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Pathomorphological Changes of Kidney in Systemic Lupus Erytheis

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Summary. Systemic lupus erythematosus (SLE) affects people of all races, men and women, but in the latter it dominates and especially often develops in women of reproductive age. The prevalence of SLE among women of reproductive age is 1:500. Almost 90% of lupus patients are women. The reasons for the development of SLE are unknown. It is now generally accepted that gestational complications such as recurrent abortion, preeclampsia and eclampsia, placental abruption, DIC and HELLP syndromes, thrombosis, intrauterine growth retardation, and stillbirth are associated with autoimmune diseases in the mother. The mechanism by which SLE aggravates the course of pregnancy and worsens its outcomes for the mother, fetus, and newborn remains undeciphered. This article analyzes pathomorphological changes in the kidneys in pregnant women with systemic lupus erythematosus. As research materials, the Bukhara Regional Bureau of Pathological Anatomy performed a histological examination of the kidneys obtained at autopsy.

Keywords: systemic lupus erythematosus, pregnancy complications, pregnancy outcomes, neonatal lupus.

Relevance. Systemic lupus erythematosus is a systemic autoimmune rheumatic disease of unknown etiology, characterized by hyperproduction of non-organ-specific autoantibodies to various components of the cell nucleus and the development of immune-inflammatory damage to internal organs. SLE is a prototype of human systemic autoimmune pathology and is one of the extremely heterogeneous diseases in terms of both clinical manifestations and genetic predisposition and mechanisms of pathogenesis, which often complicates early diagnosis and does not allow personalization of therapy. Despite the fact that in the XXI century. The 15-year survival rate in SLE has increased to 85%, insufficient control of disease activity, the need for almost constant use of glucocorticoids (GCs) and immunosuppressive drugs lead to the accumulation of irreversible (accrul) damage to internal organs and, as a result, a decrease in the quality of life, disability, and social exclusion , premature mortality. [Soloviev S.K., 2020]

Kidney damage in systemic lupus erythematosus (SLE) remains one of the most common, severe and prognostically important visceritis. The possibilities of modern immunosuppressive therapy, on the one hand, have made it possible to reduce the proportion of patients with terminal renal failure, and, on the other hand, have demonstrated the prognostic importance of kidney damage for the course of the disease as a whole [1–5].

Morphological classification of lupus nephritis:

I Normal glomeruli A - normal in all types of research; B - normal under light microscopy

II Damage to the mesangium A - expansion of the mesangium and / or moderate hypercellularity; B - mesangial cell proliferation

III Focal proliferative lupus nephritis: A - active necrotizing lesions; B - active and sclerosing lesions; C - sclerosing lesions

IV Diffuse-proliferative lupus nephritis (severe mesangial / mesangiocapillary: A - with segmental lesions; B - with active necrotizing lesions; C - with active and sclerosing lesions; D - with sclerosing lesions

V Membranous lupus nephritis: A - pure membranous glomerulonephritis; B, C, D - associated with class II injuries

VI Sclerosing lupus nephritis

The impact of SLE activity on obstetric pregnancy outcomes was studied by investigators from Johns Hopkins University, Baltimore, USA. The course and outcomes of 267 pregnancies in patients with SLE were retrospectively followed. 229 (85.8%) pregnancies ended in live births. High activity of SLE was noted in 57 (21%) pregnancies, of which 77% ended in live birth, while with minimal activity, 88% of children were born alive. M. Petri et al. in 2015, by analyzing an extensive database, found that pregnancy in women affected by SLE is associated with a high risk of serious complications, often fatal for the mother, fetus, and newborn; with higher health care costs compared to women without lupus. The authors believe that during the management of pregnancy, it is necessary to coordinate the interaction of an obstetrician and a rheumatologist.

Purpose of the study. The aim of this study is to determine the pathological features of the kidney in pregnant women with systemic lupus erythematosus.

Research methods.

During the examination, 12 cases of surgically removed kidneys were examined, the studies were carried out in the research laboratory of the Bukhara Regional Pathological and Anatomical Bureau. The isolated kidney tissue was examined histopathologically. Staining with hematoxylin and eosin of general pathology. For general pathology, 1 piece 1.5×1.5 cm in size was cut out from each kidney and solidified in 10% neutralized formalin. After washing in running water for 2–4 h, it was dehydrated in concentrated alcohols and chloroform, poured into paraffin, and bricks were prepared. Sections 5–8 μm in size were made from paraffin blocks and stained with hematoxylin and eosin [1–5]. Histological preparations were viewed under lenses 10, 20, 40, 100 of a light microscope and the necessary areas were photographed.

Research results. Of the 12 cases of diagnosed SLE during pregnancy, pathomorphological features were studied. Macroscopic characteristics of the kidney: adipose tissue, hair fibers, skin consistency are determined. (Fig. 1.) Microscopic characteristics of rapidly progressive glomerulonephritis: crescents are located outside the glomerulus, occupying

part of the space of the Bowman's capsule (1,2), tubular necrosis (3,4).

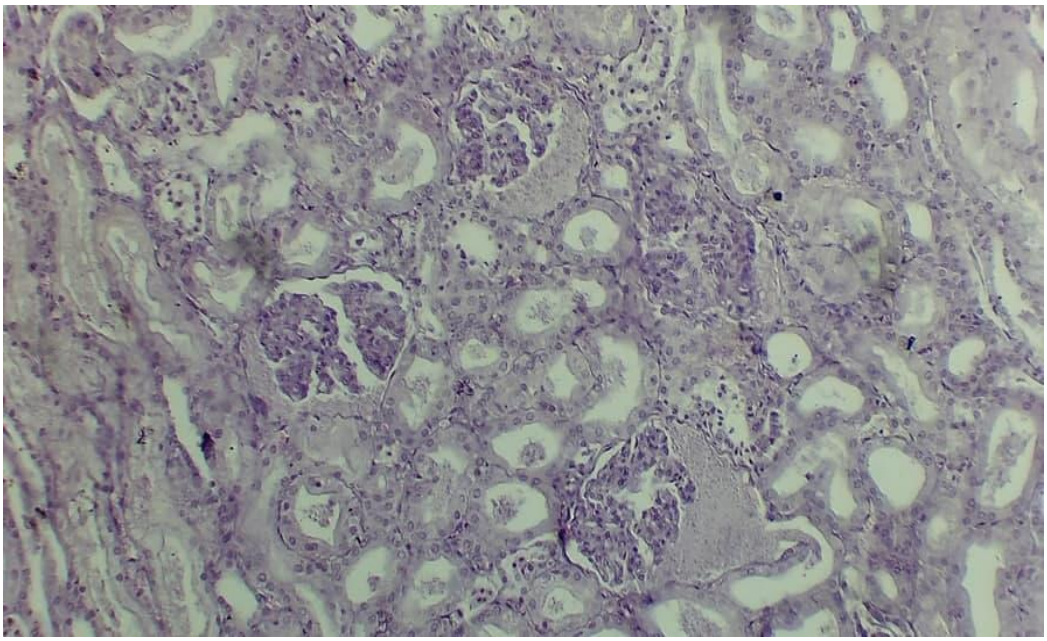

Figure 1. Autopsy material. Kidneys. Rapidly progressive glomerulonephritis. Crescents are located outside the glomerulus, occupy part of the space of the Bowman's capsule (1,2), tubular necrosis (3,4). Hematoxylin-eosin stain. Ok 20x40.

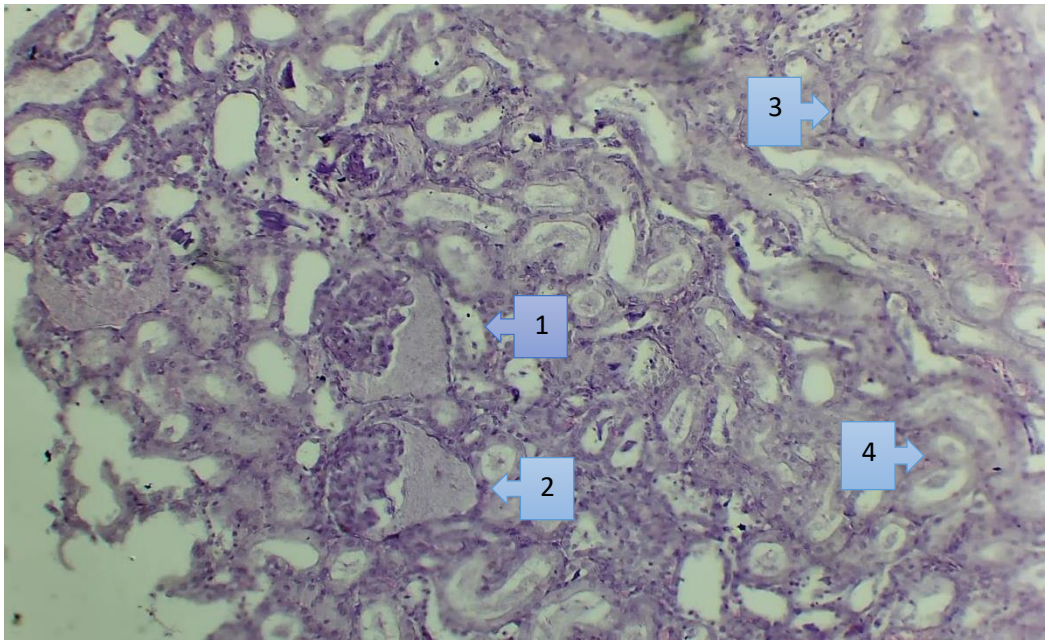

Figure 2. Autopsy material. Kidneys. Extracapillary diffuse glomerulonephritis. According to the cellular composition, the crescents consist of proliferating cells of the capsule, monocytes and lymphocytes (1,2), necrosis of the epithelium of the tubules (3,4). Hematoxylin-eosin stain. Ok 20x40.

In conclusion, would like to emphasize once again that the problem of diagnosing and treating SLE is very relevant not only for rheumatology and nephrology, but also for other areas of medicine that at first glance seem far from it. Patients with SLE are often examined for a long time and treated with various diagnoses on an outpatient basis or hospitalized in infectious, neurological, gynecological, tuberculosis and other hospitals, which is why patients do not receive adequate treatment in a timely manner. In this regard, it is necessary to remind doctors of various

specialties once again that systemic lupus erythematosus is not an uncommon, formidable, life-threatening disease that requires timely diagnosis and treatment.

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