

## Introduction

The incidence of hematological malignancies during pregnancy is rare, ranging from 1 in 1,000 to 1 in 10,000 deliveries. Of these, lymphoma is the fourth most frequent malignancy diagnosed during pregnancy, occurring in approximately 1 over 6,000 deliveries. Hodgkin's lymphoma (HL), in particular, is the most common lymphoma during pregnancy because epidemiologically the early peak age of occurrence includes patients from their teens through to 30 years old, thereby covering the prime childbearing years. Herein we report a case of classical HL of mixed cellularity (MC) subtype, involving liver and initially presenting as a liver mass in a 33 year old pregnant women at 28 weeks gestation. The histomorphology of the liver lesion showed abundant spindle-shaped histiocytes admixed with mixed inflammatory cell infiltrate including few large atypical cells, reminiscent of an inflammatory pseudotumor.

## Methods

A 33 year old female presented at 28 weeks gestation with right upper quadrant pain. Imaging studies showed cholelithiasis and patchy liver parenchymal involvement secondary to preeclampsia. Two days later, the patient underwent emergent C-section for nonreassuring fetal heart tones. Within two days of C-section, exploratory laparotomy was performed with tube cholecystostomy to relieve symptoms of right upper quadrant pain. Intraoperatively, the liver appeared to be involved by a malignant process and hence a liver biopsy was performed.

## Microscopic and Immunohistochemistry Findings

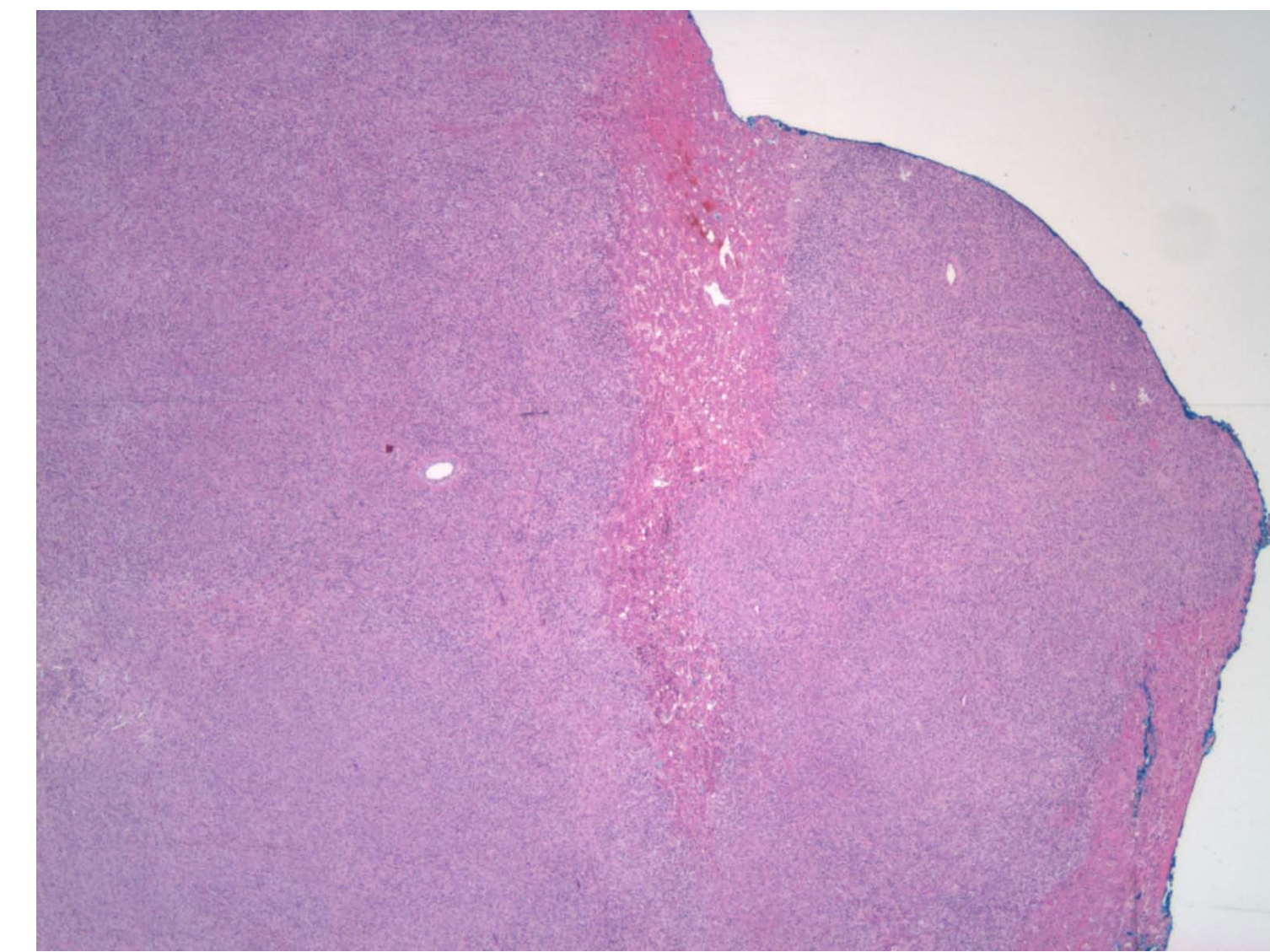


Figure 1. Wedge biopsy of liver with distortion of architecture by infiltrative process (H&E, 4x).

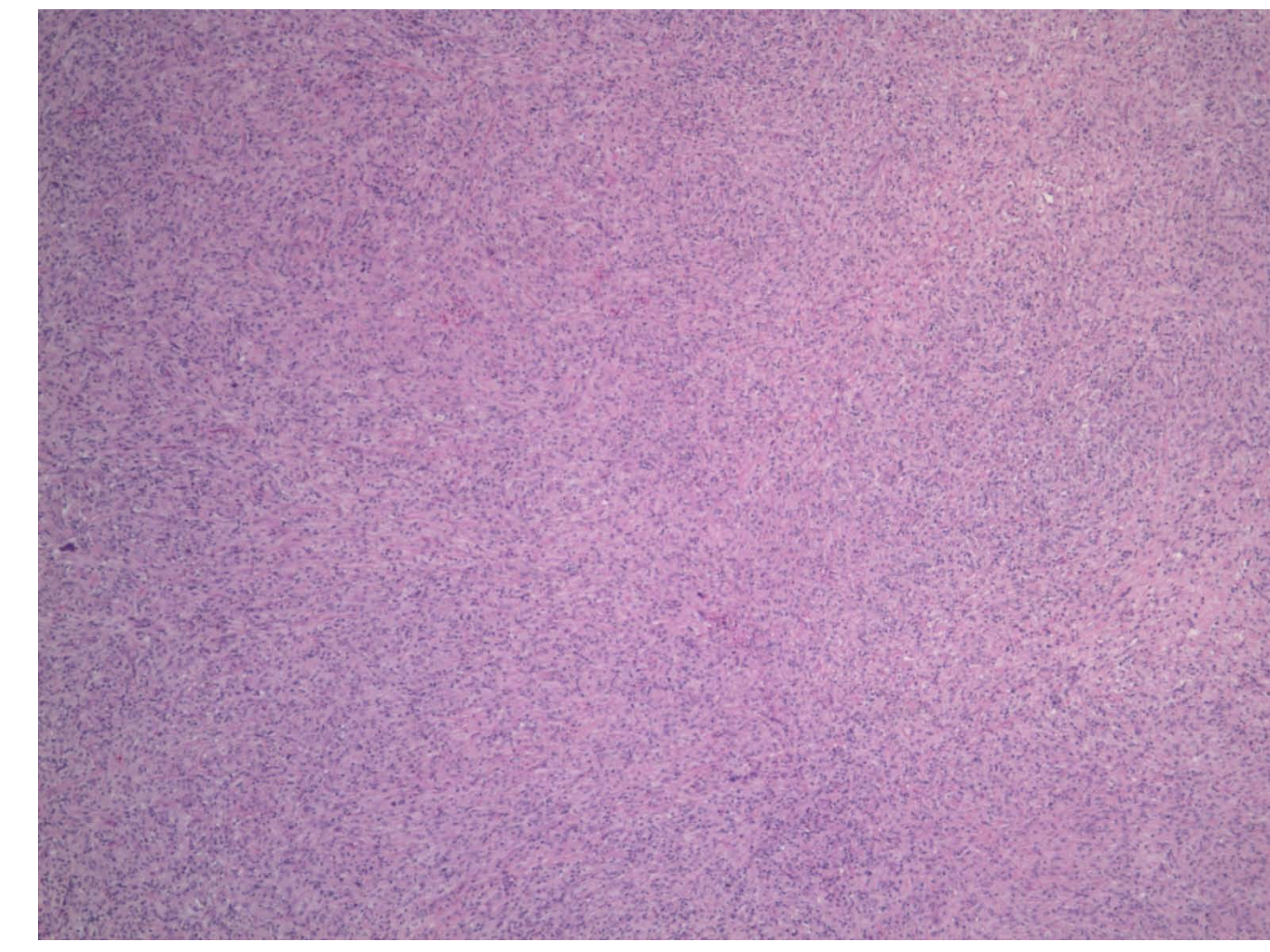


Figure 2. Higher magnification demonstrating hypercellular spindle cell lesion suggestive of reactive process (H&E, 10x).

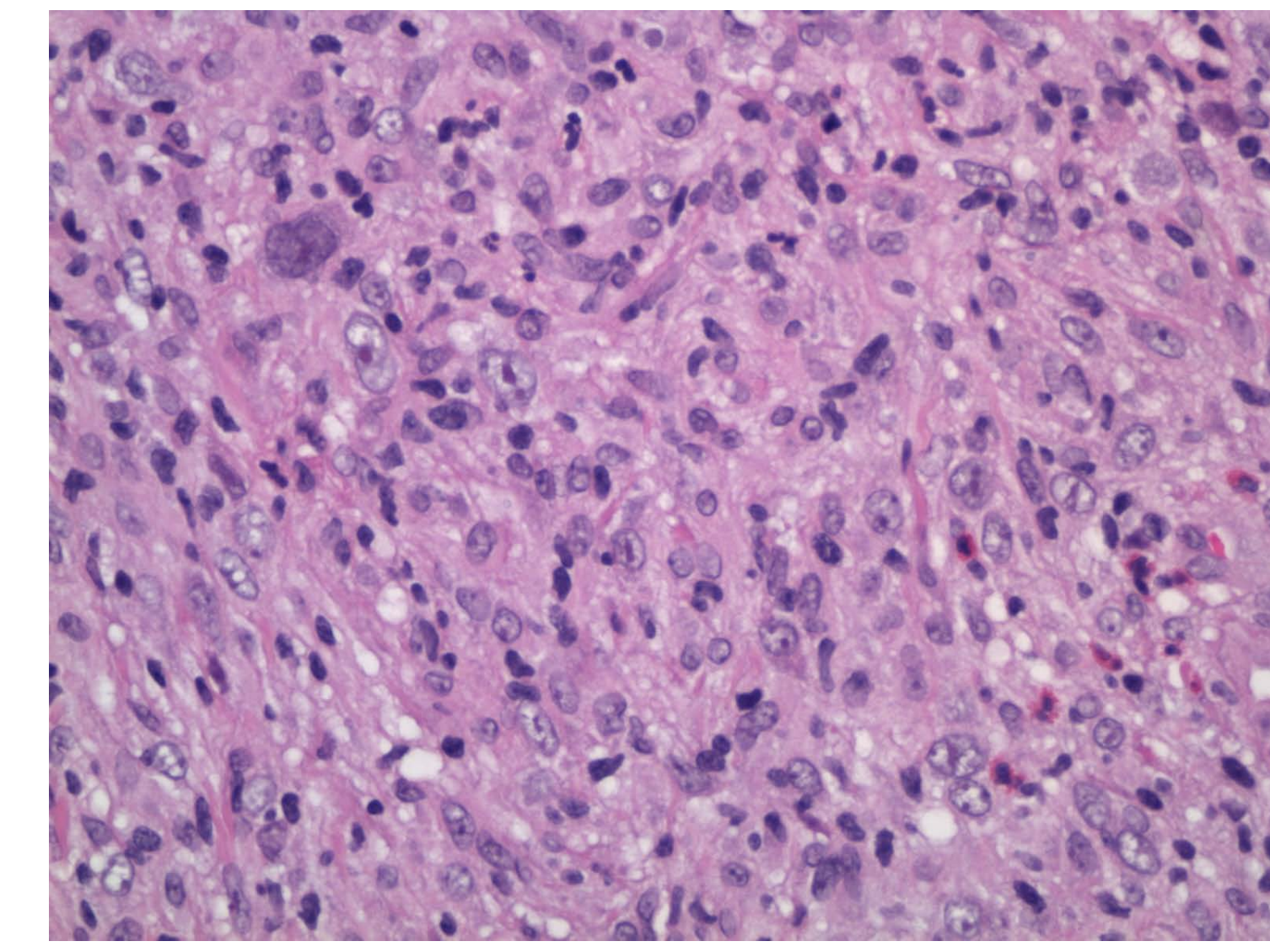


Figure 3. Identification of large cells with large eosinophilic nucleoli suggestive of HRS cells (H&E, 40x).

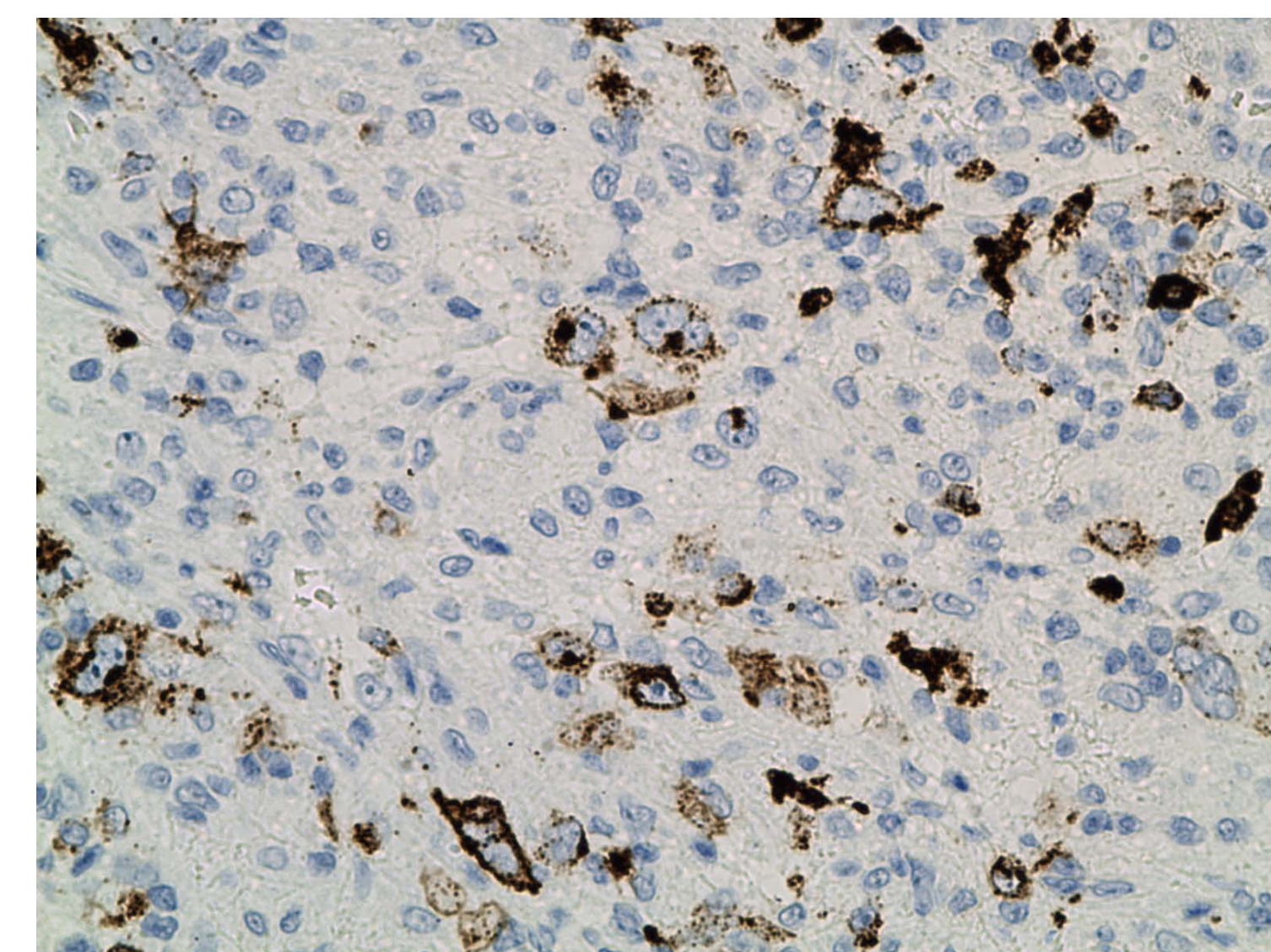


Figure 4. Immunohistochemistry (IHC) of large cells for CD 15 is positive with membranous and golgi staining (IHC, 40x).

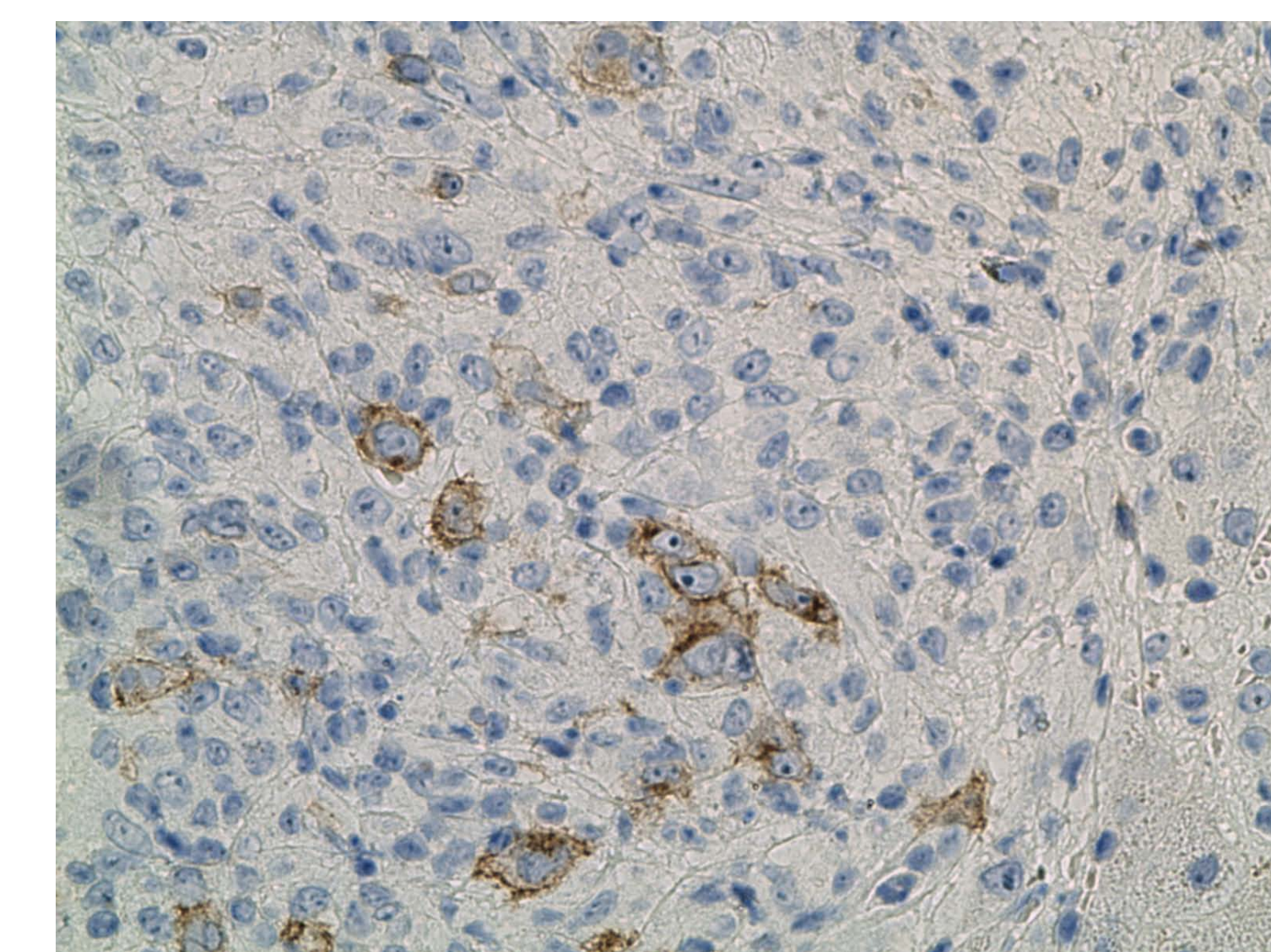


Figure 5. Large cells positive for CD 30 with membranous and golgi staining (IHC, 40x).

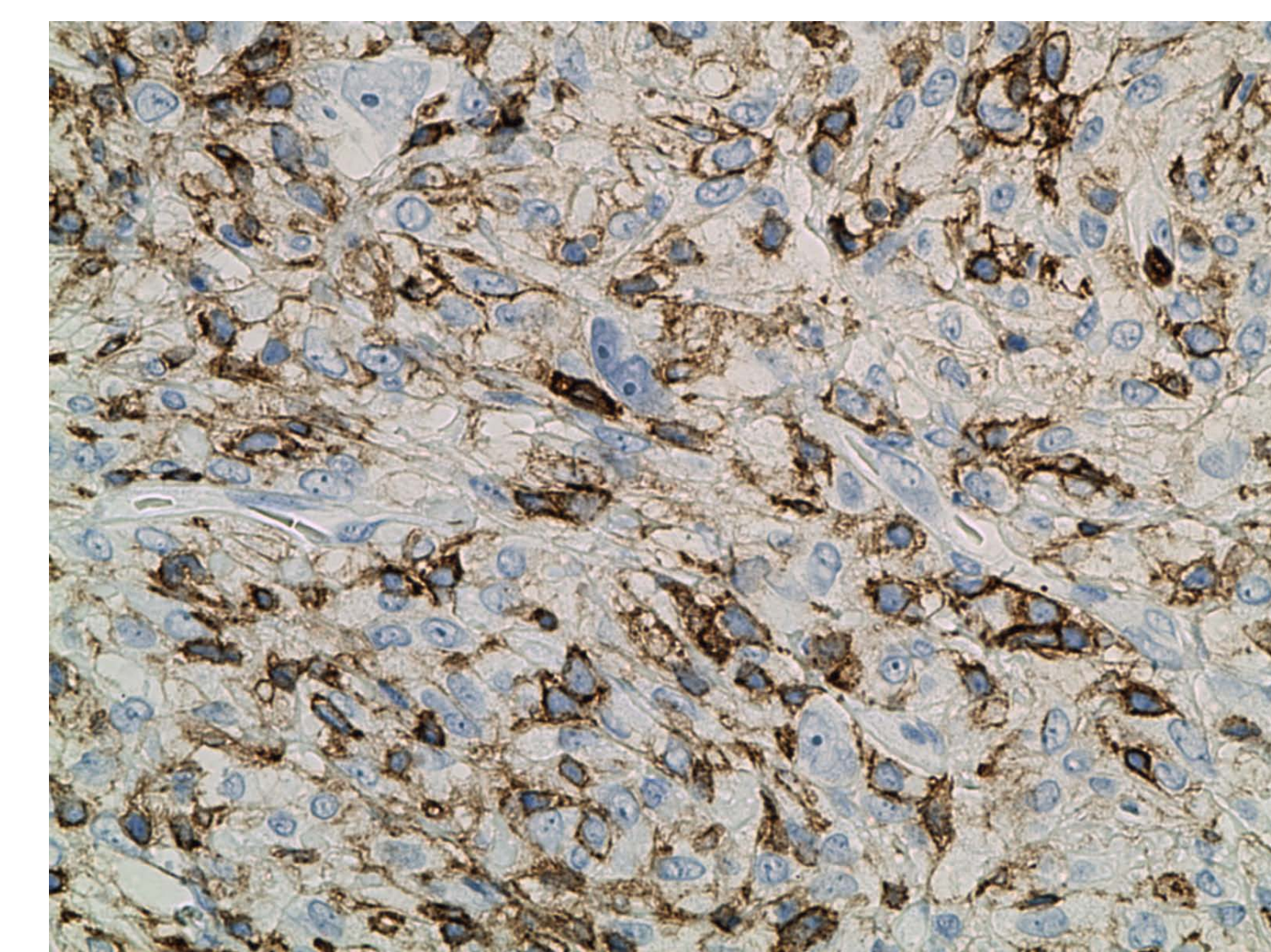


Figure 6. Large cells negative for CD 45 (IHC, 40x).

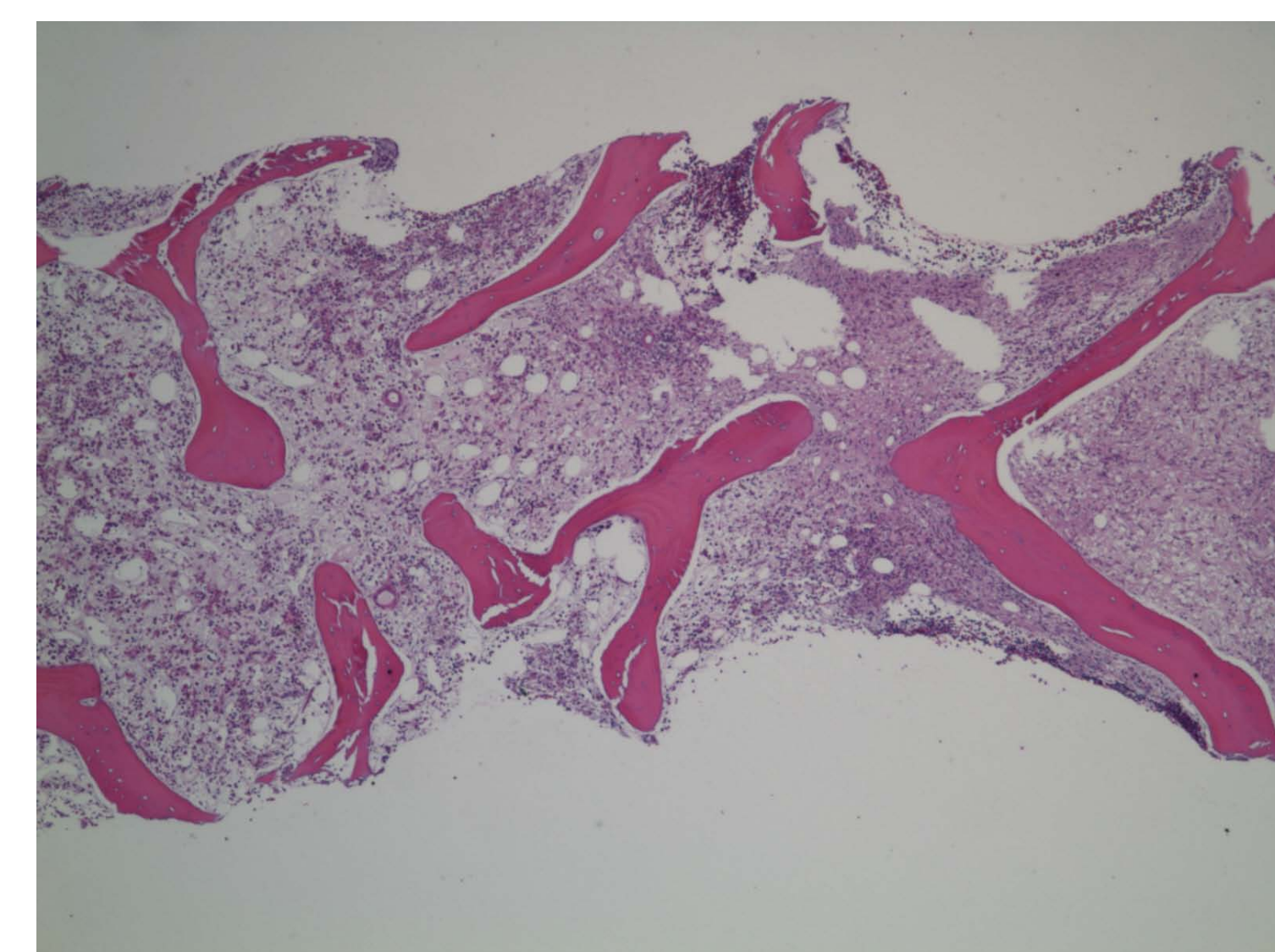


Figure 7. Bone marrow biopsy showing involvement of bone marrow with Hodgkin lymphoma (H&E, 4x).

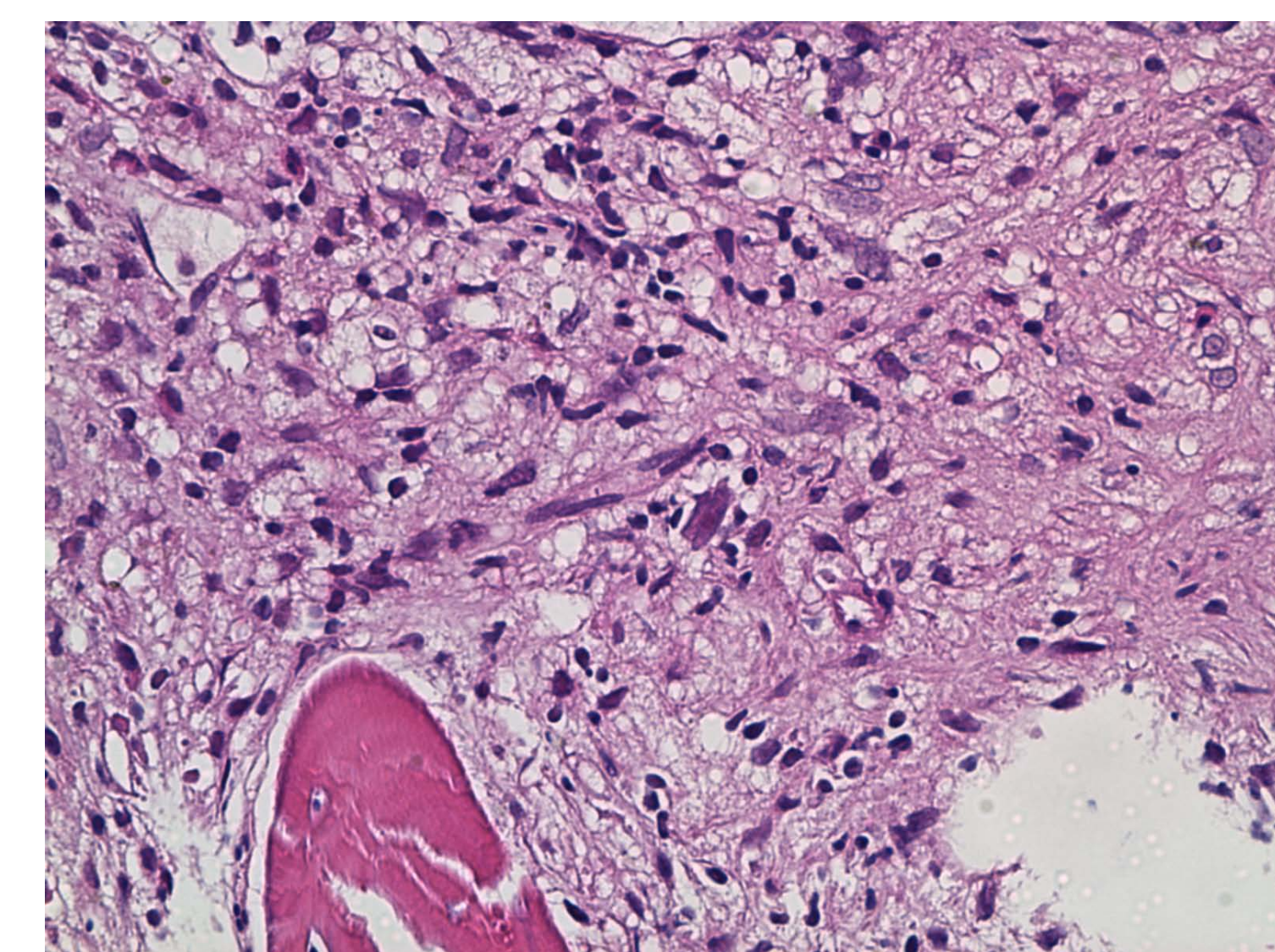


Figure 8. Higher magnification of bone marrow demonstrating mononuclear Hodgkin cells (H&E, 20x).

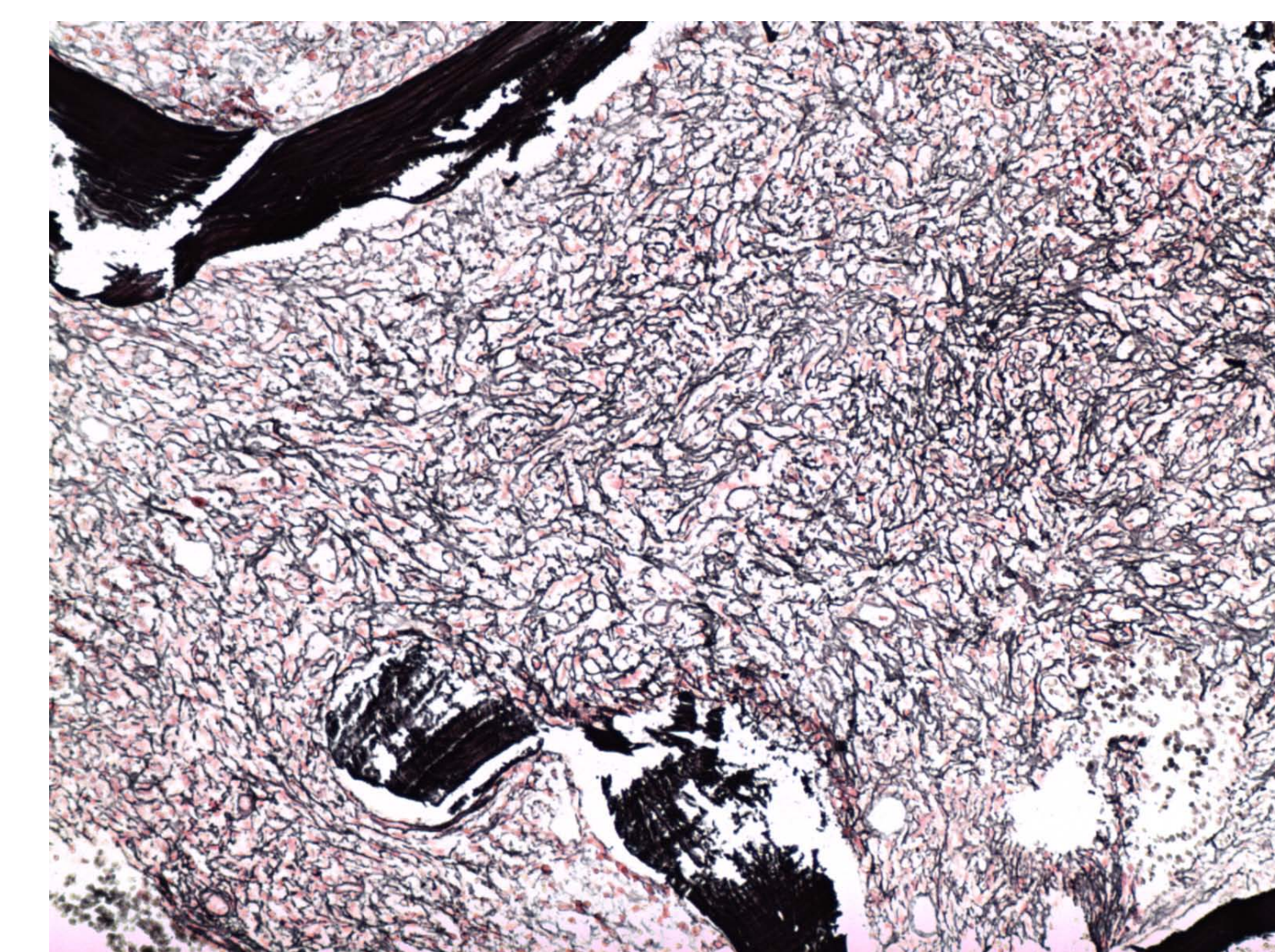


Figure 9. Reticulin stain of bone marrow biopsy showing extensive fibrosis consistent with bone marrow involvement by Hodgkin lymphoma (20x).

## Results

Microscopic examination of the wedge biopsy demonstrated a hypercellular spindle-cell lesion with mixed inflammatory infiltrate composed of eosinophils, plasma cells and lymphocytes. CD68 was performed to help identify the nature of the spindle cells, which stained positive confirming the histiocytic nature of the spindle cells. Initial impression for the liver biopsy was a reactive process. After distinction from the diffuse histiocytic background, there was a subpopulation of slightly larger cells with large eosinophilic nucleoli suggestive of Hodgkin Reed-Sternberg (HRS) cells that became more apparent. IHC staining for these cells with CD30, CD15 showed membranous and golgi pattern. Additionally, these cells were negative for CD45. Based on these findings, a diagnosis of cHL, mixed cellularity, was made. As follow up, a bone marrow biopsy was performed that showed involvement of the bone marrow with Hodgkin lymphoma. The patient is currently being managed with systemic chemotherapy including gemcitabine, dexamethasone, carboplatin, and rituximab and has shown clinical improvement.

## Conclusions

Classical HL of MC is a monoclonal lymphoid neoplasm composed characteristically of mononuclear Hodgkin cells and multinucleated Reed-Sternberg cells in a background of inflammatory cells including lymphocytes, eosinophils, neutrophils, plasma cells, and histiocytes. It has been known to mimic reactive/inflammatory conditions in cases which show abundance of epithelioid histiocytes. Therefore, as observed in our case, presence of abundant spindle-shaped histiocytes coupled with an unusual clinical scenario, considering its rarity in pregnancy and an extranodal involvement as an initial presentation, could lead to diagnostic pitfall. This case reinforces the value of diligent clinicopathologic correlation to establish the correct diagnosis.