

# Pathology of the hypertension

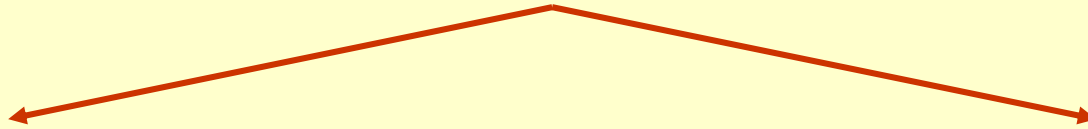
*Dr. Attila Zalatnai*

Permanently elevated systemic blood pressure

(Adult population: 15 – 20 %)

Risk factor for different serious diseases

Severe complications leading to disability or death



### Primary (essential)

„mosaic-theory”

Prolonged sympathetic hyperactivity

Renin release

Aldosteron overproduction

Sodium, water retention



### Secondary

Aortic origin:

- severe, complicated atherosclerosis
- coarctation of aorta

Endocrine origin:

- hyperthyreosis
- Conn syndrome
- Cushing syndrome
- pheochromocytoma
- pregnancy (preeclampsia)

Renal origin:

- renovascular
- renoparenchymal

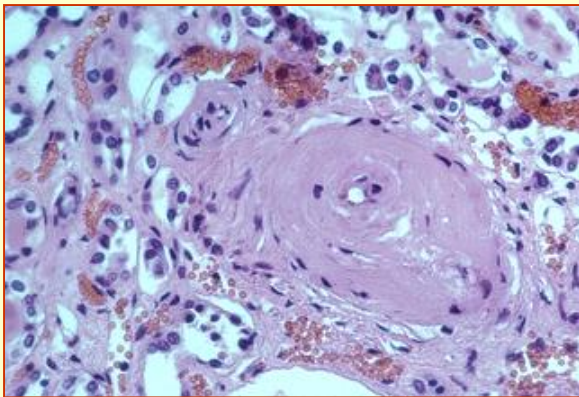
## Risk factor for

- accelerated atherosclerosis
- hypertensive encephalopathy
- stroke (emolition, apoplexia)
- heart failure
- renal failure

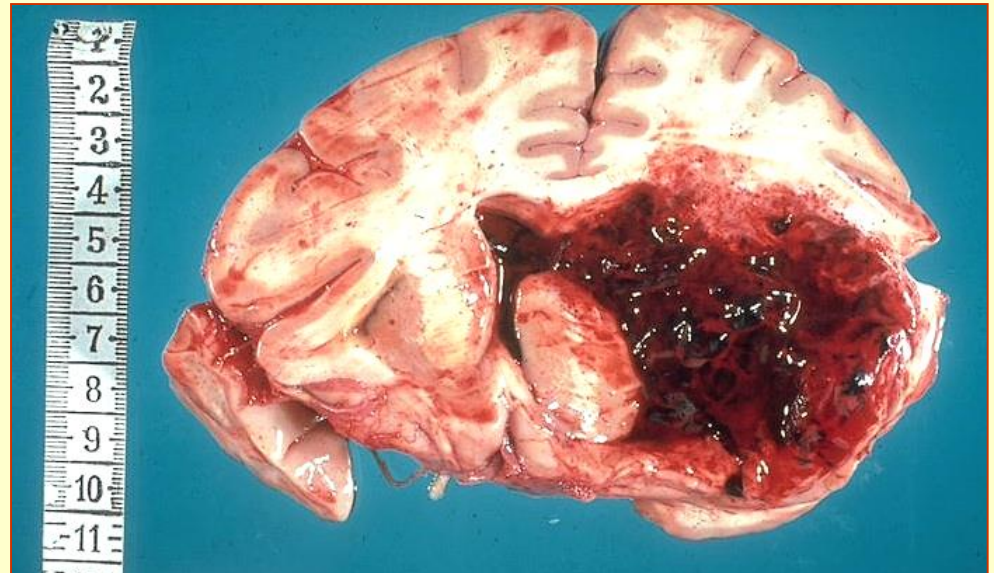
Affected organs: arteries



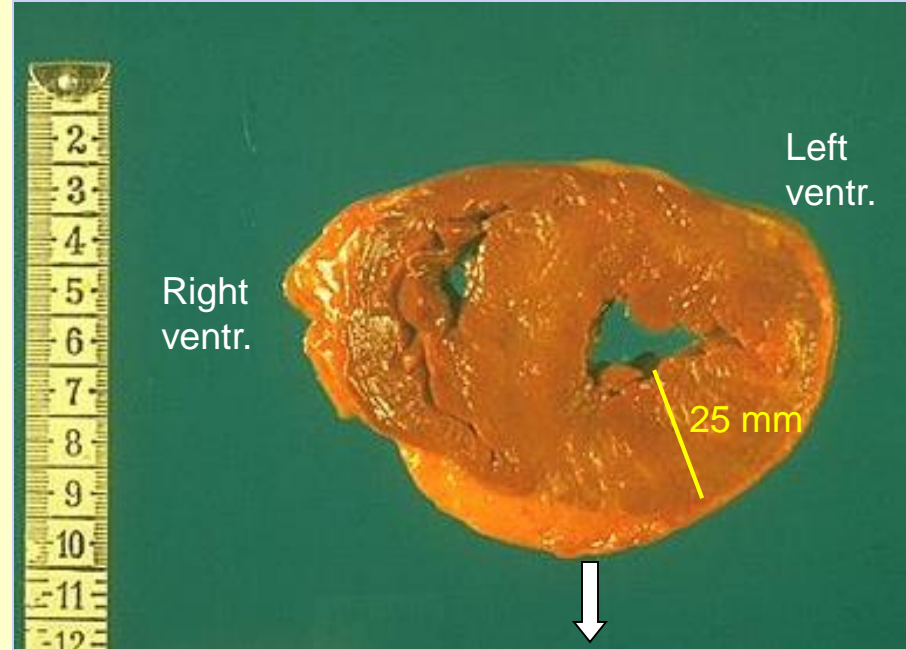
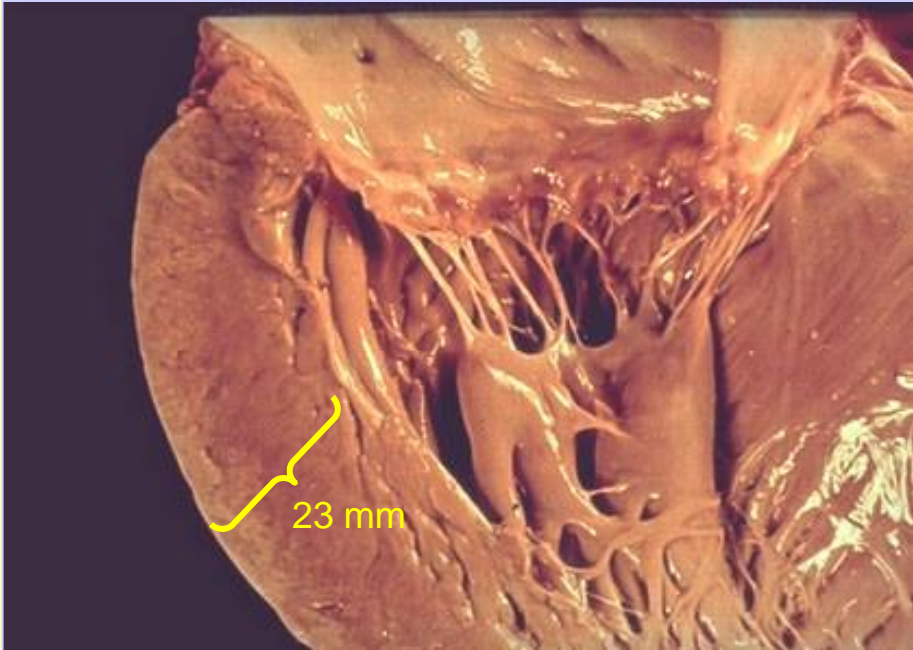
Affected organs: brain



hyalinosis



## Affected organs: heart



Concentric left-sided hypertrophy

Eccentric left-sided hypertrophy

(dilatation of the left ventricle)



**chronic pulmonary congestion**

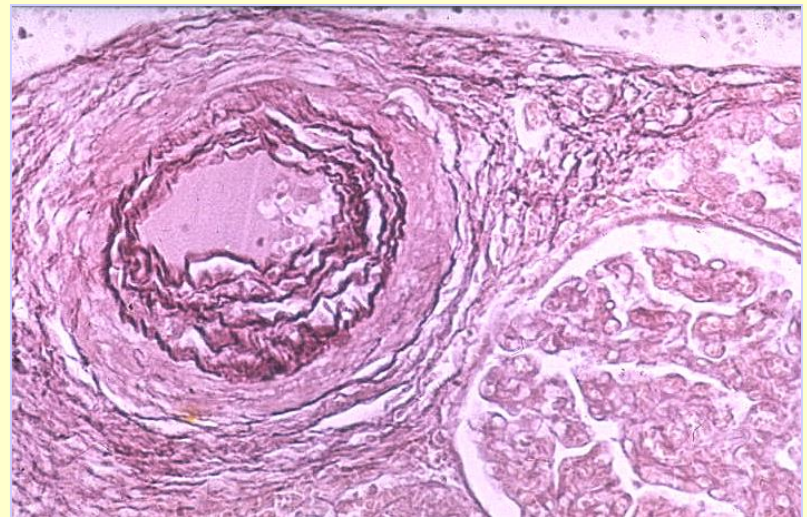
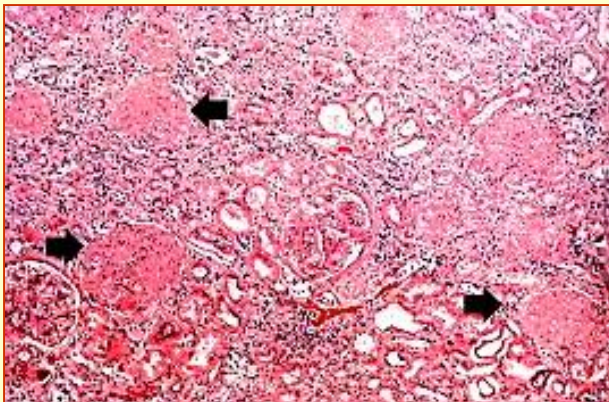
**acute pulmonary edema**

## Affected organs: kidneys



Benign nephrosclerosis  
(arteriolosclerotic)  
(granular atrophy)

fibrolamellar elastosis



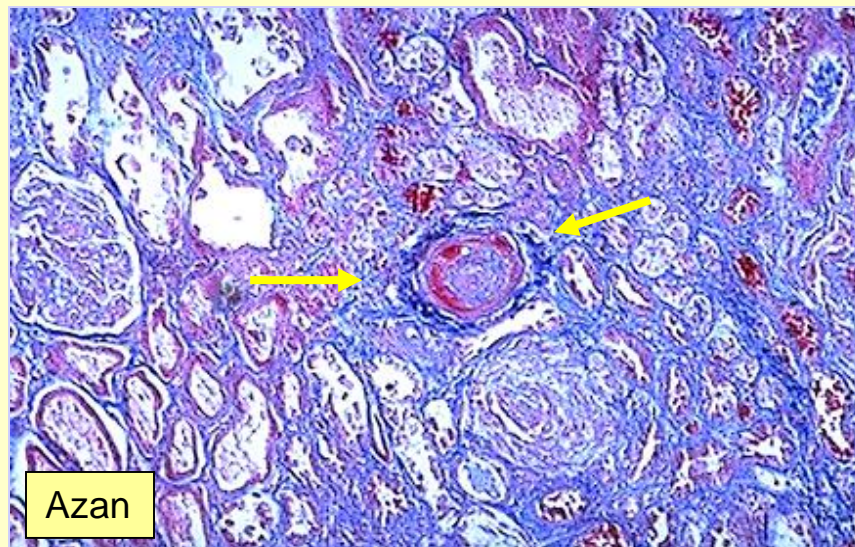
# Malignant (accelerated) hypertension

Diastolic pressure: > 130 Hgmm

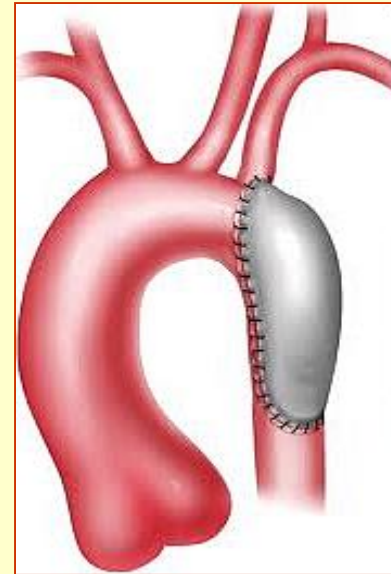
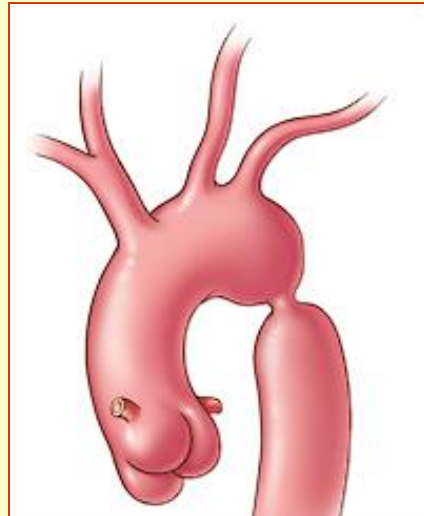
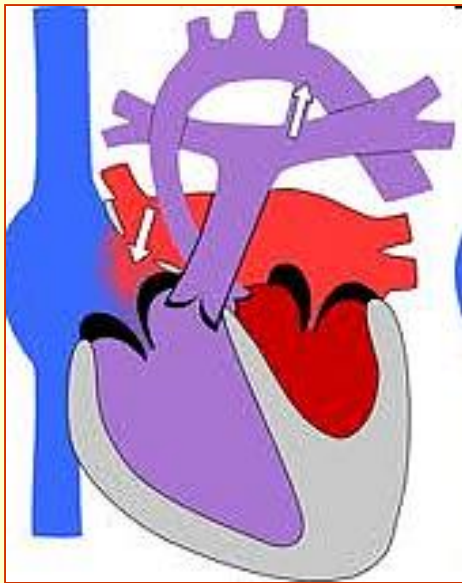
Hypertensive encephalopathy, left-sided heart failure, renal  
insufficiency

Pathology of the kidney:

- flea-bitten hemorrhages
- fibrinoid necrosis of the renal arterioles

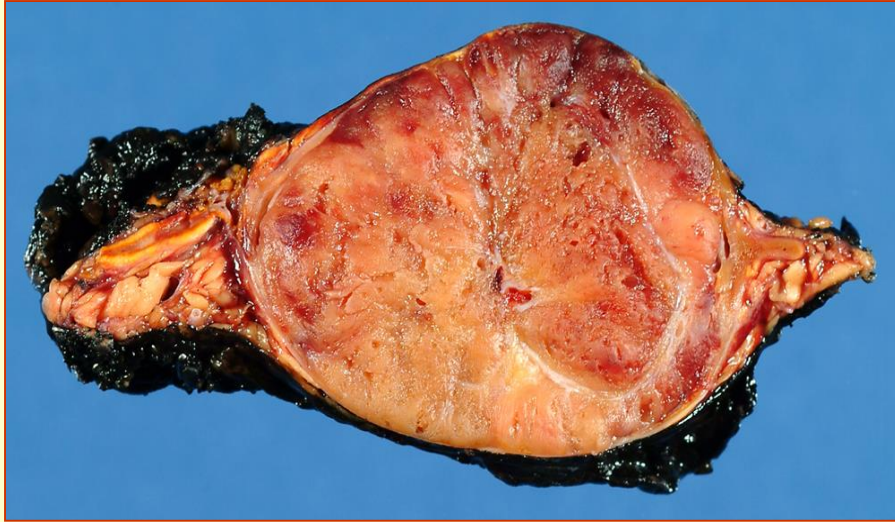


## Coarctation of aorta (adult form)





# Pheochromocytoma



1. Sporadic (90%)
2. In MEN-2 syndrome  
(parathyroid hyperplasia,  
medullary thyroid cancer,  
pheochromocytoma)  
**RET-protooncogen mutation!**

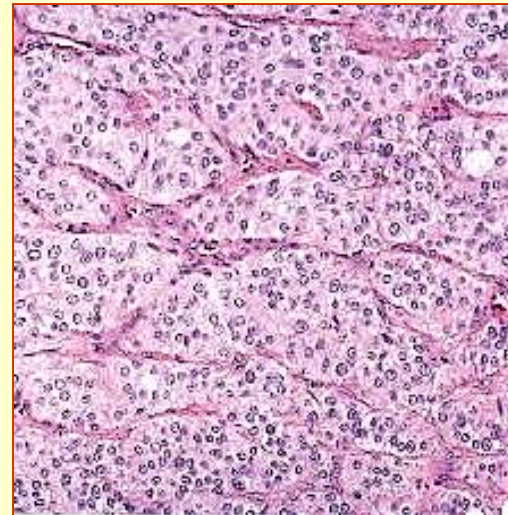
„10% tumor”

10 % bilateral

10 % malignant

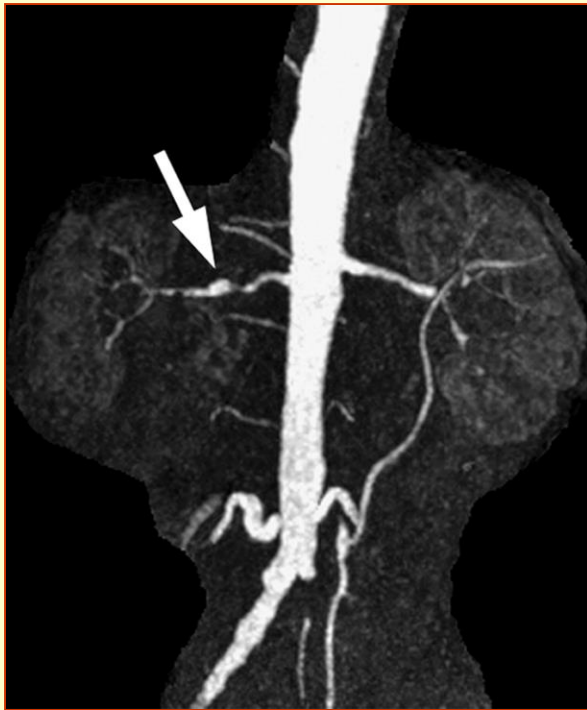
10 % MEN2-associated

10% in childhood



# Renal hypertensions: decreased perfusion, increased renin secretion

## Renovascular hypertension



## Renoparenchymal hypertension

adult type polycystic kidney (AD)

chronic pyelonephritis

chronic glomerulonephritis

end stage kidneys

### Temporary hypertension:

nephritis syndrome

(e.g. poststreptococcal GN)

