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НОВЫЙ ДЕНЬ В МЕДИЦИНЕ  
NEW DAY IN MEDICINE**

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## RENAL PATHOLOGIES IN ULCERATIVE COLITIS

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### ✓ Resume

*Kidney damage in inflammatory bowel diseases (IBD) is a rare case of extraintestinal manifestations. It can be caused by the same immunological mechanism as IBD and directly related to inflammatory activity in the intestine, or it can be independent of the immunological activity of the bowel disease and be related to metabolic disorders that develop in IBD. Finally, kidney damage in IBD may occur as a result of side effects of drug therapy [Barysheva O. Yu., 2018]. This review is devoted to pathologies that occur in renal tissue in ulcerative colitis.*

*Keywords: inflammatory bowel disease, kidney, ulcerative colitis, morphology, pathology.*

## ПОЧЕЧНЫЕ ПАТОЛОГИИ ПРИ ЯЗВЕННОМ КОЛИТЕ

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### ✓ Резюме

*Поражение почек при воспалительных заболеваниях кишечника (ВЗК) относится к редким случаям внекишечных проявлений. Оно может быть обусловлено единым с ВЗК иммунологическим механизмом и непосредственно связано с воспалительной активностью в кишечнике, а может не зависеть от иммунологической активности заболевания кишечника и быть связано с метаболическими нарушениями, которые развиваются при ВЗК. Наконец, поражение почек при ВЗК может возникать вследствие побочных эффектов лекарственной терапии [Барышева О. Ю., 2018]. Этот обзор посвящен патологиям, возникающим в почечной ткани при язвенном колите.*

*Ключевые слова: воспалительные заболевания кишечника, почка, язвенный колит, морфология, патология.*

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### ✓ Rezyume

*Yallig'lanishli ichak kasalliklarida (YaIK) buyrak shikastlanishi - ichakdan tashqari ko'rinishlarning kamdan-kam uchraydigan holati hisoblanadi. Bu YaIK bilan bir xil immunologik mexanizm tufayli yuzaga kelishi mumkin va ichakdagi yallig'lanish faolligi bilan bevosita bog'liq yoki ichak kasalliklarining immunologik faolligidan mustaqil bo'lishi va YaIK da rivojlanadigan metabolik kasalliklar bilan bog'liq bo'lishi mumkin. Nihoyat, YaIK da buyrak shikastlanishi dori terapiyasining yon ta'siri natijasida yuzaga kelishi mumkin [Barisheva O. Yu., 2018]. Ushbu adabiyotlar sharhi yarali kolitda buyrak to'qimalarida yuzaga keladigan patologiyalarga bag'ishlangan.*

*Kalit so'zlar: ichakning yallig'lanish kasalligi, buyrak, yarali kolit, morfologiya, patologiya.*

## Relevance

The kidney is an important organ whose functions include maintaining body homeostasis, as well as detoxification and excretion of toxic metabolites and drugs. Kidney damage is a severe disease that is usually associated with high mortality rates, mainly caused by cancer and cardiovascular diseases. Kidney damage can lead to failure, apoptosis, and necrosis of renal tubular epithelial cells. Kidney disease is one of the leading public health problems that is increasingly widespread and is considered one of the 12 most common causes of death in the world [Meraati Z. et al., 2025].

One of the variants of kidney damage is chronic tubulointerstitial nephritis, which occurs due to long-term use of 5-aminosalicylic acid drugs. Signs of chronic tubulointerstitial nephritis are observed in 23% of patients who constantly take such drugs. The pathological effect on the kidney is realized through vasospastic reactions, direct tubulotoxic action, activation of collagen formation (the synthesis of type 1 collagen is enhanced), cytokine activation with vascular remodeling, stimulation of epithelial-mesenchymal transition and atrophy of the tubular epithelium and is not directly associated with the inflammatory activity of IBD [Barysheva O. Y. et al., 2018].

Another option is nephrolithiasis as a non-autoimmune extraintestinal manifestation. There are separate publications on the possible connection between diseases of the digestive system and nephrolithiasis. In patients with Crohn's disease and ulcerative colitis, hypercalciuria accompanied by nephrolithiasis occurs 8.6% more often compared to the general population, which, according to the author, can be explained by increased absorption of calcium in the intestine. The role of dehydration and increased absorption of oxalates is also discussed. Oxalate kidney stones usually occur in patients with a damaged or absent terminal ileum and the resulting fat malabsorption. Fatty acids remain unabsorbed in the intestinal lumen and there, binding with calcium, form insoluble soaps. This prevents calcium from binding to oxalates in the diet. Free oxalates are absorbed in the colon, excreted in the urine, and precipitate with urinary calcium, forming stones. In addition, a hereditary predisposition to nephrolithiasis is important [Успенский Ю. П. и др., 2023].

Another variant of extraintestinal manifestation of IBD, caused by long-term inflammation and metabolic disorders, is AA amyloidosis of the kidneys. The frequency of this complication in patients with Crohn's disease was 0.68%. At the same time, cases of amyloidosis in patients with ulcerative colitis were not noted in the Spanish registry of patients with IBD. In all 4 cases, the clinical picture of amyloidosis was nephrotic syndrome. Three patients responded to drug and surgical treatment of Crohn's disease and colchicine therapy, which improved kidney function, in 1 case hemodialysis and kidney transplantation were required. Long-term course of active forms of IBD, primarily penetrating (fistula) form of Crohn's disease, especially with insufficiently effective therapy, is recognized as a factor increasing the risk of developing renal amyloidosis [Хышова В. А. и др., 2021].

In the literature, one can find a description of membranous nephropathy associated with familial ulcerative colitis in a 12-year-old girl, as well as a case of membranous nephropathy in a 69-year-old woman (ulcerative colitis was diagnosed 3 years after the onset of nephrotic syndrome) [Шкляев А. Е., 2024].

Recently, the relationship between IBD and chronic kidney disease (CKD), primarily glomerulonephritis, and the genetic basis of such a relationship have been studied. The possibility of common pathogenetic mechanisms of IBD and CKD is considered, for example, changes in intestinal microbiota, modulation of the immune and inflammatory response by vitamin D, etc. The possibility of developing tubulointerstitial nephritis (including drug-induced), amyloidosis and urinary tract infection in patients with IBD has also been shown [Хавкин А. и др., 2024].

However, special attention is paid to the most common renal complication of intestinal diseases - urolithiasis. Thus, an Australian study found that children with lactase deficiency have a significantly higher incidence of urolithiasis. It was shown that with IBS there are three times more patients with urolithiasis than in the population. In Turkish children with urinary tract stones, celiac disease markers were found significantly more often than in the population. It was also found that with IBD, the risk of developing urolithiasis increases by 10-100 times compared to the population [Отпущенникова Т.В., 2022].

In IBD, various morphological variants of glomerulonephritis have been described: membranous, glomerular, membranoproliferative, IgA and IgM glomerulonephritis, focal and segmental glomerulosclerosis [Хотько Д.Н. и др., 2022].

The development of glomerulonephritis, especially in CD, is explained by the common genetic (HLA-DR1 and HLA-DR1/DQw5 loci), immunological mechanisms of chronic inflammation, and impaired production and transport of IgA. In terms of the time of occurrence, glomerulonephritis often coincides with the onset of IBD, the clinical picture is largely determined by the morphological variant of glomerulonephritis [Дорофеев А.Э. и др., 2015].

### Conclusion

The activity of glomerulonephritis is associated with the activity of IBD; with adequate therapy for an exacerbation, regression of renal damage is noted. Renal amyloidosis is a rare manifestation of IBD, which is usually diagnosed 10-15 years after diagnosis verification. More common is AA amyloidosis, which clinically manifests itself as proteinuria, nephrotic syndrome, progressive, progressing to renal failure. The diagnosis of amyloidosis is complex with the performance of a nephrobiopsy or a biopsy from the rectum with staining for amyloid. Glomerulonephritis can be attributed to rare extraintestinal manifestations of both ulcerative colitis and Crohn's disease [Mosli M.H., 2017].

According to the analysis of the literature, there are quite a lot of works devoted to the study of morphological and morphometric characteristics of the kidneys, but the virtual absence of information on morphological and morphometric changes in renal tissue in ulcerative colitis justifies the need for scientific research in this area.

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