



École Nationale
Vétérinaire, Agroalimentaire et de l'Alimentation

Nantes Atlantique

Avian Pathology

Bacterial diseases: histo slides

Bacterial diseases: histo slides

B1. Turkey.

Organs? Morphologic diagnosis? Special procedure?

B2. Hen.

Organ? Morphologic diagnosis? Etiologic diagnosis?

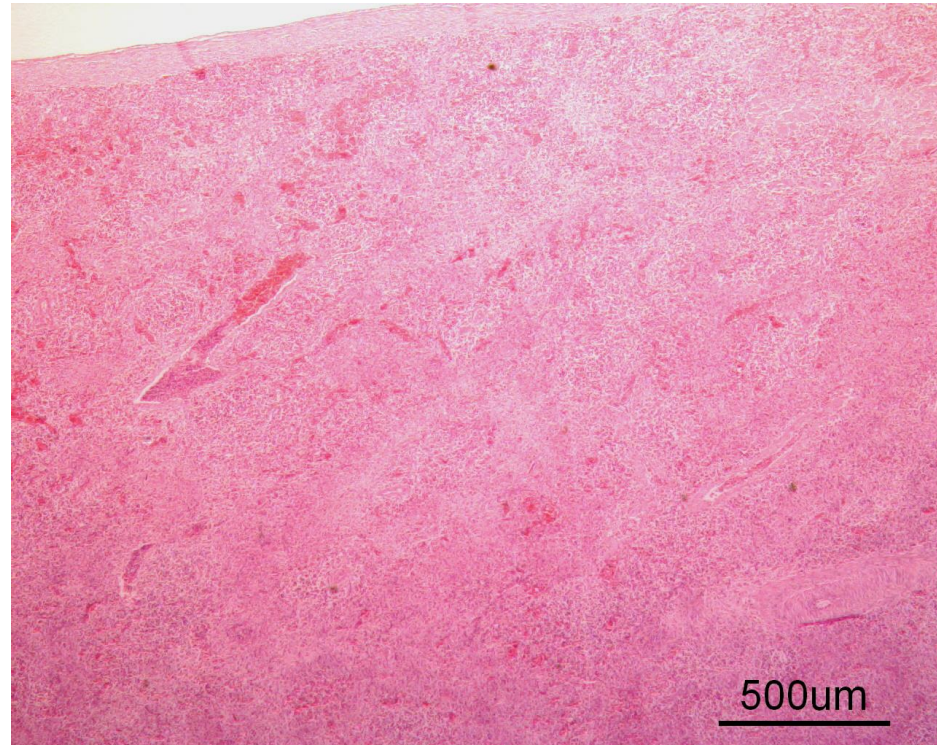
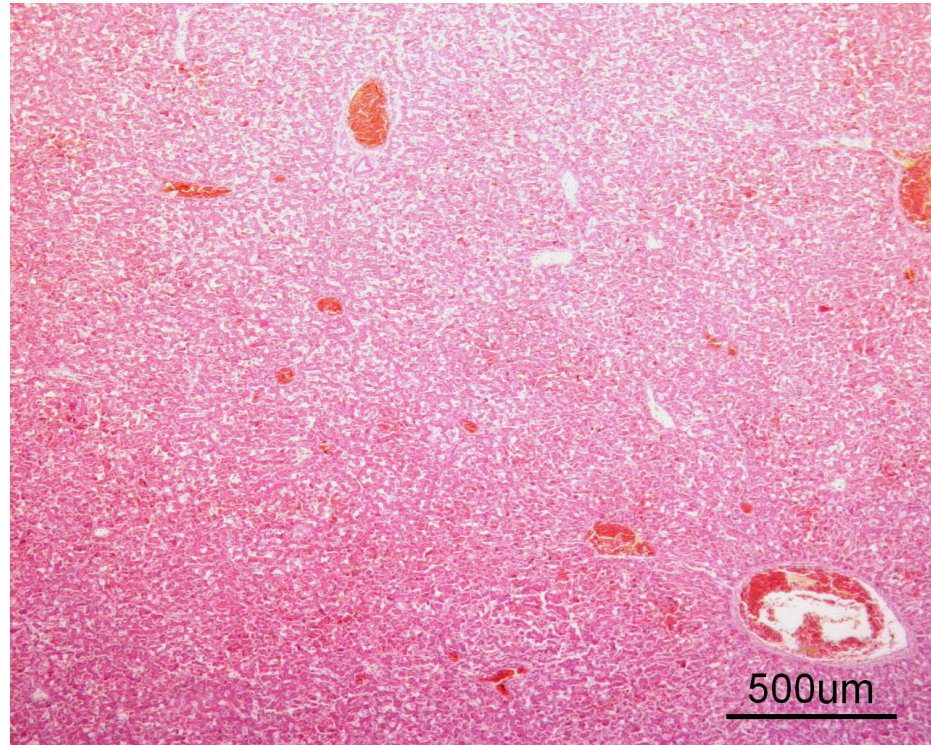
B3. Chicken.

Organ? Morphologic diagnosis? Etiology?

B4. Pigeon.

Organs? Morphologic diagnosis? Special procedure?

B1. Turkey (2 organs)

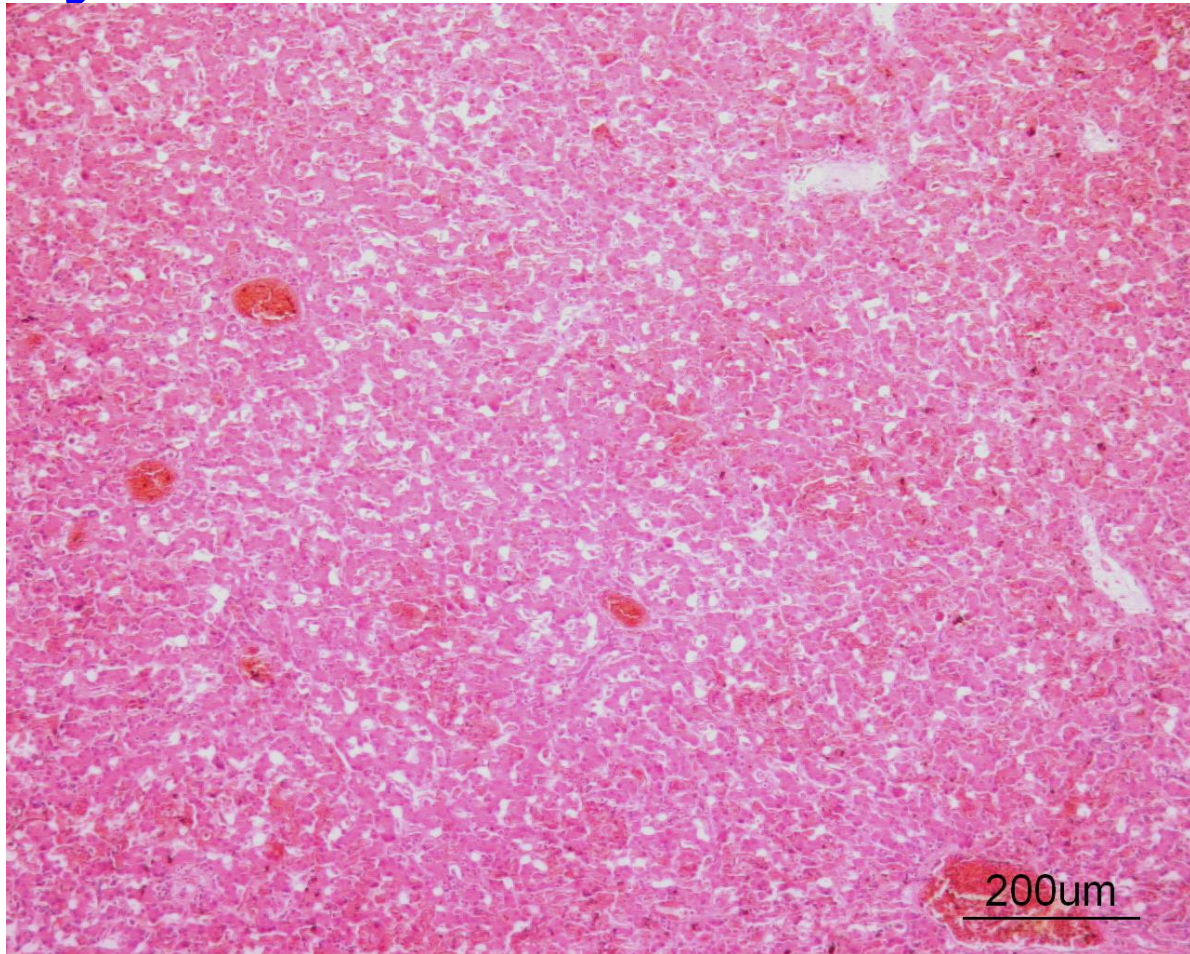


Organs? Keywords?

Morphologic diagnosis?

Special procedure needed to confirm your etiologic diagnosis?

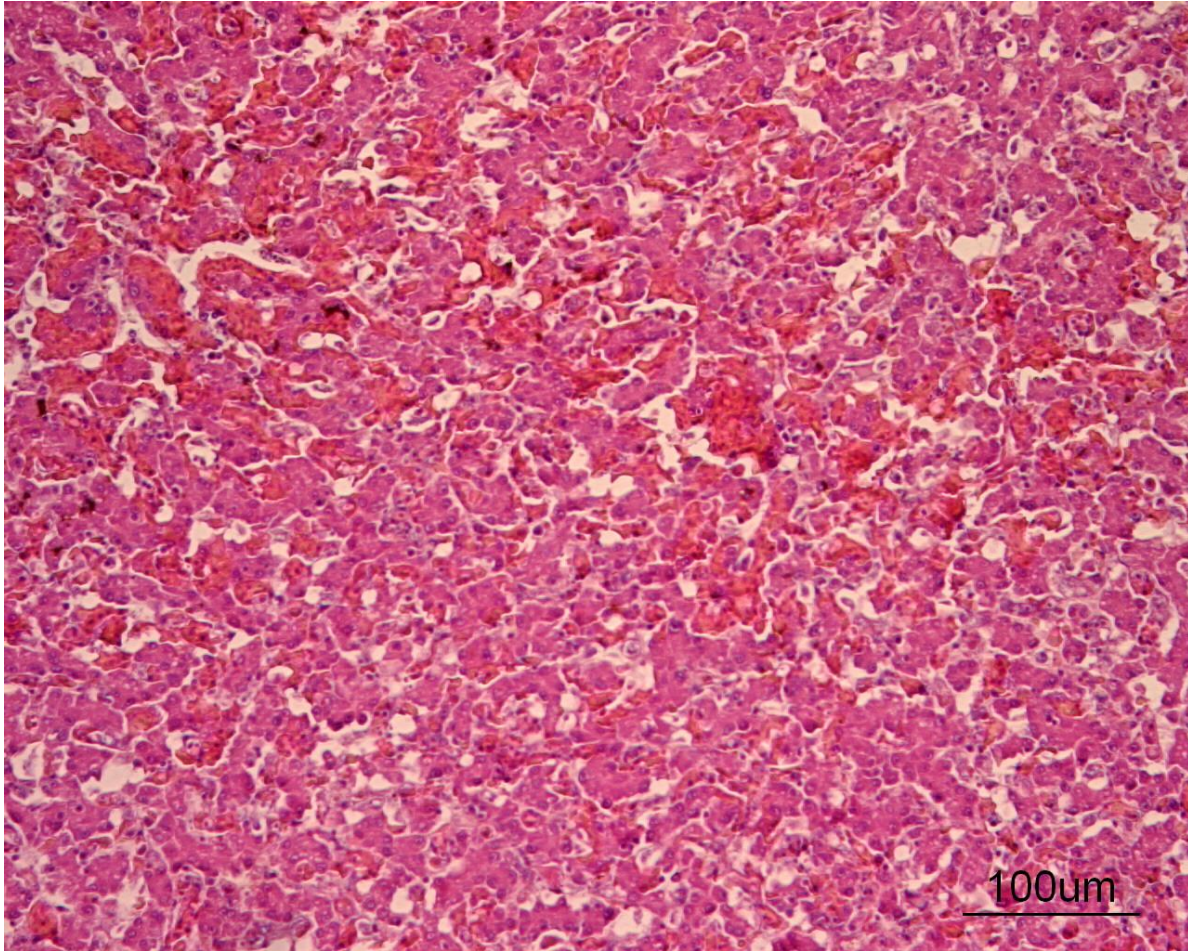
B1. Turkey



Liver.

Diffuse lesion.

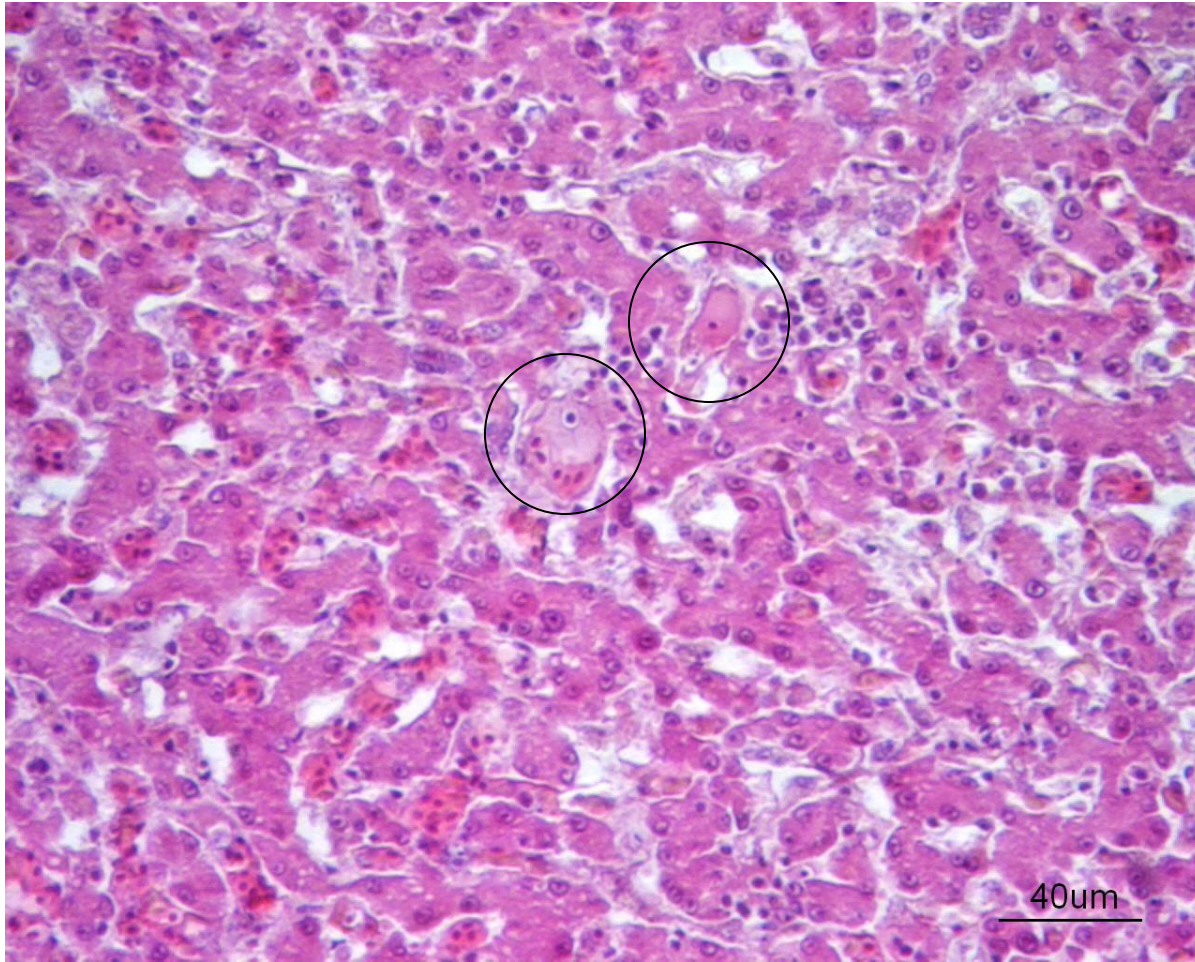
B1. Turkey



Sinusoids: hyperemia.

Kupffer cells: hypertrophy.

B1. Turkey

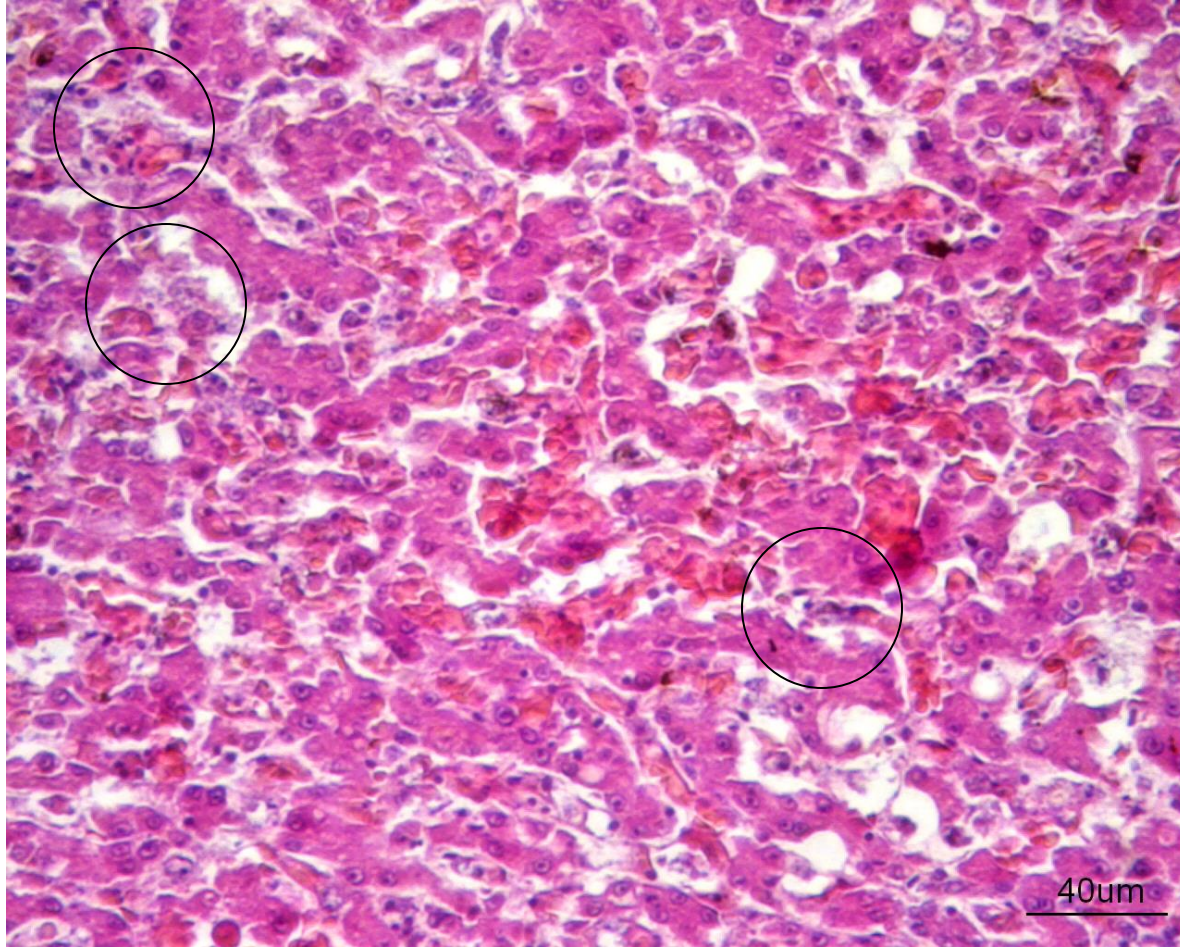


Sinusoids: hyaline **thrombosis** (fibrin)

Disseminated intravascular clotting

Lymphocytes

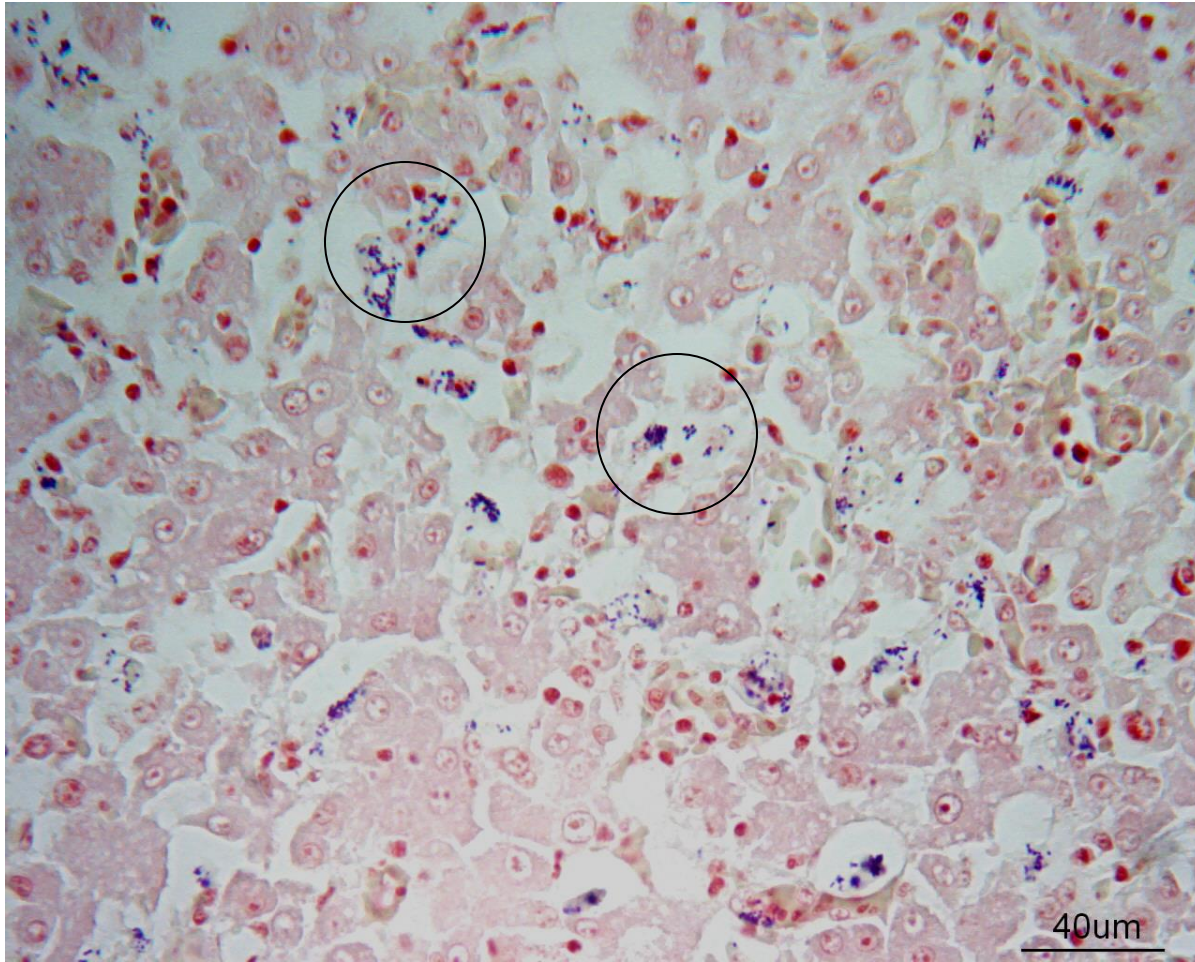
B1. Turkey



Sinusoids: extracellular, intravascular basophilic 1-micrometer anucleated microorganisms (**bacteria**) + intracytoplasmic in Kupffer cells.

Hypercellularity (**leukostasis**)

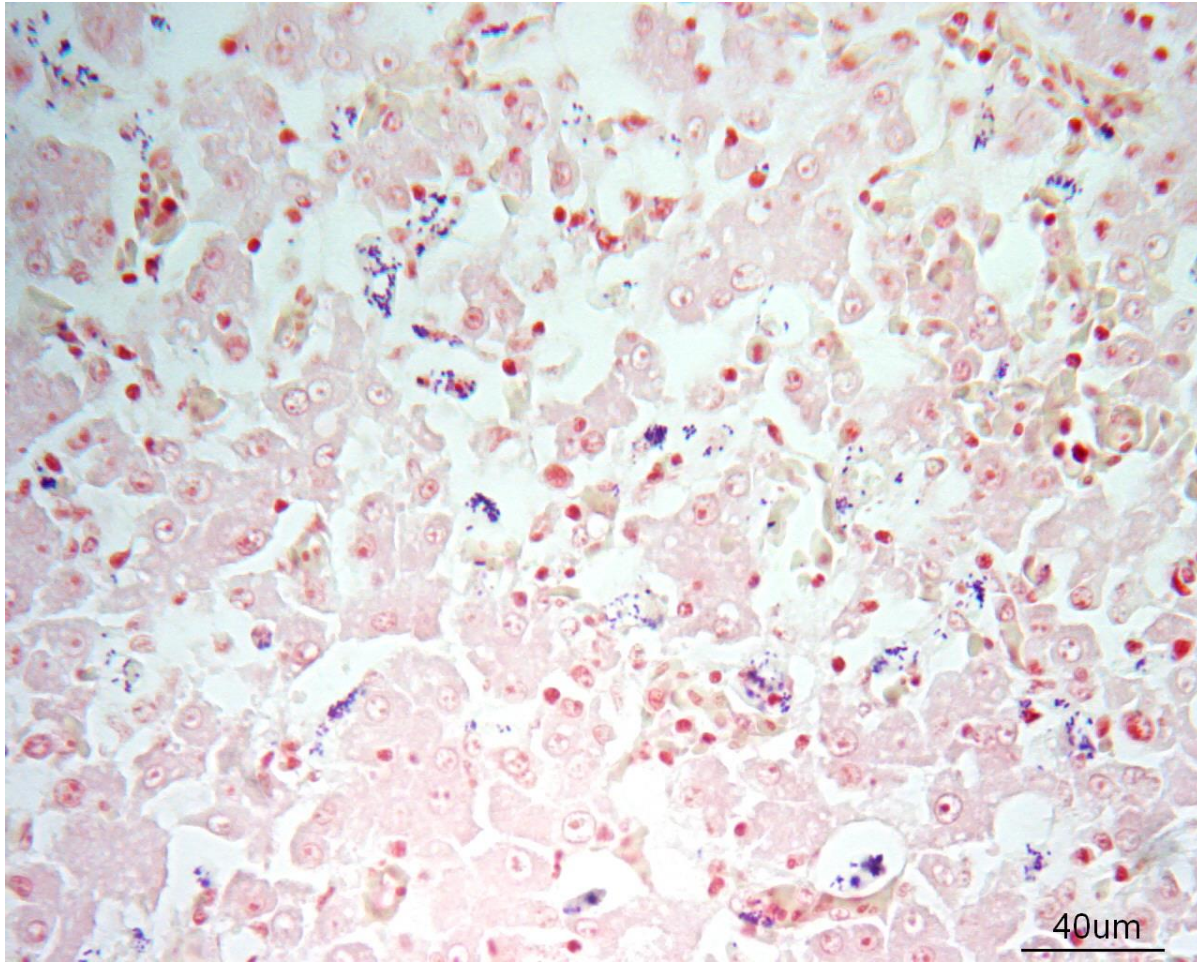
B1. Turkey



Gram stain

Colonies of **Gram-positive cocci** (1 or 2 micrometers in diameter) within the sinusoids and the cytoplasm of Kupffer cells.

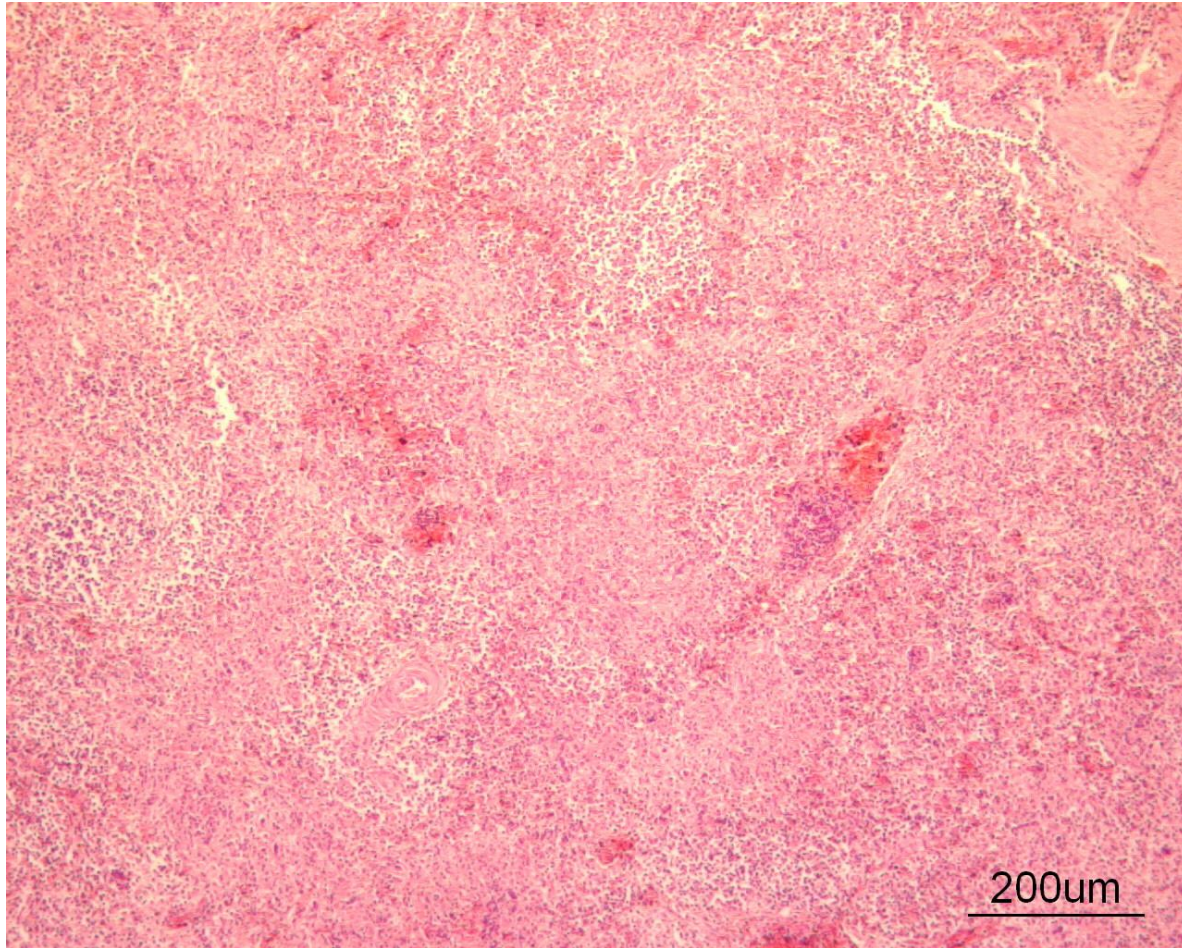
B1. Turkey



Liver, acute diffuse moderate hepatitis with sinusoid hyperemia, thrombosis and leukostasis, and intravascular presence of bacterial colonies: **septicemia**

B1. Turkey

011381A

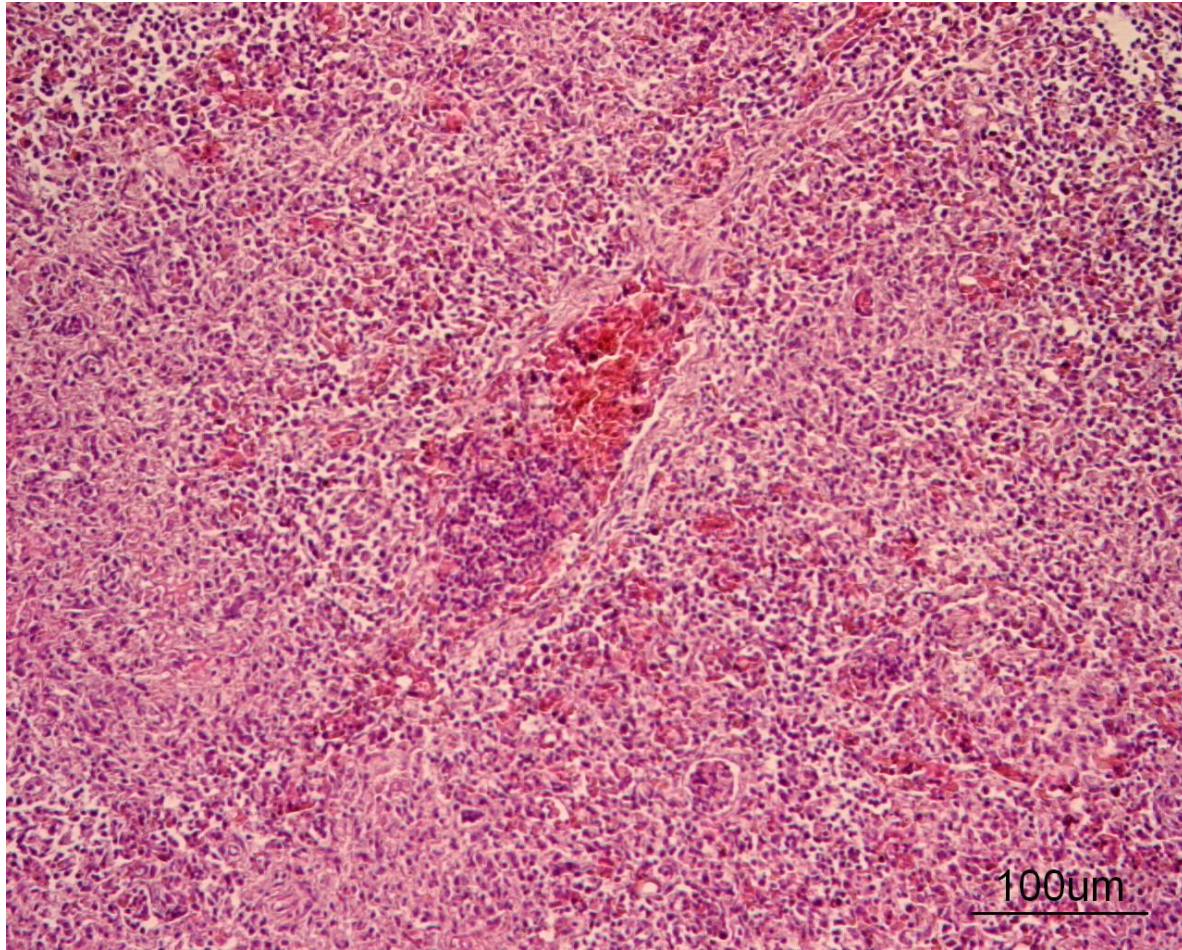


Spleen.

Multifocal lesion.

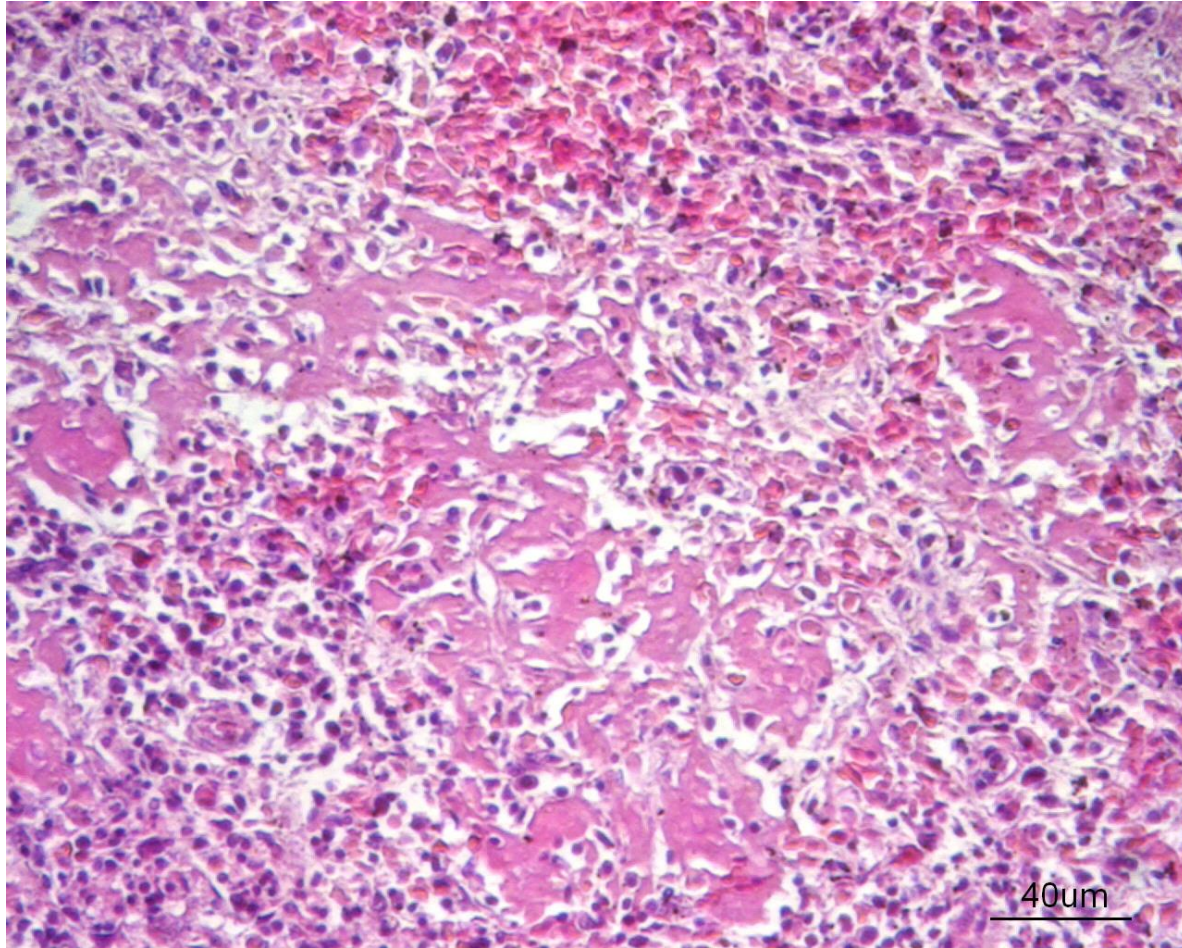
B1. Turkey

011381A



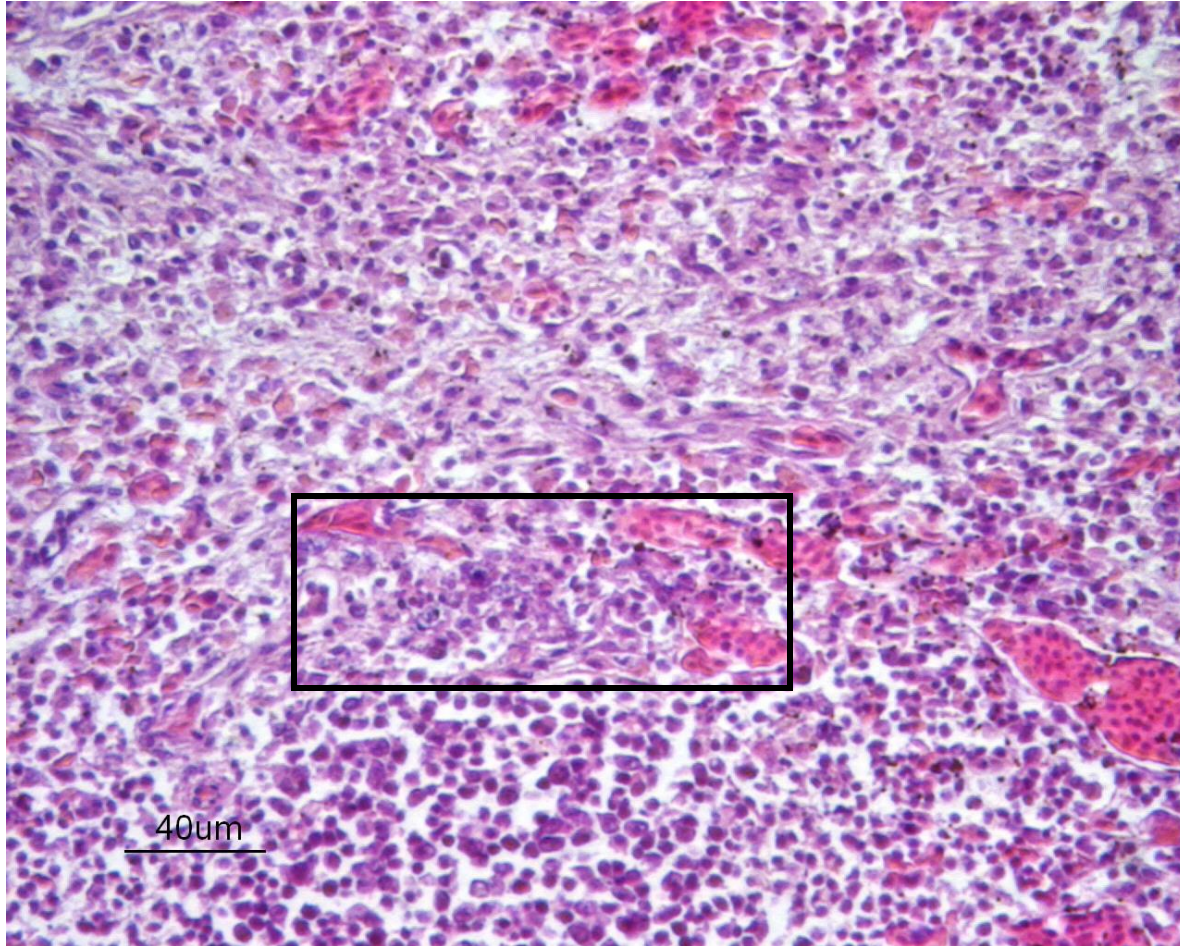
Acute **vasculitis**: thrombosis, medial necrosis.

B1. Turkey



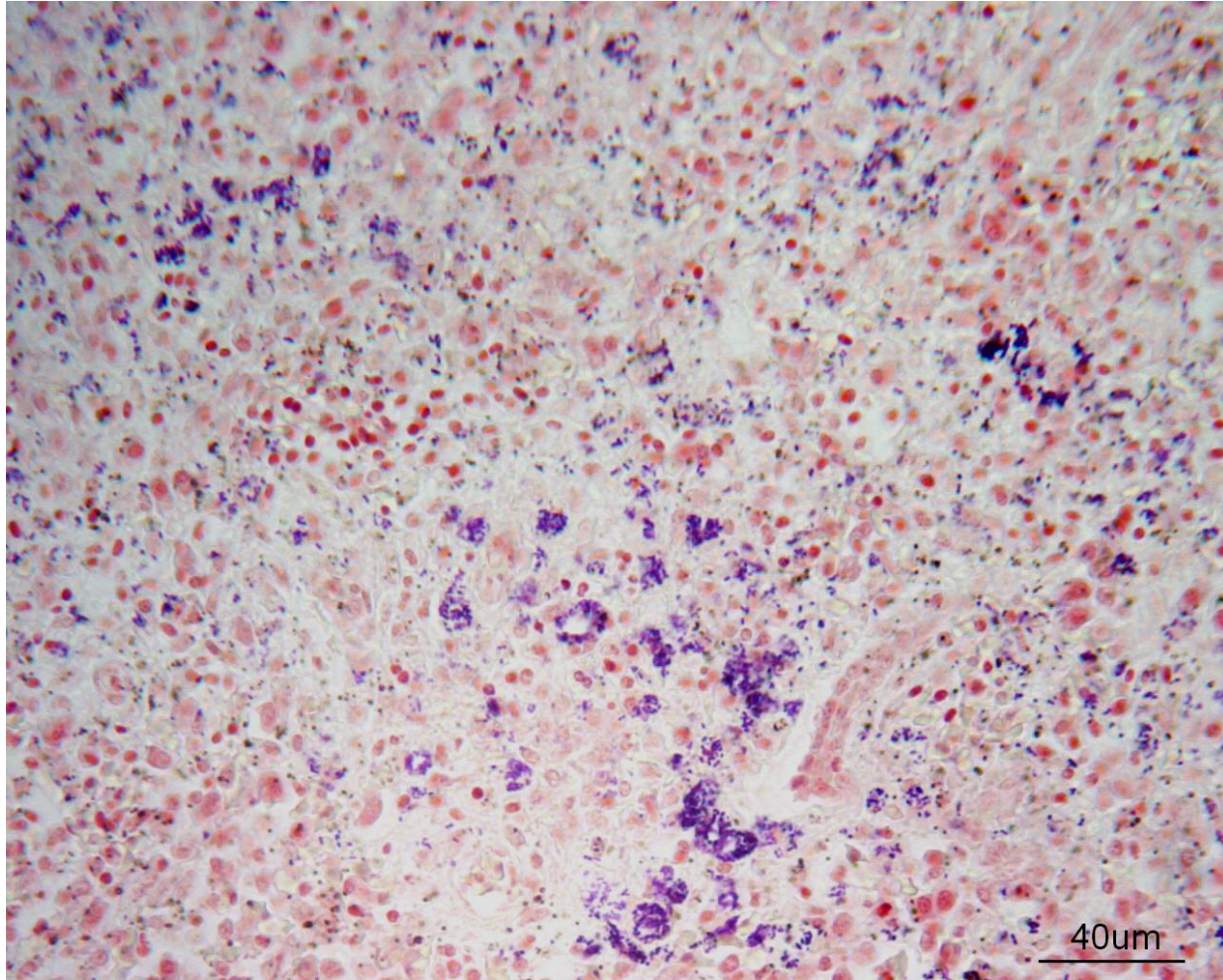
Fibrinoid necrosis of both the white and red pulp.
Micro-hemorrhages (extravasated red blood cells).
Lymphocytic pyknosis, karyorrhexis.

B1. Turkey



Sinusoids: extracellular, intravascular basophilic 1-micrometer anucleated microorganisms (**bacteria**) + intracytoplasmic in macrophages.
Red pulp: **macrophage hypertrophy** (activation, phagocytosis).

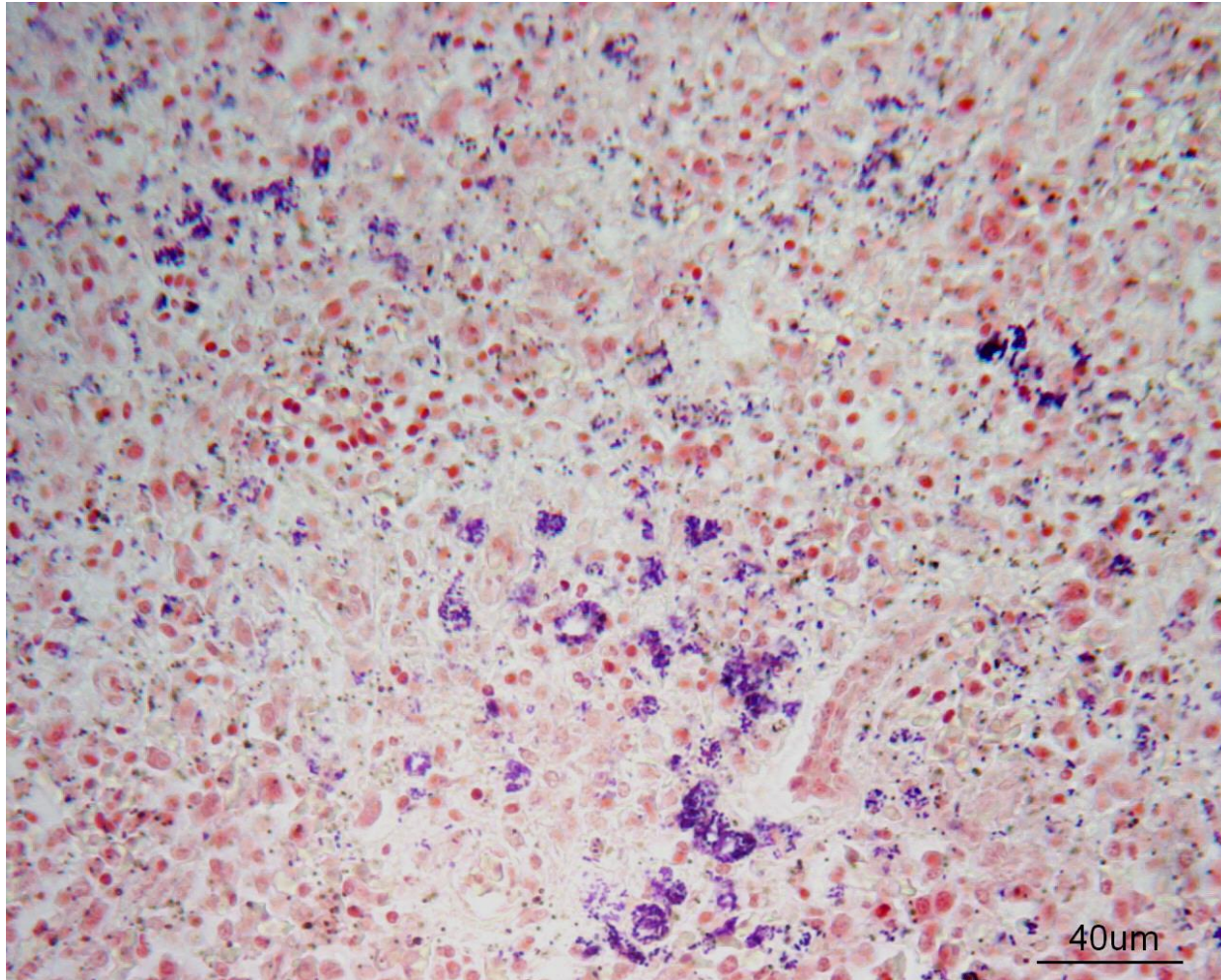
B1. Turkey



Gram stain

Intravascular, extracellular colonies of **Gram-positive cocci**

B1. Turkey



Spleen, multifocal acute marked necrotizing splenitis with intralésional extracellular intravascular bacteria and septic vasculitis, **septicemia**.

Bacterial diseases: histo slides

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Organs? Morphologic diagnosis? Special procedure?

B2. Hen.

Organ? Morphologic diagnosis? Etiologic diagnosis?

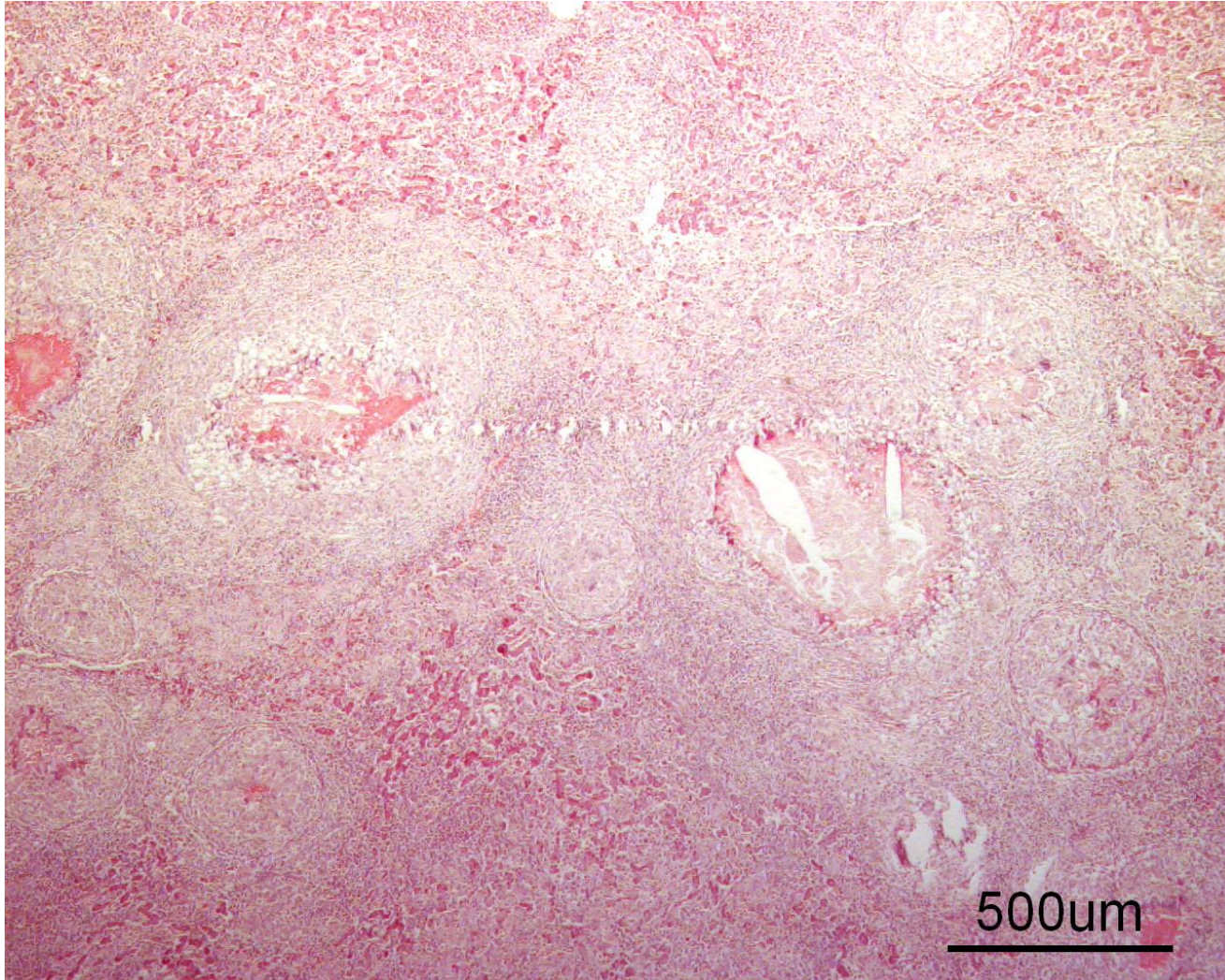
B3. Chicken.

Organ? Morphologic diagnosis? Etiology?

B4. Pigeon.

Organs? Morphologic diagnosis? Special procedure?

B2. Hen

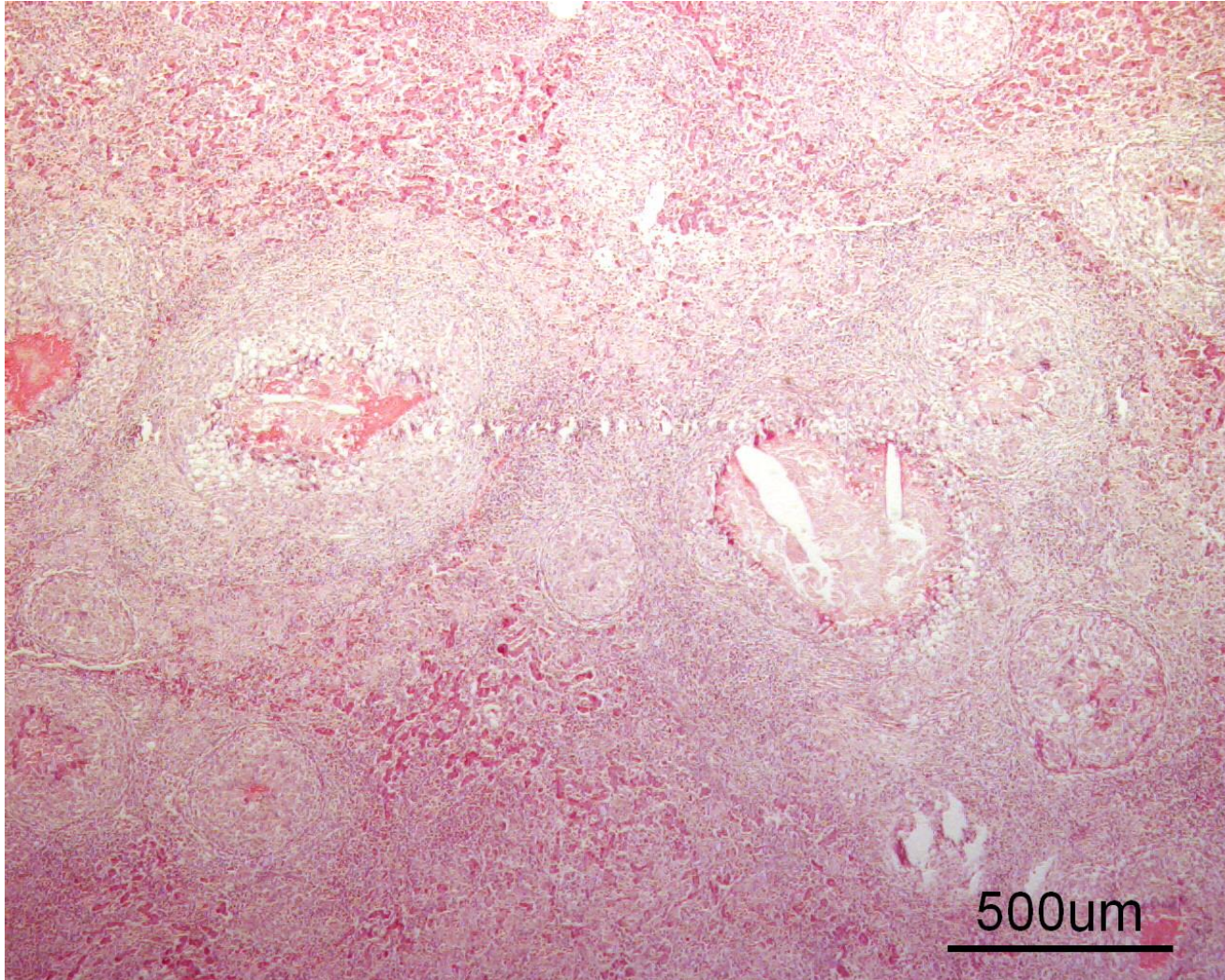


Organ? Keywords?

Morphologic diagnosis?

Etiologic diagnosis?

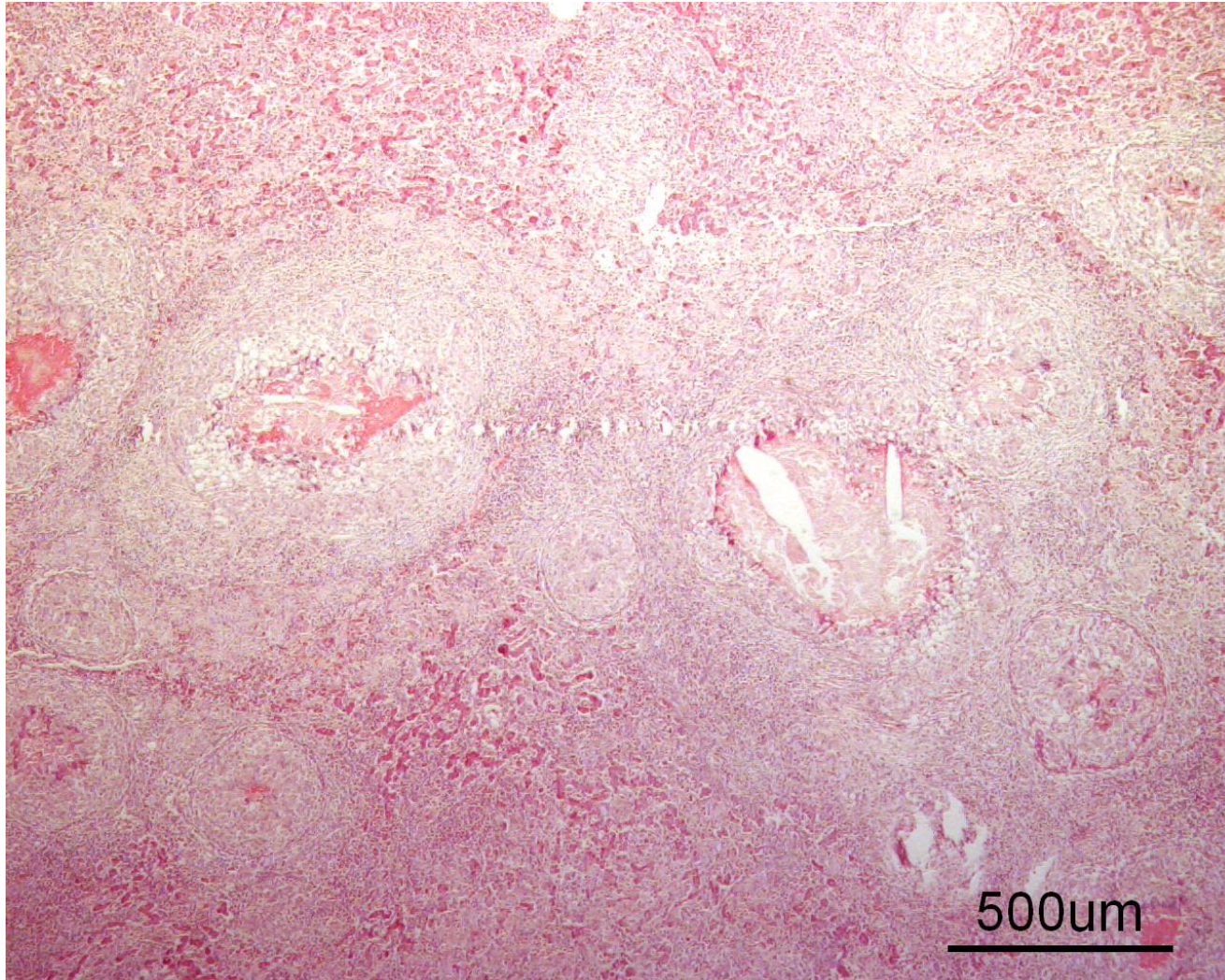
B2. Hen



Liver

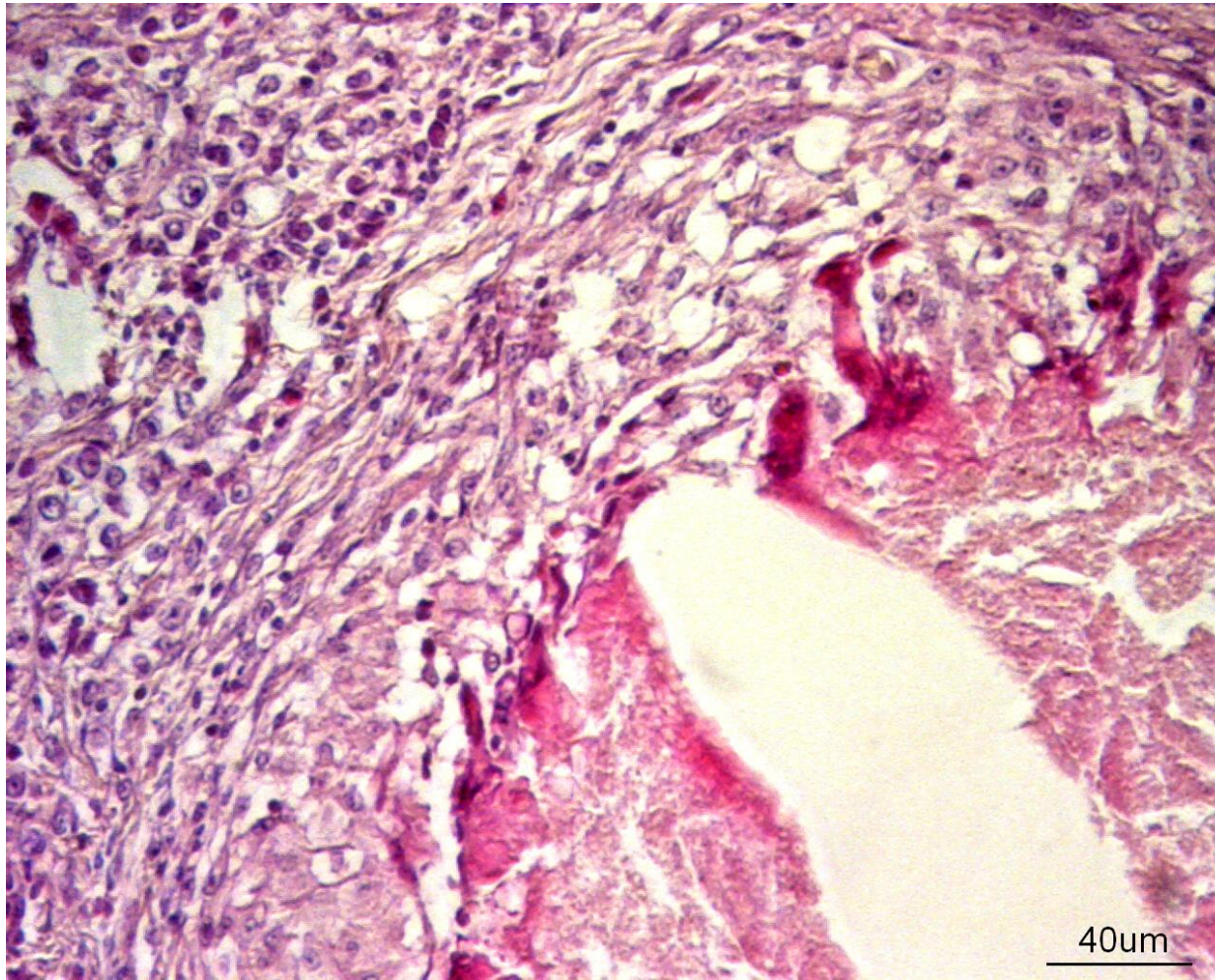
The architecture of the **liver** is markedly distorted by **random, multifocal** to coalescing, **up to 1-mm diameter**, variably encapsulated, **granulomas**.

B2. Hen



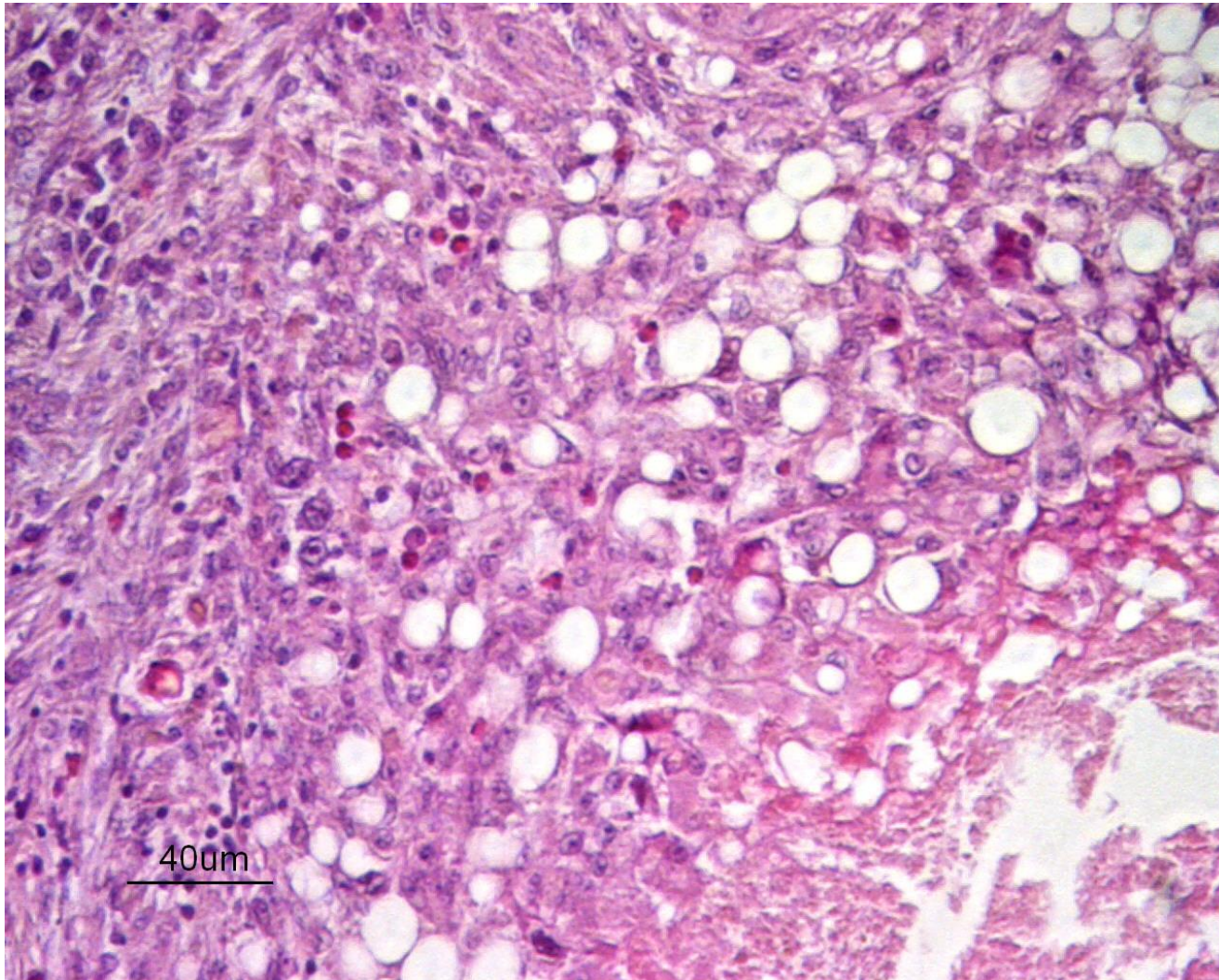
The larger granulomas contain, from the centre to the periphery: a central mass of amorphous hypereosinophilic material with karyorrhectic and pyknotic nuclear debris (**caseous necrosis**); **cholesterol clefts**;

B2. Hen



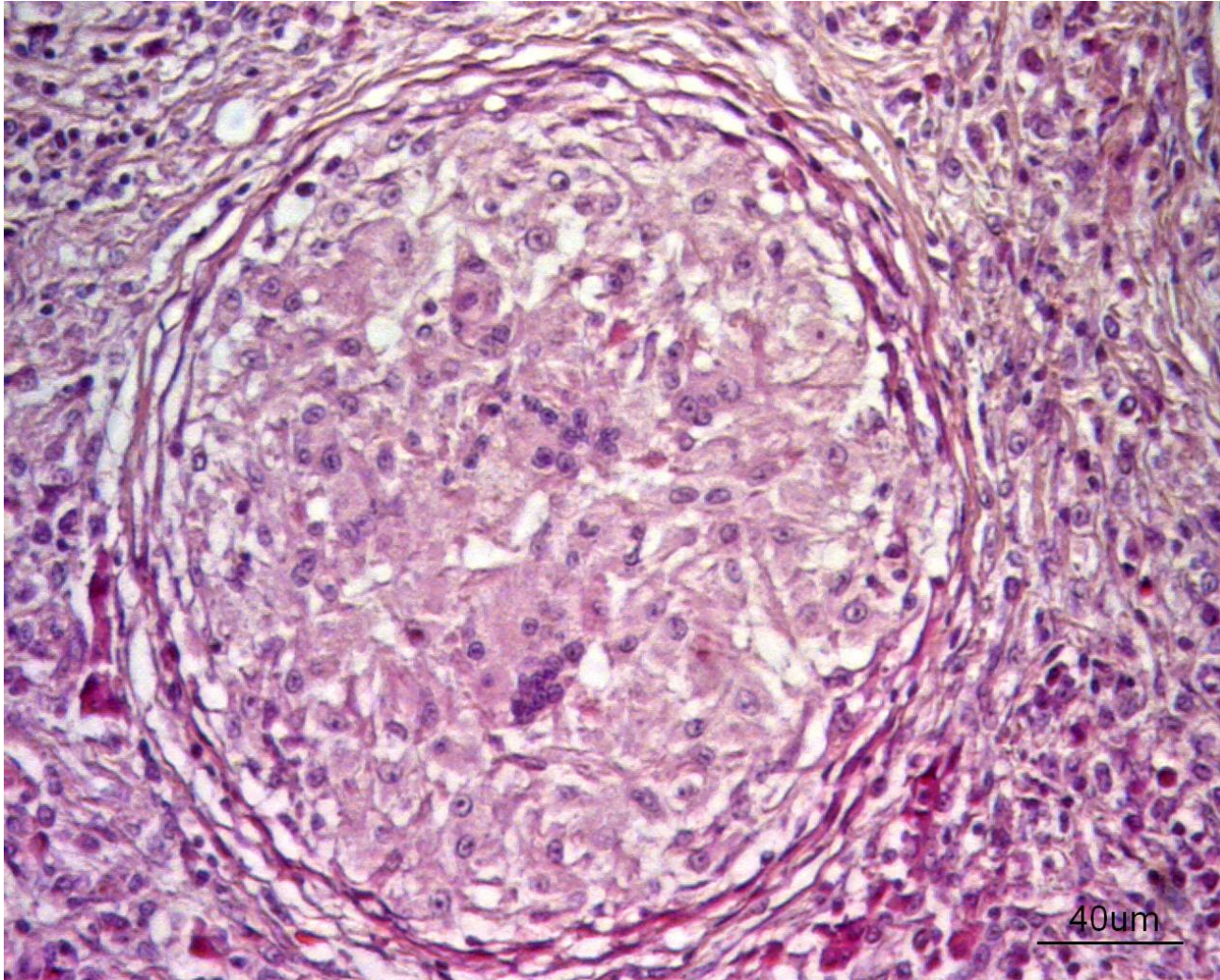
- ... surrounded by a thick rim of large, pale acidophilic cells with indistinct borders and round hypochromatic nucleus (**epithelioid macrophages**); giant multinucleate cells with abundant eosinophilic cytoplasm and either peripheral nuclei (**Langhans-type giant cells**) or haphazardly-placed nuclei (**foreign-body-type giant cells**);

B2. Hen



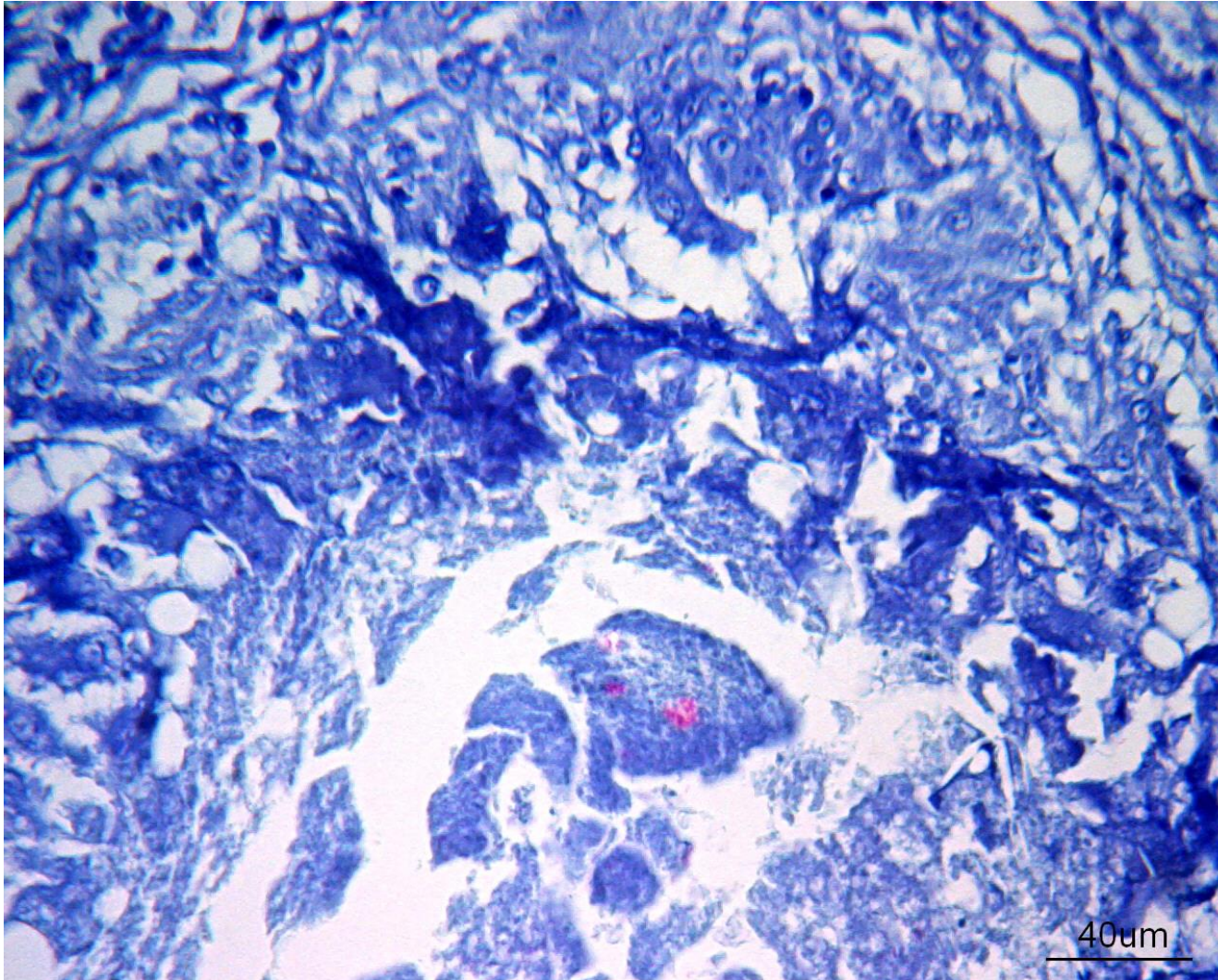
... moderate amount of **lymphocytes**, few **plasma cells** and **heterophils**; a thin rim of **fibrosis**. Within granulomas, some macrophages are round, large, and filled with an empty cytoplasmic vacuole (**lipid-laden macrophages**).

B2. Hen



Smaller granulomas contain **epithelioid macrophages**, Langhans giant cells, foreign body giant cells, and do not possess a necrotic centre.

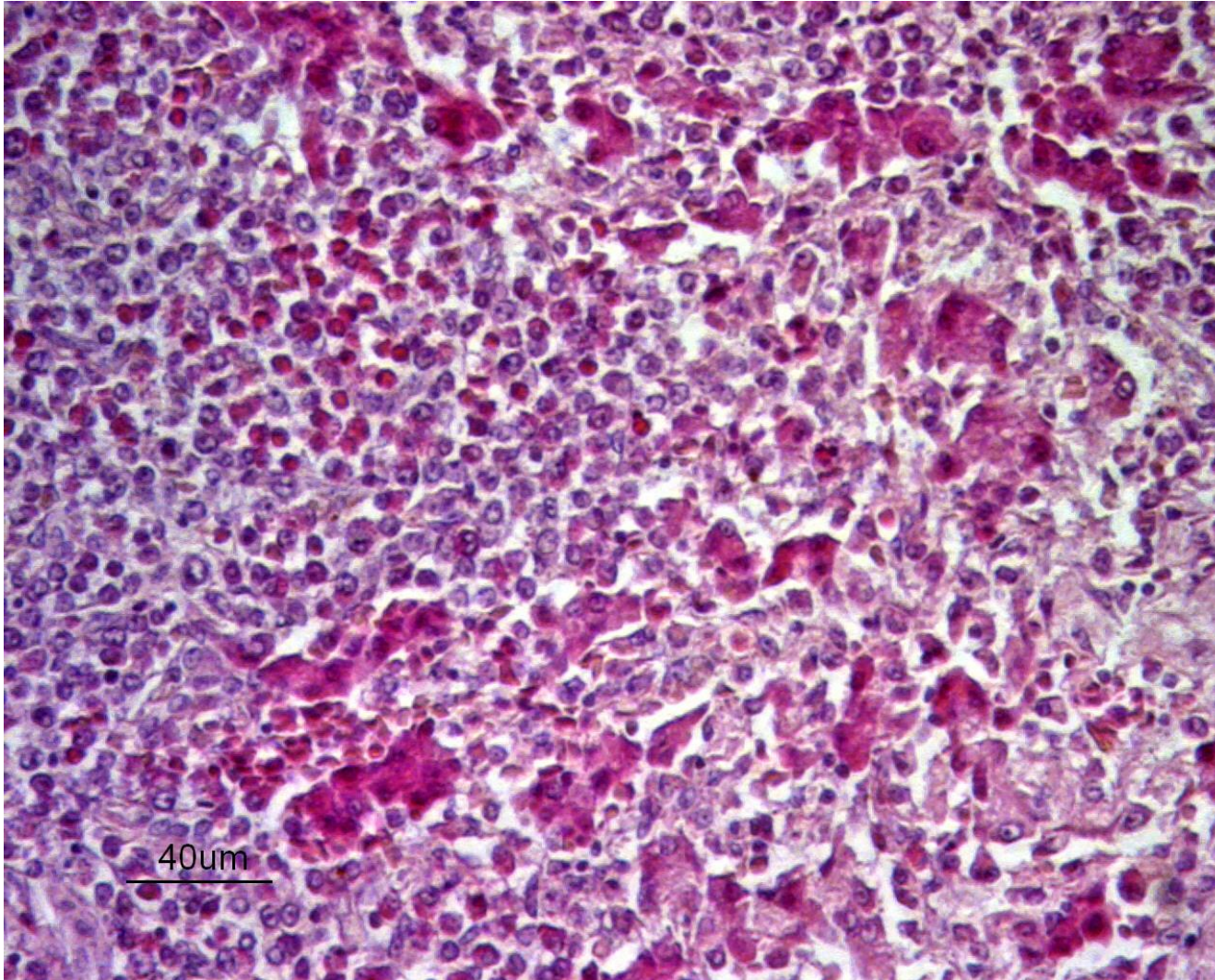
B2. Hen



Fite-Farraco stain

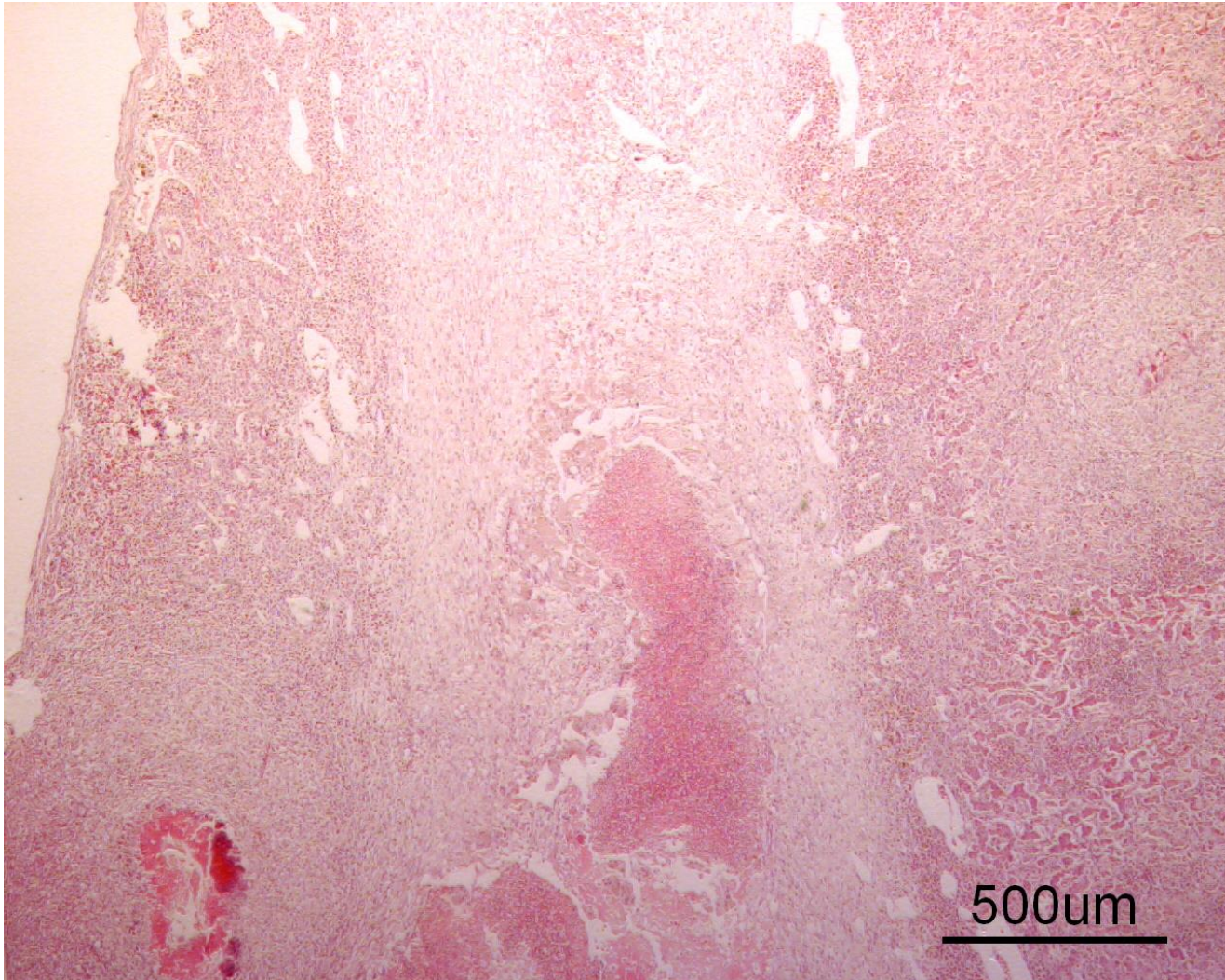
Acid-fast bacilli within the necrotic centres of the granulomas, low amount

B2. Hen



Within the remnant hepatic parenchyma, there are multiple foci of **extramedullary heterophilic granulopoiesis** (especially periportal) and lymphopoiesis \pm amyloid deposition.

B2. Hen



Multifocal to coalescing marked **granulomatous hepatitis** and **perihepatitis** with caseous necrosis.

Mycobacterial hepatitis and perihepatitis.

Bacterial diseases: histo slides

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Organ? Morphologic diagnosis? Etiology?

B4. Pigeon.

Organs? Morphologic diagnosis? Special procedure?

B3. Chicken

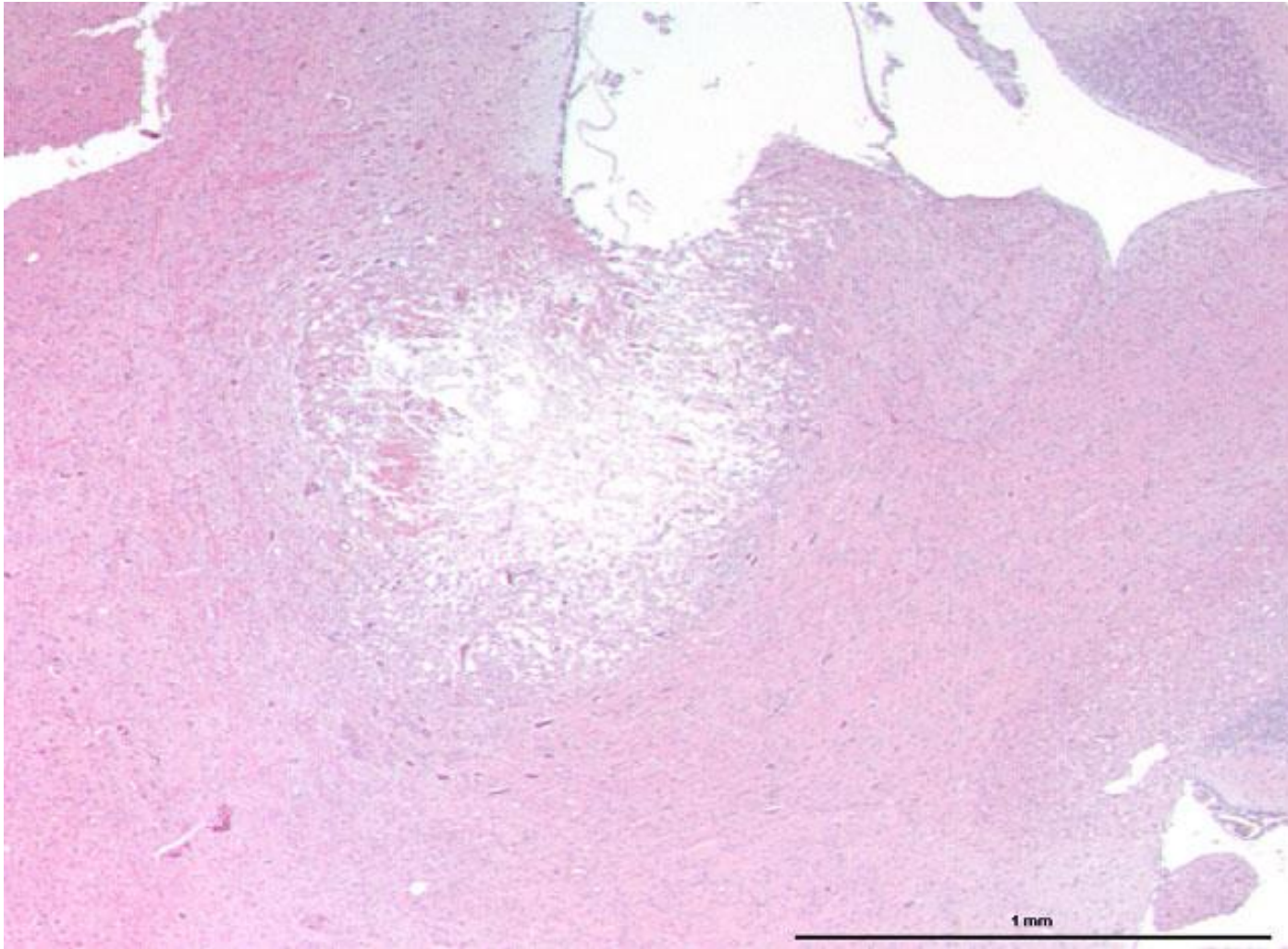


Organ? Keywords?

Morphologic diagnosis?

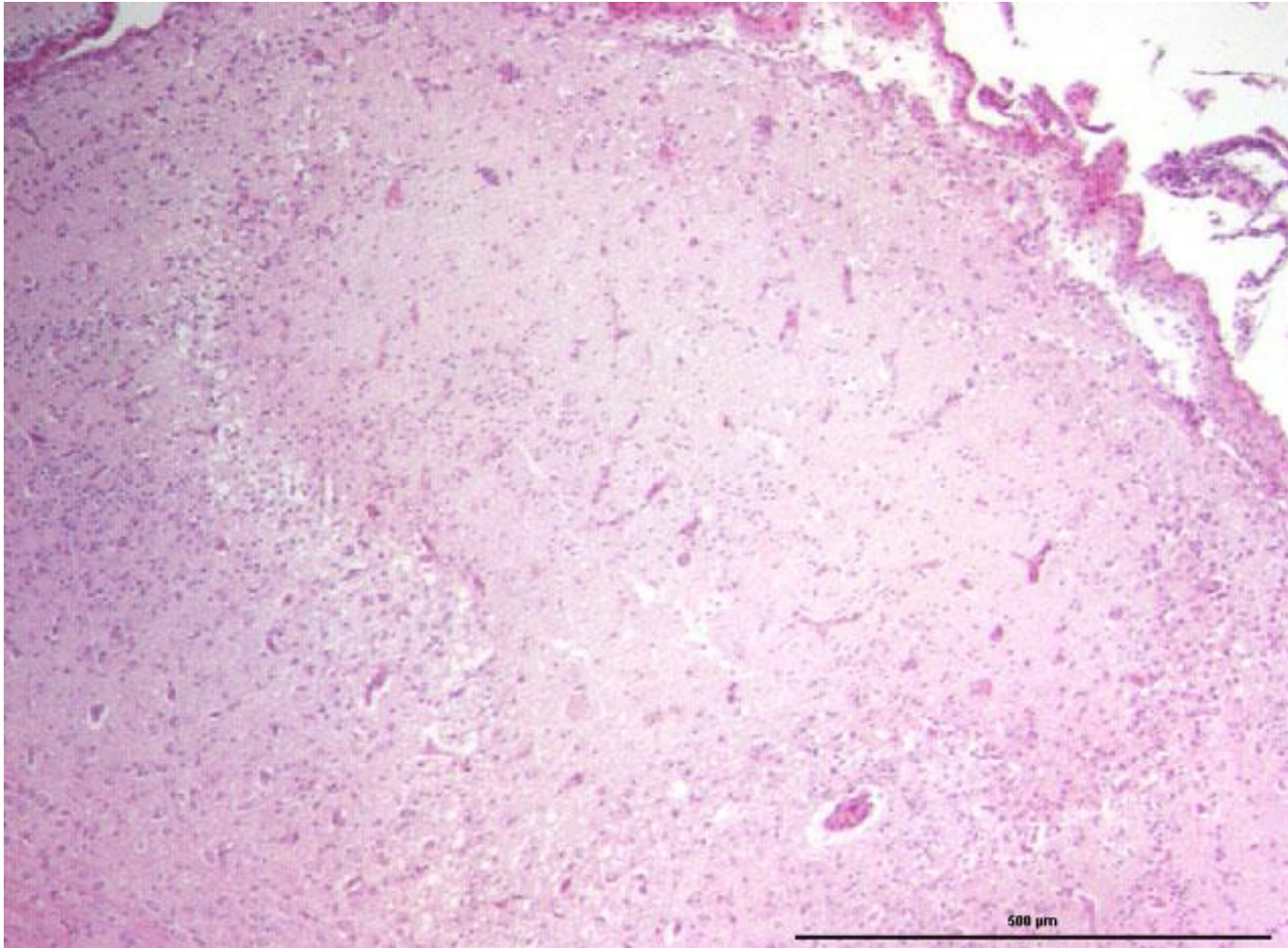
Etiology?

B3. Chicken



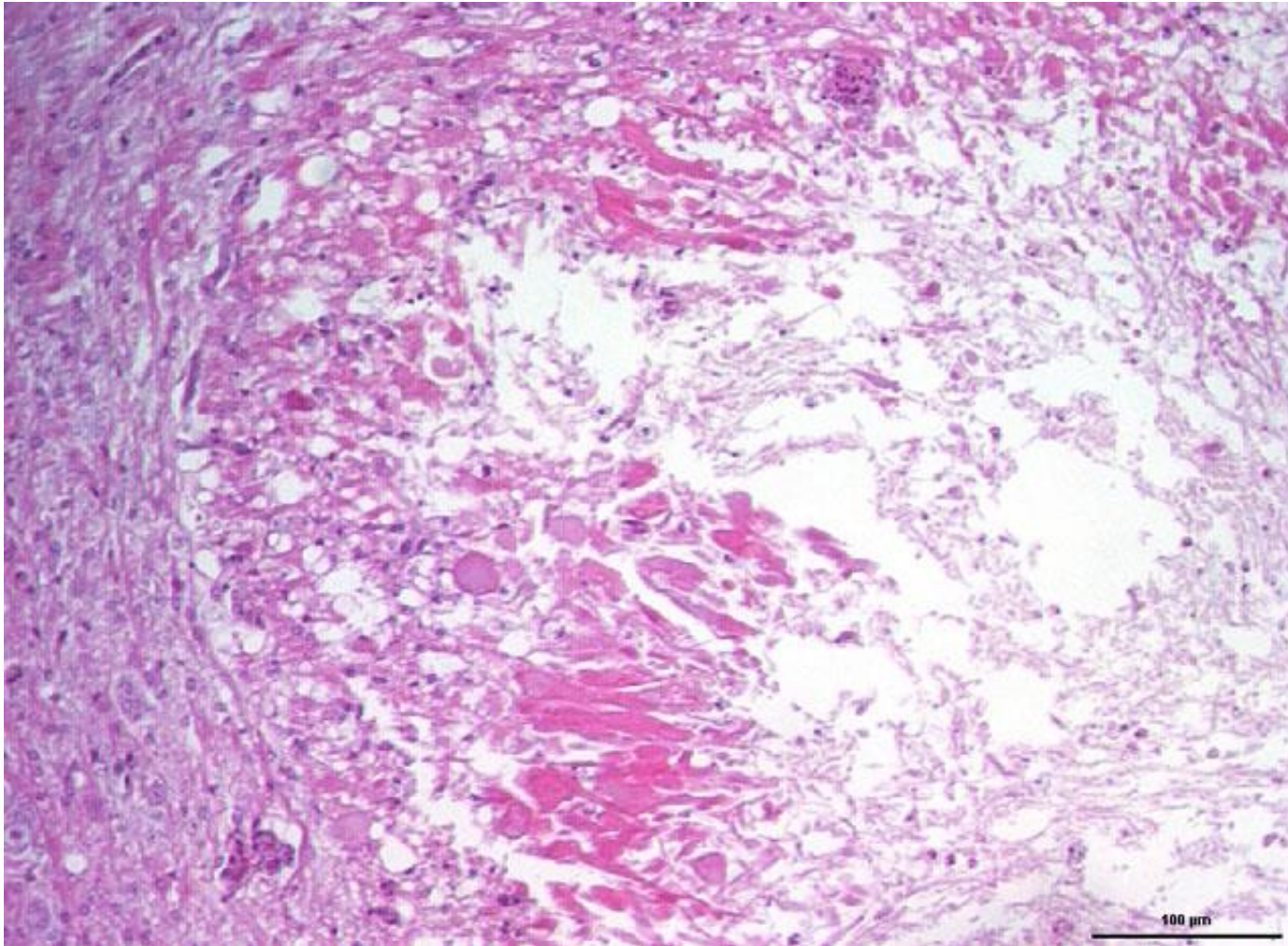
Brainstem (and cerebrum) (and cerebellum)

B3. Chicken



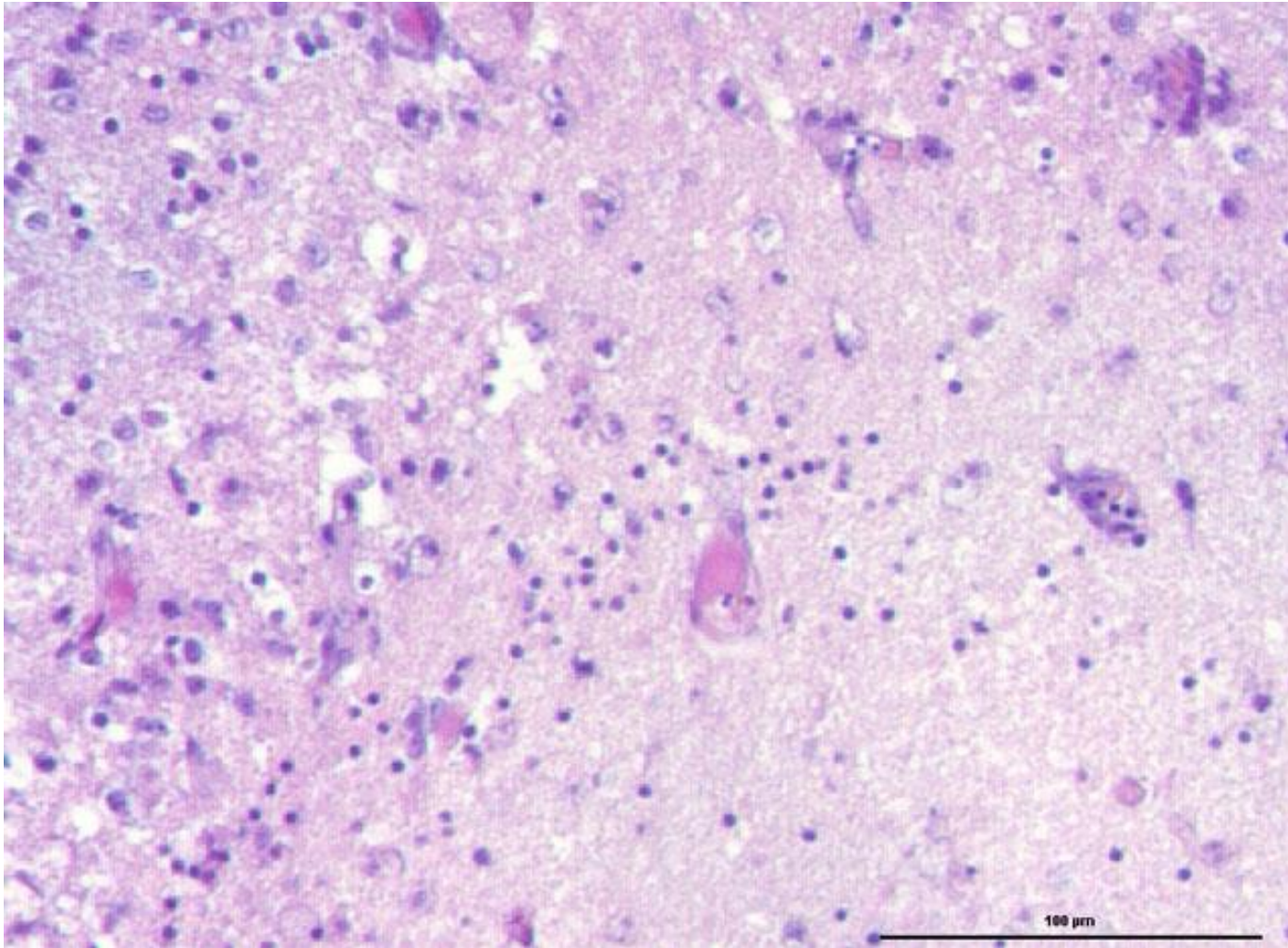
In the brainstem (and cerebrum, not in all slides) is (are) one (two) well-demarcated, unencapsulated, 1-3 mm of diameter, **necrotic focus** (foci), in which ...

B3. Chicken



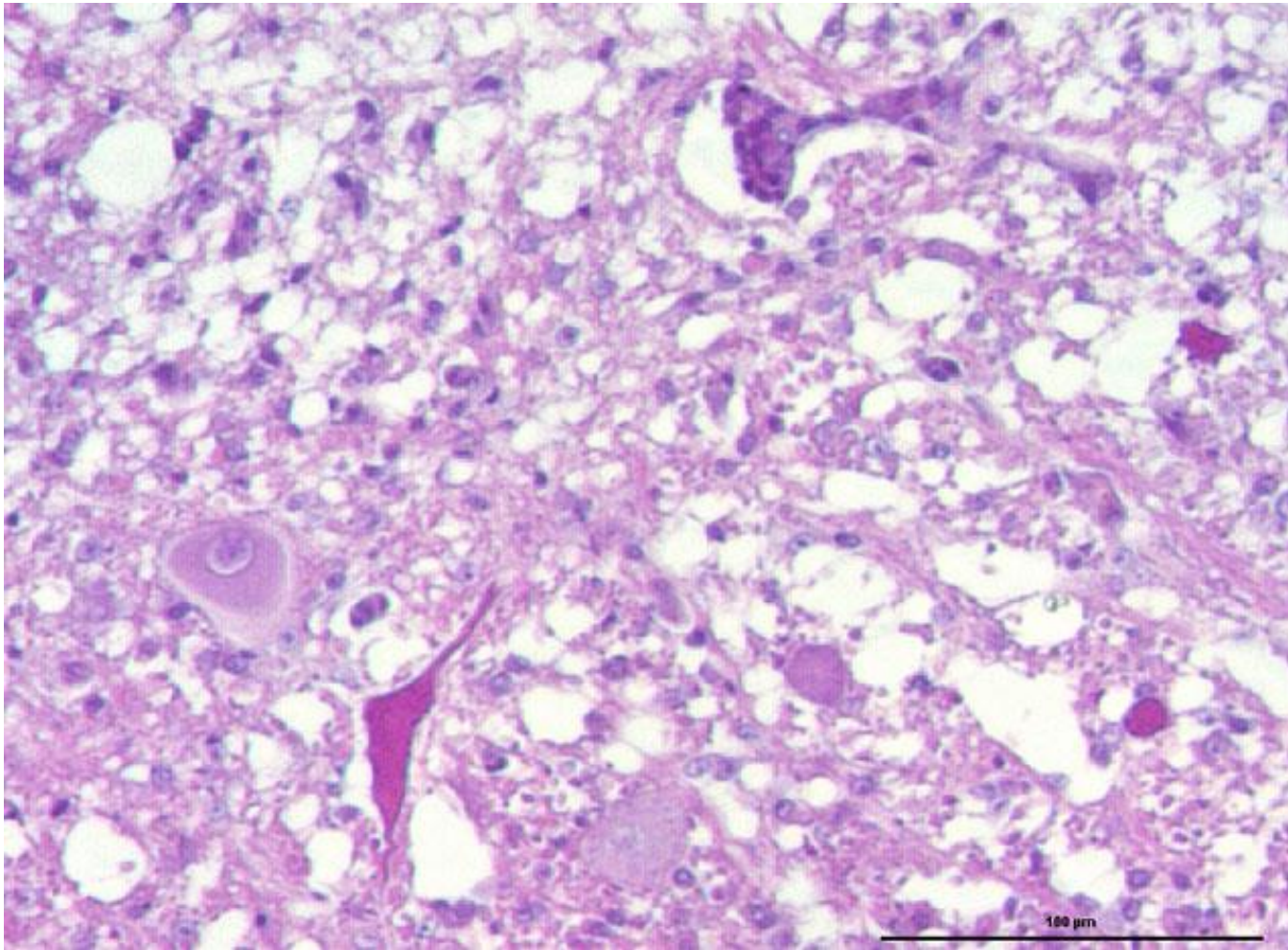
the neuropil is distended by coalescing empty spaces (**edema**), neurons and glial cells are shrunken, hyperchromatic with pyknotic nucleus (**necrosis**)

B3. Chicken



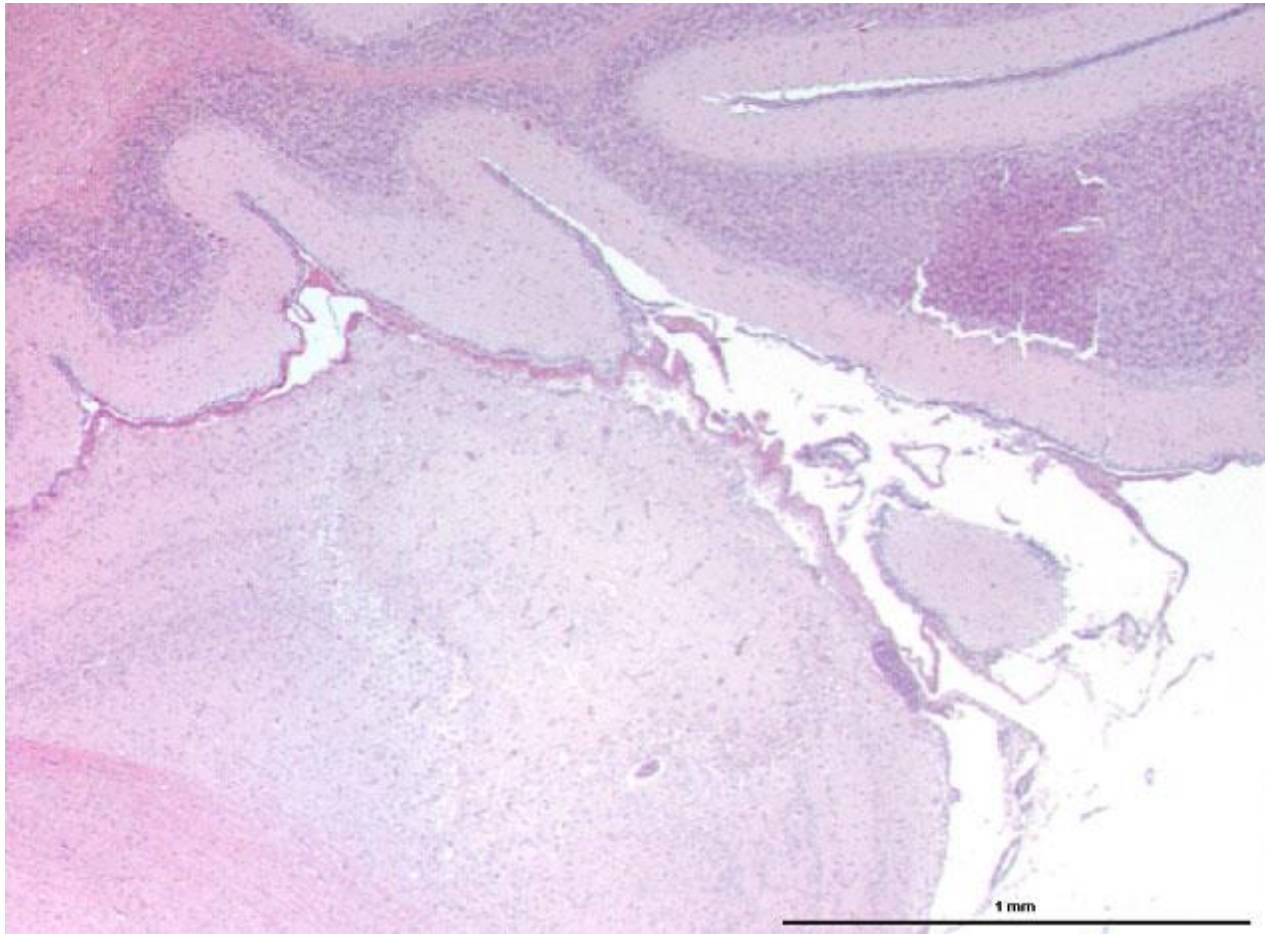
capillary blood vessels are occluded by an amorphous eosinophilic material (**fibrin**) and red blood cells (**hyaline thrombosis**)
few red blood cells are extravasated (**mild hemorrhage**).

B3. Chicken



neurones are devoid of Nissl bodies (**chromatolysis**),
there are microglial cells and lymphocytes within Virchow-Robin spaces of cerebral blood vessels (**perivascular cuffing**),
there is rarefaction of myelin sheaths (**demyelination**) and multifocal axonal dilatation (**spheroids**).

B3. Chicken



Focal (bifocal) acute **cerebral necrosis** with **edema**,
demyelination and **capillary hyaline thrombi**.

Enterococcus hirae, or *Enterococcus durans*

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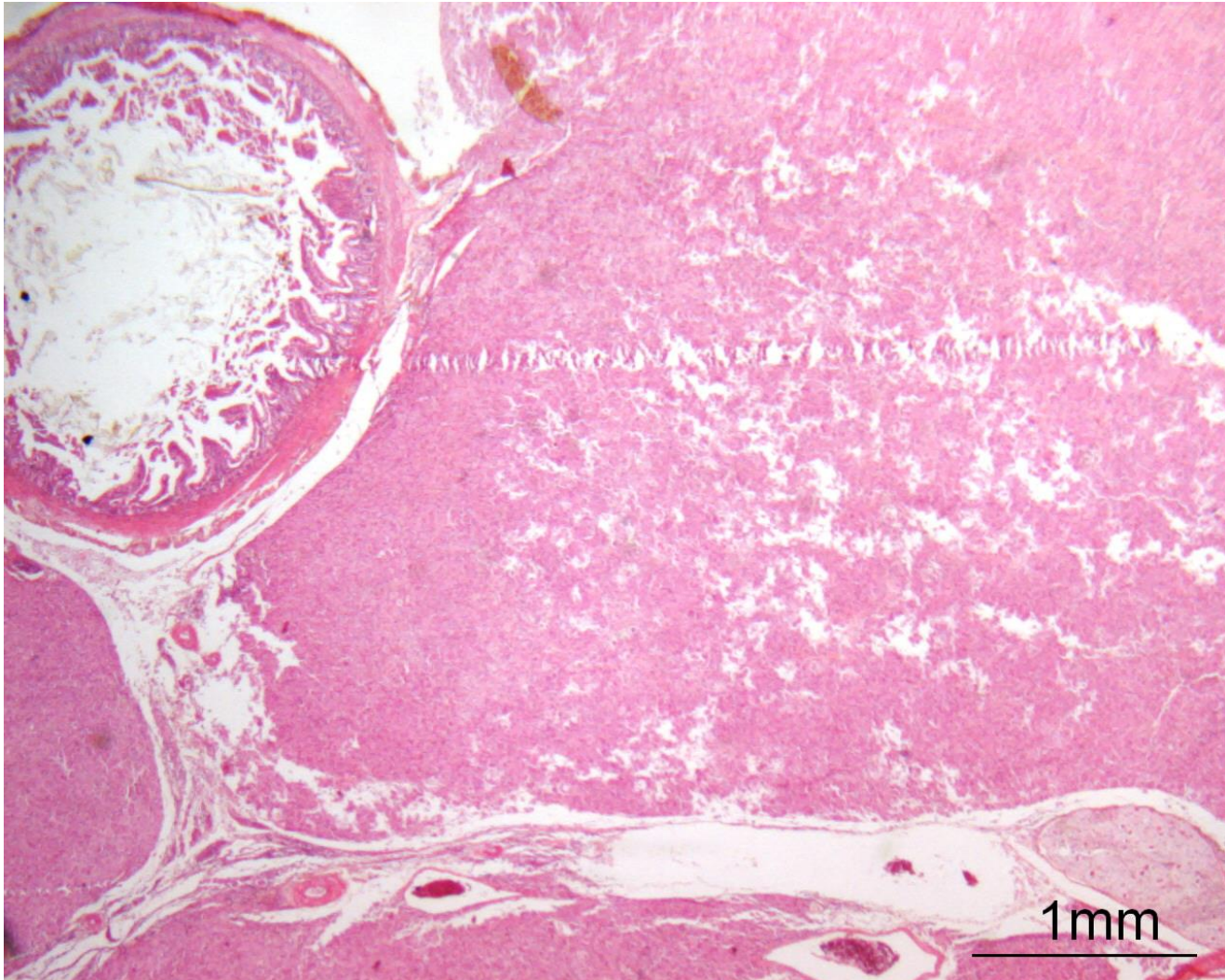
B3. Chicken.

Organ? Morphologic diagnosis? Etiology?

B4. Pigeon.

Organs? Morphologic diagnosis? Special procedure?

B4. Pigeon

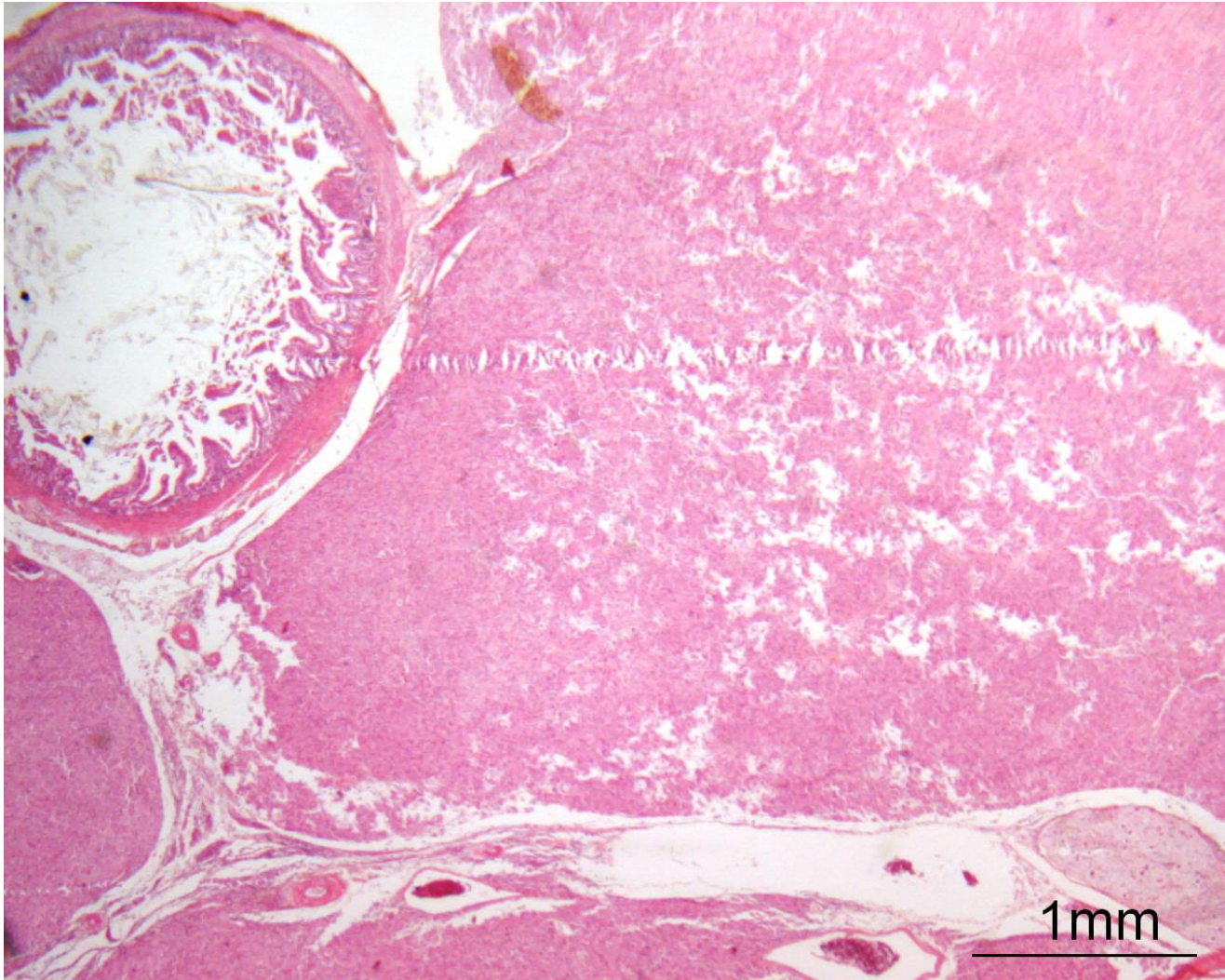


Organs? Keywords?

Morphologic diagnosis?

Special procedure?

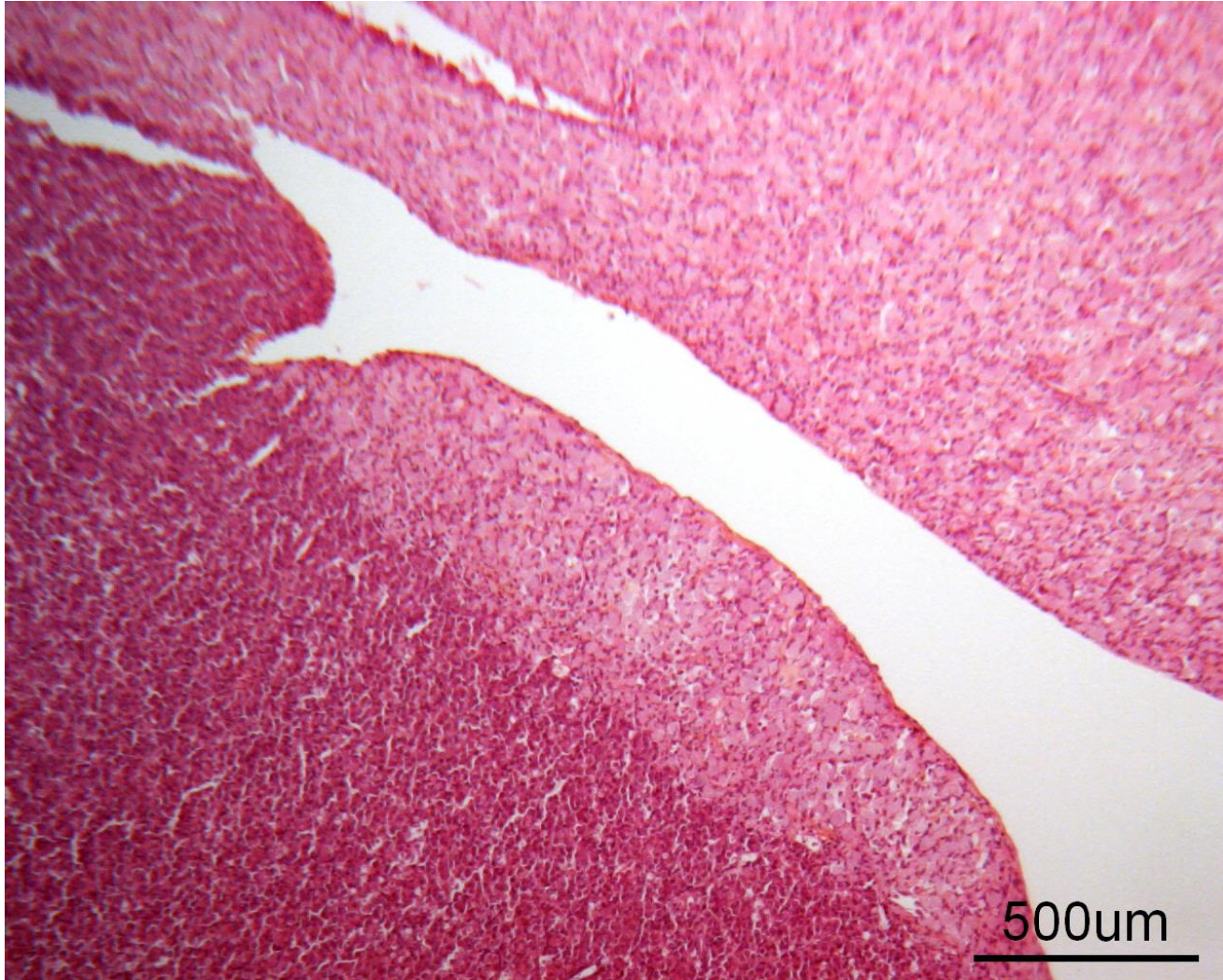
B4. Pigeon



Duodenum, pancreas, mesentery.

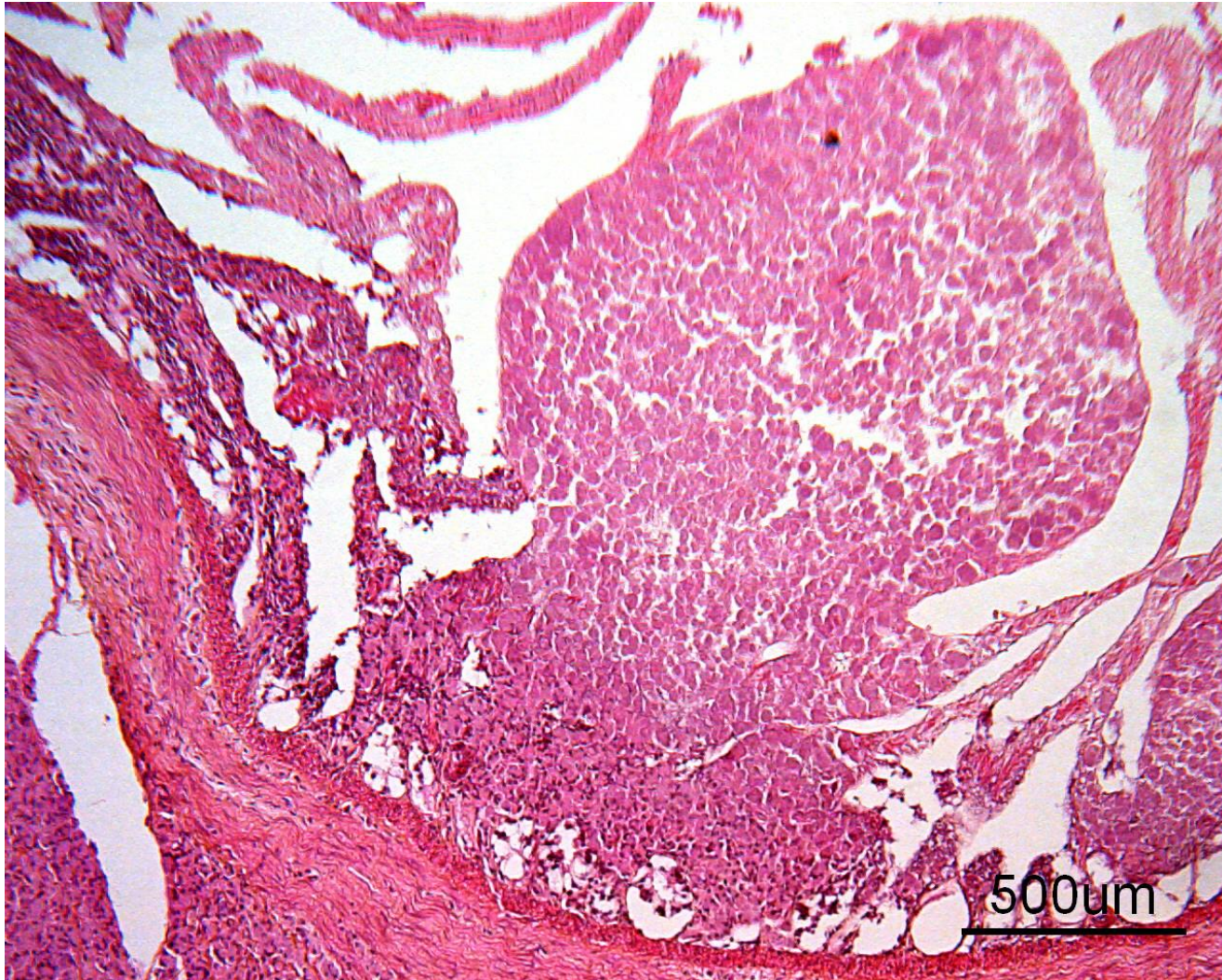
Enlargement of the mesentery, replacement of the adipose tissue.

B4. Pigeon



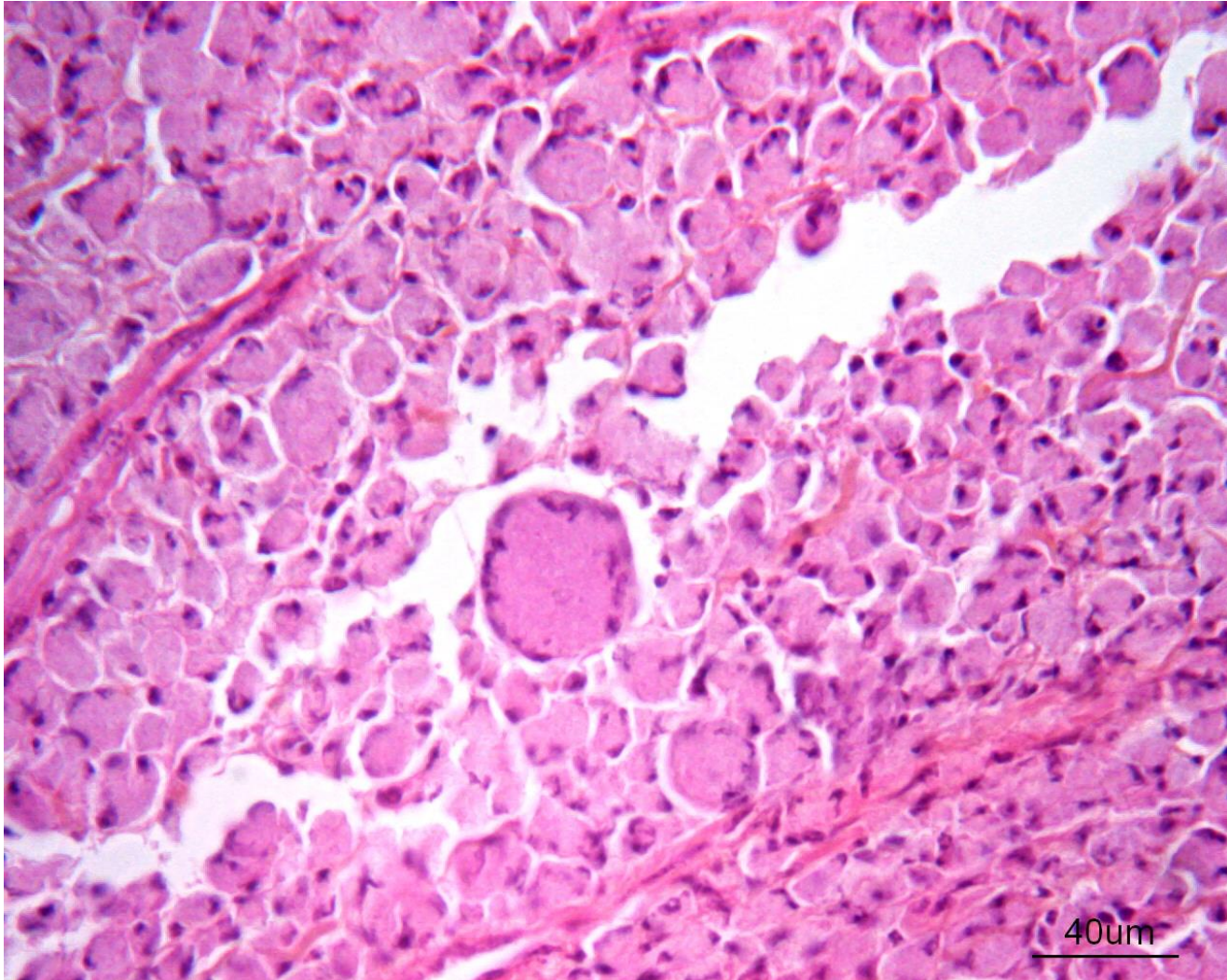
Subtotal replacement of the **pancreas** by the inflammatory infiltrate.

B4. Pigeon



Thickening of the **duodenal mucosa** by the same inflammatory infiltrate as in the mesentery and pancreas.

B4. Pigeon

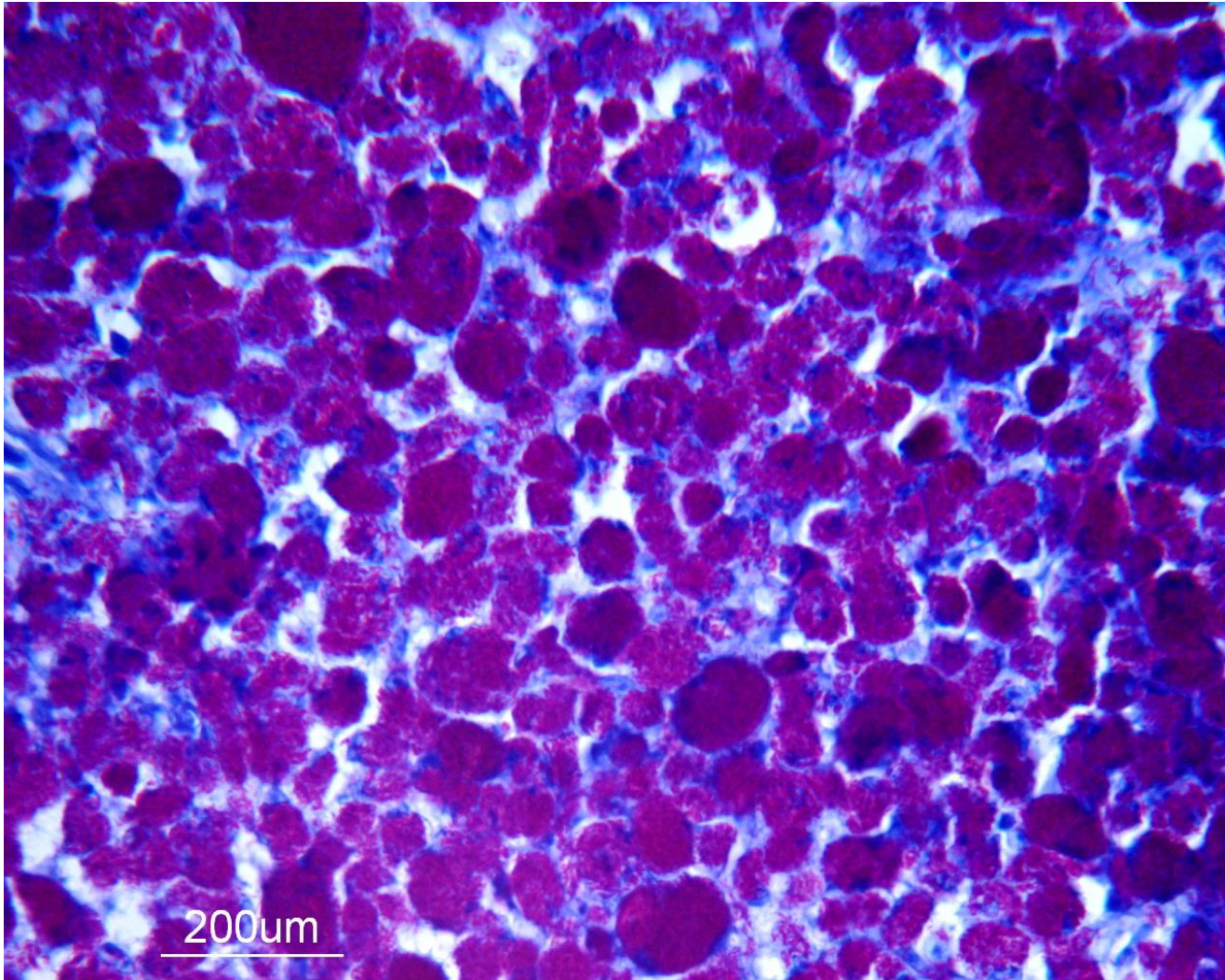


Epithelioid macrophages.

Multinucleate giant cells, Langhans type.

Small amount of **lymphocytes**. **GRANULOMATOUS INFILTRATE.**

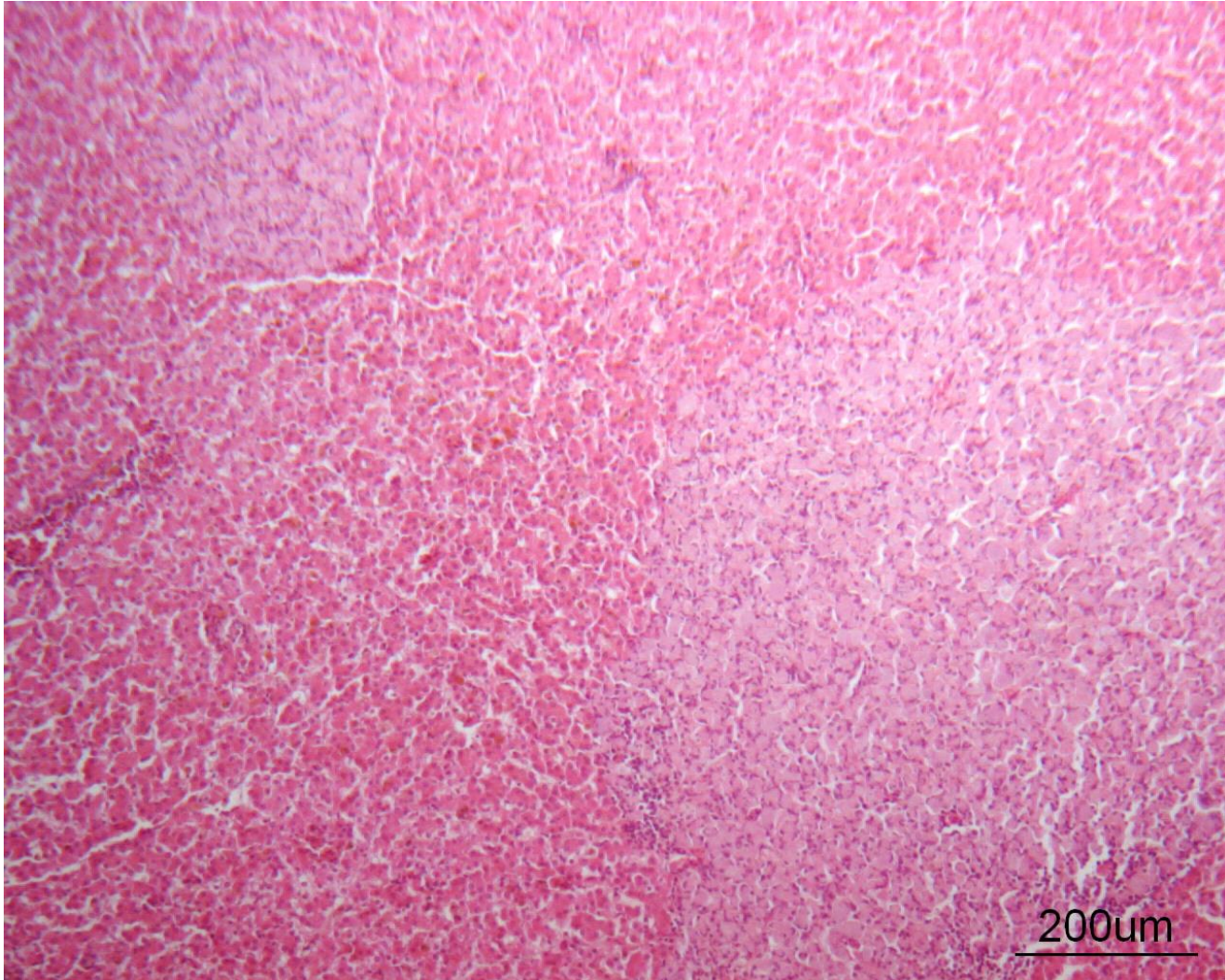
B4. Pigeon



Fite-Farraco stain.

Massive amount of **acid-fast bacilli** within the cytoplasm of macrophages and giant cells.

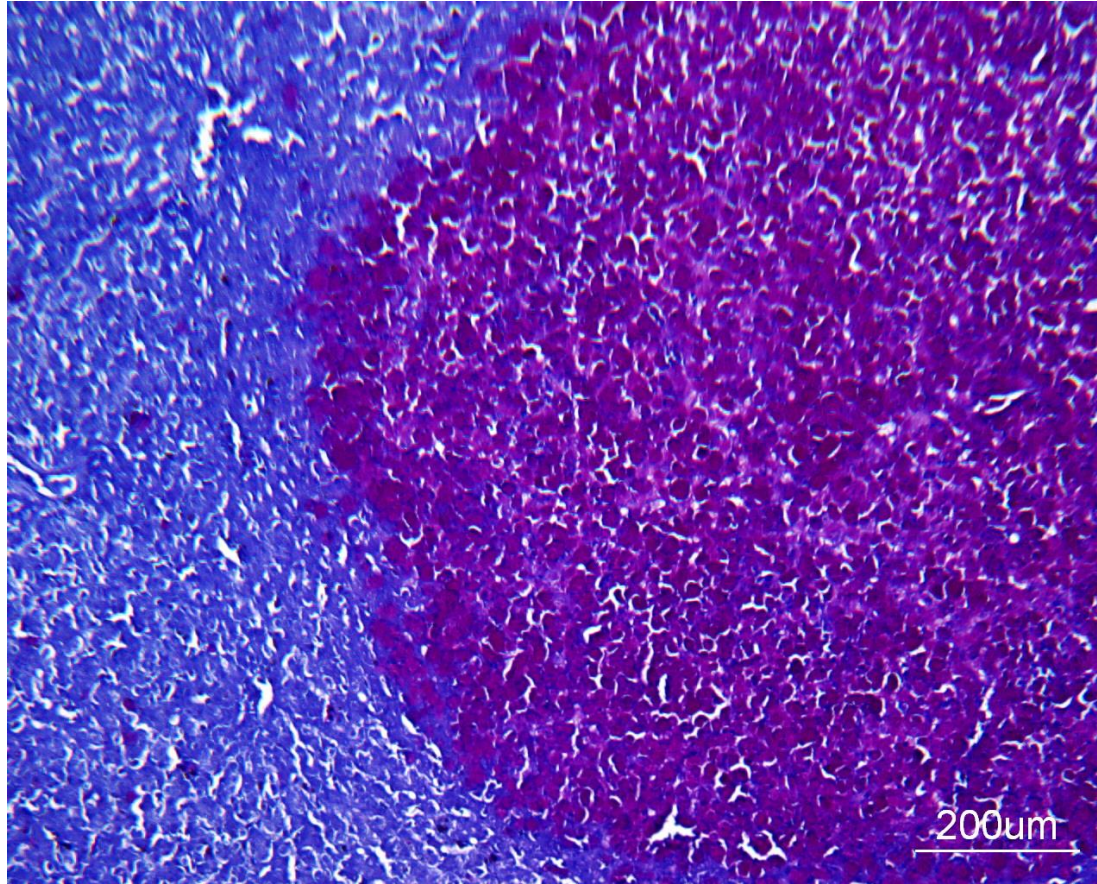
B4. Pigeon



Liver.

Multifocal random **granulomas**, 100 micrometers to 1 mm in diameter.

B4. Pigeon



Diffuse severe chronic **granulomatous enteritis, pancreatitis and peritonitis** with Langhans-type giant cells.

Multifocal marked chronic **granulomatous hepatitis**.

Note: *Mycobacterium avium subsp. silvaticum* in pigeons.