

## XIX. Diseases of the Urinary System

### N.B.2:

*Diseases of the kidneys may be:*

1. Degenerative (nephrotic),
2. Vascular. (nephrosclerotic),
3. Inflammatory (nephritic),
4. Congenital,
5. Mechanical or
6. Obstructive (nephropathy).

They may implicate one, or more (or all) of the constituent structural elements of the kidney (*glomeruli, tubules, interstitial tissue and blood vessels*).

### 1. Tubules

#### (1) Nephrosis

- Chemical,
- Toxic,
- Cholaemic,
- Vacuolar,
- Myelomatic,
- Hypoxic and
- Glycogenic.

#### **Nephrotic syndrome (membranous glomerulonephritis**

In kidney of:

- Epstein lipoid nephrosis,
- Collagen diseases,
- Amyloid diseases,
- Diabetes mellitus and
- Thrombosis of renal veins).

#### **Pseu-donephrosis in**

- Malaria,
- Syphilis in children,
- Pregnancy and
- Gout).

## II. Glomeruli:

### 1. Diffuse glomerulonephritis:

**A) Proliferative glomerulonephritis** (original Bright's disease = glomerulotubular nephritis \* Ellis's type-I nephritis).

#### **i- Acute phase:** →

- (a) Healing (90% 95%).
- (b) Death in acute stage (3%-6%)
- (c) Chronic latent nephritis (4%)

→ **Intermediate stage** (ii) Or → **late stage** (iii).

#### **ii. Subacute phase**

(the intermediate stage = the nephrotic syndrome phase = the large white kidney) :  
Glomerular hypercellularity + degenerative changes in tubules associated with albuminuria + hypoproteinaemic oedema :

- (a) **Death in the nephrotic phase from intercurrent infection. or**
- (b) **Death from progression to words renal failure and uraemia.**

#### **iii. Chronic phase**

(the later stage = the small white kidney = the secondary contracted kidney):

**Stage of atrophy + scarring and decompensated renal hypofunction → renal failure.**

#### **(B) Membranous glomerulonephritis**

(In adults with no history of acute disease or a recent infection) : Late in life and with no recovery →

- (a) Nephrotic syndrome.
- (b) Progressive renal failure.

### 2. Focal glomerulonephritis:

- Focal embolic nephritis (of subacute bacterial endocarditis).
- Focal segmental glomerulonephritis

### 3. Affection of the kidney in miscellaneous conditions:

- a) Amyloidosis.
- b) Disseminated lupus erythematosus.
- c) Eclampsia.
- d) Focal glomerulitis.
- e) Henoch-Schonlein purpura.

## III. Interstitial tissue:

- a) **Acute diffuse interstitial nephritis** (occurring during the height of a systemic or/and toxic disease (bacterial, Spirochaetal, rickettsial or viral).
- b) **Pyelonephritis.**
- c) **Pyonephrosis.**
- d) **Tuberculosis.**

#### **IV. Blood vessels:**

1. **Benign nephrosclerosis (hyaline arteriolar changes).**
2. **Malignant nephrosclerosis (hyperplastic arteriolar changes).**
3. **Senile arteriosclerotic changes.**
4. **Infarction.**
5. **Diffuse cortical necrosis (acute massive bilateral symmetrical necrosis of the renal cortex)** occurring in febrile diseases, shock, burns, toxæmia of pregnancy, chemical poisoning and after surgical operations for removal of tumours). The mechanism may be spasm, thrombosis or/and shunting of blood from the cortex → large kidney; congested haemorrhagic areas alternating with pale yellow white irregular infarcted areas; capsule is not (or only slightly) adherent.
6. **Acute tubular necrosis** (in severe injuries with prolonged hypotension, shock with haemorrhage, transfusion of incompatible blood, crush injuries and hepatorenal syndrome). There occur oliguria, anuria and renal failure. The kidney is large pale and with indistinct *cortical markings*.
7. **Polyarteritis nodosa:** At first → large pale kidney; then → small and scarred by numerous infarcts with aneurismal dilatation and thrombosis → haematuria, albuminuria, hypertension and renal failure.

#### **V. Mechanical obstructive changes:**

1. *Hydronephrosis.*
2. *Calculosis (urolithiasis).*

#### **VI. Tumours**

1. *Benign.*
2. *Malignant (primary and secondaries).*

#### **VII. Renal failure and uraemia.**