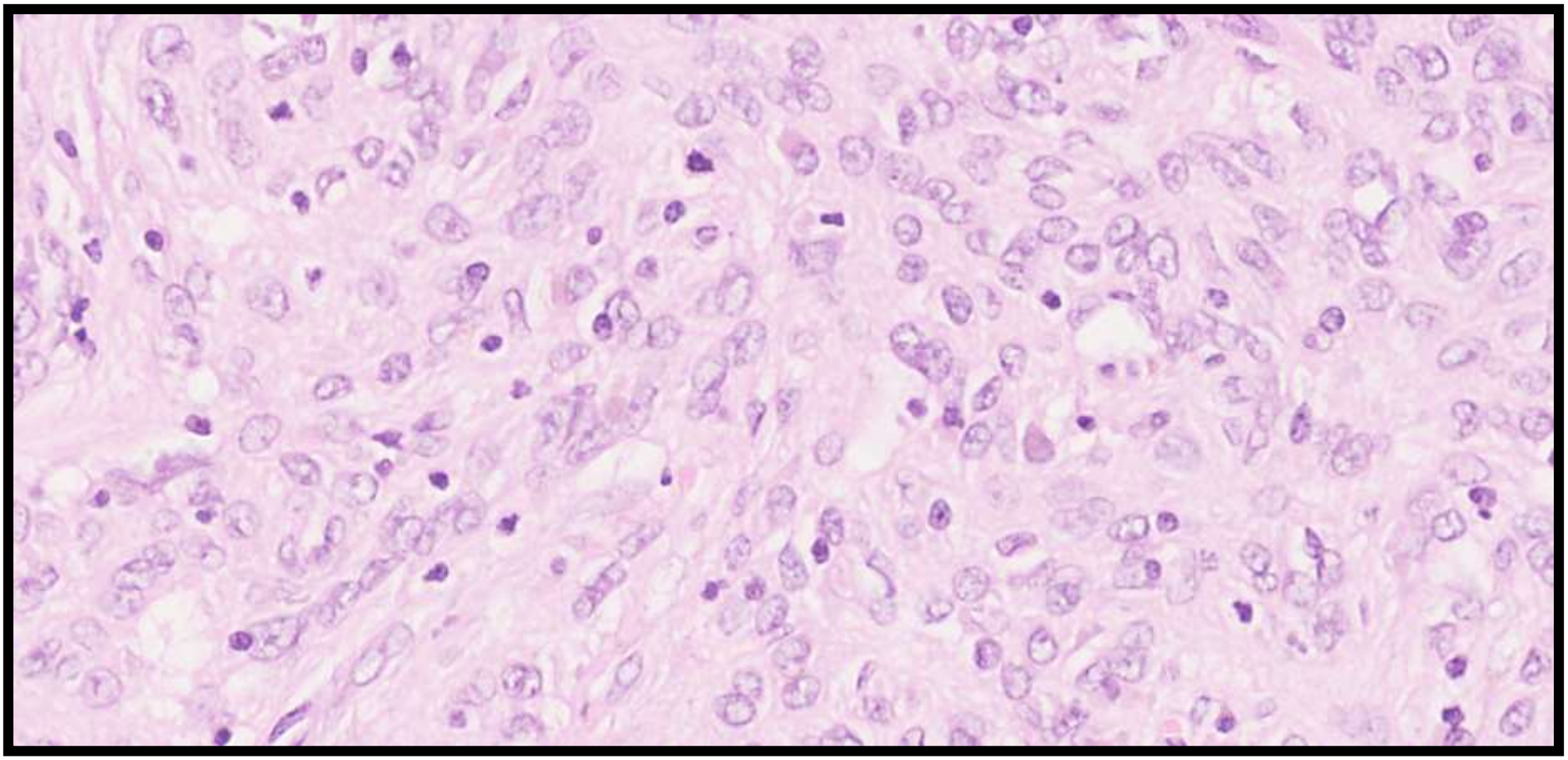
Caecal mucosa with submucosal tumor



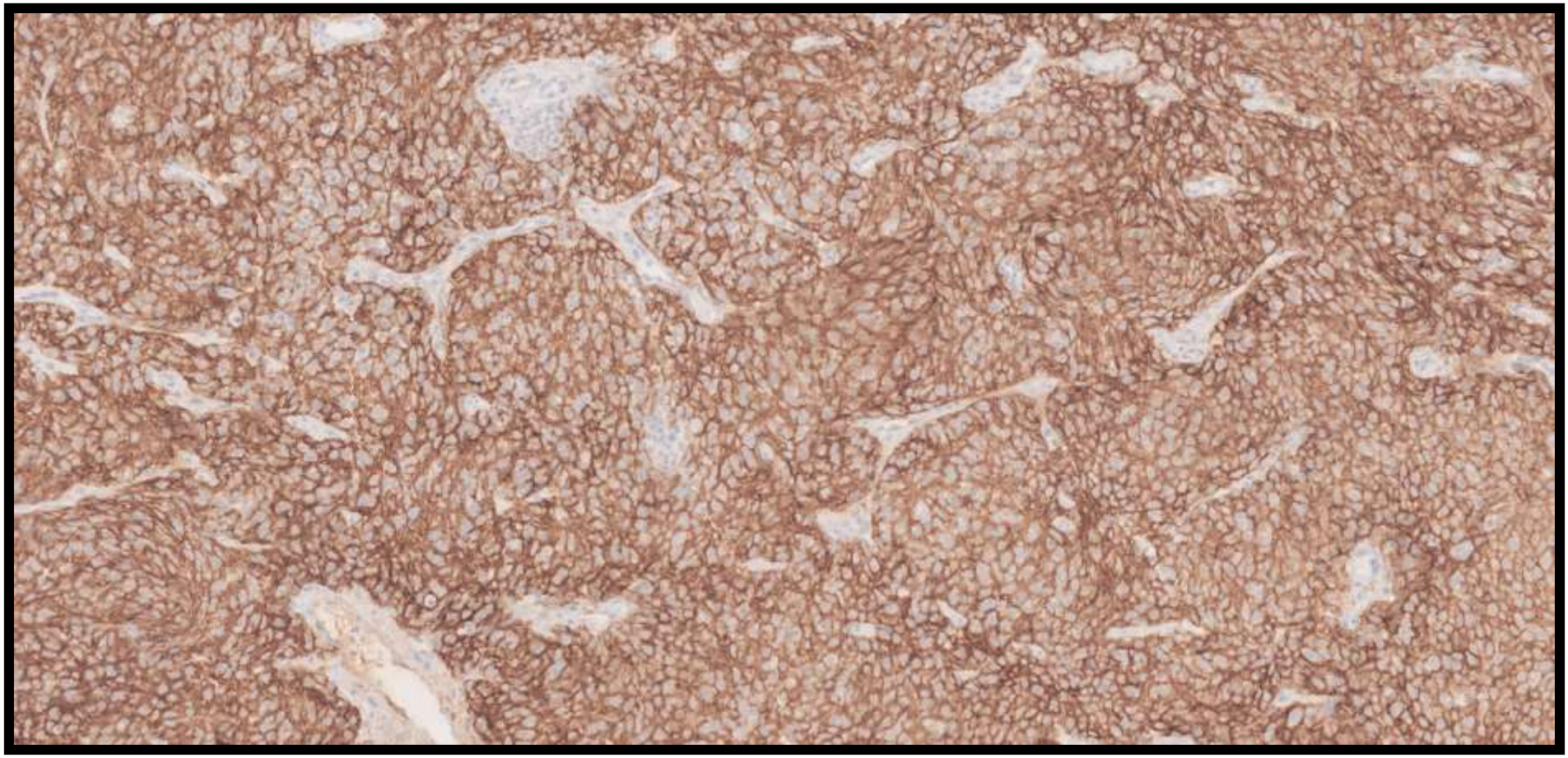
Tumor shows fascicles & storiform to haphazard arrangement of oval to spindled cells with indistinct cell membranes & interspersed chronic inflammatory infiltrate



Tumor cells are oval to spindled with indistinct cell membranes, eosinophilic cytoplasm, with sprinkling of chronic inflammatory cells



Oval to spindled tumor cells with indistinct cell membranes, eosinophilic cytoplasm, vesicular mildly pleomorphic nuclei, small nucleoli. Nuclear pseudoinclusions seen.



CD21

Final histopathology report

- **FOLLICULAR DENDRITIC CELL SARCOMA, caecum & appendix**
- Tumor invades the visceral peritoneum.
- Lymphovascular/perineural invasion: not identified.
- All margins are free.
- 24 lymphnodes isolated, all are free of tumor.(0/24)

Discussion

- FDC sarcoma is rare mesenchymal neoplasm arising from follicular dendritic cells of lymphoid follicles at nodal (30%) and extranodal (58%) sites.
- Nodal follicular dendritic cell sarcoma first characterized in 1986 by Monda et al.
- Extranodal follicular dendritic cell sarcoma first described in 1994 by Chan et al.
- Most common extranodal sites are head & neck, GIT, liver & spleen, soft tissue.

- Most are sporadic. Minority associated with castleman's disease & EBV.
- Occurs at a mean age of 44, with no sex predilection.
- Generally presents as a painless bulky solid mass. Systemic symptoms are uncommon.

- Composed of uniform, spindle to ovoid cells arranged in fascicles, whorls, syncytial sheets, with indistinct cellular boundaries & sprinkling of small lymphocytes
- The cells have moderate eosinophilic cytoplasm, vesicular nuclei with nuclear pseudoinclusions & distinct nucleoli.
- The mitotic rate is usually low.

- Immunopositive for one or more FDC markers, such as CD21 , CD23, CD35, CXCL13, D240, Clusterin, FDC secreted protein & serglycin. Variably express EMA, SlOO, vimentin & CD68 while are negative for CK, CD1a, langerin, MPO.
- Admixed small lymphocytes can be B/T or mixture of the 2.

- Several recent studies have found various molecular and cytogenetic abnormalities in these tumors.
  - nuclear factor kappa B regulatory genes (NFKBIA, CYLD)
  - cell cycle progression genes (CDKN2A, RB1)
  - genes involved in immune evasion (CD274, PDCD1LG2)
  - BRAF mutations

Prognosis

- Low to intermediate grade malignancy with high local recurrence rate (~40%) & propensity to metastasize to lung, liver, or lymph nodes.
- Poor prognostic factors:
  - an intra-abdominal location
  - Large tumour size (>6 cm)
  - coagulative necrosis
  - high mitotic count (>5/10HPF)
  - significant cytological atypia

- Treatment regimens are not well defined for FDC Sarcoma, likely due to its low incidence.
- Majority cases undergo surgical resection, with or without adjuvant chemotherapy and/or radiation.
- In patients with widespread/inoperable disease, conventional lymphoma or sarcoma regimens may be used.

EBV + INFLAMMATORY FDC SARCOMA OF GIT

- Variant seen most commonly in liver, spleen & GIT with female predominance.
- Displays inflammatory pseudotumor like histology.
- Consistently associated with clonal EBV genome.
- May show a prominent lymphoplasmacytic infiltrate, large R-S like cells, massive infiltration of eosinophils or numerous epithelioid granulomas, fibrinoid deposits in blood vessels
- Indolent clinical course as compared to conventional FDC sarcoma.

Conclusion

- FDC sarcoma is a low to intermediate grade malignant tumor.
- Since it’s a rare tumor, it is important to maintain a high index of suspicion while evaluating a spindle cell neoplasm in correct clinical context.
- IHC is essential to arrive at this diagnostic entity.