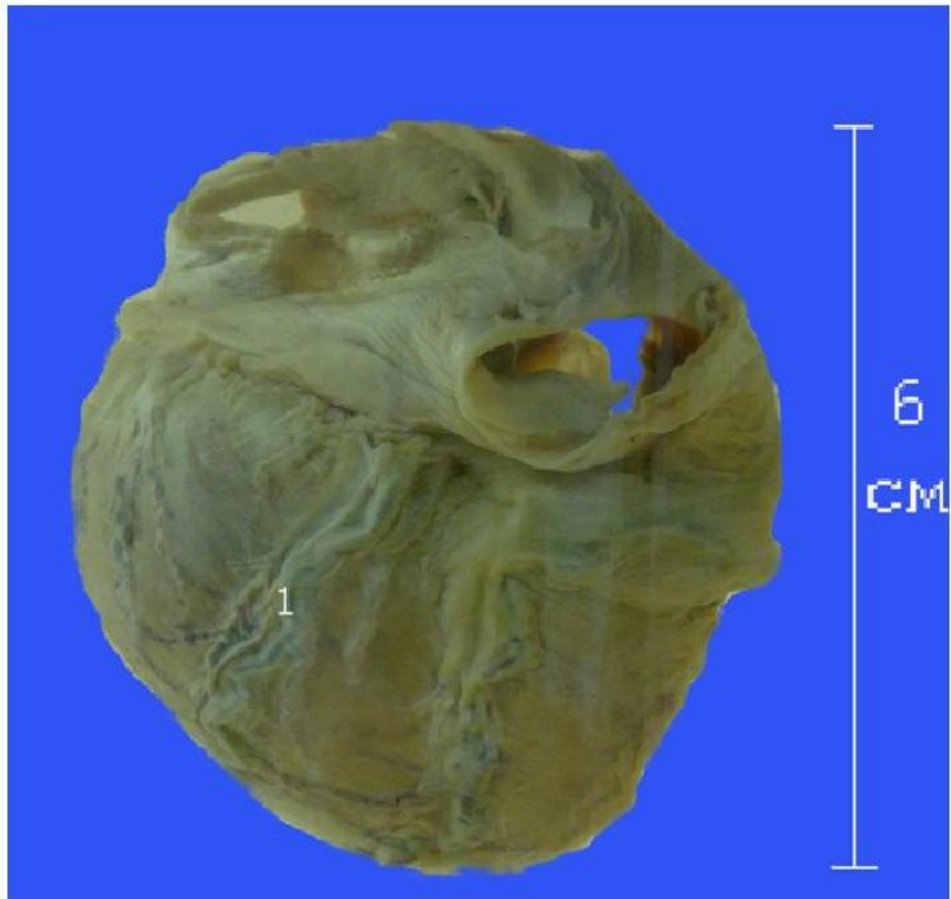


VOLGOGRAD STATE
MEDICAL UNIVERSITY
Department of Pathological Anatomy

**Morphology of pigment and mineral metabolism disorders (mixed dystrophies).
Morphology of pathological accumulation of endogenous and exogenous pigments.
Hemosiderosis, hemochromatosis. Jaundice. Pathological calcification.**

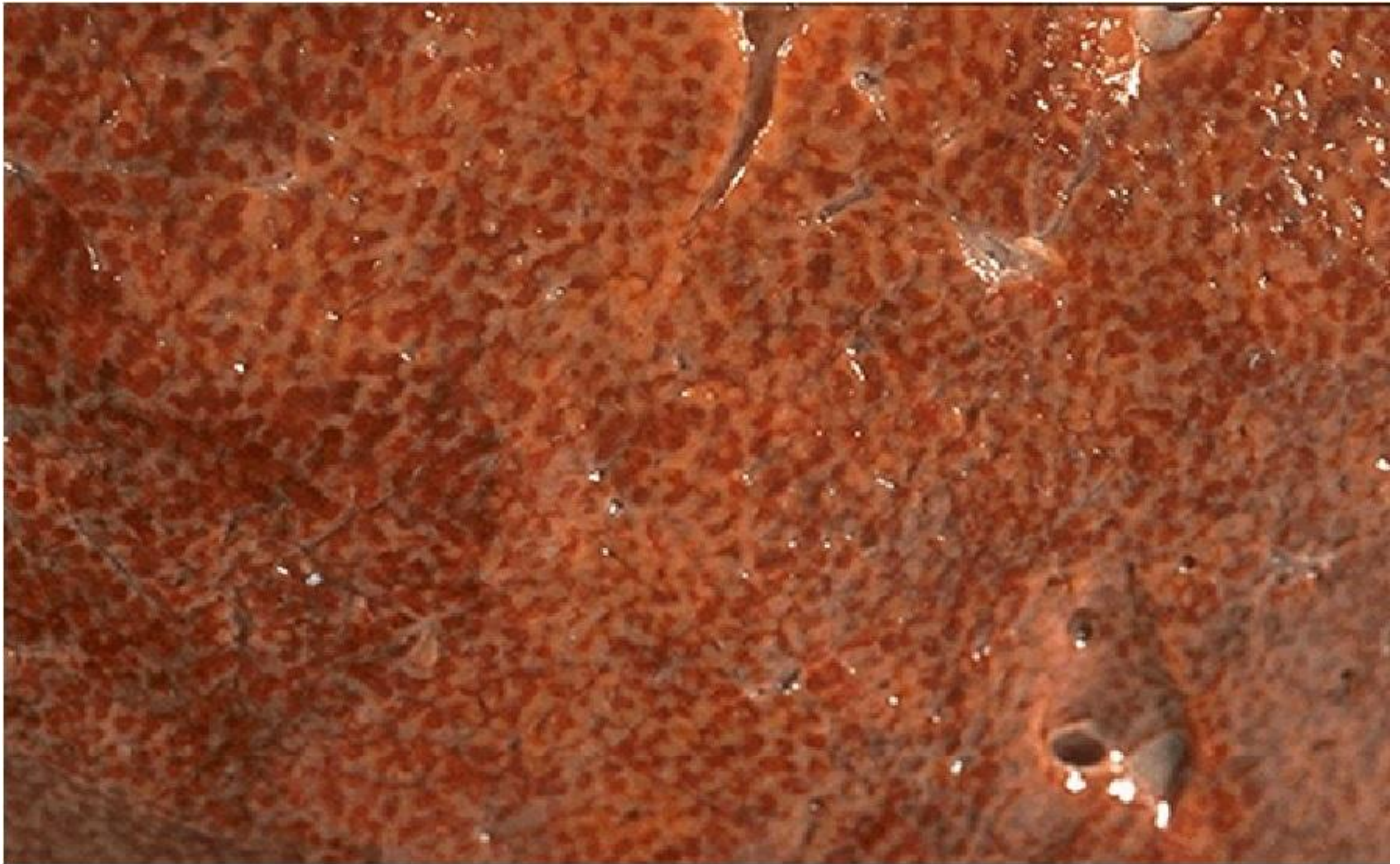
Lesson plan.

1. Macropreparation Brown myocardial atrophy.



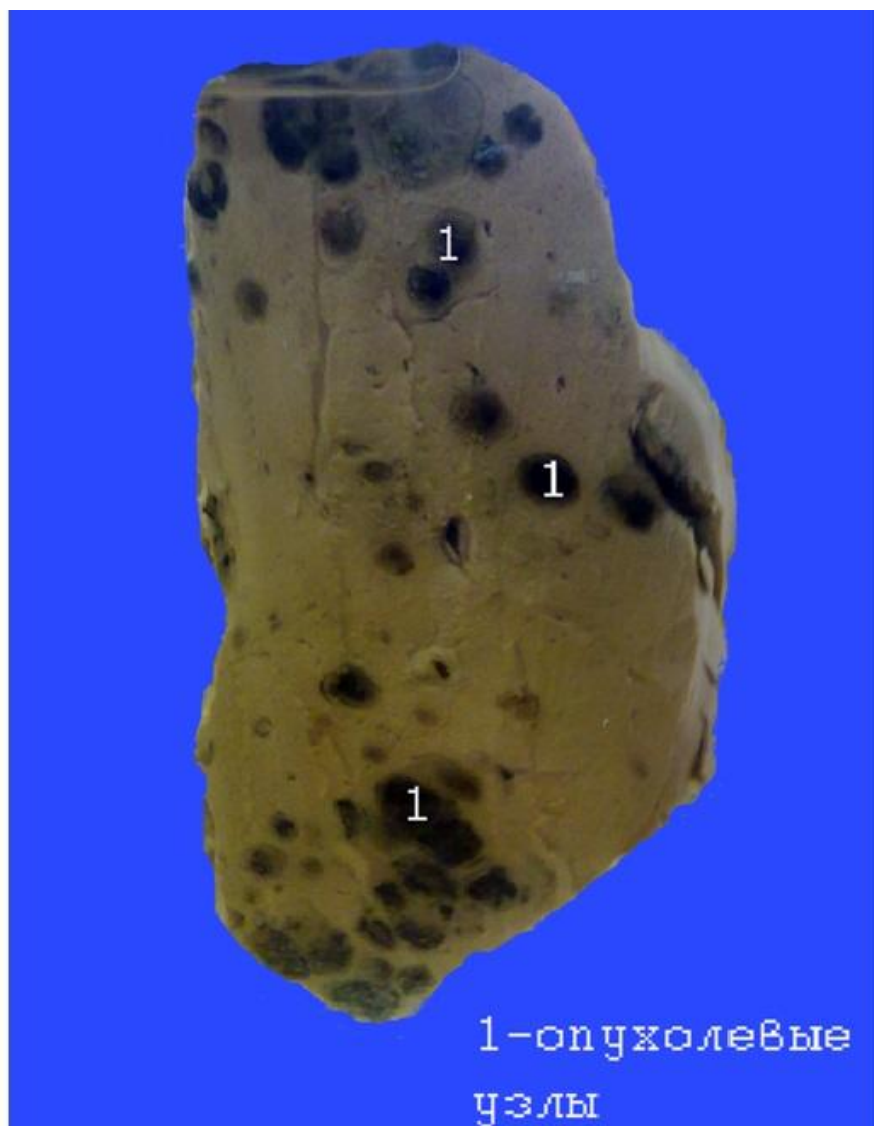
Brown myocardial atrophy - to determine the size of the heart, as well as the color of the myocardium from the surface and on the cut, to characterize the state of the coronary arteries.

2. Macropreparation Nutmeg liver.



Nutmeg liver - determine the size of the liver, pay attention to its surface, texture, thickness, color and uniformity of color on the cut.

3. Macropreparation Melanoma metastases to the liver (optional).



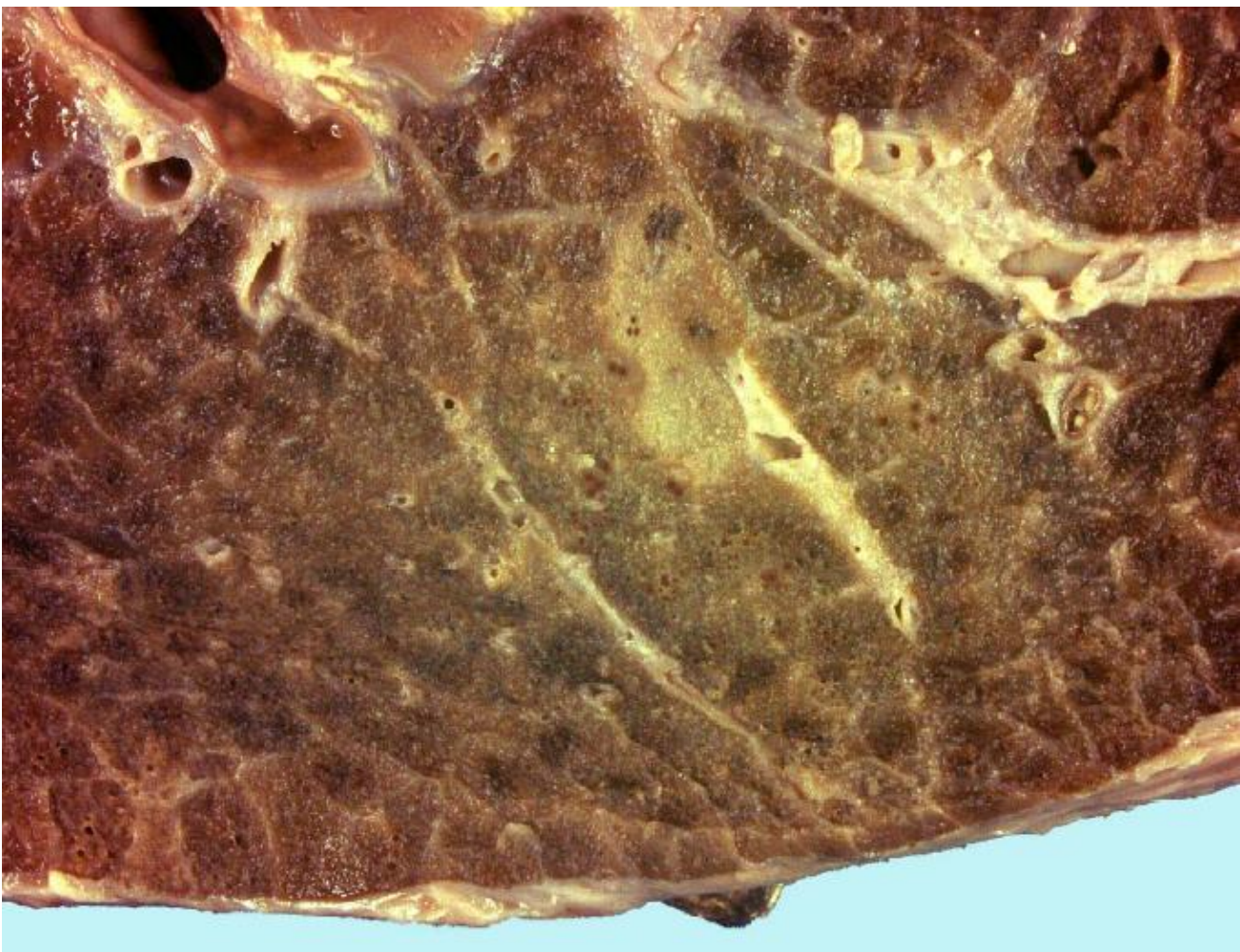
Pay attention to the color of the nodes characteristic of this disease, to the state of the organ surface.

Macropreparation Skin in Addison's disease (optional).



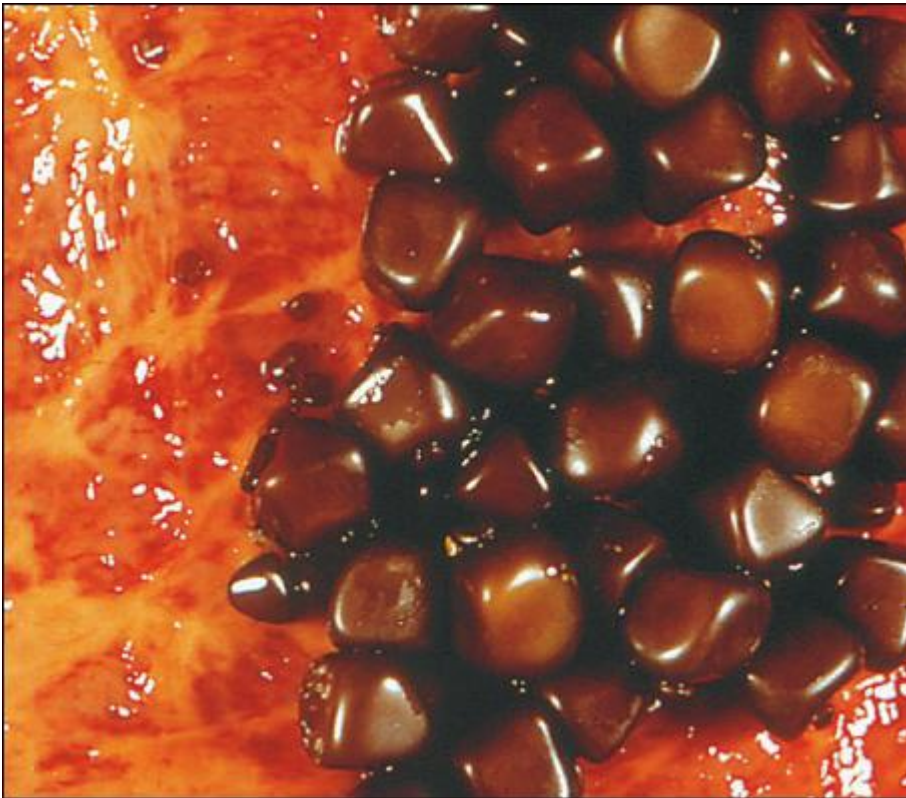
Skin in Addison's disease - pay attention to the skin color characteristic of this disease, to the condition of the skin surface.

4. Macropreparation Brown induration of the lung.



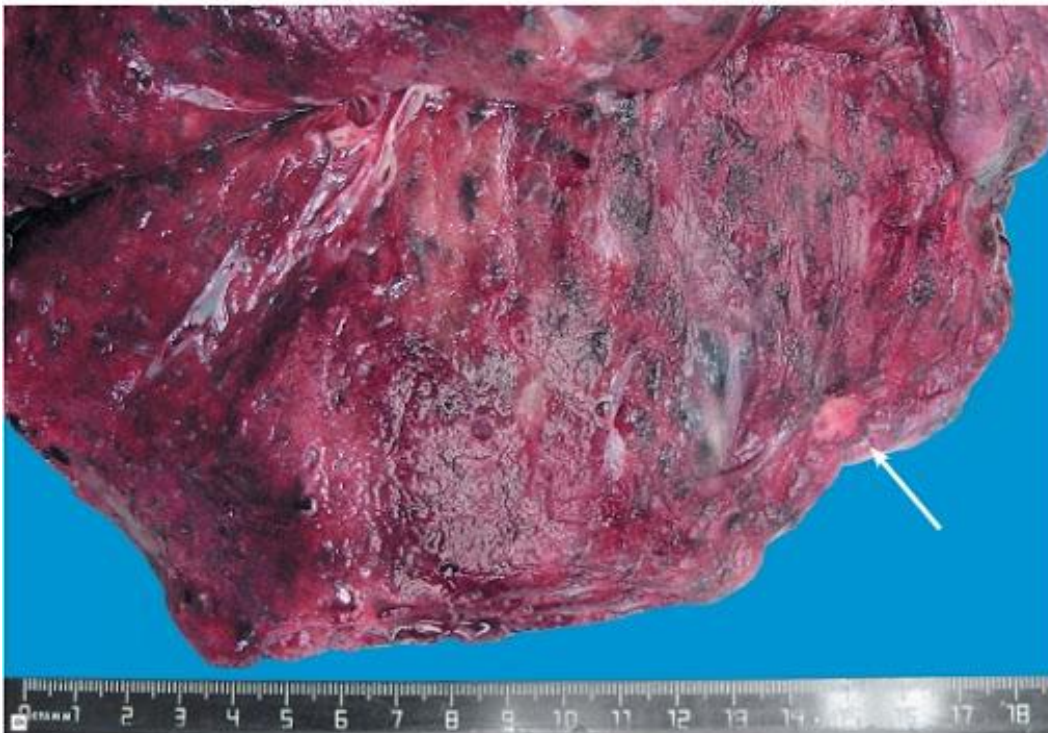
Brown induration of the lung - pay attention to the consistency of the organ, its appearance, the degree of airiness, the color of the organ in the section.

5. Macropreparation Gallbladder stones (optional).



Gallbladder stones - pay attention to the size, shape, color, consistency and surface condition of the stones.

6. Macropreparation “Petrification in the lung”.



Pay attention to the localization, number, shape, size, color and consistency of the lesions in the lung tissue.

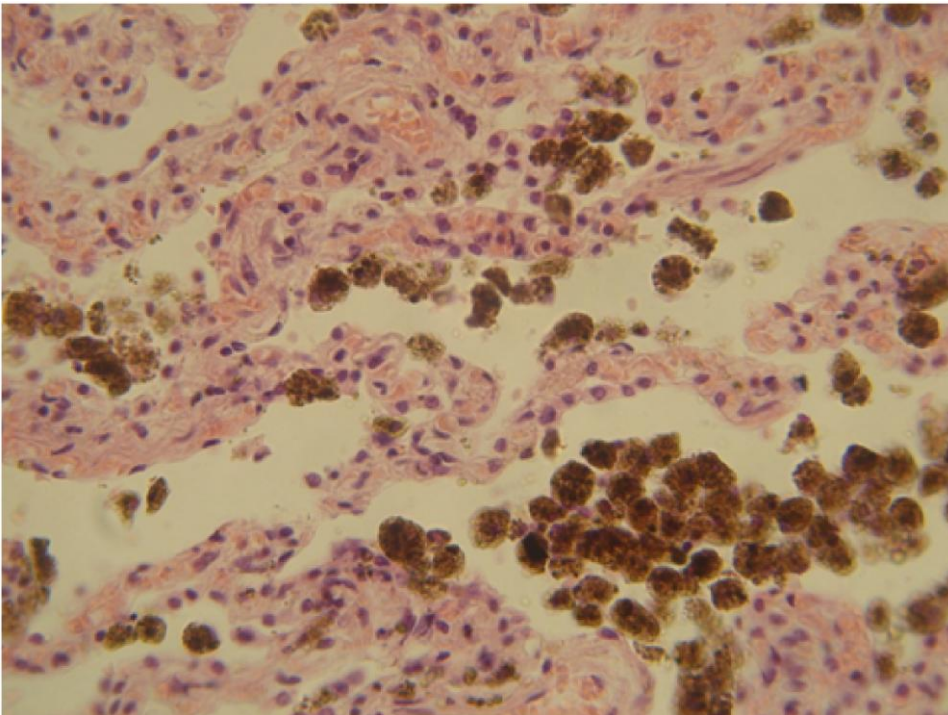
7. Macropreparation Lung anthracosis.



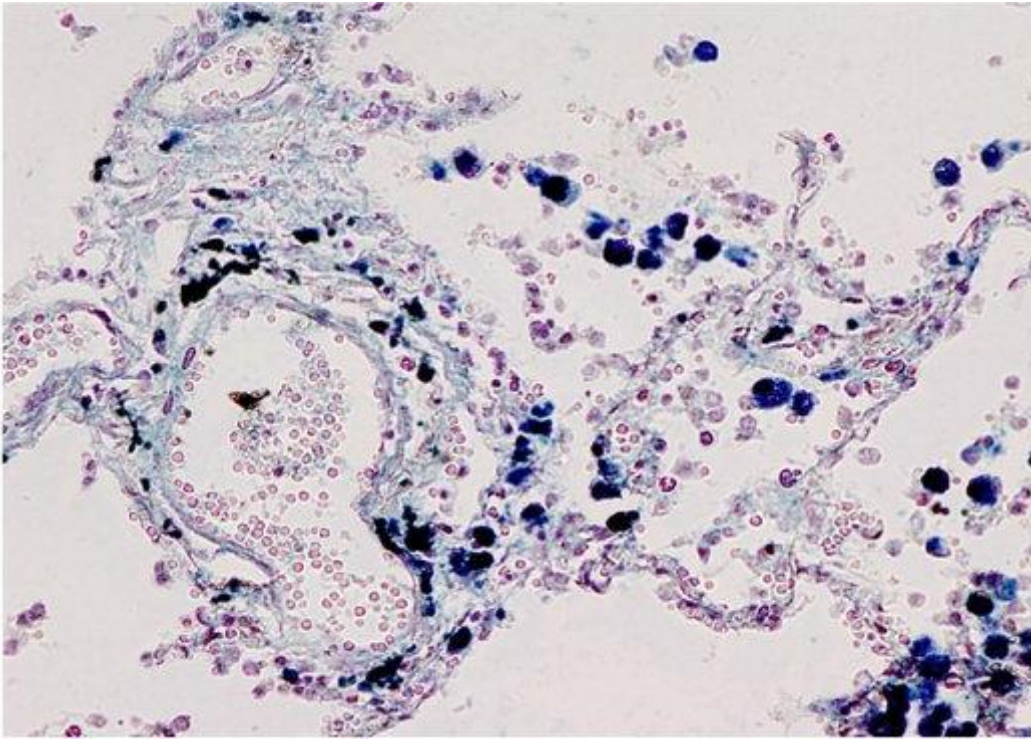
Lung anthracosis - pay attention to the color, localization of focal black inclusions (pigment) in the lung.

Micropreparations.

1. Micropreparation Brown induration of the lung.

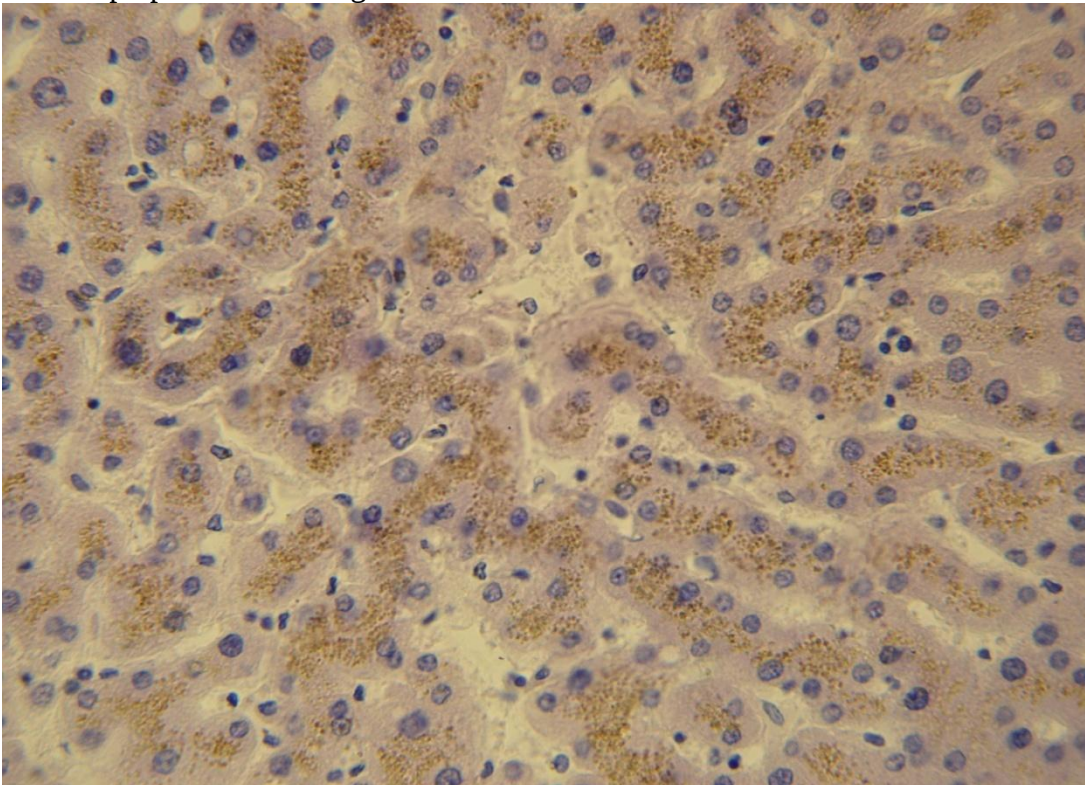


Brown induration of the lung - find capillaries that are sharply overflowing with blood, pay attention to the thickness of the walls of the interalveolar septa and the walls of blood vessels; find brown pigment grains, mark its localization (intracellular, extracellular). Hematoxylin and eosin staining,



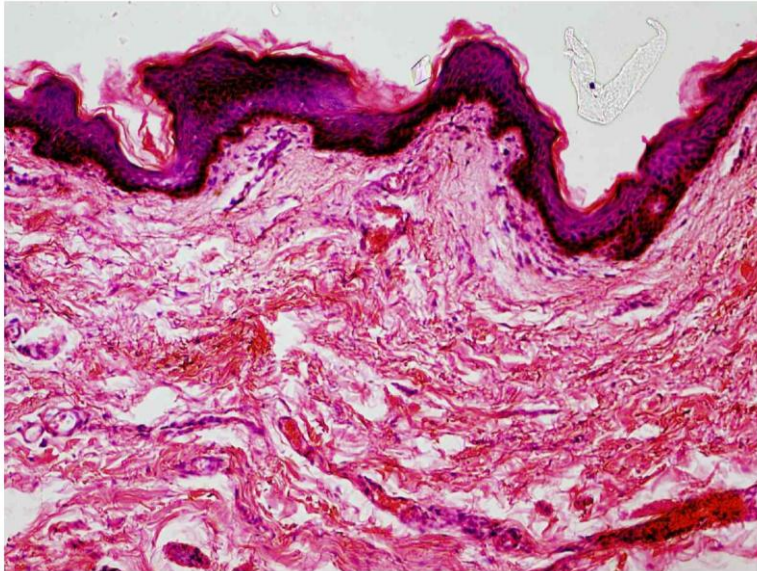
Brown induration of the lung - find capillaries that are sharply overflowing with blood, pay attention to the thickness of the walls of the interalveolar septa and the walls of blood vessels; find brown pigment grains, mark its localization (intracellular, extracellular). Perls reaction.

2. Micropreparation Nutmeg liver.

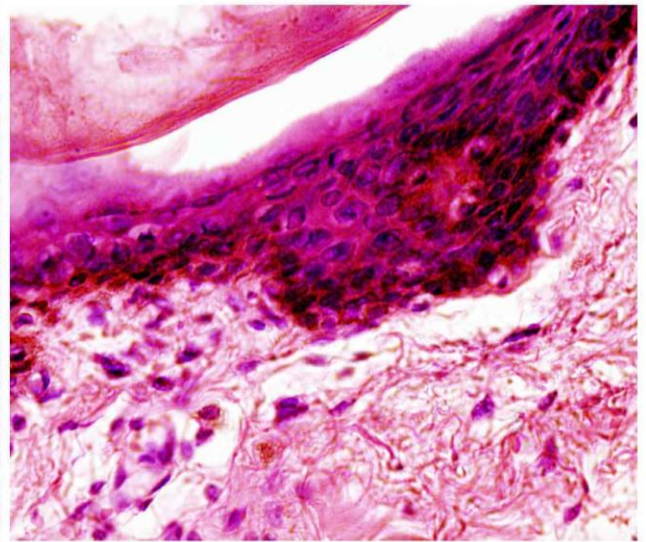


Nutmeg liver - find deposits of pigment granules, determine the type of pigment, its color and localization (in which parts of the lobule and which cells it accumulates); to determine the size of the liver cells and their nuclei, the state of the organ stroma.

3. Micropreparation Skin with Addison's disease.



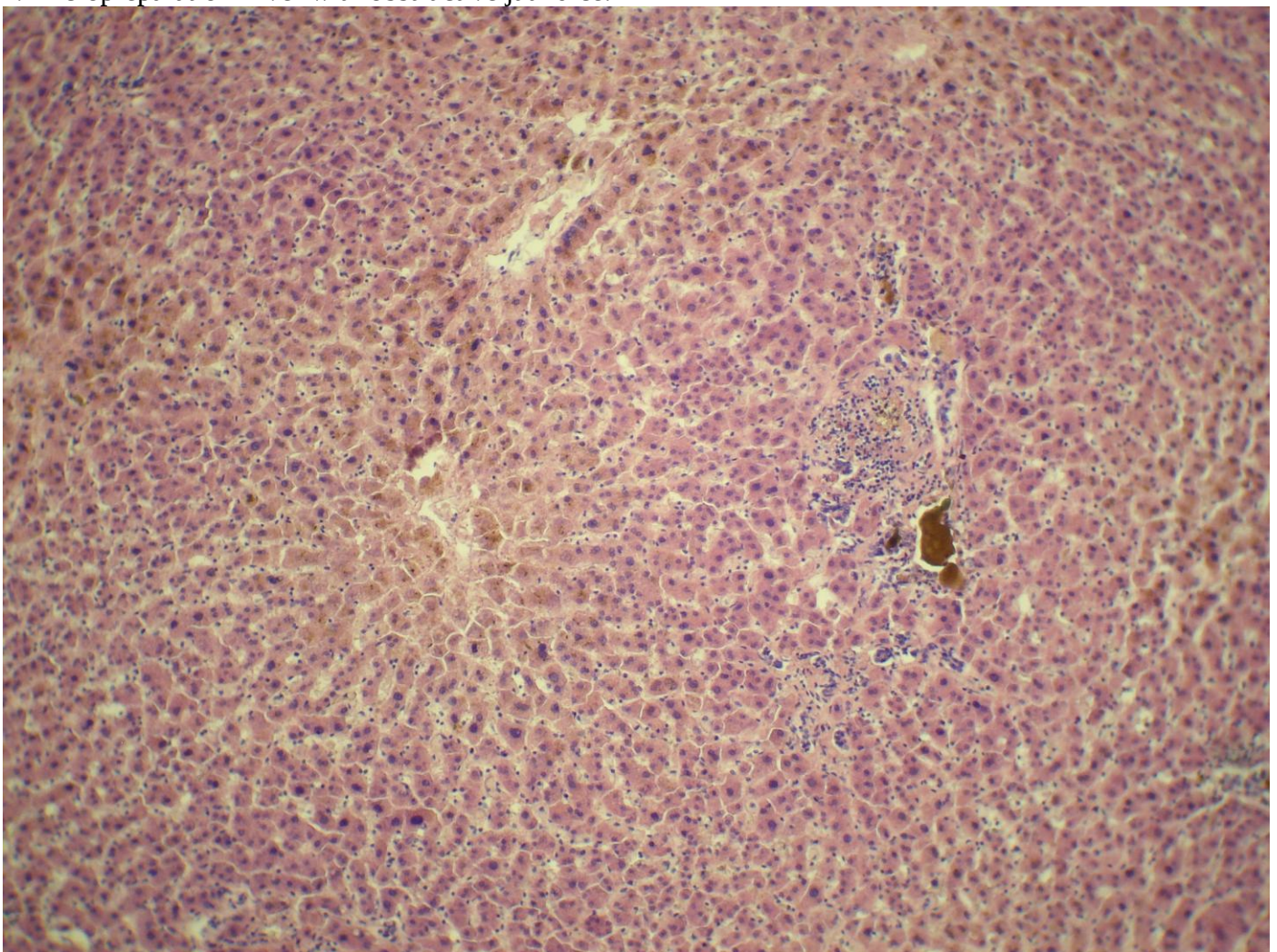
Увеличение x100



Увеличение x400

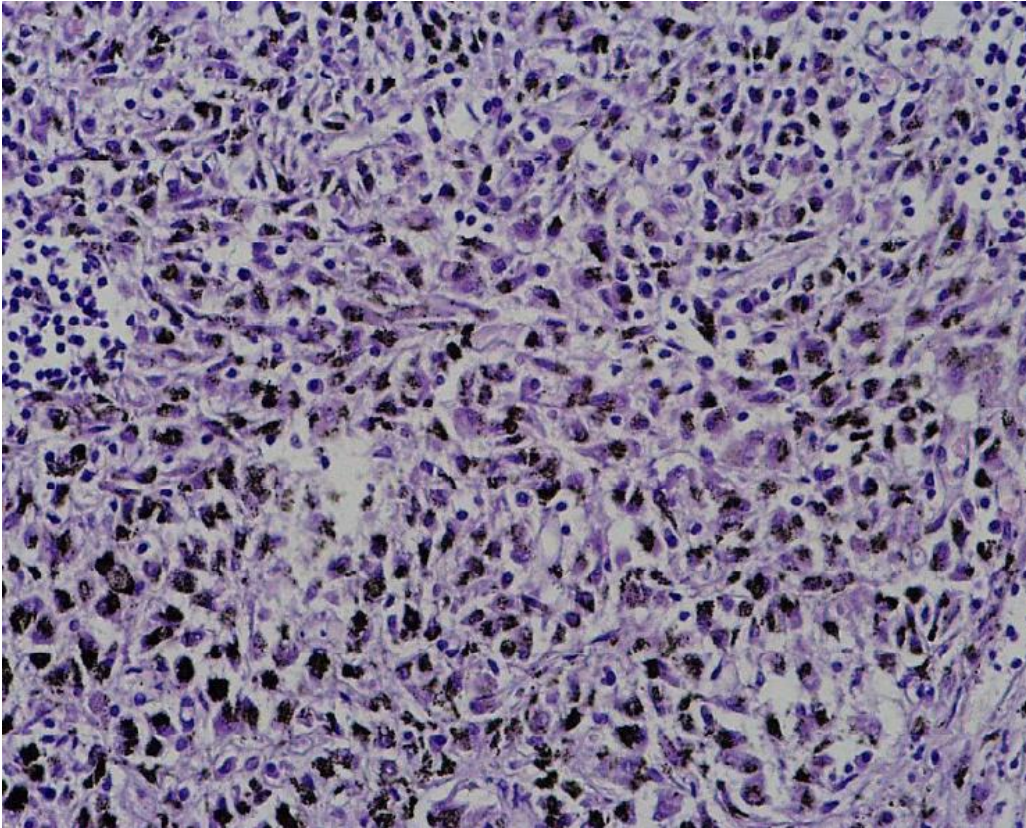
Skin with Addison's disease - find pigment deposits in the epidermis and dermis; determine the color, amount and localization of the pigment.

4. Micropreparation Liver with obstructive jaundice.



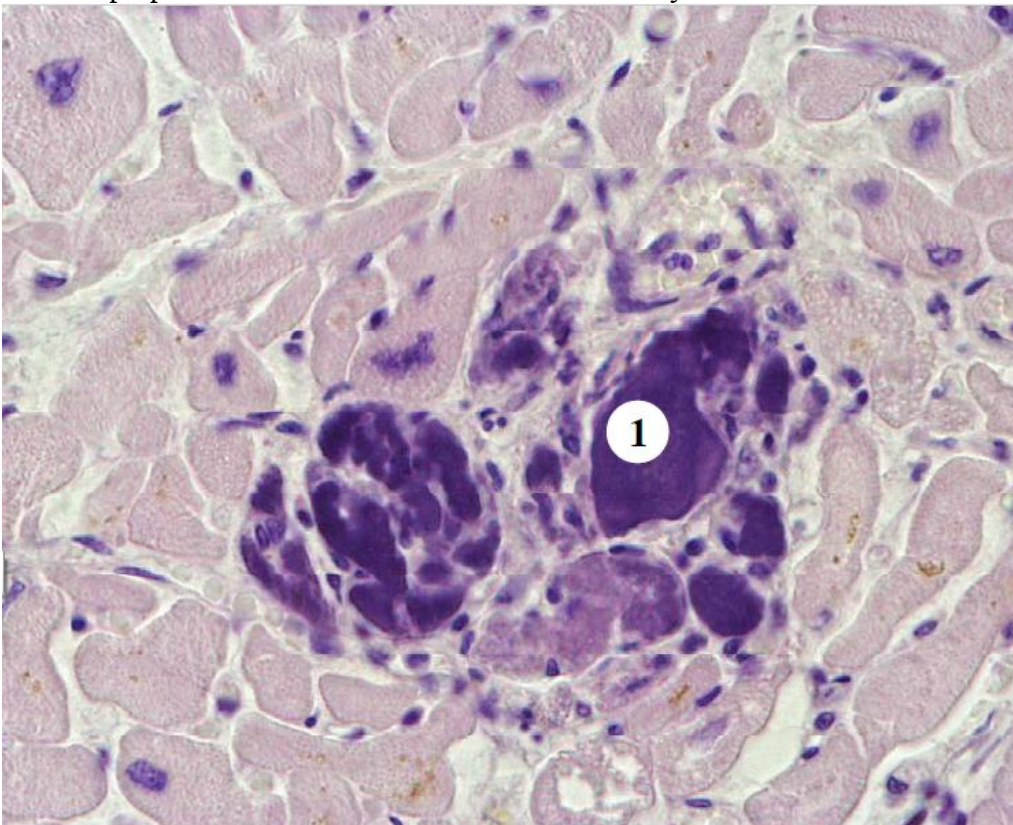
Liver with obstructive jaundice - pay attention to yellowish grains of bile pigment in the cytoplasm of hepatocytes; find dilated and filled with bile (bile clots) bile ducts; pay attention to focal necrosis of the parenchyma, stained with bile, accumulation of leukocytes in the area of necrosis.

5. Micropreparation Lymph node anthracosis (optional).



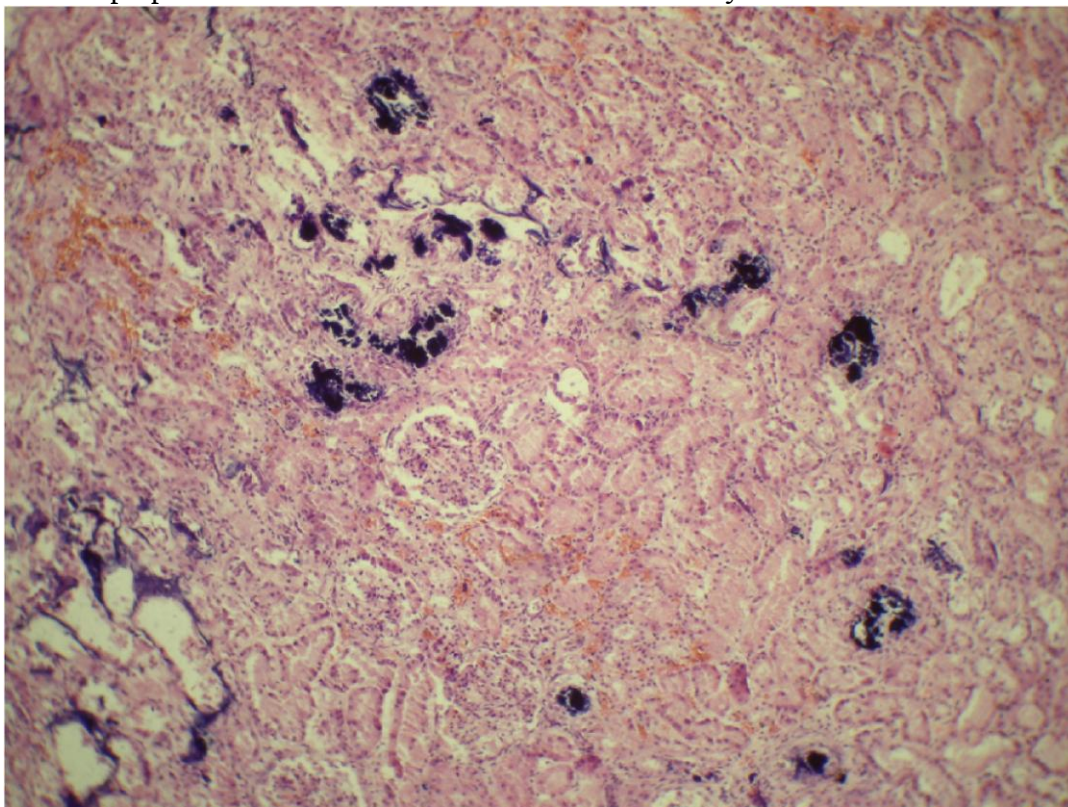
Lymph node anthracosis - pay attention to the color, localization of inclusions (pigment), the condition of the sinuses and tissue of the lymph node.

6. Micropreparation “Calcareous metastases in the myocardium”.



“Calcareous metastases in the myocardium” (staining with hematoxylin and eosin). Pay attention to the color and localization of calcium salt deposits, the state of damaged cardiomyocytes, changes in the myocardial stroma.

7. Micropreparation “Calcareous metastases in the kidney”.



“Calcareous metastases in the kidney” (staining with hematoxylin and eosin). Pay attention to the color and localization of calcium salt deposits, the state of damaged cells.

Electronograms

Explore the atlas.

1. Siderophage of the lung - pay attention to the numerous granules of hemosiderin.
2. Lipofuscin in cardiomyocyte - pay attention to the numerous lipofuscin granules.
3. Calcareous metastases in the kidney. Pay attention to the organelles that are the place of fixation of calcium salts.
4. Molecules of ferritin in the hemosiderin granule. Please note that during electron microscopic examination, the hemosiderin granule consists of ferritin molecules with a characteristic tetrahedral shape.

List of recommended literature:

Basic literature:

1. “Basic pathology” Vinay Kumar, Ramzi S. Cotran, Stanley L. Robbins, 1997.

Additional literature:

1. “Pathology. Quick Review and MCQs” Harsh Mohan, 2004.
2. “Textbook of Pathology ” Harsh Mohan, 2002.
3. “General and Systemic Pathology” Joseph Hunter, 2002.
4. “General and Systematic Pathology ” Ed. J.C.E. Underwood – Edinburgh: Churchill Livingstone, 1996 (2th).
5. “Histology for Pathologist” Ed. S.S.Sternberg – Philadelphia: Lippincott Raven Publ, 1997 (2th).
6. “Histopathology. A Color Atlas and Textbook” Damjanov I., McCue P.A. – Baltimore, Philadelphia, London, Paris etc.: Williams and Wilkins, A Waverly Co., 1996.

7. "Muir's Textbook of Pathology" Eds. R.N.M. MacSween, K. Whaley London: ELBS, 1994 (14th).
8. "Pathology" Eds. Rubin, J.L. Farber – Philadelphia: Lippincott Raven Publ, 1998 (3th).
9. "Pathology Illustrated" Govan A.D.T., Macfarlane P.S., Callander R. – Edinburgh: Churchill Livingstone, 1995 (4th).
10. "Robbins Pathologic Basic of Disease" Eds. R.S.Cotran, V.Kumar, T.Collins – Philadelphia, London, Toronto, Montreal, Sydney, Tokyo: W.B.Saunders Co., 1998 (6th).
11. "Wheater's Basic Histopathology. A Color Atlas and Text" Burkitt H.G., Stevens A.J.S.L., Young B. – Edinburgh: Churchill Livingstone, 1996 (3th).
12. "Color Atlas of Anatomical Pathology" Cooke R.A., Steward B. – Edinburgh: Churchill Livingstone, 1995 (10th).
13. "General Pathology " Walter J.B., Talbot I.C. – Edinburgh: Churchill Livingstone, 1996 (7th).
14. "Concise Pathology" Parakrama Chandrasoma, Glive R. Taylor.
15. "Pathology" Virginia A. LiVolsi, Maria J. Merino, John S. J. Brooks, Scott H. Saul, John E. Tomaszewski, 1994.
16. "Short lectures on pathology" Zagoroulko A., 2002
17. "Robbins pathologic basis of diseases" Cotran R., Kumar V., Collins T.
18. "General pathology" Dr. Fatma Hafez, 1979.
19. "Anderson's Pathology " Damjanov I., Linder J. – St. Louis: Mosby Inc., 1995 (10th).

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<https://volgmu-pat-anat.3dn.ru/>

<https://webpath.med.utah.edu/>