Diffuse Proliferative Glomerulonephritis (DPGN)



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Nephritic and Nephrotic Syndrome
Nerd-cricket Nerd-frog
DPGN generally presents as both nephritic syndrome and nephrotic syndrome. Nephritic syndrome is a renal disorder characterized by hematuria, proteinuria (<3.5g/L/day), hypertension, and red cell casts in the urine. Nephrotic syndrome is characterized by massive proteinuria (?3.5 g/day) and hypoalbuminemia (serum albumin ?30 g/L).

Associations

Systemic Lupus Erythematosus (SLE)
Loopy-butterfly
Autoimmune conditions, particularly systemic lupus erythematosus (SLE), are strongly associated with DPGN. DPGN is the most common renal lesion in patients with SLE, where it is commonly known as "lupus nephritis".

IgA Nephropathy
(IgA) Apple-goblin with Kidney
IgA nephropathy (Berger's disease) is a type of nephropathy that occurs when IgA antibodies build up in the mesangium of the kidney. IgA nephropathy is associated with diffuse proliferative glomerulonephritis.

Characteristics

Wire Looping
Caterpillar-Wire
On renal biopsy, glomerular capillaries stain red and appear acellular and thickened due to heavy deposition of subendothelial immune complexes. This leads to the typical appearance of "wire looping."

IF Granular
Fluorescent Grains
Immunofluorescent microscopy (IF) shows granular deposits in the subendothelial and subepithelial sites. These deposits are usually made up of IgG-based immune complexes and C3.

Subendothelial Immune Complexes
Sub-in-donut
Subendothelial deposits are common in patients with diffuse proliferative glomerulonephritis. Subendothelial deposits are located between the endothelium and glomerular basement membrane.

Subepithelial Immune Complexes
Sub-E-pick
Immune complexes are also deposited at subepithelial spaces. Subepithelial spaces are located between podocyte foot processes and the glomerular basement membrane.

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C3 Deposition

C3-Laptop

DPGN is associated with the deposition of complement C3 in the subendothelial, subepithelial and intramembranous spaces of the glomerulus.

Treatment

Treat Underlying Disorder

Treating Disorders Under the Table

Treatment of diffuse proliferative glomerulonephritis should address underlying conditions (e.g., SLE, IgA nephropathy). Oftentimes, immunosuppressants (e.g., steroids, cyclophosphamide) are effective for inflammation characteristic of diffuse proliferative glomerulonephritis as well as the underlying pathology.

Steroids

Steroid-stairs

High-dose steroids are the mainstay treatment for diffuse proliferative glomerulonephritis. Other immunosuppressants (e.g., cyclophosphamide, mycophenolate mofetil) can be used in refractory cases.

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