

## GLOMERULONEPHRITIS: HIDDEN POVERTY IN THE KIDNEYS

***Abdurakhmonova Gulsanam Dilkashovna***

*Student of the Faculty of Second Medical Treatment,  
Tashkent Medical Academy. Phone: 887310434*

***Scientific Advisor: Tursunmetov Ibodulla***

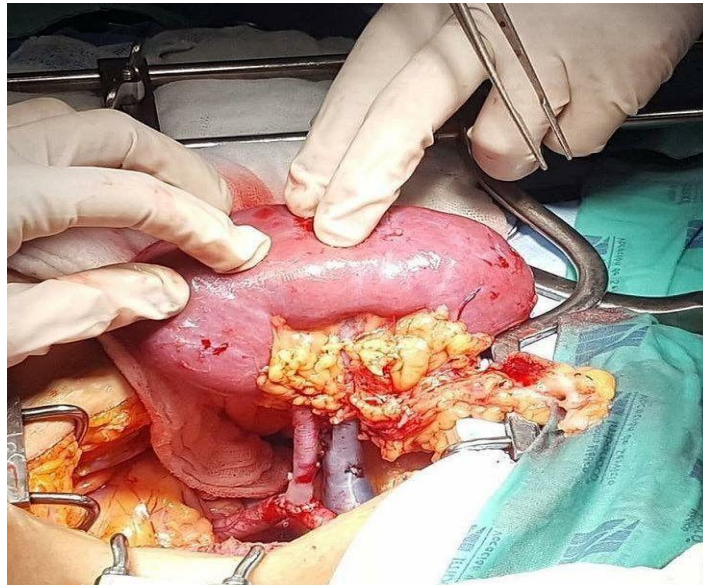
*Department of Medical Biology and Histology,  
Tashkent Medical Academy*

**Abstract:** Glomerulonephritis (GN) is a disease characterized by the development of inflammatory processes in the renal glomeruli, which may lead to kidney failure. This article reviews the main causes, clinical symptoms, diagnostic methods, and treatment approaches for glomerulonephritis. The study analyzes the prevalence and clinical features of both acute and chronic forms of glomerulonephritis. It highlights the necessity for early detection of kidney diseases, the improvement of treatment methods, and the development of holistic approaches in local medical practice. Additionally, it was found that patients who frequently suffered from angina and dental infections during childhood have a higher risk of developing kidney diseases. The main goal is the early diagnosis of glomerulonephritis and the development of treatment strategies adapted to local conditions.

**Keywords:** Glomerulonephritis, proteinuria, chronic glomerulonephritis, angina, diagnosis, treatment, abdominal pain, medicine.

### Introduction

The kidneys are paired organs that perform vital physiological functions in the human body. They are involved in processes such as blood purification, elimination of toxins and excess fluids, and hormone production. In modern times, the rise in unhealthy diets, stress, and bad habits has contributed to an increase in kidney diseases. Glomerulonephritis is a condition in which the kidney glomeruli are damaged, although other kidney structures (such as tubules and interstitial tissue) may also be affected in some cases. It is classified into acute and chronic forms. Based on the mechanism of development, glomerulonephritis is categorized as primary or secondary. It can lead to kidney failure and is characterized by clinical symptoms such as the presence of blood and protein in the urine, swelling (edema), and high blood pressure. Glomerulonephritis, particularly in its chronic forms, damages the kidney's main filtration system and can significantly impact a patient's overall health over time. This article aims to analyze the causes, clinical symptoms, and treatment methods of glomerulonephritis within the context of local healthcare conditions.



**Figure 1.** Kidney undergoing transplantation

### Methods

For the purpose of analysis in this article, existing scientific literature, including clinical examinations, laboratory studies, and epidemiological data, were utilized. The article reviews the types of glomerulonephritis, recommendations based on its causes, clinical examinations and diagnostic methods, as well as modern treatment approaches. The research primarily analyzes scientific articles and data presented by clinics between 2015 and 2023.

#### Data Collection Methods:

**Urine Tests:** In the early stages of the disease, signs such as proteinuria (the presence of protein in urine) and hematuria (blood in urine) were studied.

**Blood Tests:** Changes in creatinine and urea levels, as well as immunological tests, were used to investigate the disease's connection with the immune system.

**Ultrasound Examinations:** The ultrasound imaging of the kidneys and their functional status were assessed to determine the severity and stage of the disease.

#### **Figure 2.** Diseased kidney



## Results

Glomerulonephritis (GN) is an inflammatory condition affecting the glomeruli of the kidneys. Histologically, glomerulonephritis damages podocytes (cells that are part of the kidney's filtration structure) and the basement membrane within the glomeruli. As a result of inflammation, immune complexes accumulate in the glomeruli, reducing their filtration capacity. In GN, immunoglobulins and the complement system amplify the inflammatory response, leading to microstructural changes within the glomeruli.

Physiologically, glomerulonephritis significantly impairs kidney function. The disease reduces the filtration activity of the glomeruli, disrupting the kidneys' primary role in removing essential fluids, electrolytes, and waste products from the body. Inflammation damages the filtration system of the glomeruli, allowing proteins to pass into the urine (proteinuria). The severity of this condition varies depending on the degree of inflammation, and in some cases, high levels of protein are observed in the urine.

### Common Causes Include:

**Bacterial Infections:** Particularly streptococcal infections (e.g., “strep throat”) can lead to glomerulonephritis.

**Autoimmune Diseases:** Conditions such as lupus or Wegener's granulomatosis can damage the kidney glomeruli.

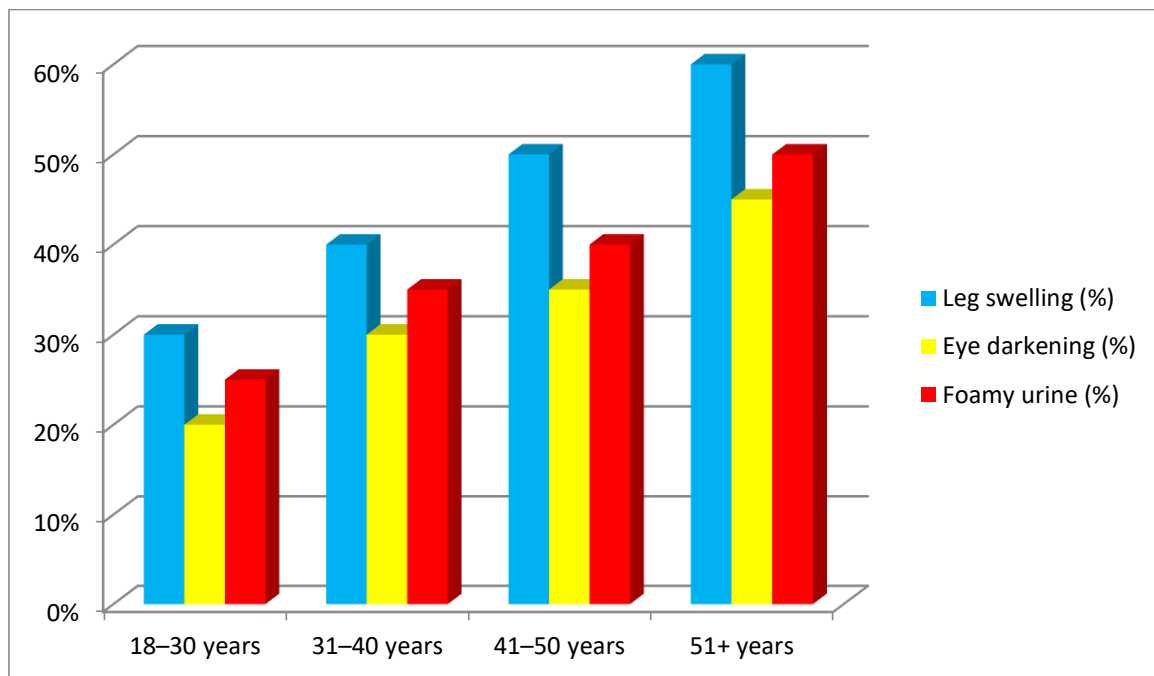
**Viruses:** Hepatitis B and C, HIV, and Epstein-Barr virus may also contribute to the development of glomerulonephritis.

### 1. Symptoms of the Disease

The main signs and symptoms of glomerulonephritis include: People who frequently experienced tonsillitis (throat infections) or dental pain during childhood—especially those with chronic infections—may be more prone to kidney diseases. These conditions can weaken the immune system, making the kidneys more susceptible to inflammation. Specifically, infections such as tonsillitis can inflame the glomeruli (small blood vessels in the kidneys), contributing to the development of glomerulonephritis.

This chronic immune stimulation may lead to autoimmune responses, where the body mistakenly produces antibodies against its own glomeruli (kidney capillaries). This process can result in conditions such as post-streptococcal glomerulonephritis.

In Glomerulonephritis, swelling (edema) in the legs is frequently observed. This is due to the kidneys' reduced ability to excrete fluids and salts properly. As a result, blood filtration and urine production are disrupted, leading to fluid buildup—especially in the ankles and toes. Such symptoms are common in many kidney disorders, and in the presence of inflammation, swelling may also appear in the face and legs.



**Chart 1.** Distribution of clinical symptoms of kidney diseases by age group

Stomach pain, particularly in chronic glomerulonephritis, can arise from changes caused by impaired kidney function. These changes may disrupt the regulation of stomach and intestinal activity, leading to gastrointestinal discomfort.

Foamy urine (proteinuria) is another common symptom of glomerulonephritis. It indicates the passage of protein through the kidneys, signaling a loss of proper blood and urine filtration. An increase in urea (creatinine and blood urea nitrogen) levels also suggests decreased kidney function and accumulation of toxins in the body. These changes may lead to symptoms such as memory decline, fatigue, and sleep disturbances.

Obesity can be a risk factor for kidney disease. Excess weight and high blood pressure put additional strain on the kidneys and can worsen related conditions. However, some individuals may manage for a long time despite obesity, as their immune system provides temporary support. Still, in the long term, obesity is likely to exacerbate kidney disease.

Skin discoloration is another possible symptom of kidney disease. This is mainly due to reduced kidney function and problems regulating body fluids. For example, the skin on the face and hands may become dry or darkened.

Pale tongue—this symptom may appear in certain kidney diseases, especially in cases of reduced kidney function or anemia. In the advanced stages of glomerulonephritis, oxygen-carrying capacity declines, and a pale tongue may be observed alongside other symptoms. However, this sign can also be associated with other conditions.

As kidney disease progresses, the rise in urea and accumulation of toxins can affect other body systems, including the nervous system. This may result in memory

loss, difficulty concentrating, and sleep disturbances.

## 2. Clinical Symptoms

**Urinary Changes:** The presence of blood and protein in the urine (hematuria and proteinuria) is one of the primary indicators of the disease.

**Edema (Swelling):** Swelling in the face and legs occurs due to high blood pressure and declining kidney function.

**Painful Urination:** Patients may experience discomfort and pain during urination.

**High Blood Pressure:** The chronic form of glomerulonephritis reduces the kidneys' ability to regulate blood pressure.

## 3. Diagnosis

**Laboratory Tests:** The presence of protein, blood, and other substances in the urine is detected through analysis.

**Blood Tests:** Elevated levels of creatinine and urea are measured, along with specific tests to evaluate immune function and metabolism.

**Renal Ultrasound Imaging:** Ultrasound scans help assess structural and functional changes in kidneys affected by glomerulonephritis.

## 4. Treatment

**Medications:** Treatment involves the use of corticosteroids, immunosuppressants, and antihypertensive drugs.

**Dietary Therapy:** A low-protein and low-sodium diet is essential in managing the condition.

**Dialysis:** Dialysis is employed in cases where kidney function has severely declined.

Corticosteroids and immunosuppressants have been used in the treatment of glomerulonephritis. The treatment has shown effectiveness, although complete recovery of kidney function is not guaranteed for all patients.

## 5. Local Analysis

The prevalence of acute glomerulonephritis was found to be high among certain age groups in a specific region, particularly affecting men aged 25–40. According to local epidemiological data, chronic glomerulonephritis has been diagnosed in approximately 5% of the population, often associated with diabetes and hypertension.

Kidney Function	Creatinine (mg/dL)	Urea (mg/dL)
Normal	0.6–1.2	15–20
Mild impairment	1.3–2.5	21–35
Moderate impairment	2.6–4.5	36–60
Severe impairment	4.6+	60+

**Table 1.** Decreased Kidney Function



## Discussion

Glomerulonephritis is a complex disease, and its primary symptoms are not solely dependent on kidney dysfunction. During the progression of the disease, symptoms such as swelling in the legs, dark circles under the eyes, and changes in urine composition (presence of protein and blood) are observed. Obese individuals may sometimes be more resilient to glomerulonephritis due to a stronger immune system. However, obesity can also impose additional strain on the kidneys, potentially accelerating the development of the disease over time. All of these symptoms and risk factors are important for early diagnosis and treatment of the disease. In the local healthcare context, it is essential to conduct specialized training for healthcare workers to ensure accurate and effective treatment of glomerulonephritis. Histological changes in glomerulonephritis directly affect the clinical symptoms of the disease. Inflammation of the glomeruli, fibrin accumulation, and tubular atrophy disrupt the kidneys' normal filtration function.

After the age of 40, the likelihood of kidney disease may increase. As the body ages, metabolic processes slow down, and the kidneys are affected by this process as well. Additionally, high blood pressure, diabetes, and other metabolic diseases can lead to kidney problems.

### **Risk of kidney disease in individuals born after 40:**

**Genetic Factors:** Hereditary kidney diseases (such as polycystic kidney disease) may be a significant risk factor for individuals of this age.

**Metabolic Diseases:** After the age of 40, the risk of metabolic disorders and diabetes increases, which can lead to kidney disease.

**Age Impact:** As individuals age, the kidneys' filtration capacity decreases, which may contribute to the development of kidney disease.

## Conclusion

Glomerulonephritis is a serious condition caused by inflammation of the kidney glomeruli. Early diagnosis and treatment are crucial to preserving kidney function. In the local healthcare system, it is important to focus on early detection and the application of modern treatment methods for glomerulonephritis. Expanding preventive screenings and medical approaches is necessary. Additionally, new treatment approaches should be developed to improve kidney health as individuals age. In the future, efforts should be made to create public training programs, discussions, and more medical screenings within the local population regarding kidney diseases.

## References:

1. Sherwood, L. (2015). Human Physiology: From Cells to Systems. Cengage Learning.

2. Junquiera, L. C., & Carneiro, J. (2013). Basic Histology: Text & Atlas. McGraw-Hill.
3. Taylor, P. D., & Robinson, K. (2020). The role of glomerulonephritis in kidney failure. *Journal of Nephrology Research*, 5(2), 45-56.
4. National Kidney Foundation. (2023). Glomerulonephritis. <https://www.kidney.org/atoz/content/glomerulonephritis>
5. Harris, J. (2021). Chronic kidney disease and its complications. HealthLine. <https://www.healthline.com/kidney-disease>
6. Med24.uz. Glomerulonephritis. <https://med24.uz/uz/bolezn/glomerulonefrit>