

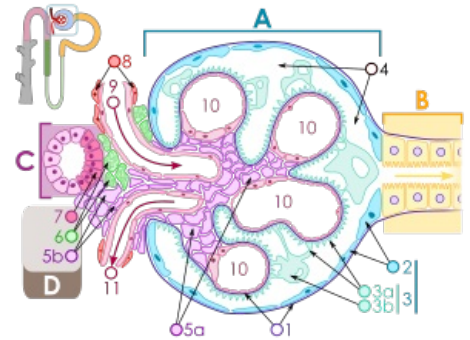
Chronic Glomerulonephritis

The most common **chronic glomerulonephritis in children** include:

- IgA nephropathy (Berger's glomerulonephritis) - most common;
- Mesangioproliferative glomerulonephritis without IgA deposits;
- Membranoproliferative glomerulonephritis;
- Glomerulonephritis in systemic diseases accompanied by nephrotic syndrome.^[1]

IgA nephropathy

- **IgA-mesangioproliferative glomerulonephritis, IgA nephropathy**
- immunocomplex nephritis - IgA globulin deposits (demonstrated by immunofluorescence assay of renal biopsy);
- in school children and adolescents, more often in boys;
- pathogenesis: impaired immunoregulation with increased IgA production → mesangial deposits of IgA immunocomplexes;
- clinical picture: incidental findings of microscopic haematuria or episodes of macroscopic haematuria in upper respiratory tract infections;
 - mild proteinuria (0.5-1 g/day), nephrotic syndrome is not typical; about half of cases have elevated serum IgA;
- diagnosis: biopsy - mesangioproliferative glomerulonephritis, immunofluorescence testing for IgA deposits (+IgG and C3C); focal and segmental glomerular involvement;
- therapy: no causal treatment; eradication of sources of bacterial infection, in proteinuria ACE inhibitors or angiotensin receptor blockers;
- prognosis: some have a benign course, some are at risk of progression to chronic kidney disease - dispensary required.^[1]



Schema of the renal corpuscle structure: A - Renal corpuscle B - Proximal tubule C - Distal convoluted tubule D - Juxtaglomerular apparatus 1. Basal lamina 2. Bowman's capsule - parietal layer 3. Bowman's capsule - visceral layer 3a. Pedicels 3b. Podocyte 4. Bowman's space 5a. Mesangium - Intraglomerular mesangial cell 5b. Mesangium - Extraglomerular mesangial cell 6. Granular cells (Juxtaglomerular cells) 7. Macula densa 8. Myocytes (smooth muscle) 9. Arteriola afferens 10. Capillaries of the glomerulus 11. Arteriola efferens.

Membranoproliferative glomerulonephritis

- *mesangiocapillary GN, persistent hypocomplementary GN*
- chronic mesangioproliferative glomerulonephritis with dense deposits within the basement membrane;
- uncommon in children, pathogenesis is unclear;
- clinical picture: development of hematuria and proteinuria, nephrotic syndrome; decreased complement levels;
- diagnosis: biopsy - intramembranous deposits on electron microscopy;
- therapy: no causal treatment; corticosteroids for rapid progression;
- prognosis: poor - progression to terminal chronic renal failure within 5-8 years.^[1]

Membranous nephropathy

- in adults the most common cause of nephrotic syndrome; rare in children;
- pathogenesis: immunocomplex disease - diffusely thickened glomerular membrane, inclusions from immune complexes (IgG and C3);
- clinical picture: nephrotic syndrome (manifestation mostly in the 2nd decade); microhematuria, proteinuria, hypoalbuminemia;
- diagnosis: biopsy (histology and immunofluorescence);
- therapy: salt restriction, diuretics, possibly immunosuppressants.^[2]

Glomerulonephritis in Henoch-Schonlein purpura

- Henoch-Schönlein purpura is a vasculitis that affects small blood vessels of the skin and gastrointestinal tract; in 25-50%, the kidneys and, rarely, the CNS are also affected;
- renal involvement is focally segmental and resembles IgA nephropathy;
- clinical picture: 1-2 weeks after seeding of petechiae, microscopic haematuria and proteinuria, rarely nephrotic; rarely in the form of rapidly progressive glomerulonephritis;
- therapy: corticosteroids - controversial;
- prognosis: good, microscopic haematuria often persists.^[1]

Glomerulonephritis in SLE

- severe and frequent complication of SLE;
- systemic lupus erythematosus (SLE) is a chronic inflammatory autoimmune disease caused by B-cell hyperactivity, autoantibody production against components of the cell nucleus, and immune complex deposition;^[2]

- clinical picture: hematuria and proteinuria, nephrotic syndrome, early glomerular filtration disorder, rapidly progressive severe glomerulonephritis;
- diagnosis: biopsy (histology, immunofluorescence - positive Ig, complement, fibrinogen)
- therapy: corticosteroids, cyclophosphamide, possibly immunosuppressants.^[1]

Goodpasture syndrome

- a combination of pulmonary hemorrhage and glomerulonephritis due to the production of antibodies against the pulmonary alveoli and glomerular basement membrane;
- very rare in children;
- biopsy picture of rapidly progressive glomerulonephritis; evidence of anti-GBM antibodies in serum; poor prognosis.^[2]

References

Related articles

- Glomerulonephritis: Acute Glomerulonephritis - Rapidly progressive glomerulonephritis (RPGN)
- Light chain deposition disease
- Glomerulopathy
- Acute renal failure - Acute renal failure (paediatrics) - Chronic kidney disease - Chronic kidney disease (paediatrics)

References

1. LEBL, J – POHUNEK, P, et al. *Klinická pediatrie*. 1. edition. Galén, 2012. 698 pp. pp. 606-608. ISBN 978-80-7262-772-1.
2. MUNTAU, Ania Carolina. *Pediatric*. 4. edition. Praha : Grada, 2009. pp. 413. ISBN 978-80-247-2525-3.