

Kidney damage in diabetes mellitus

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This article has been translated from WikiSkripta; ready for the **editor's review**.

Macroangiopathy

Affection of large arteries (a. renalis and its branches up to aa. arcuatae) -Atherosclerosis.

Microangiopathy

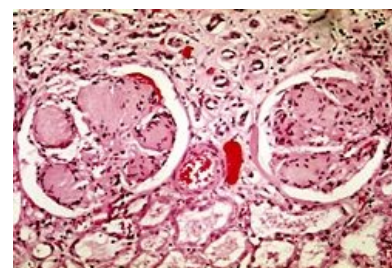
These are diabetic kidney disease -damage to arterioles (hyalinization of vas afferens and efferens) and glomerular capillaries (**diabetic glomerulosclerosis**).

Diabetic glomerulosclerosis

- In 50% of DM type I, in 15–30% of DM II. type.

Microscopic

1. Thickening of the basal membranes of the glomerular capillaries (more collagen, less GAG- increased permeability) and enlargement of the glomeruli;
2. proliferation of the mesangial matrix between the glomerular capillaries, the matrix has the form of an eosinophilic mass similar to hyaline, it is PAS+, initially it is diffuse, later it forms nodes in part of the glomeruli (nodular diabetic glomerulosclerosis of **Kimmelstiel-Wilson**)
3. **in more advanced stages, so-called insudative lesions** (drop-shaped deposits of plasma proteins with lipids) appear under the parietal sheet of Bowman's capsule and under the glomerular capillaries .



Kimmelstiel-Wilson nodular glomerulosclerosis

Makroskopicky

- At first Hyperemia of the kidney is visible , later fine granulation of the surface and a slight reduction in size, terminally the picture of the so-called **end-stage kidney** occurs - a non-functional, strongly Atrophic kidney with a coarsely granulated surface, a hard-to-peel capsule and a faded pattern without discernible cortex and medulla.

Tubulointerstitial disorders

- Inflammatory – more common pyelonephritis up to purulent Necrosis of papillae;
- dystrophic - accumulation of glycogen in cells of the proximal tubule (bulky, bright cytoplasm - the so-called Armani zone), Steatosis of cells and thickening of tubular basement membranes, fibrosis of the interstitium, or the presence of lipophages in the interstitium;
- the functional consequences are the development of renal hypertension (overproduction of renin with reduced renal perfusion) and Proteinuria (up to the development of Nephrotic syndrome with Renal failure).

Links

Related Articles

- Diabetes mellitus
- Complications of diabetes mellitus
- Nephrotic syndrome
- Nephritic syndrome
- Diabetic glomerulosclerosis (preparation)

Source

- PASTOR, Jan. *Langenbeck's medical web page* [online]. ©2006. [cit. 6.4.2011]. <<http://langenbeck.webs.com>>.