

AMYLOIDOSIS

- Q) definition, gross & microscopy of organs involved in 2° amyloidosis.
- # special stains - table in Rama - page 154, 155.
- # pathogenesis?
- # physical & chemical nature.
- # spleen
- Q) 1° & 2° type & other type Q) CF?
- Q) classification - table. Q) diagnosis?
- Q) mc organ in 1°?

definition.

It is a condition associated with a number of Inherited and Inflammatory disorders in which extracellular deposits of fibrillar proteins are responsible for tissue damage and functional compromise.

physical Nature

seen through.

Electron mc

- Continuous, ✓
- non branching ✓
- fibrils ✓
- 7.5 - 10nm diameter

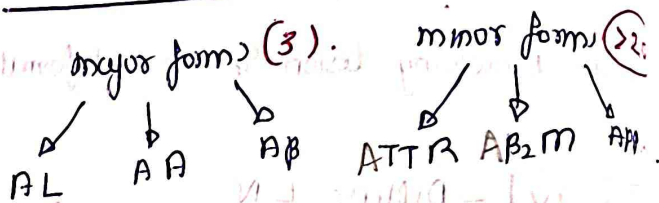
X-ray crystallography and infrared spectroscopy

Characteristic cross linked β -pleated sheet conformation.
 ↓
 responsible for distinctive Congo-red birefringence of amyloid.

Chemical Nature

- 95% - fibrillar proteins
- 5% - Glycoproteins & 'p' component.

Biochemical forms



amyloid light chain - AL-amyloid.

consists of.

- complete Ig light chain
- amino-terminal fragments of light chain
- or both.

mc → made of

Light chain.
 - seen in plasma cell tx.
 ↓
 monoclonal B cell proliferation.
 - they are produced by plasma cells.
 {monoclonal ⇒ same type light chain in abundance}

Amyloid Associated type.

AA-amyloid.

made from SAA protein
 "Serum acute reactant to amyloid associated protein."

Inflammation.

IL-6, IL-1.
 ↓
 ↑ synthesis of SAA from liver.
 • associated with chronic inflammation.
 → called as 2° amyloidosis.

β -Amyloid protein A- β type.

- derived from a transmembrane glycoprotein called Amyloid precursor protein
- forms core of cerebral plaques in Alzheimer's disease.

minor types:

① Transthyretin TTR.

Normal serum protein that,

transports - thyroxine & retinol

mutations in gene coding TTR → structure alteration → misfolding

Seen in

- familial amyloid polyneuropathy
- heart of aged people - senile systemic amyloidosis.

β_2 microglobulin

- normal serum protein.
- A β_2 m is formed from β_2 microglobulin.
- seen in PT's on long term hemodialysis.

pathogenesis

flow chart in textbook
page - 182. also in Robbins not.

Morphology of Organs Involved.

main organs involved in:

1° amyloidosis → heart, GI, resp tract, peritoneum, spleen, tongue.

2° amyloidosis → kidney, spleen, lymph node, liver, adrenals, thyroid.

Morphology

KIDNEY

micro and serous form of organ involvement.

GROSS

Initially → normal size & colour.

in advanced stages

→ shrunken due to vascular narrowing induced by deposition of amyloid within arterial & arterioles walls.

microscopy

- mc AL, AA type.

main site of deposition: glomeruli
glomerular deposit

1st causes thickening of mesangial matrix.

followed by widening of BM of capillaries.

capillary lumen narrowing + glomerular architecture ruined → shows broad ribbons of amyloid.

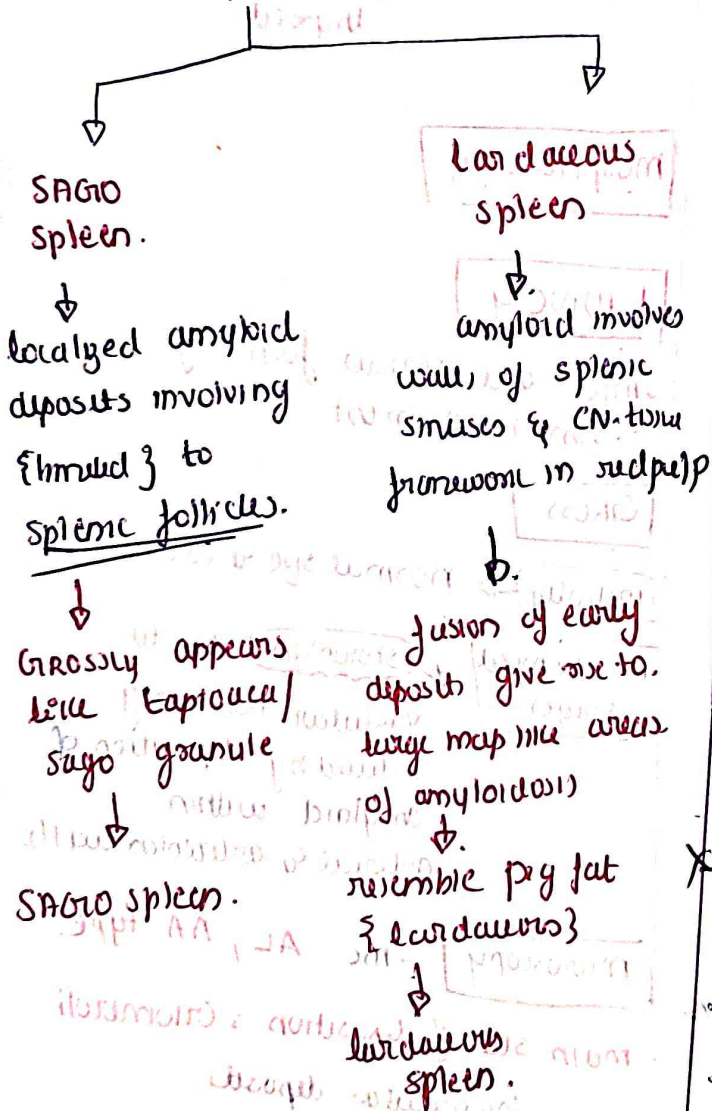
• deposits are also seen in
pericubator.

SPLEEN

GROSS

• moderate - marked Splenomegaly

2 patterns



light mc

• amyloid - pink colour. homogenous.

LIVER

GROSS

• moderate - marked hepatomegaly.
• advanced st
→ pale, grey, waxy.

mc

amyloid 1st deposit in

space of disse

then encases on adjacent hepatocytes & sinusoids.

dysmaturity & pressure atrophy of hepatocytes

replacement of large portions of liver parenchyma.

but LFT normal.

HEART

• involved in 1° systemic amyloidosis.
• major organ involved in Strife systemic amyloidosis

GROSS

• can be enlarged & firm.