



# Crohn's Disease and Membranous Glomerulonephritis Case Report

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## Öz

### *Crohn Hastalığı ve Membranöz Glomerulonefrit Olgu Sunumu*

İnflamatuar barsak hastalıkları (IBD) Crohn hastalığı ve Ülseratif kolit olmak üzere birbirinden farklı olan iki tip kronik noninfeksiyöz gastrointestinal inflammatuar hastalıktır. IBH ekstraintestinal tutulumları arasında renal tutulum olmaktadır. IBH renal tutulumlar, glomerulonefrit, tübulointerstisyel nefrit, nefrolitiazis ve renal amiloidozis şeklinde olmaktadır. Bu makalede nefrotik proteinüri ile başvuran 79 yaşında erkek hastada renal biyopsi ile membranöz glomerulonefrit tanısı kondu. Ayrıca yapılan kolonoskopi ile alınan barsak biyopsisinde Crohn hastalığı tanısı konan hastayı literatür eşliğinde tartışmayı amaçladık.

**Anahtar Kelimeler:** Crohn Hastalığı, Proteinüri, İnflamatuar Barsak Hastalıkları

## Abstract

### *Crohn's Disease and Membranous Glomerulonephritis Case Report*

Inflammatory bowel diseases (IBD) are two different types of chronic noninfectious gastrointestinal inflammatory diseases, namely Crohn's disease and Ulcerative colitis. Renal involvement exists among the extraintestinal involvements of IBD. IBD renal involvements are in the form of glomerulonephritis, tubulointerstitial nephritis, nephrolithiasis, and renal amyloidosis. In this article, a 79-year-old male patient who presented with nephrotic proteinuria was diagnosed with membranous glomerulonephritis by renal biopsy. In addition, this article aims to discuss the patient who was diagnosed with Crohn's disease in intestinal biopsy taken with colonoscopy while also referring to relative literature.

**Keywords:** Crohn's Disease, Proteinuria, Inflammatory Bowel Disease

## INTRODUCTION

Inflammatory bowel disease (IBD) is a condition characterized by chronic inflammation of the gastrointestinal tract. The two most common types of IBD are Crohn's disease and Ulcerative colitis. The mechanism underlying IBD is unknown. However, there is convincing evidence that abnormal T cell function mediates in genetically susceptible individuals. Extraintestinal symptoms of IBD are common and can include almost any organ system. The most common involved organs include skin, eyes, joints and hepatobiliary pathways. Renal and urinary involvement has been reported in 4% to 23% of IBD patients. IBD urinary involvement manifests as urinary stones, fistula, and ureteral obstruction. Kidney involvement may include secondary amyloidosis, glomerulonephritis (IgA nephropathy, IgM nephropathy, membranous glomerulonephritis, mesangial proliferative glomerulonephritis, anti-glomerular basement membrane disease) and tubulointerstitial nephritis (1-2).

The aim for presenting this case is to report that membranous glomerulonephritis is rare in IBD and to review the literature. In the presence of proteinuria in IBD, glomerulonephritis should be considered.

## CASE

The patient, a 76-year-old male, is presented with peripheral edema. Physical examination showed blood pressure at 130/70 mmHg, body temperature of 37.3 °C, and peripheral edema. Biochemical profile of the patient was identified as glucose 79 mg/dl (80-1110), blood urea nitrogen 20 mg/dl (7-28), serum creatinine 1.25 mg/dl (0.6-1.3), total protein 5,9 g/dl (6.4-8.3), serum albumin 2.9 g/dl (3.5-5.2), potassium 4.7 mmol/L (3.5-5.5), serum sodium 140 mmol/L (135-145), white cell count 7100 mm<sup>3</sup>/uL, Hb 12.8 gr/dL, Htc 37.4%, and platelet count 174 000/mm<sup>3</sup>. Thyroid hormones were detected as normal. Routine urinalysis revealed nephrotic range proteinuria (5.8g/day) and hematuria. Anti-HCV and HbsAg serology were both negative. Autoantibodies, ANCA, ANA, anti-Ds DNA and anti-glomerular basal membrane were negative. Complement C3 and C4 were within normal limits. In kidney biopsy, basal antiglomerular membrane was observed as double contours. Lymphocyte and eosinophil cell inflammation were observed in the tubulointerstitial area. Congo red was negative. Basal membrane (++) and mesangial (+) IgG, mesangial (+) IgA, basal membrane (+) IgM, and basal membrane (+) C3 were stained with immunofluorescence. Membranous glomerulonephritis was diagnosed. Conservative treatment was started for the patient. Due to the advanced age of the patient, colonoscopy and gastroscopy were performed for tumor exclusion. Gastroscopy was normal. A colonoscopy detected Crohn's disease. As a result of biopsy, ileum and other segment of colon, mucosal discontinuity, structural crypt distortion, mucosal inflammation, plasma cell infiltration

in lamina propria, cryptitis were detected. The pathological examination was in concordance with Crohn's disease. Diarrhea was not among his complaints at the time of admission. When the complaints of the patient were questioned again, he said that he had occasional diarrhea (4-5 times a day) for 2 years. Steroids and 5-aminosalicylates were added to the treatment with the diagnosis of Crohn's disease. Remission was achieved in the patient 3 months after treatment (proteinuria <300 mg/day).

## DISCUSSION

Kidney damage can be caused by dehydration, malnutrition or as a drug side effect in IBD patients. Glomerulonephritis is one of the renal involvement patterns of IBD. Glomerulonephritis appears to be directly related to bowel disease activity. The etiology of glomerular involvement in IBD is not fully understood. A common pathogenic mechanism or genetic susceptibility may develop as a result of increased mucosal permeability and antigenic exposure of immunocomplexes derived from the intestine. It can also develop because of drug treatment. Renal function recovery is observed after IBD remission (1,3).

Studies exist in literature examining the relationship between glomerulonephritis and IBD. Some of these studies are as follows. In a study of 819 patients who underwent renal biopsy, 28 (3.4%) were found to have IBD during kidney biopsy. In addition, seven patients were diagnosed with IBD during follow-up. Fourteen of the patients with IBD were classified as Crohn's disease, 14 Ulcerative colitis, and 7 patients not classified as IBD. In this study, the most common glomerulonephritis is IgA nephropathy, with more membranous glomerulonephritis and IgM nephropathy (4). A study conducted by Ambruzs and Larsen detected IBD in 83 of the patients who underwent renal biopsy. Inclined IgA nephropathy was detected among patients with IBD, subsequently interstitial nephritis was detected (5). In the study of Momtaz et al., A total of 896 IBD were taken and 218 of them had renal effects. Renal biopsy was required after an average of 5.6 ± 7.4 years after IBD. Nephrotic proteinuria is indicative for the detection of renal biopsy. In renal biopsy, the most common pathology observed amyloidosis. Focal segmental glomerulosclerosis was the second most frequent IgA among glomerulonephritis (6).

The association of membranous glomerulonephritis and Crohn's disease was first detected in a 12-year-old girl (7). Membranous glomerulonephritis was diagnosed in a 37-year-old male patient who was followed up with Crohn's disease for 9 years (8). Membranous glomerulonephritis was diagnosed by renal biopsy in a 38-year-old female patient followed up with Crohn's disease who presented with peripheral edema, proteinuria and hematuria (9). In a 60-year-old male patient followed up with Crohn's disease, who developed proteinuria

after adalimumab treatment, a diagnosis of membranous glomerulonephritis was established in renal biopsy. Membranous glomerulonephritis has been reported to develop due to the drug (10). Makhlogh et al, diagnosed ulcerative colitis in a 69-year-old female patient who presented with complaints bloody diarrhea, mucoid defecation, and confusion and was followed up for 7 years with the diagnosis of membranous glomerulonephritis (11).

Acute and chronic kidney diseases are common in IBD. In the study conducted by Park et al., A diagnosis of new end-stage renal failure was made in 79 (0.2%) patients with IBD and 166 (0.1%) control subjects during an average follow-up period of 4.9 years. Overall, the incidence of end-stage renal failure was significantly higher in the IBD cohort than in the controls. The risk of end-stage renal failure increased in Crohn's patients, but it has not been found to increase in Ulcerative colitis. It has been reported in several epidemiological studies that the incidence of kidney failure ranges from 2.0% to 15.9% in patients with IBD (12-13).

As a result, renal involvement occurs in IBD patients. Among renal involvement, membranous glomerulonephritis is rarely seen. Our patient showed remission of membranous glomerulonephritis after Crohn's treatment. In this article, we tried to present renal involvement in IBD patients with the literature.

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### Conflict of Interest

The authors declare that they have no conflict of interests regarding content of this article.

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### Ethical Declaration

The necessary permission was obtained verbally from the case described in this study, and the Helsinki Declaration criteria were taken into consideration.

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