

# Minimal change disease

Minimal change disease (MCD, minimal change disease, lipoid nephrosis or nephrotic syndrome with minimal glomerular changes) is **the most common cause of nephrotic syndrome in children** (approx. 75% of cases are between the ages of 2 and 3). Other patients may come from the ranks of juveniles, exceptionally adults (about 10%). The disease is characterized by: **the presence of albumin** and fat droplets in the urine and, at the same time, **severe changes in the tubules without significant changes in the glomeruli**. This name originated at the beginning of the 20th century, when electron microscopy was not yet known, and therefore neither was the cause.

## Symptoms

This is the already mentioned **selective proteinuria** (albumin) and the presence of fat droplets in the urine. As this is a variant of the nephrotic syndrome, **swellings of the renal type** can be observed (the first symptom is swelling of the eyelids), which are the most common first symptom of the disease. Proteinuria can be large, even more than 20 g per 24 hours.

## Histological image

Adhesions between capillary loops, hyaline ossification or vacuolization of podocytes occur. On the other hand, severe dystrophic changes can be demonstrated in the tubular system of the nephron (hyaline cylinders in the tubules, severe steatosis or hyaline ossification in the epithelial cells of the proximal tubule). The combination of these two factors (minimal glomerular changes + severe dystrophic tubule changes) can very likely lead us to a diagnosis of minimal change disease. However, a definitive diagnosis can only be confirmed by electron microscopy. The most important finding is **the fusion of pedicels of podocytes**, possibly vacuolization and the formation of microvilli on the surface of podocytes. This finding transfers the location of the disorder to the capillary wall of the glomerulus (mainly polyanion damage, i.e. loss of negative charge of the glomerular basement membrane). However, the etiopathogenesis is still not clear (immune mechanisms are considered).

## Treatment and prognosis

The treatment is usually very successful. Most cases respond well to treatment with corticosteroids (**mainly synthetic Template:HVLP**). **In 2 to 3 days the proteinuria decreases and disappears after a few weeks (corticoid sensitive nephrotic syndrome). For corticosteroid-resistant forms, we use cyclophosphamideTemplate:HVLP. An alternative may be the administration of safer ciclosporin cyklosporinuTemplate:HVLP. Rituximab can be used for idiopathic nephrotic syndrome in MCD Template:HVLP (efficacy 44-82%). However, disease relapses are common (highest in adults).**

## Links

### Related articles

- Glomerulonephritis: Acute glomerulonephritis • Rapidly progressing glomerulonephritis • Chronic glomerulonephritis
- Glomerulopathy: Glomerulopathy manifested by nephrotic syndrome
- Nephrotic syndrome

### References

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### Reference

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