Foundation Block
Pathology
2019

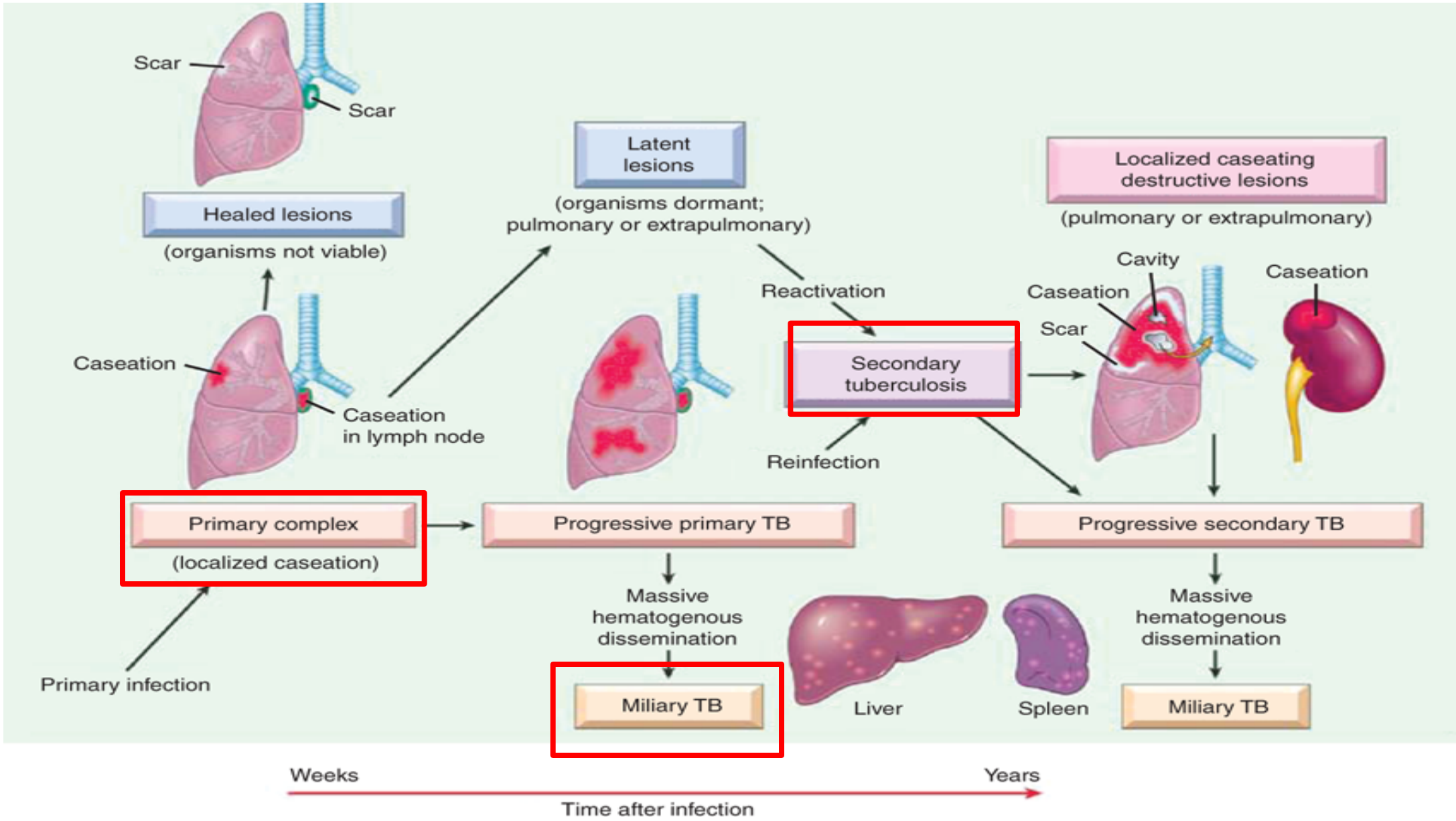
PRACTICAL

Granulomatous Diseases

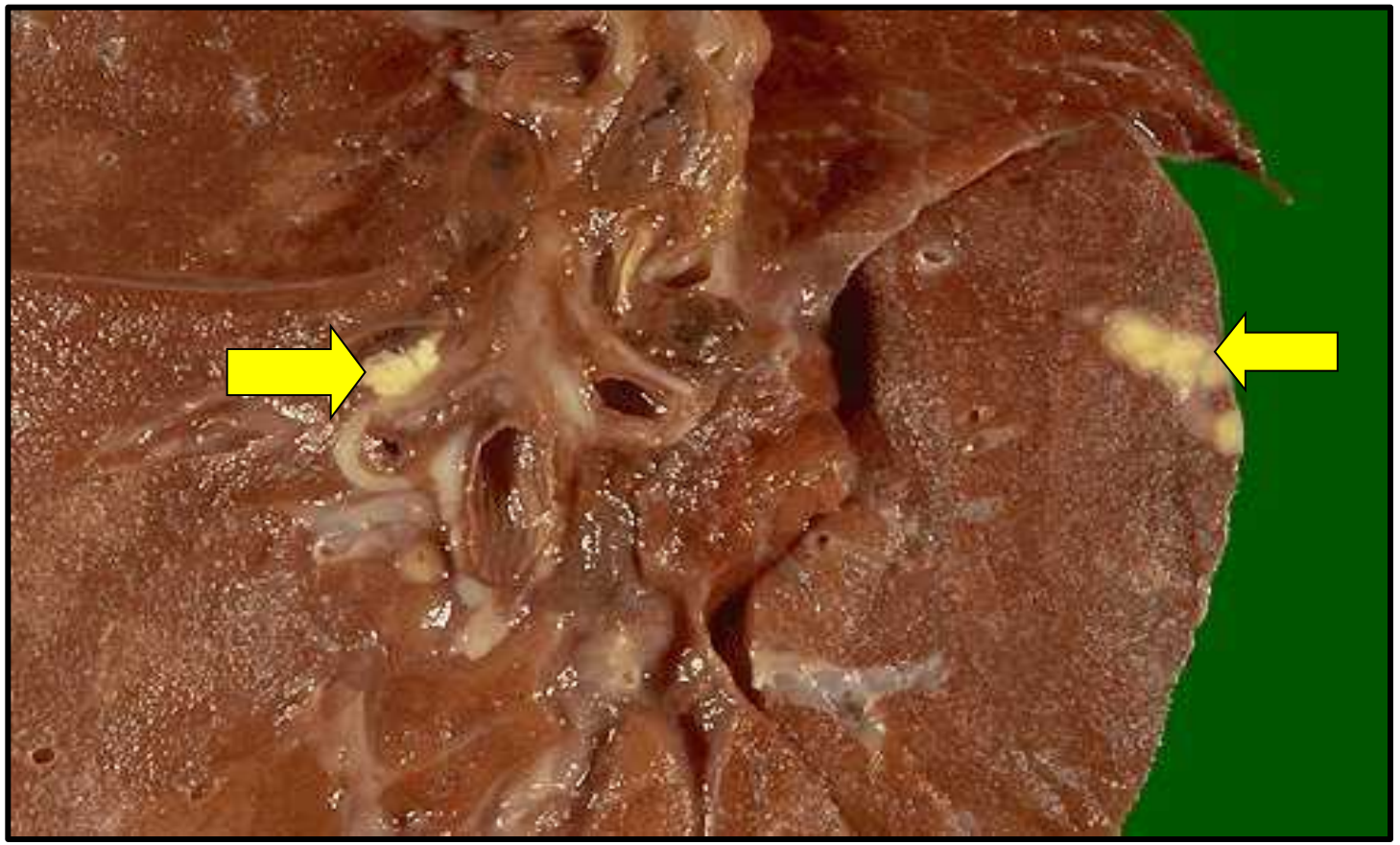
1- Tuberculosis of the lung

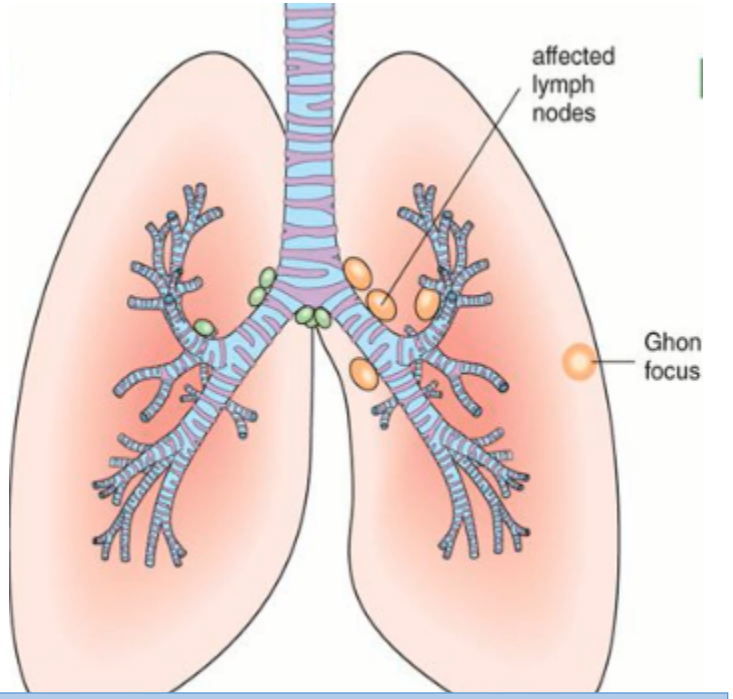
Pulmonary TB – Caseous Necrosis – Gross

The granulomas have areas of caseous necrosis. This pattern of multiple caseating granulomas


Scar
Scar
Healed lesions
(organisms not viable)
Latent lesions
(organisms dormant; pulmonary or extrapulmonary)
Localized caseating destructive lesions
(pulmonary or extrapulmonary)
Cavity
Caseation
Caseation
Scar
Caseation
Caseation
in lymph node
Reactivation
Secondary tuberculosis
Reinfection
Primary complex
(localized caseation)
Progressive primary TB
Progressive secondary TB
Primary infection
Massive hematogenous dissemination
Massive hematogenous dissemination
Miliary TB
Liver
Spleen
Miliary TB
Weeks
Years
Time after infection

Pulmonary TB - Ghon's Complex – Gross





Initial (primary) infection with T.B. producing a sub-pleural lesion called a Ghon's focus. The early Ghon's focus together with the lymph node lesion constitute the Ghon's complex..

Primary tuberculosis is the pattern seen with initial infection with tuberculosis in children. Reactivation, or secondary tuberculosis, is more typically seen in adults.

Secondary tuberculosis

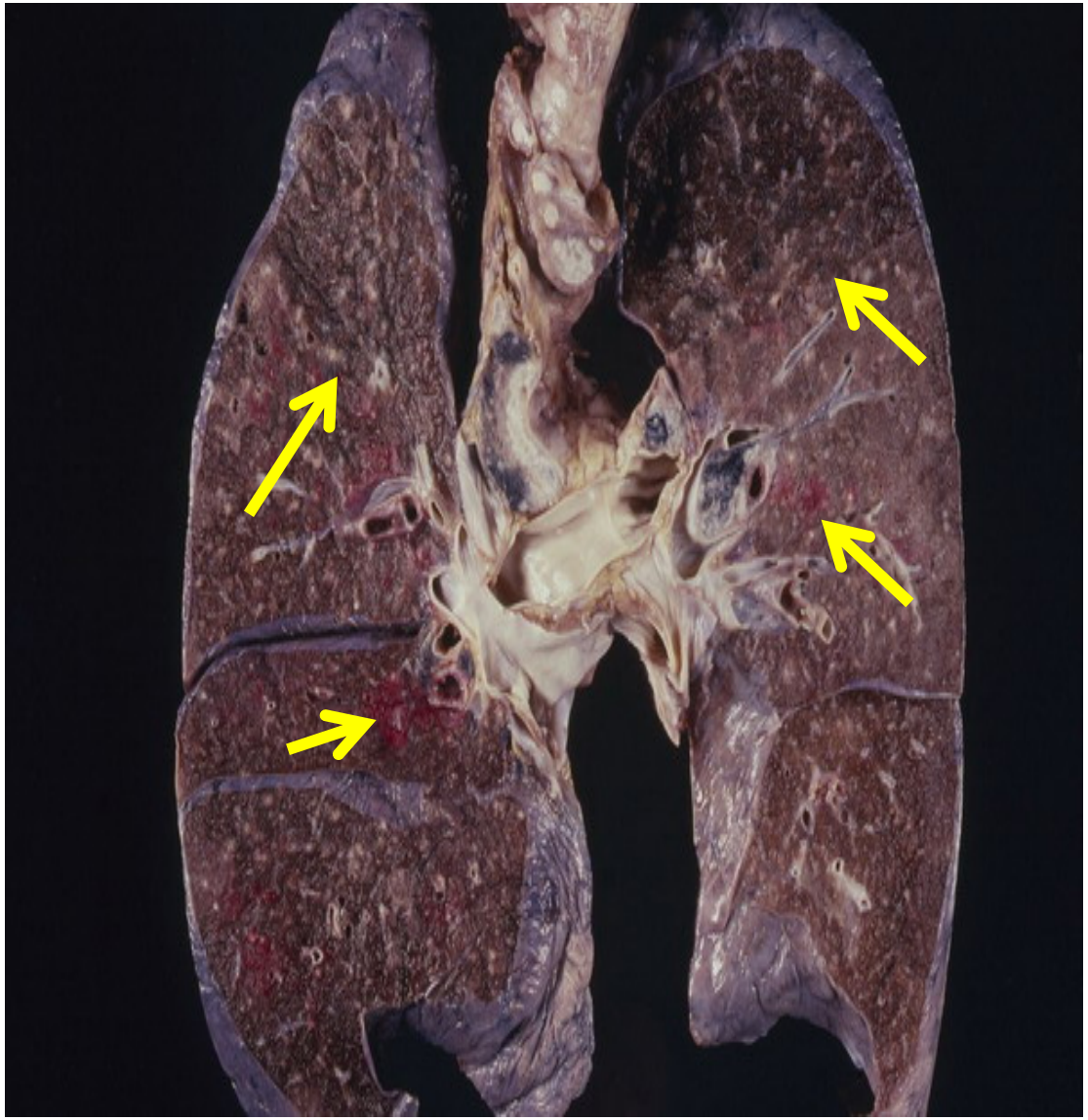
CAVITARY TUBERCULOSIS: Extensive necrosis with cavitation, usually occurring in the upper lung or apex, is a characteristic feature of "secondary" or "adult tuberculosis”

Miliary TB of the Lungs

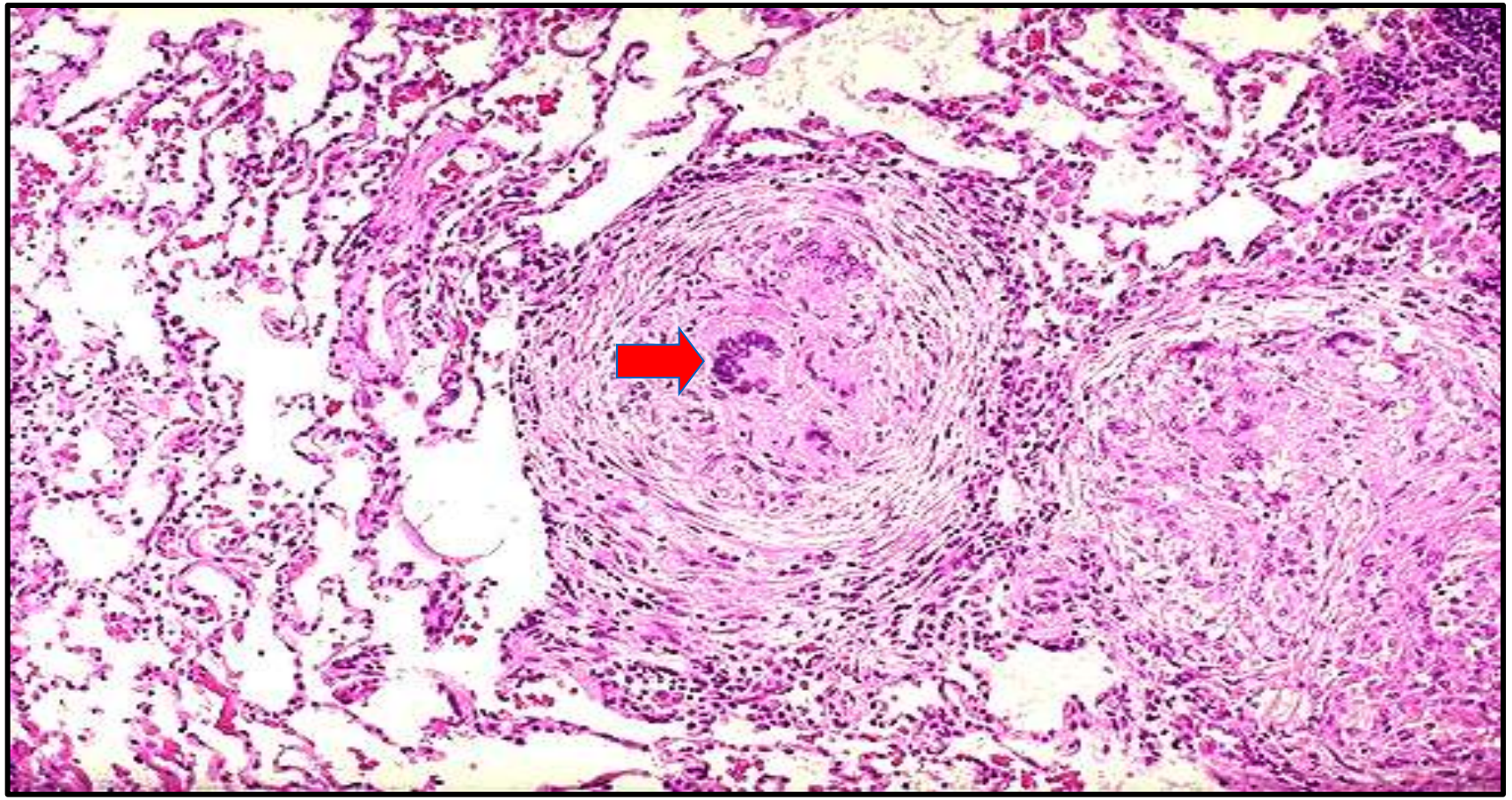
- *Miliary TB can occur when TB lung lesions erode pulmonary veins or when extrapulmonary TB lesions erode systemic veins.*

- *This results in hematogenous dissemination of tubercle bacilli producing myriads of 1-2 mm. lesions throughout the body in susceptible hosts.*

- *Miliary spread limited to the lungs can occur following erosion of pulmonary arteries by TB lung lesions.*

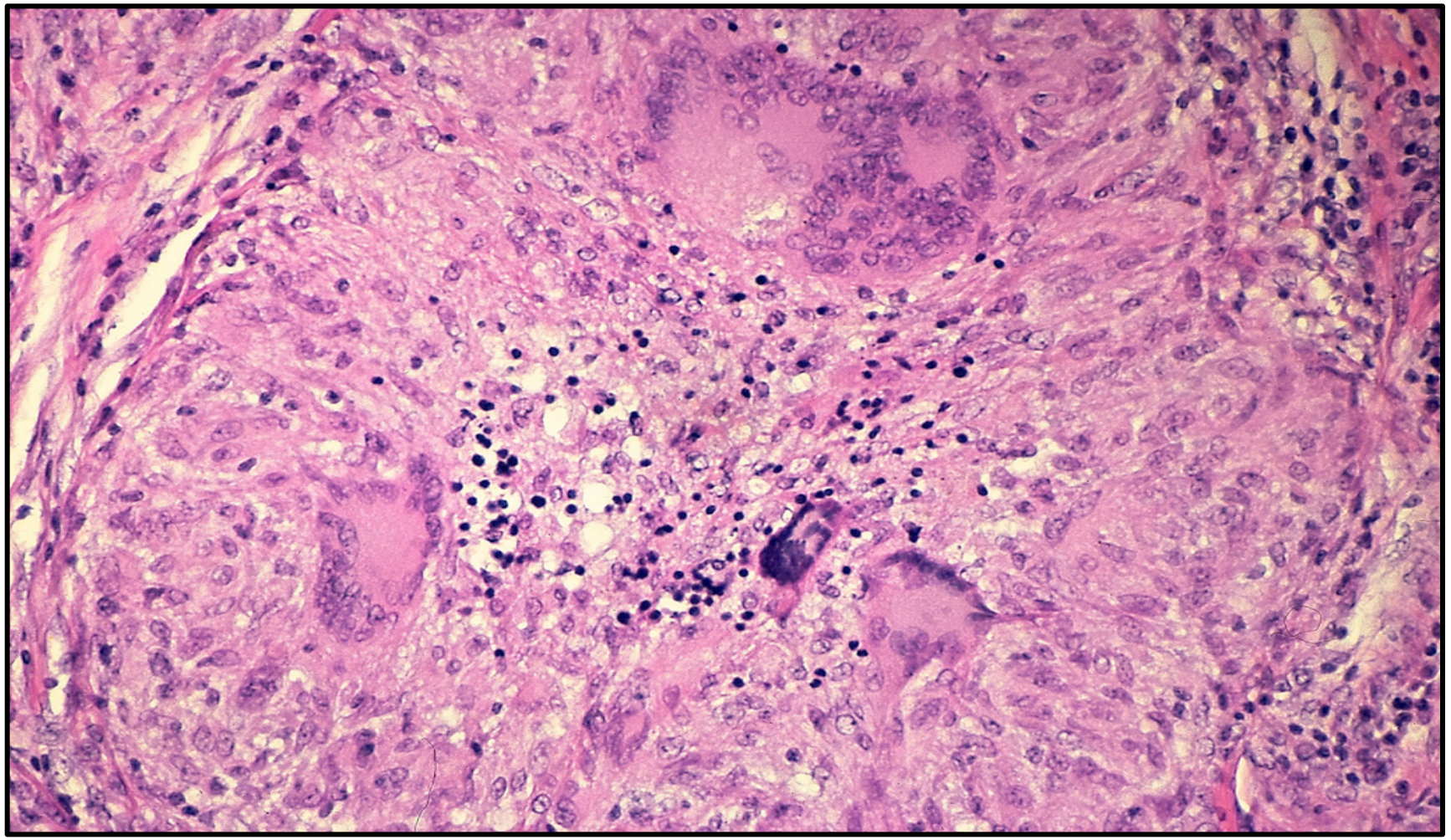


Tuberculous Granulomas



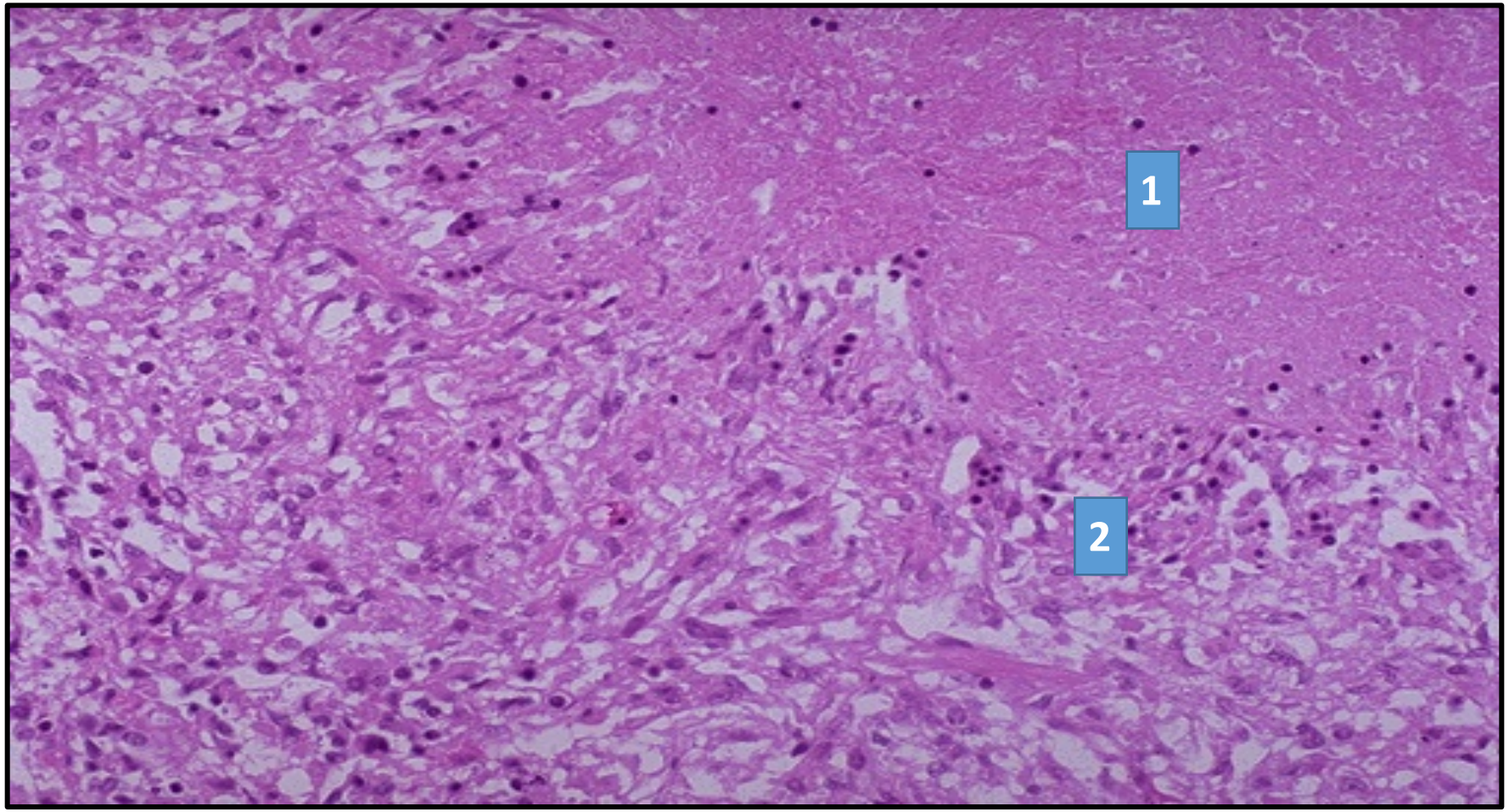
Well-defined granulomas are seen here. They have rounded outlines. The one toward the center of the photograph contains several Langhan's giant cells. Granulomas are composed of transformed macrophages called epithelioid cells along with lymphocytes, occasional PMN's, plasma cells, and fibroblasts

Pulmonary TB - Granuloma with central early necrosis



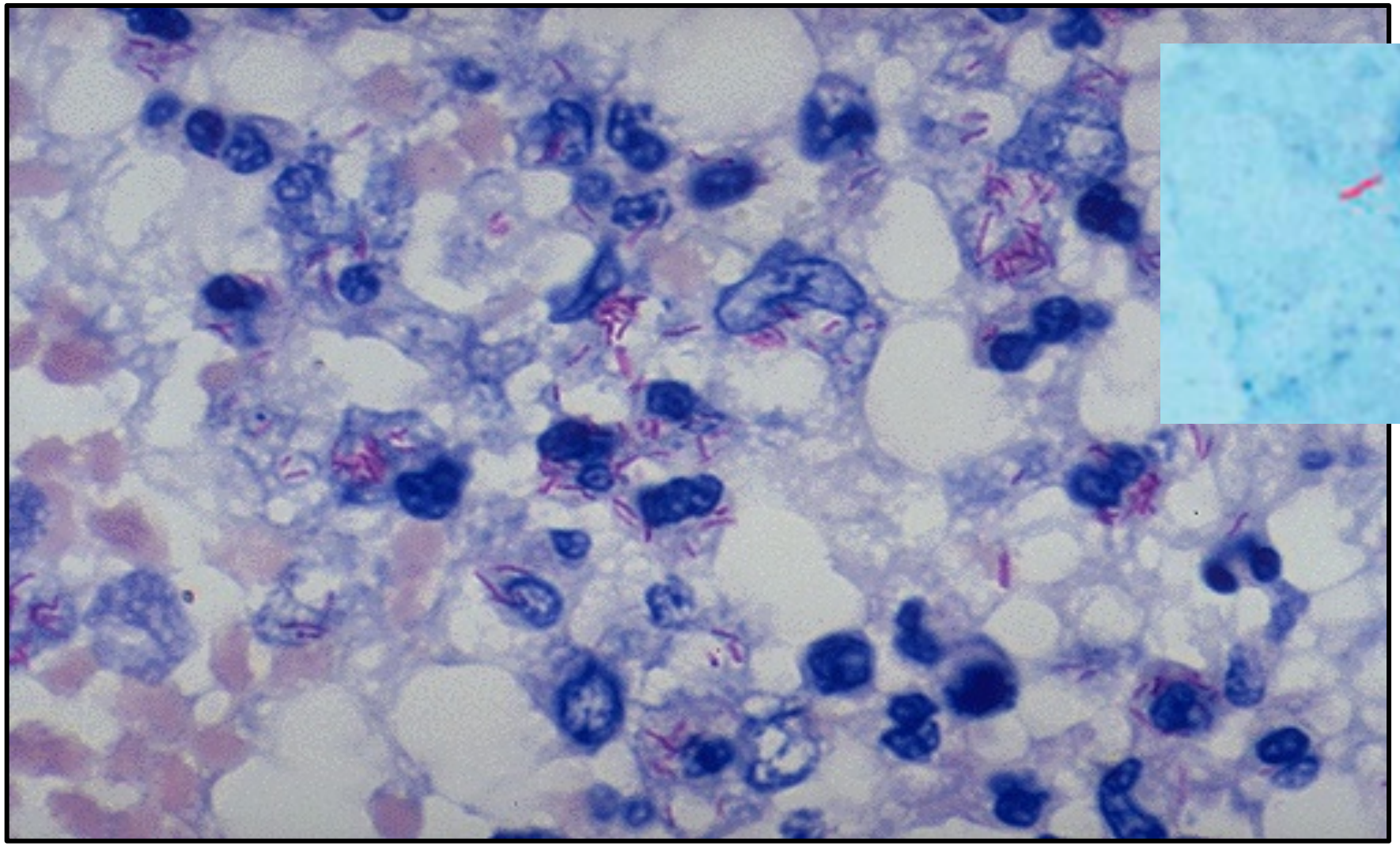
The pyknotic nuclei of epithelioid cells in the center of the granuloma (apoptotic bodies) are a precursor of necrosis.

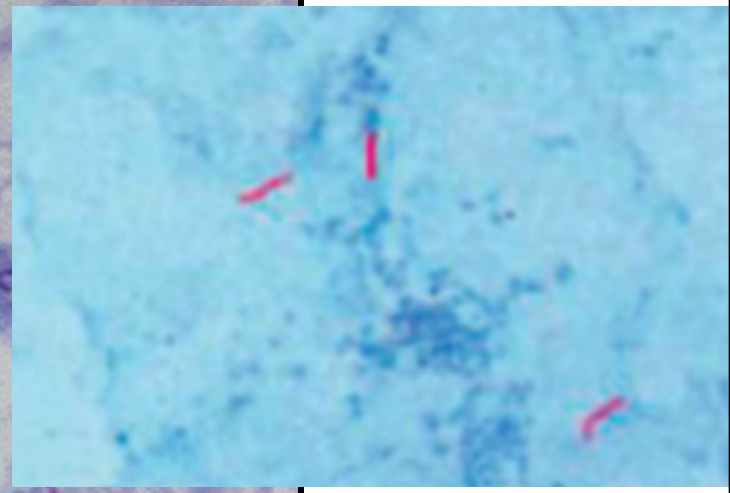
Tuberculous Granulomas



The edge of a granuloma is shown here at high magnification. At the upper is amorphous pink caseous material [1] composed of the necrotic elements of the granuloma as well as the infectious organisms. This area is ringed by the inflammatory component [2] with epithelioid cells, lymphocytes, and fibroblasts.

Acid Fast bacilli of Mycobacterium TB in the Lung



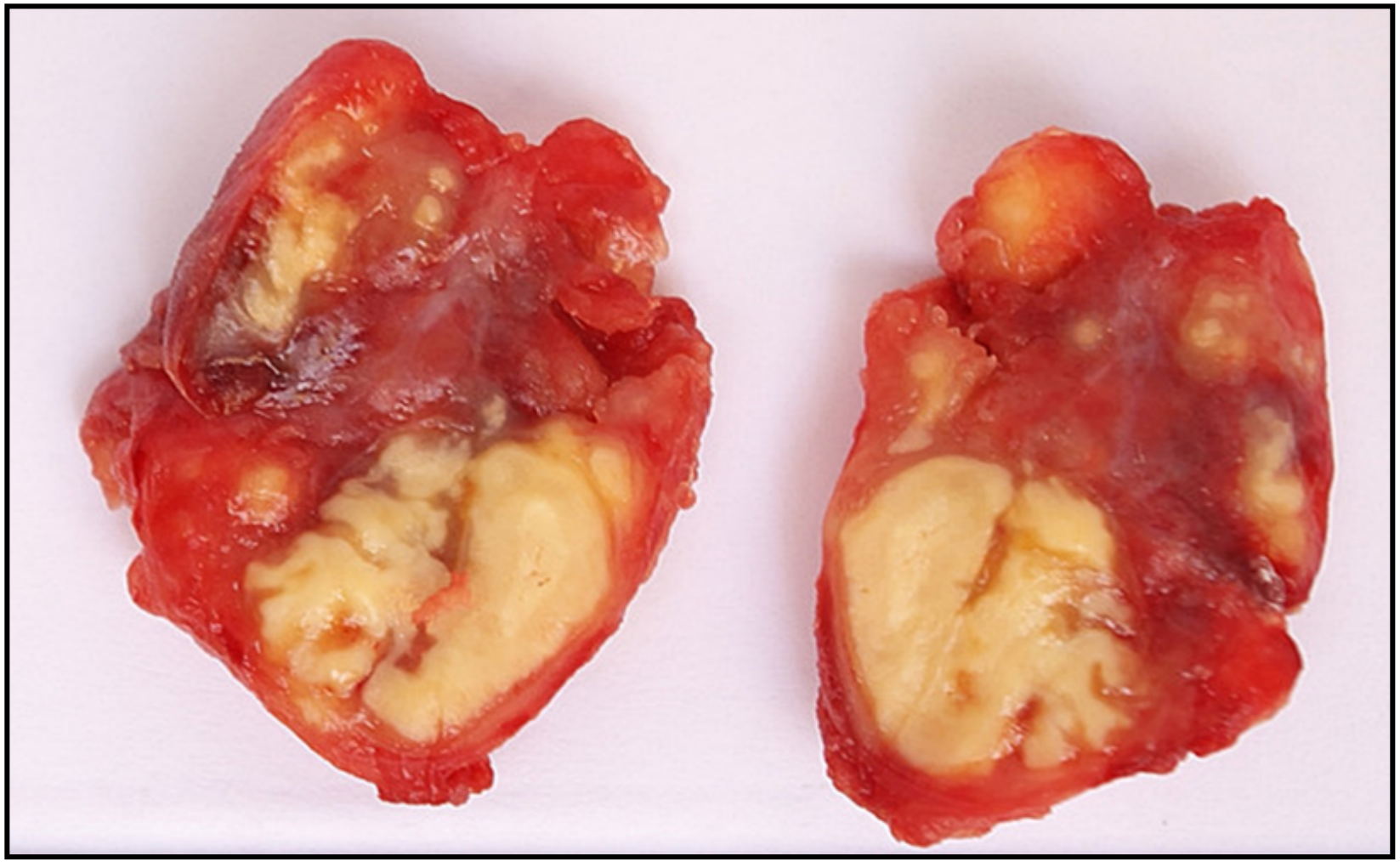


A stain for Acid Fast Bacilli is done (AFB stain) to find the mycobacteria . The mycobacteria stain as red rods, as seen here at high magnification.

2- Tuberculous Lymphadenitis

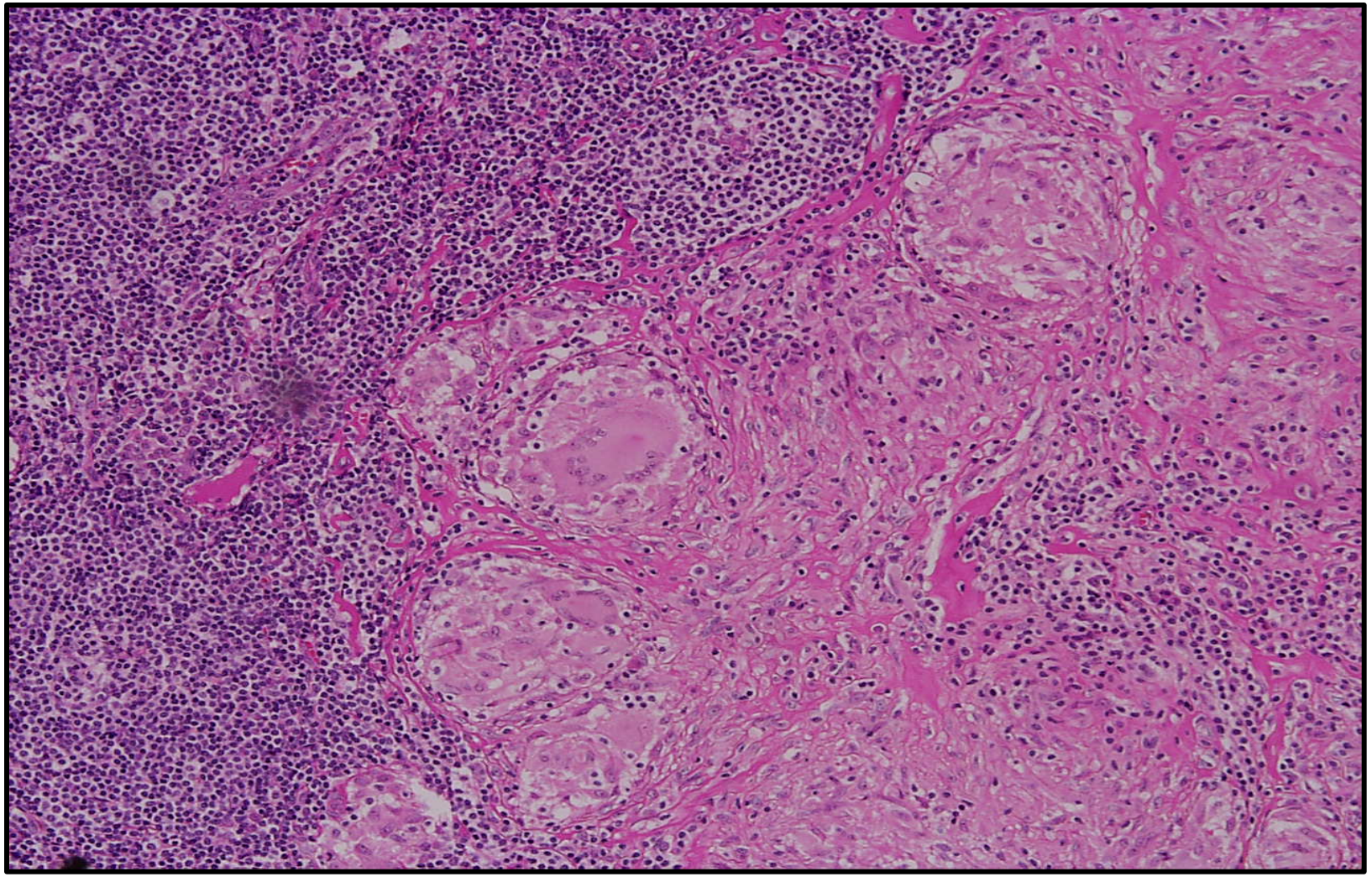
Tuberculous Lymphadenitis - Gross

Tuberculous Lymphadenitis – Cut Section



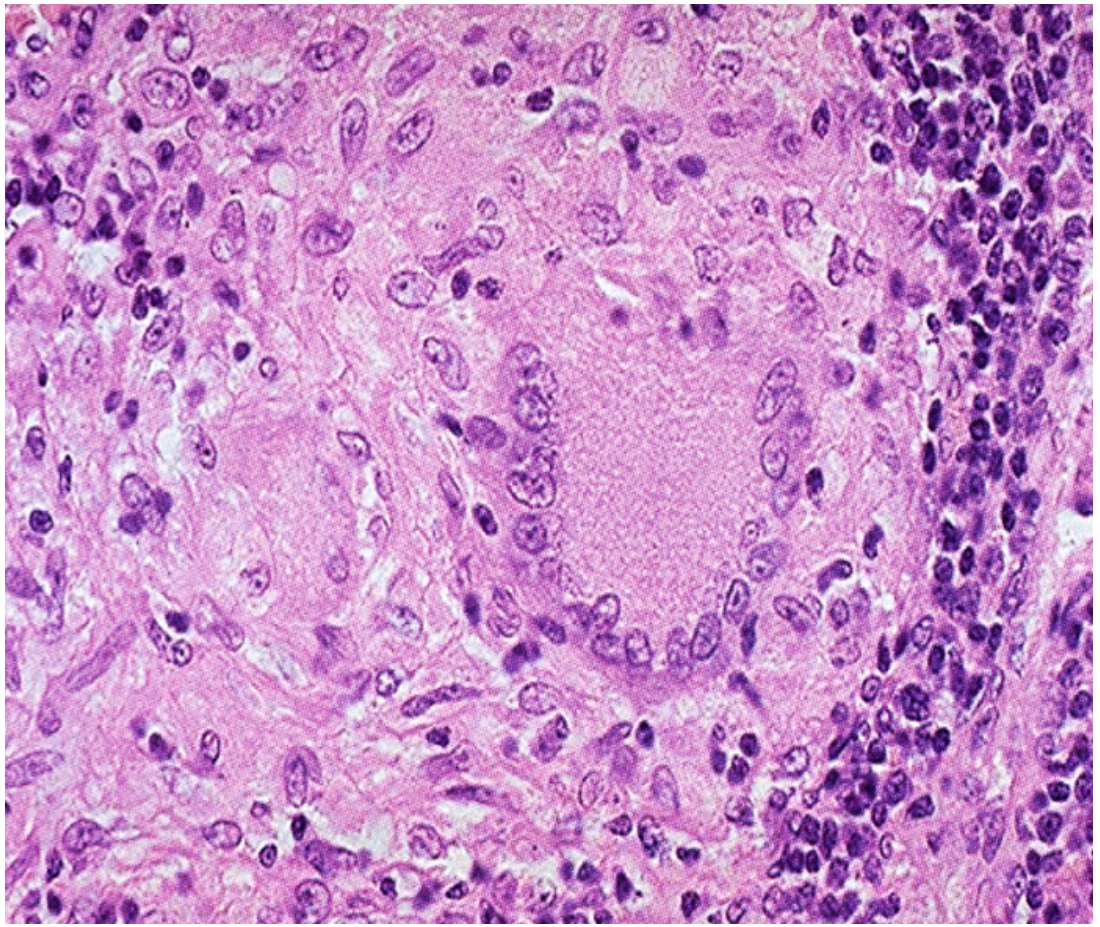
Section of a lymph node with connective tissue capsule and lymphoid tissue

Tuberculous Lymphadenitis



Many round and oval tubercles/ granulomas with or without central caseation that appears structureless, homogenous and pink in colour.

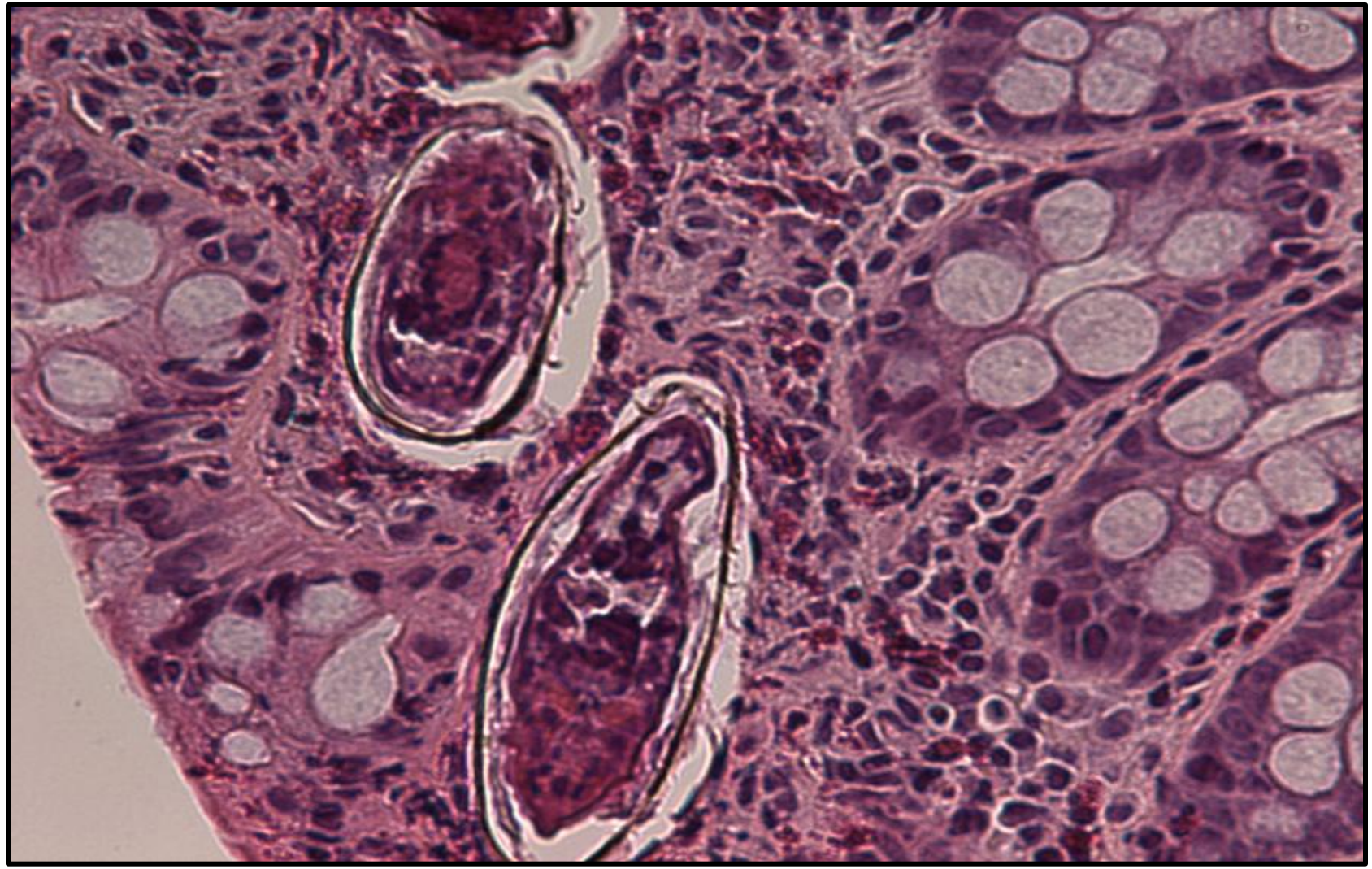
Tuberculous Lymphadenitis



The granulomas consists of epithelioid cells, few langhan's giant cells (large cell with multiple peripheral nuclei) and peripheral rim of lymphocytes

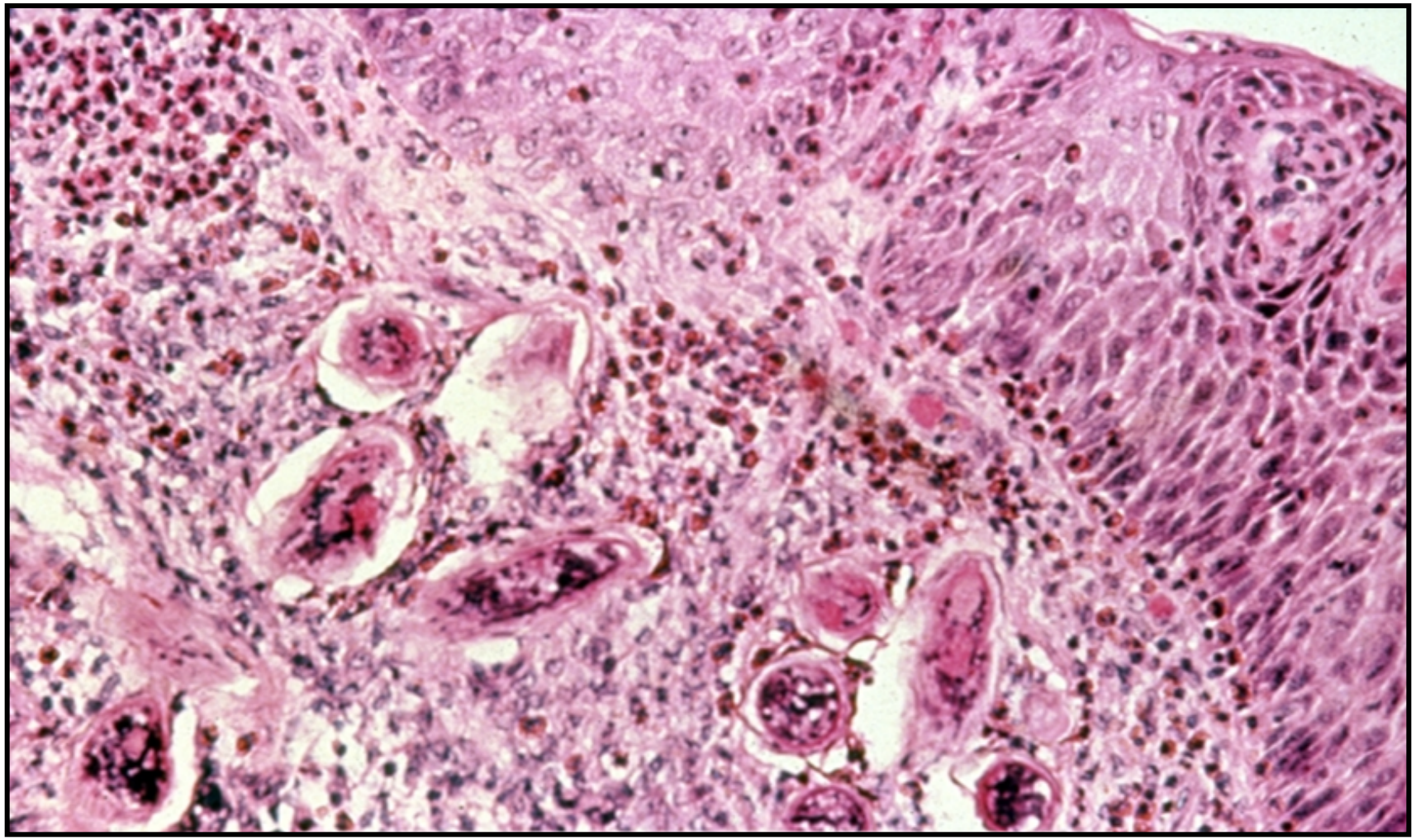
3- Bilharzial Granulomas

Colonic Bilharziasis - HPF



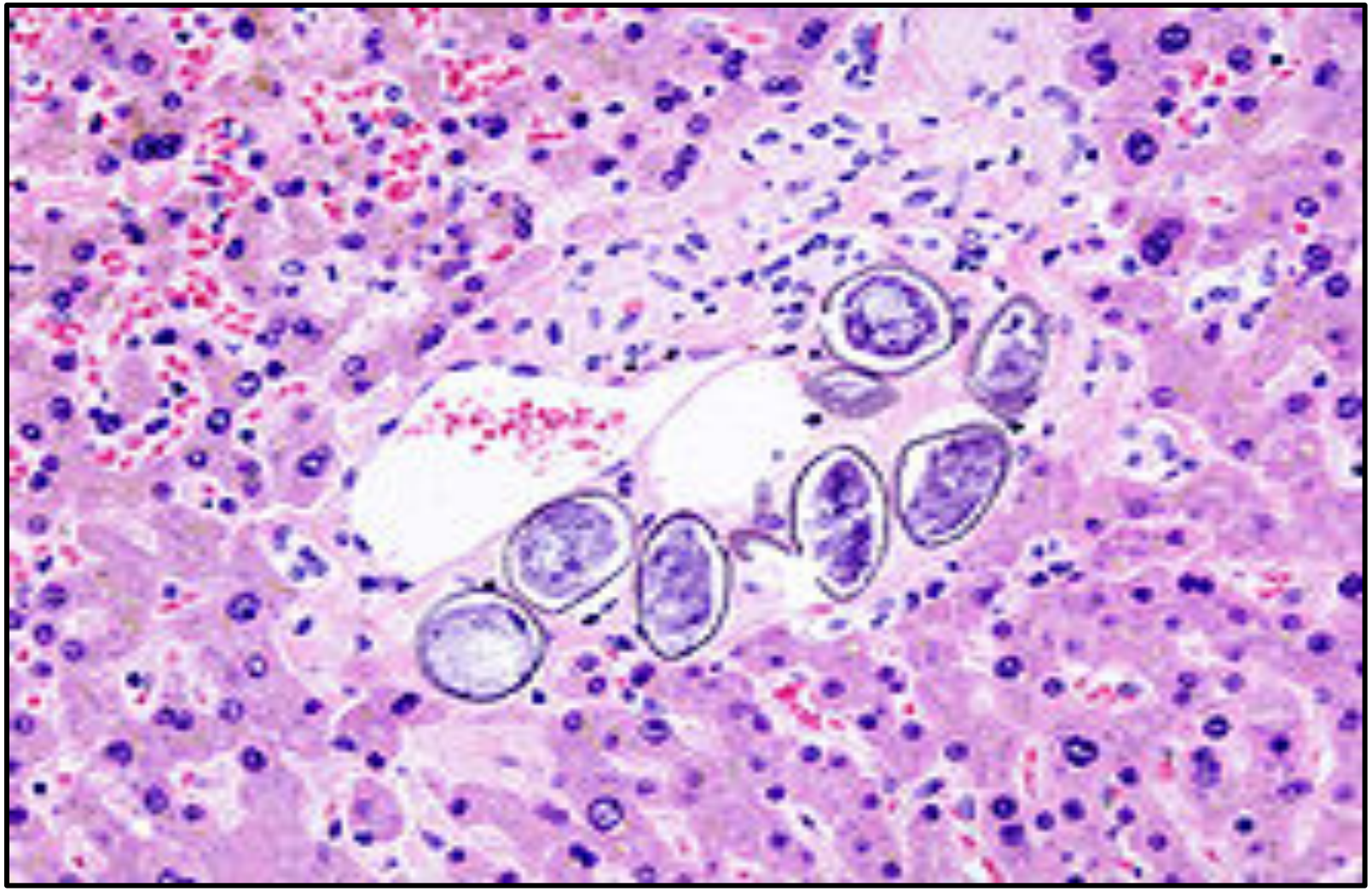
Colon biopsy of bilharziasis. Fibrosing foreign body granuloma against the miracidium-containing ovum of S. mansoni is observed in the submucosal layer (H&E).

Bilharziasis of the Urinary Bladder



Schistosoma haematobium. Urinary Bladder biopsy showing bilharziasis eggs – granuloma with eosinophils

S. japonicum in the Hepatic portal tract



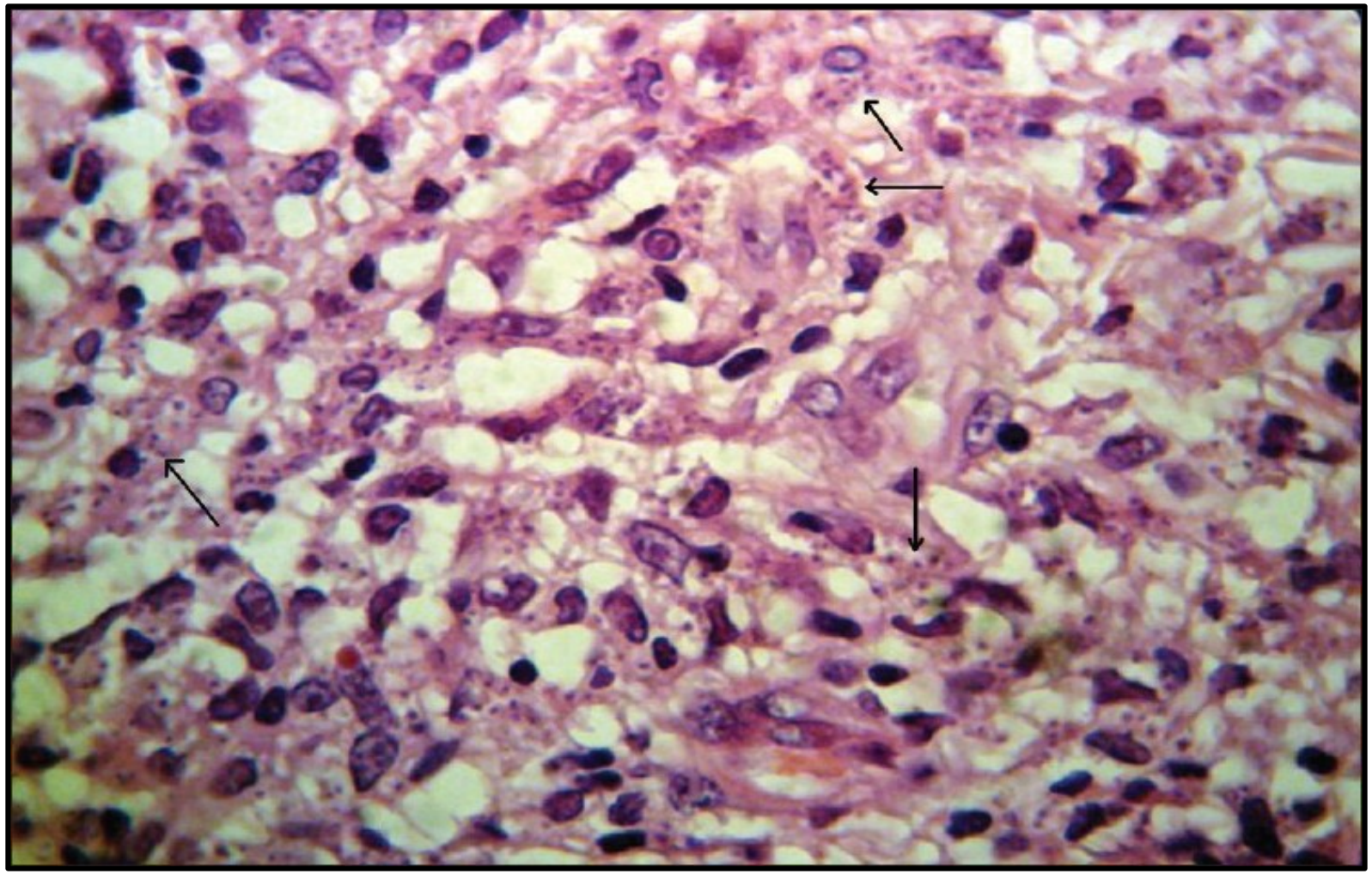
S. japonicum eggs in hepatic portal tract

4- Cutaneous Leishmaniasis

Cutaneous Leishmaniasis

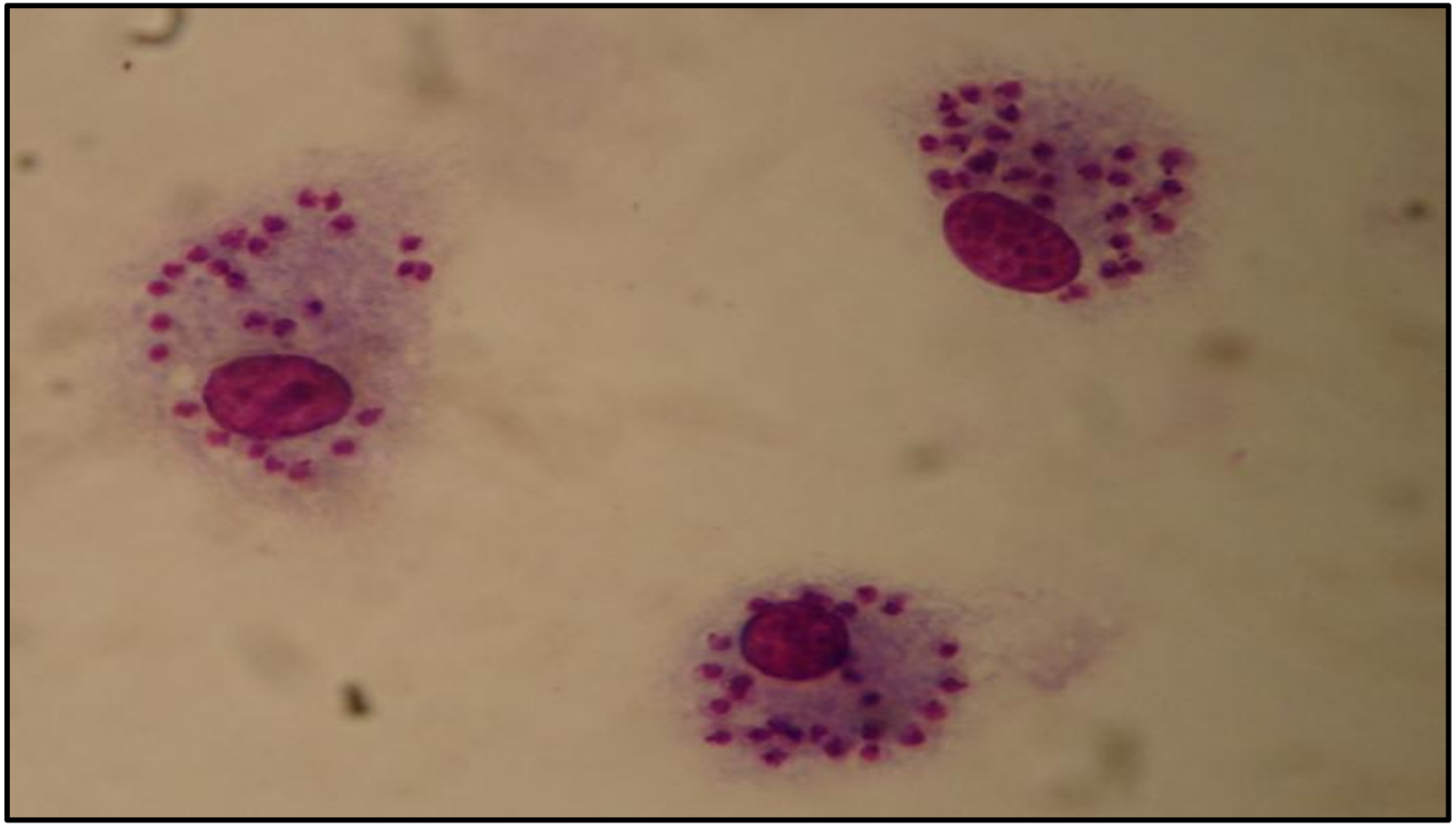
Leishmaniasis is caused by parasitic infection, mainly by parasites of the Leishmania genus which are carried by a blood-sucking insect known as the sandfly.

Cutaneous Leishmaniasis



Histological view shows marked cellular infiltration and parasites (Leishman bodies) within macrophages

Cutaneous Leishmaniasis



The blood film shows macrophages containing Leishmania amastigotes, each with a prominent kinetoplast (seen as a darkened spot next to the larger nucleus) and no flagella (in contrast with the promastigote form).

GOOD LUCK