Case of the month April

Clinical details

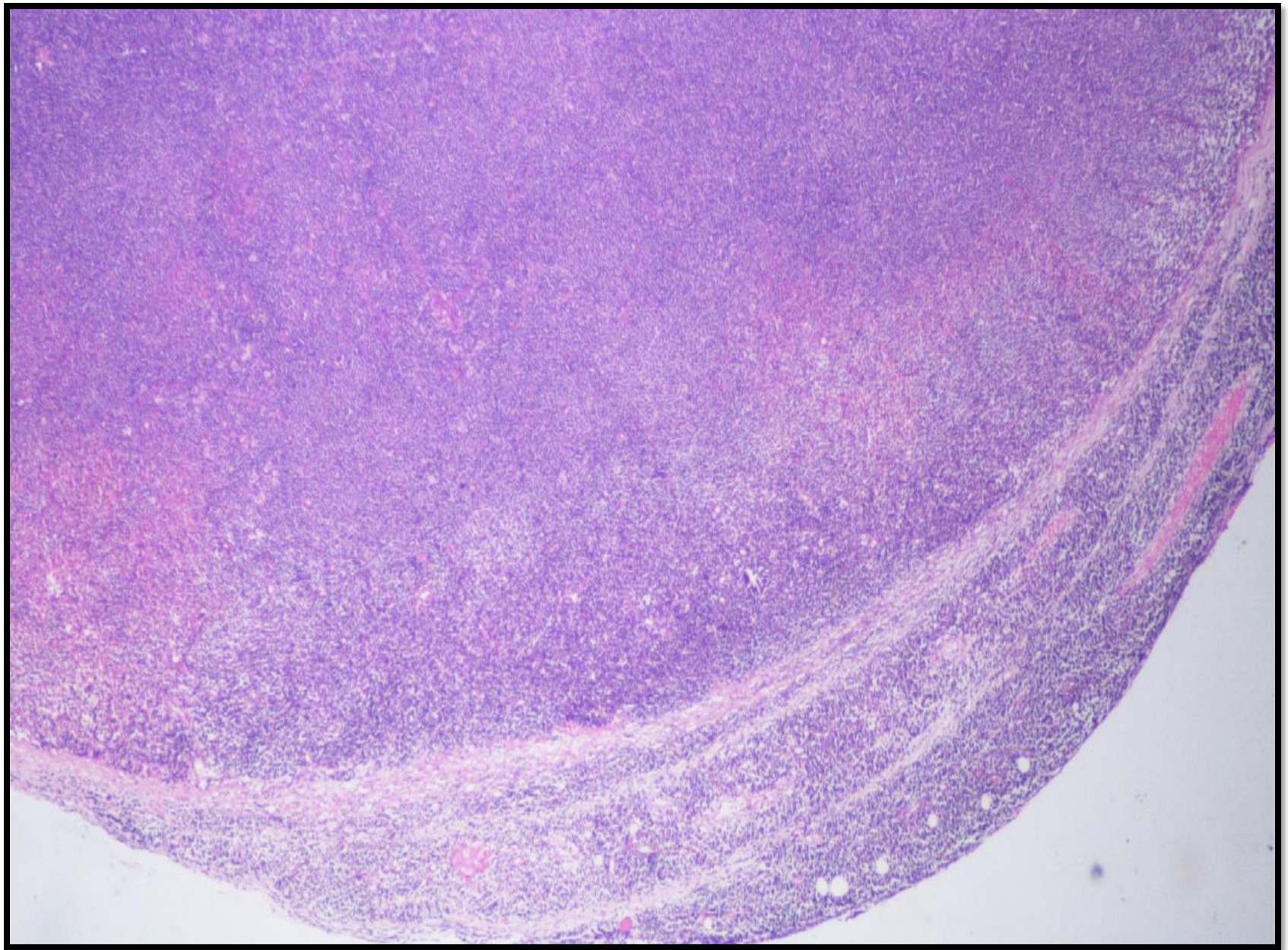
- A 58-year-old male presented with right sided cervical lymphadenopathy of 1-year duration which was painless and progressive in nature.
- On examination, bilateral cervical, axillary and inguinal lymphadenopathy was noted.
- Splenomegaly was observed, however hepatomegaly was absent
- Size of largest lymph node was 10cm (right cervical lymph node)

Initial investigations done at RGCI

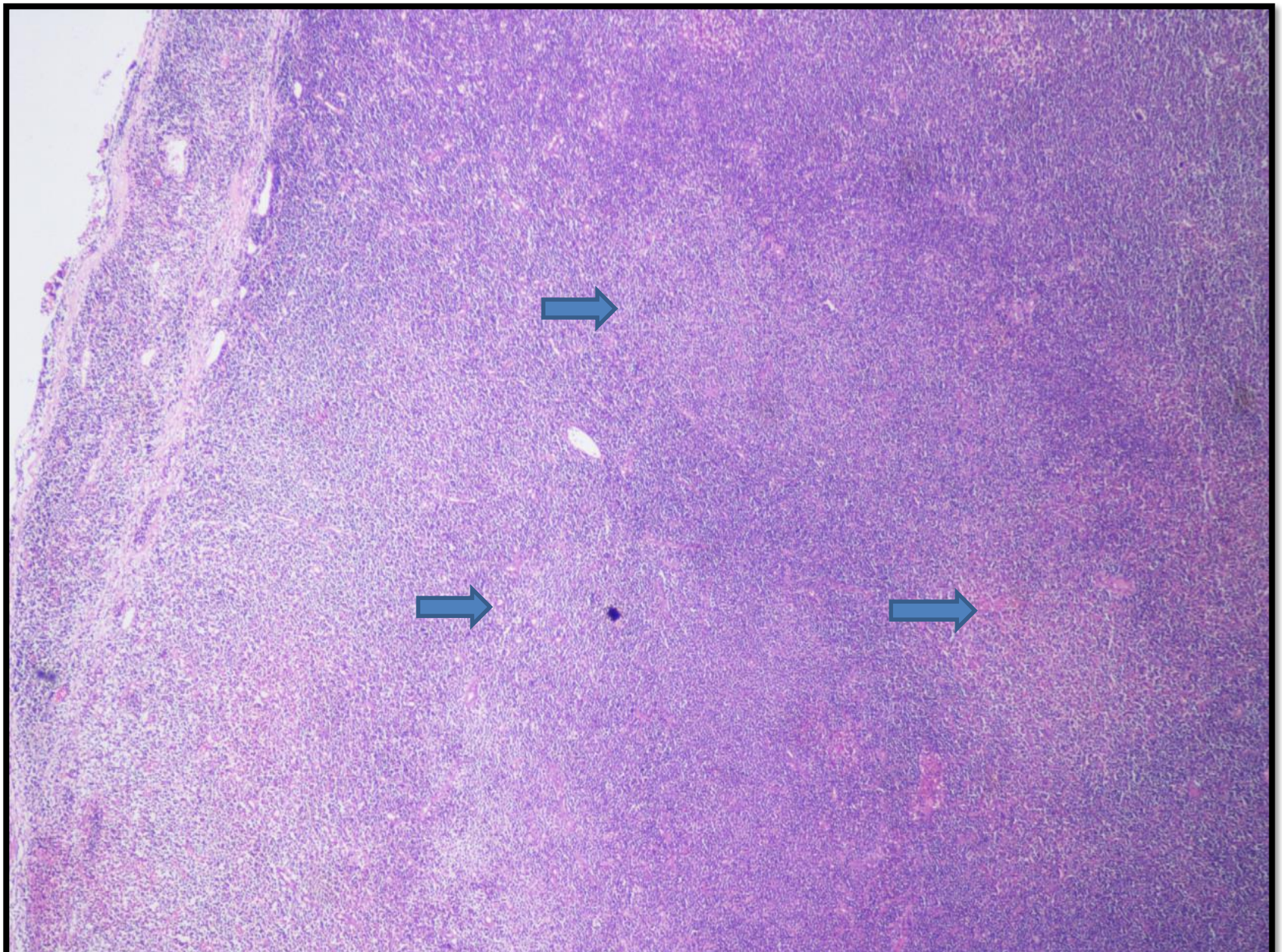
- CBC was within normal limits
- On radiological examination, generalized lymphadenopathy-bilateral cervical, axillary mediastinal and inguinal regions.
- Excision biopsy was performed from the right cervical lymph node

MICROSCOPY- H & E

Effaced lymph node by sheets of atypical lymphoid cells. These cells are infiltrating through the capsule of the lymph node.



Confluent nodules with proliferation centers were seen on low power



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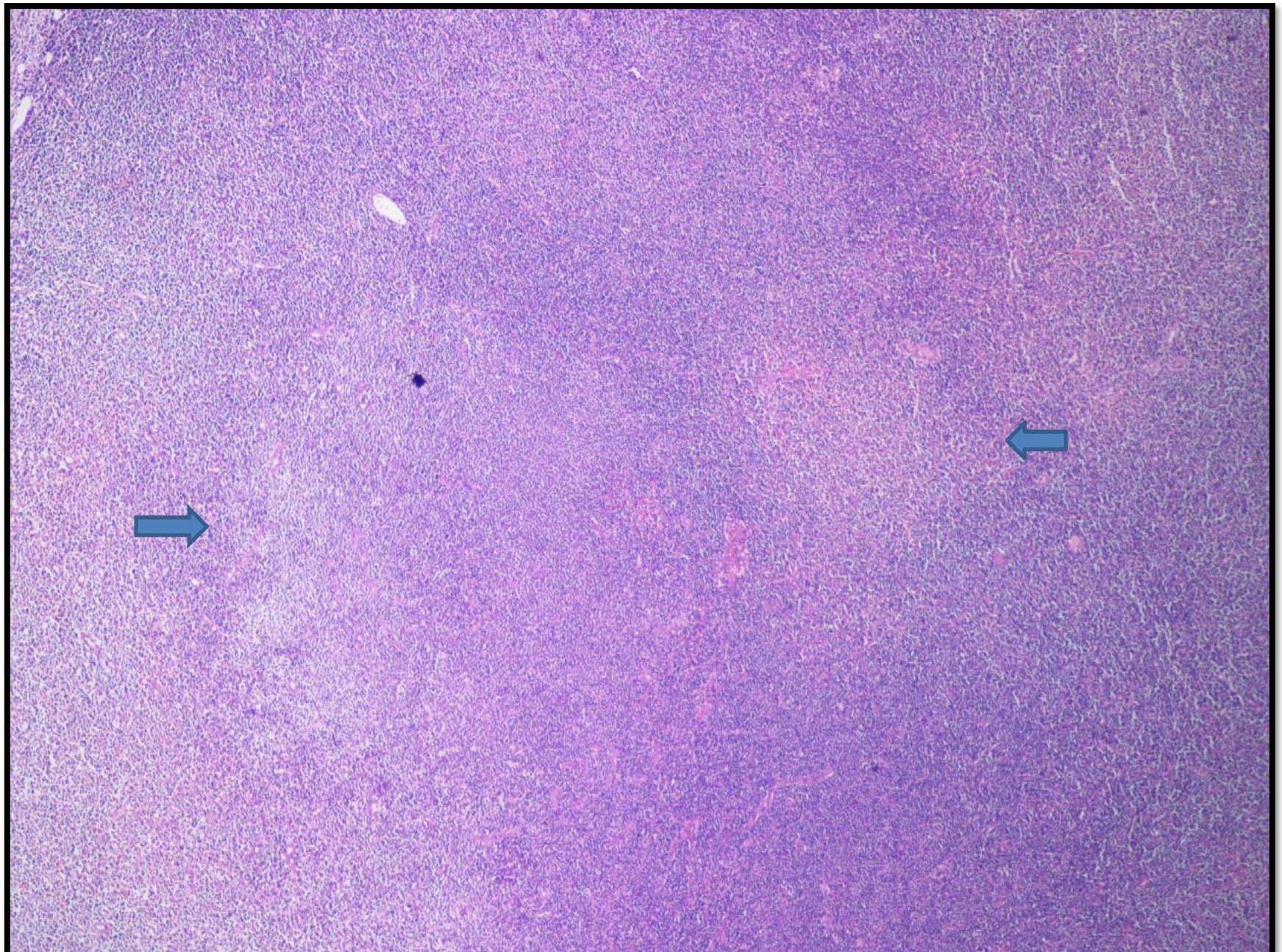
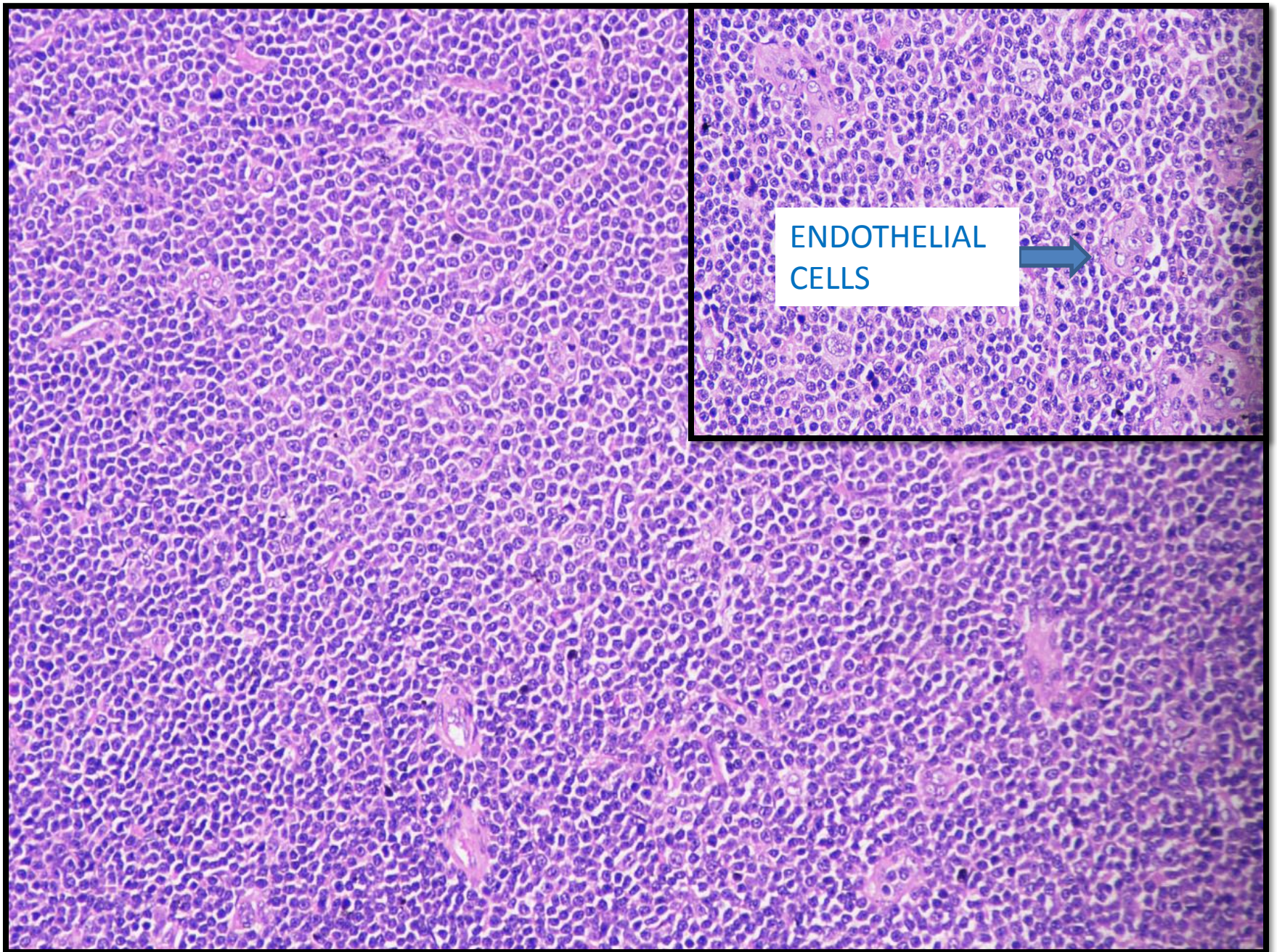
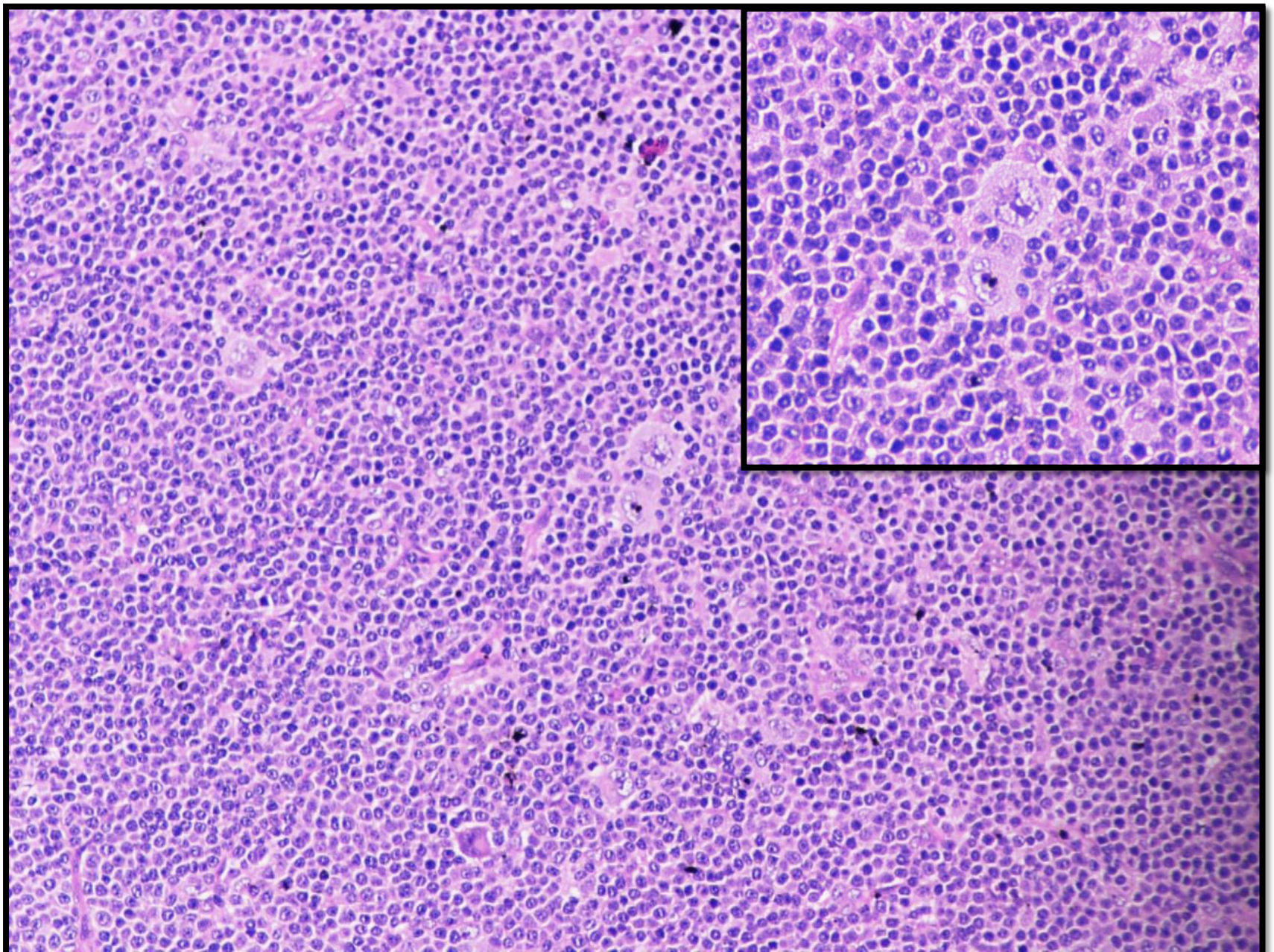


Atypical lymphoid cells were small in size compared to endothelial cells



Scattered large mono- and bi-nucleate Reed- Sternberg (RS) like cells were seen admixed lymphoid cells



Summary of microscopic findings

- The biopsy showed complete nodal effacement with extra nodal spill.
- The atypical lymphoid cells were small sized formation of confluent nodules with proliferation centers.
- Few scattered large mono- and bi-nucleate Reed- Sternberg (RS) cells were seen admixed with them

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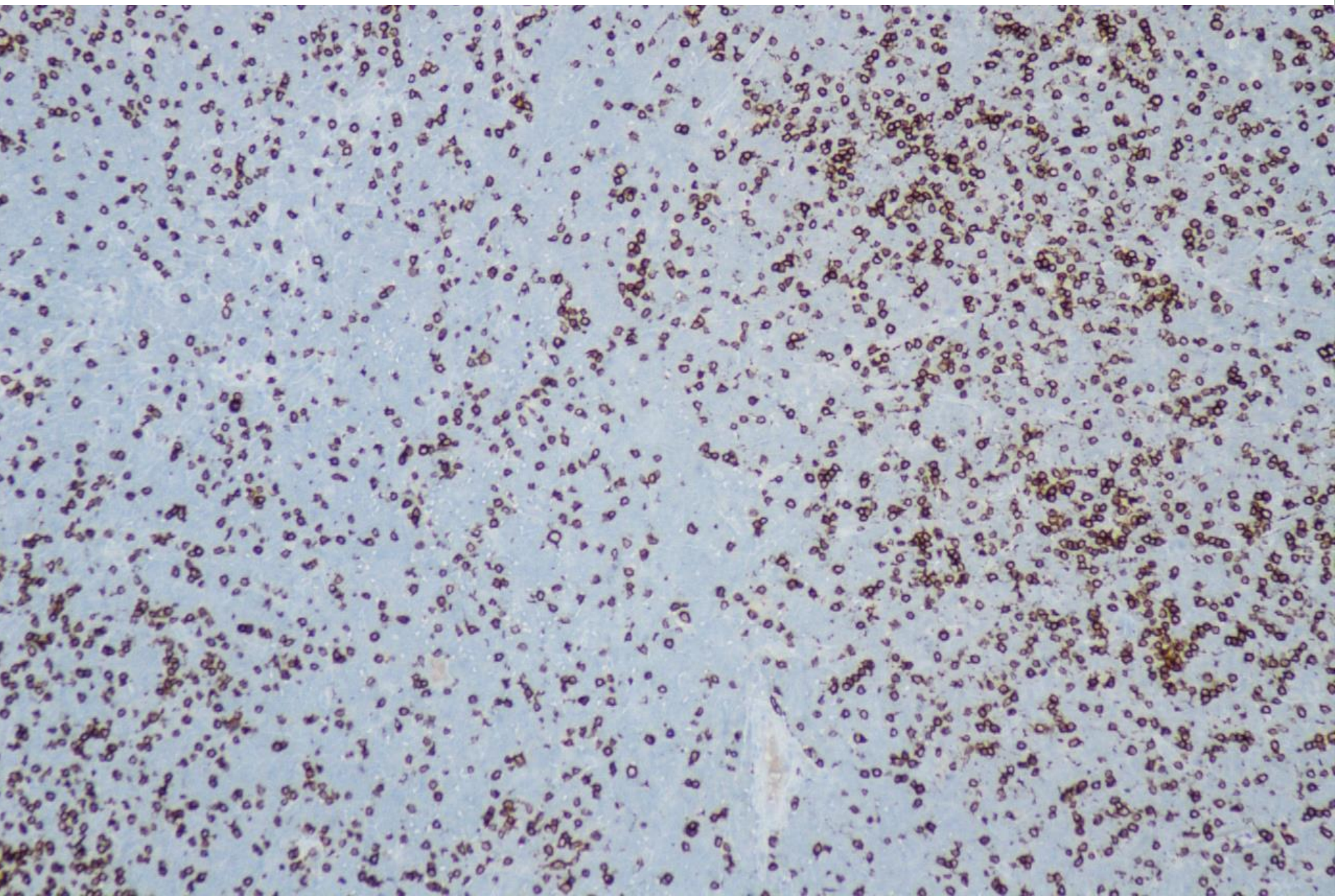
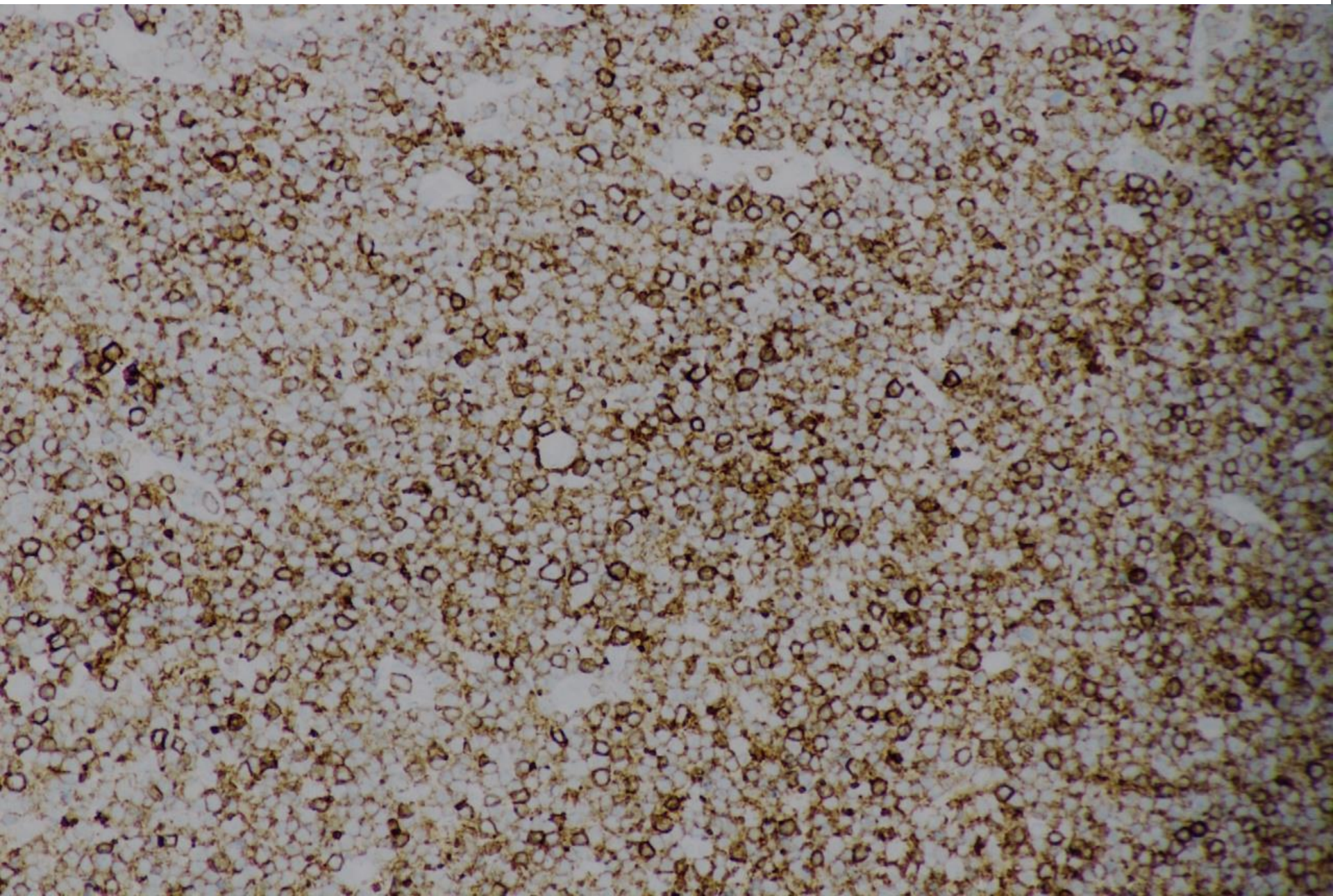
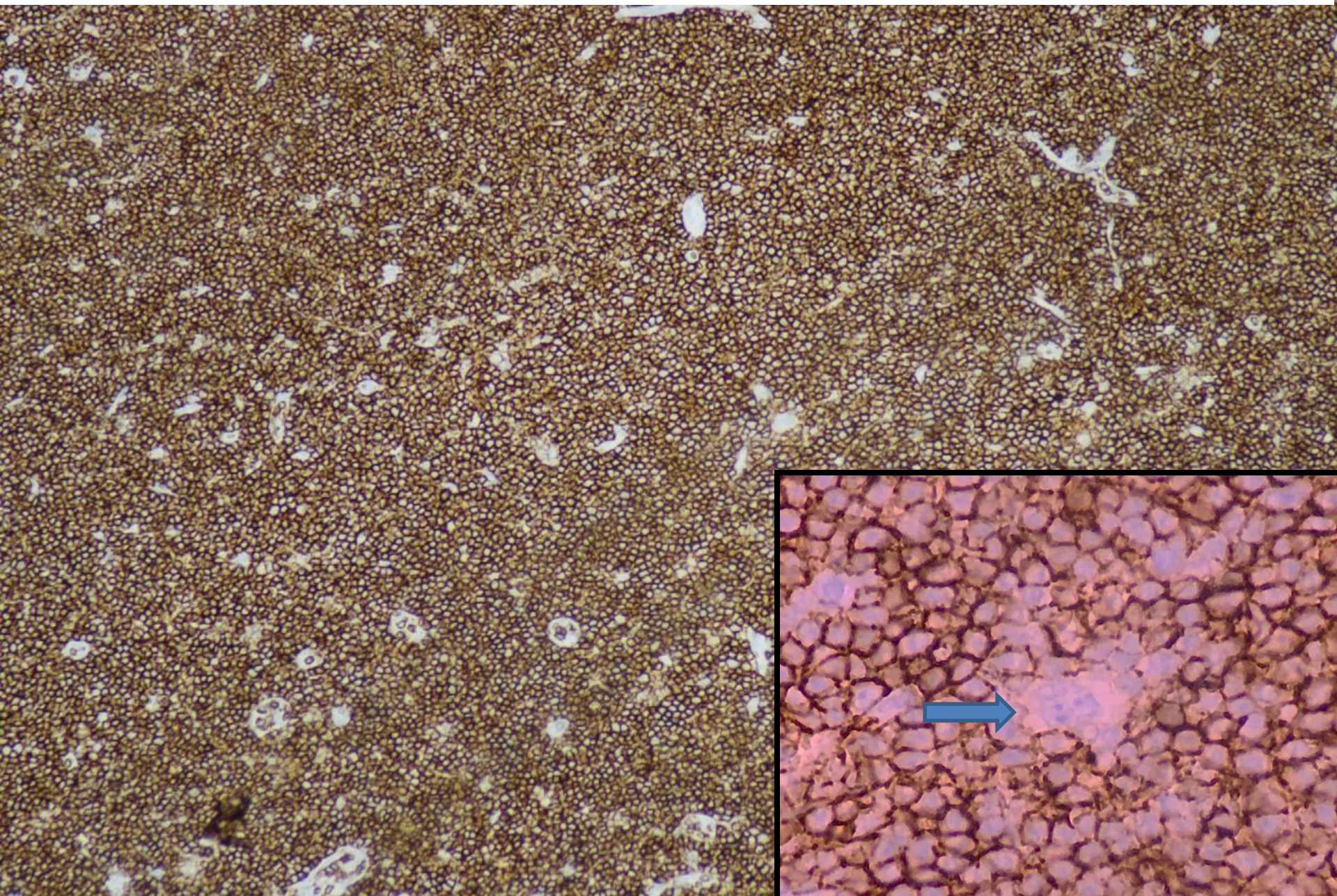
CD3 positive in reactive T-lymphocytes



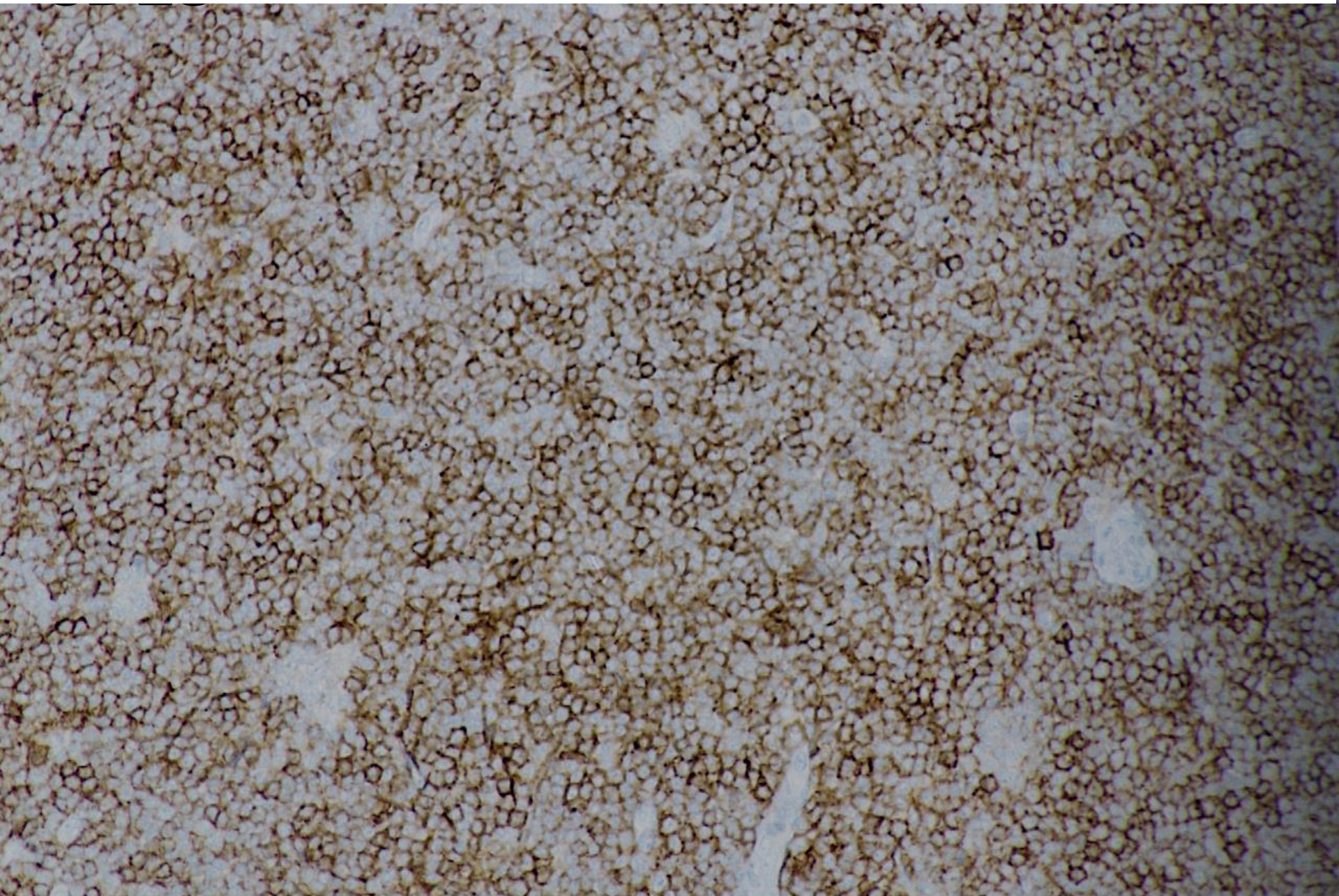
CD5 expression >>> than CD3 staining



CD20 uniformly expressed in the small lymphoid cells; however, large RS like cells were negative



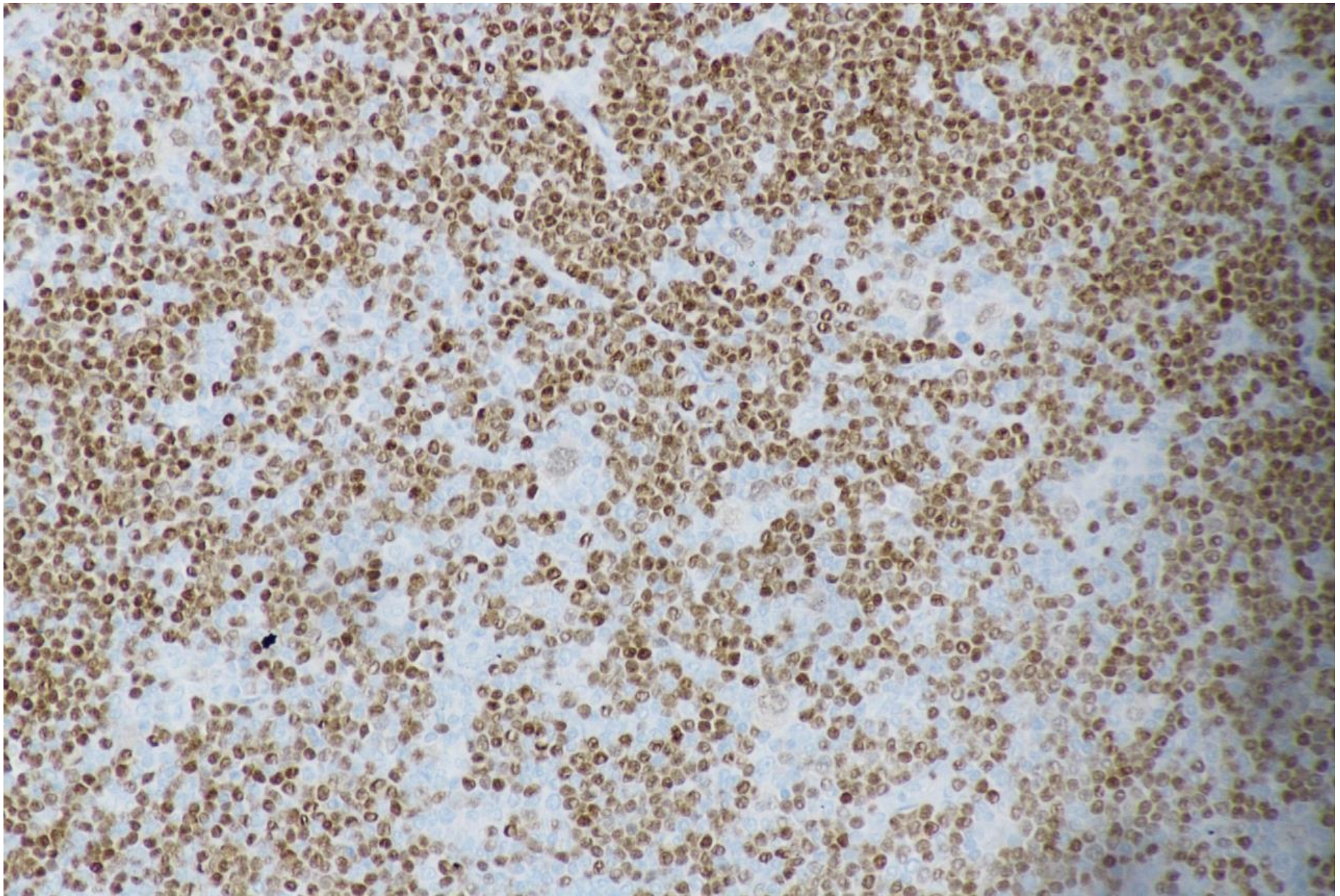
CD23 uniformly expressed in the small lymphoid cells



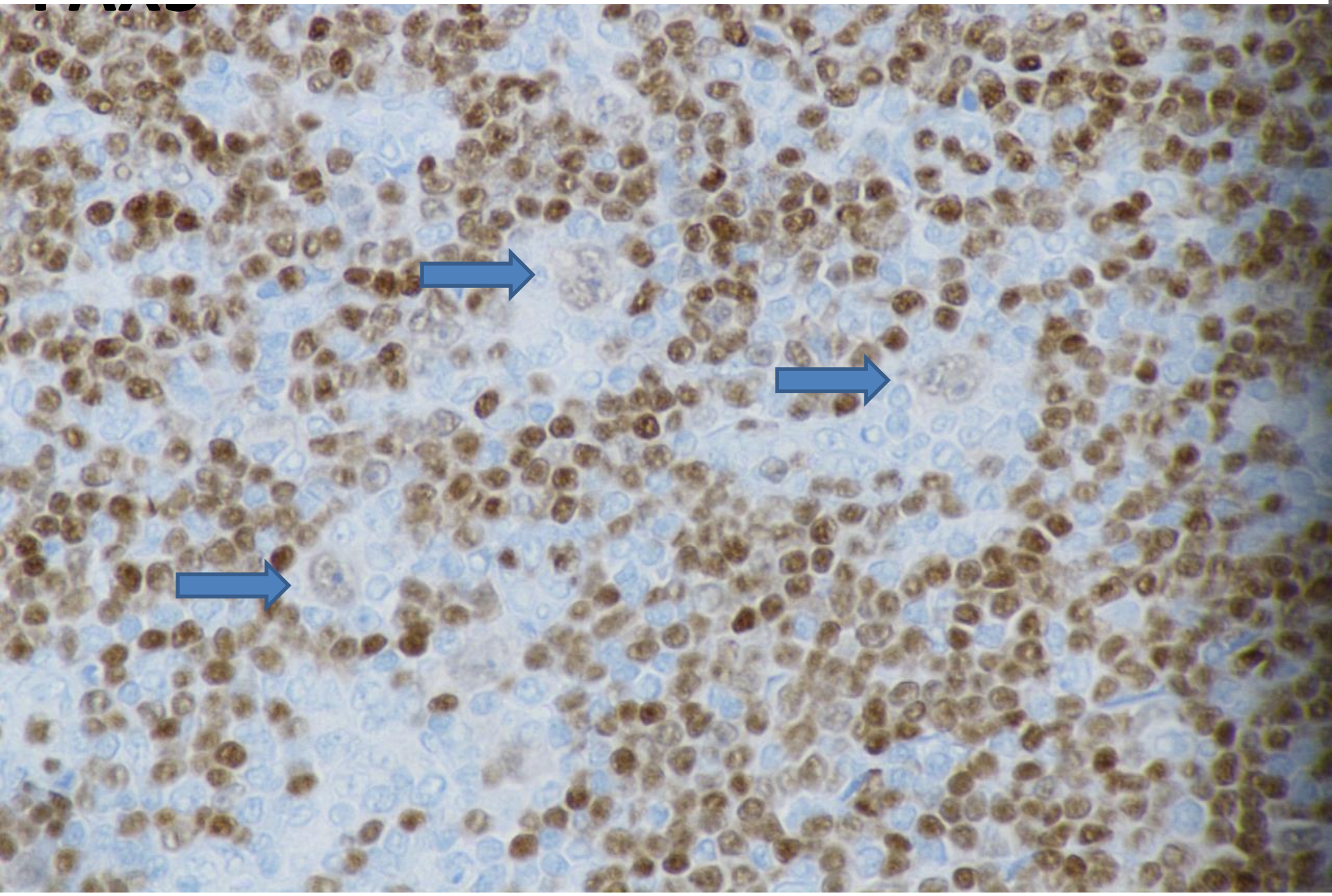
Summary of immunohistochemistry so far..

- The small lymphoid cells expressed CD20, CD5 and CD23 and were negative for CD3
- These findings favor diagnosis of Small Lymphocytic Lymphoma (SLL)

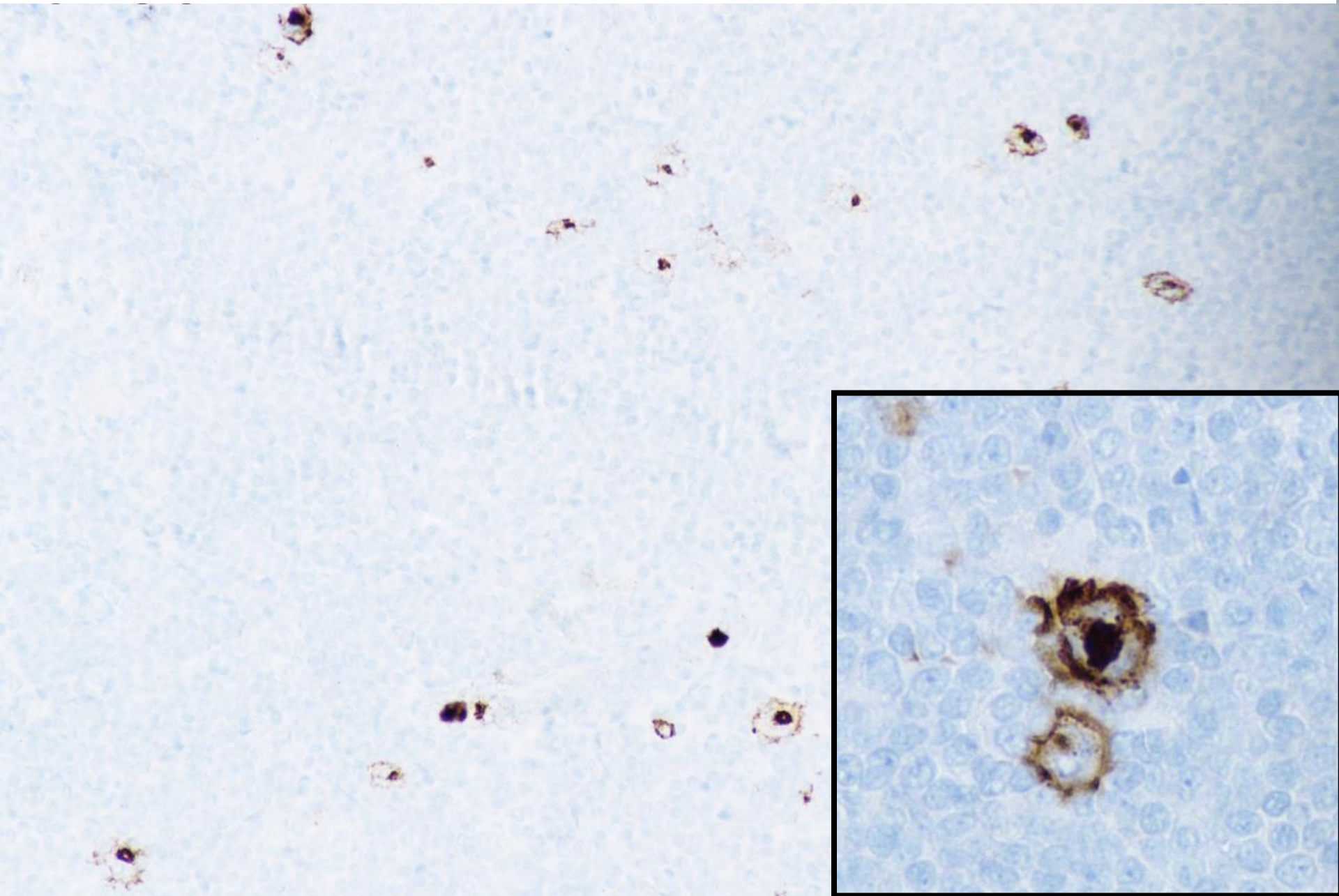
PAX5 was expressed in the small lymphoid cells



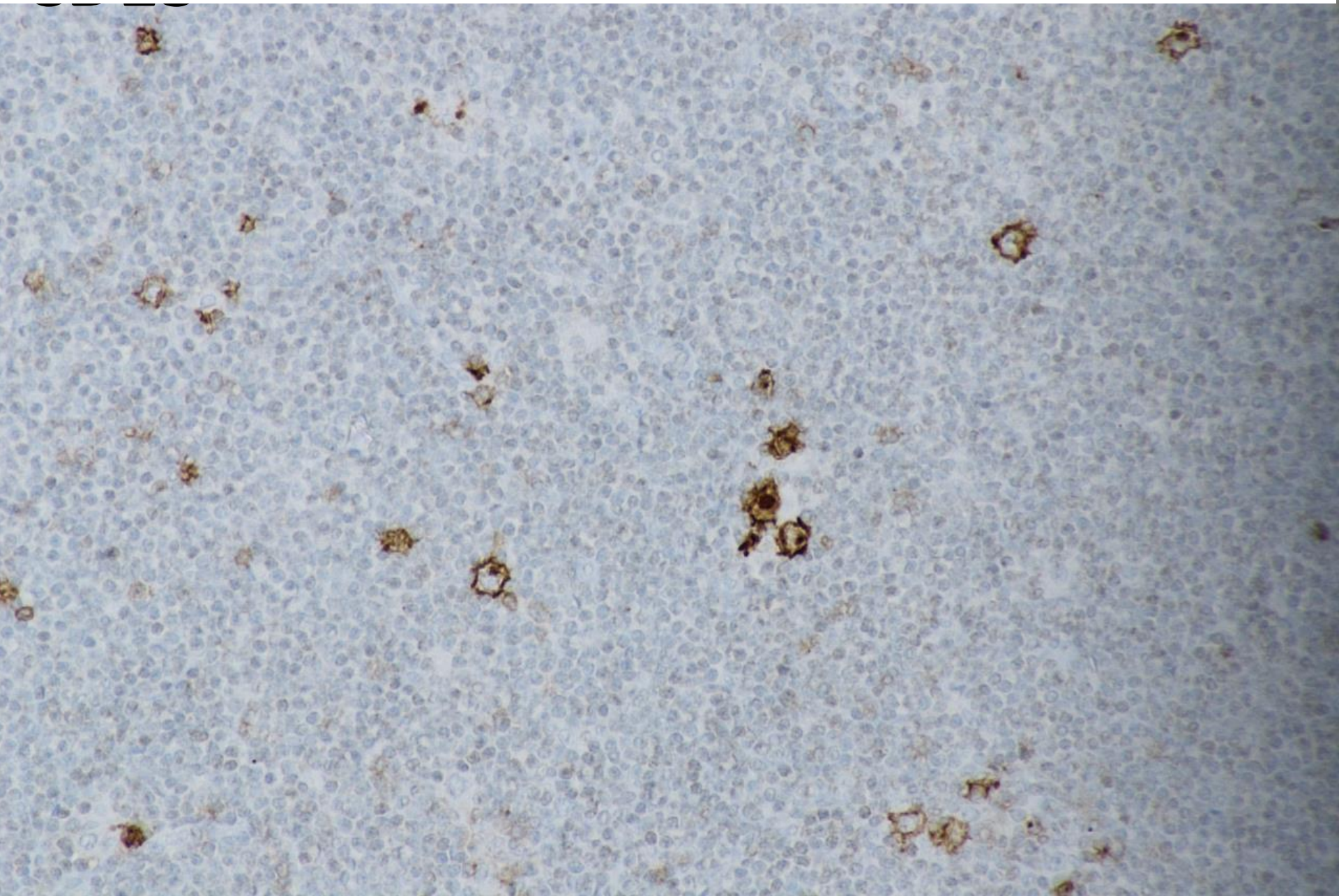
PAX5 was weakly expressed in the large RS like cells also



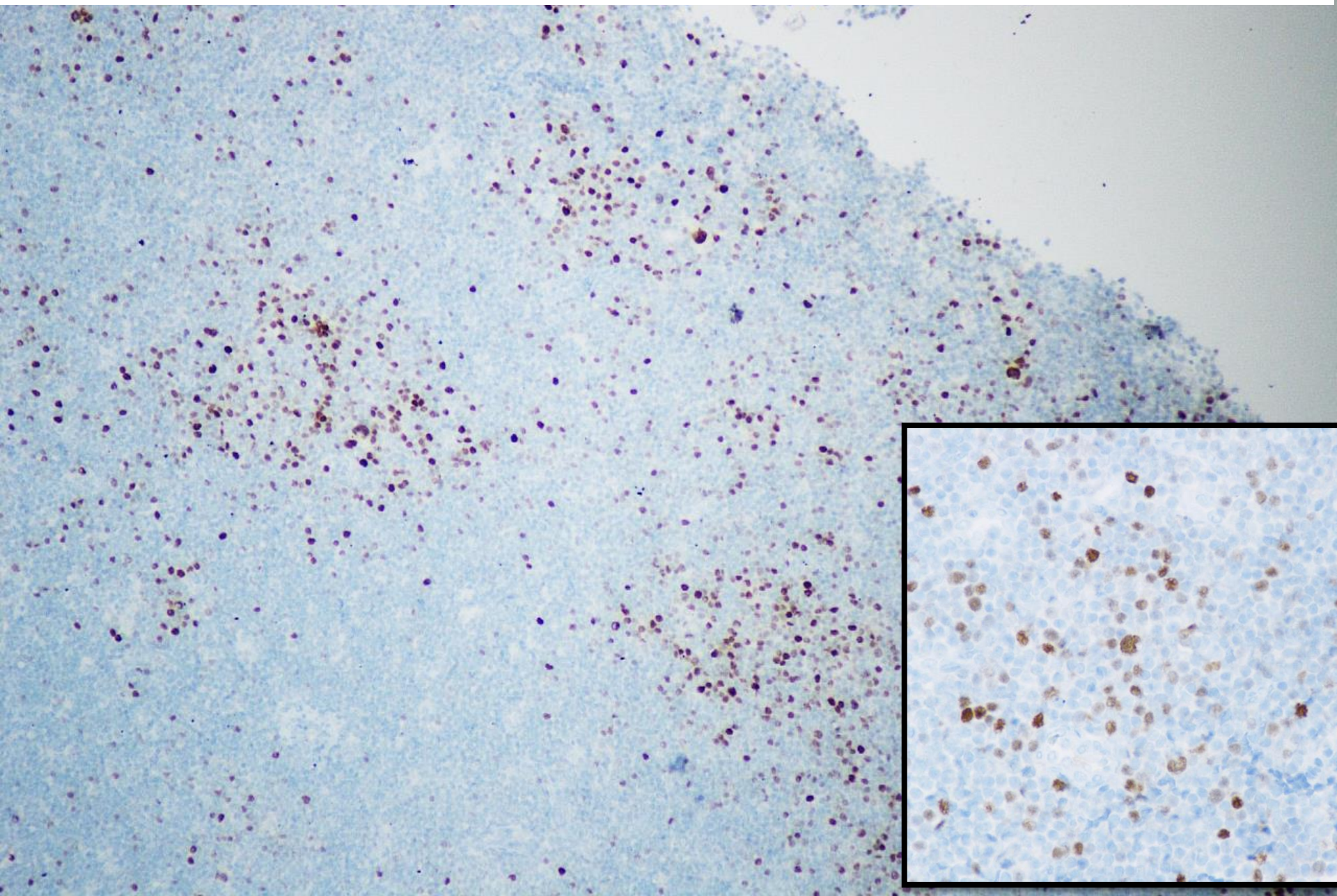
CD30 membranous staining with golgi accentuation seen



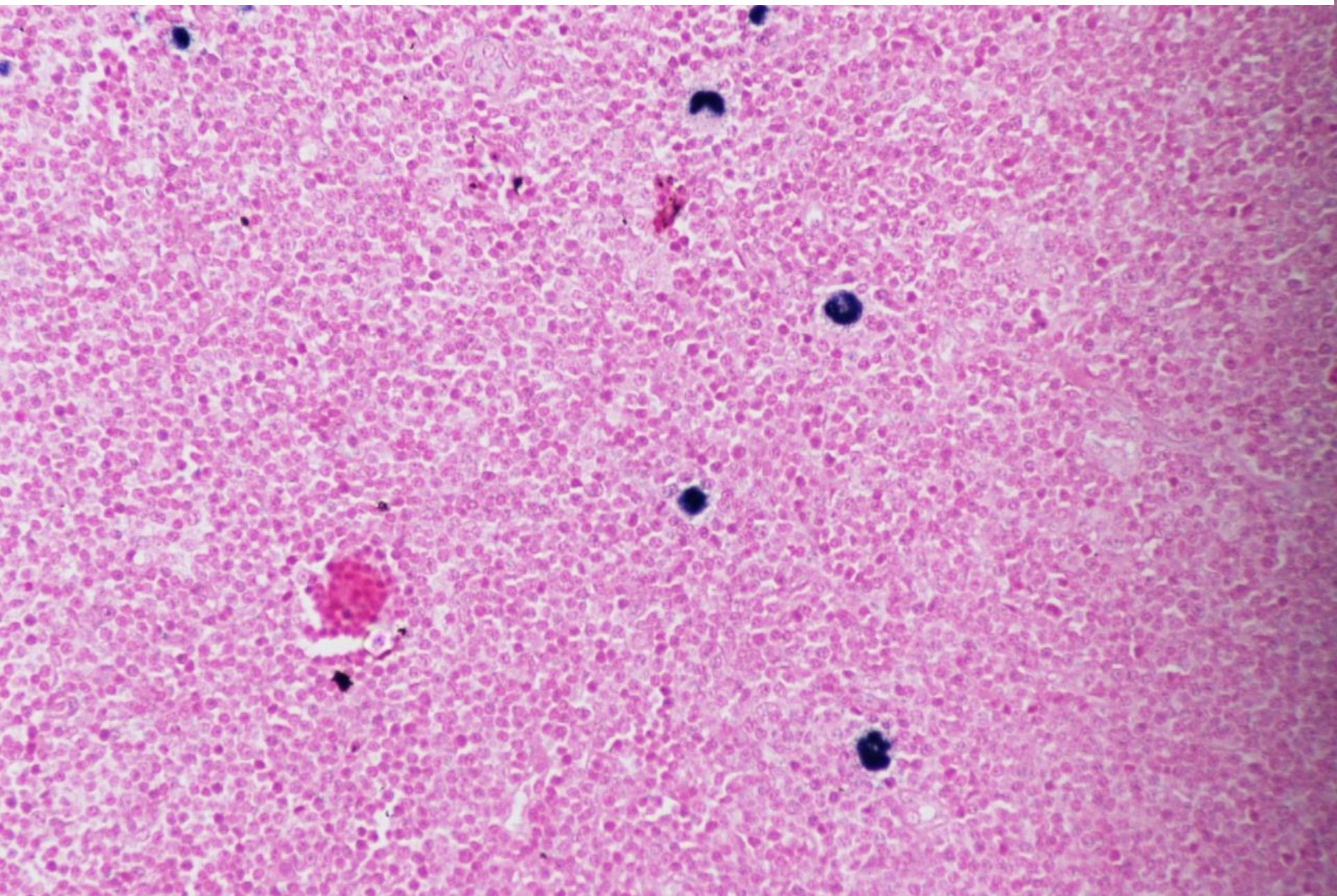
CD15 staining showed a similar staining pattern



MUM1 was positive in the RS like cells too and also highlighted the proliferation centers



EBER by In Situ Hybridization was seen in the large RS like cells



Summary of immunohistochemical findings

- CD30, CD15, MUM1 and PAX5 (weak) highlighted the RS cells

- CD 20 was negative which aided in differentiating them from the EBV activated B cells of SLL

Final diagnosis

In view of morphological and immunophenotyping finding a final diagnosis of **Richter's transformation** was rendered -Small lymphocytic lymphoma (SLL) with classical Hodgkin lymphoma

Discussion- Richters transformation (RT)

- The concept of transformation in CLL was first suggested by Maurice Richter (1928) after whom the term *Richter's syndrome* was coined later by Lortholary et al.

- Richter syndrome or Richter transformation (RT) to aggressive lymphoma such as Diffuse Large B-cell Lymphoma (DLBCL) can occur in 2-8% cases

- The term RT is also applied to CLL/SLL patients who develop other lymphoid neoplasms such as Hodgkin lymphoma (HL), plasmablastic lymphoma, hairy cell leukemia, high-grade T-cell NHL and B-lymphoblastic leukemia/lymphoma

- Progression is to be suspected when a patient develops sudden onset of B symptoms or sudden enlargement in lymph nodes.

Discussion- RT to Classical HL

- Transformation to Classical HL is seen in less than 1% cases
- Usually occurs in males in their seventh decade of life after immunosuppressive chemotherapy
- On histology, the RS cells can be seen in two backgrounds
  -Polymorphous inflammatory background consisting of T-cells and histiocytes distinct from the SLL area
  -Scattered in a monomorphic background of CLL cells
- The latter is more uncommon and have been referred to in the literature as CLL/SLL with HRS cells or Hodgkin's variant of Richter's transformation. This pattern was observed in present case as well.

Discussion- Differentials

- Large RS like cells may represent transformed B-cells in SLL and other low grade lymphomas. This transformation most probably occurs as the result of Epstein-Barr virus infection.*

- These can be distinguished from true neoplastic HRS cells by positive staining for CD20 and CD30 and negative staining of CD15. however in our case the RS cells had similar IHC findings as de-novo cases i.e. negative CD20 and positive for CD30 and CD15.

* Reed-Sternberg-like cells in low-grade lymphomas are transformed neoplastic cells of b-cell lineage Sung Sik Shin, Jonathan Benezra, Jerome S Burke, F Khalil Sheibani, and Henry Rappaport. Am J Clin Pathol 1993;99: 658-662.

Discussion- Prognosis

- Hodgkin variant appears to differ from DLBCL-RT and is clinically less aggressive.

- However, compared to de novo Hodgkin’s lymphoma, Hodgkin variant of Richter's syndrome has a worse prognosis.