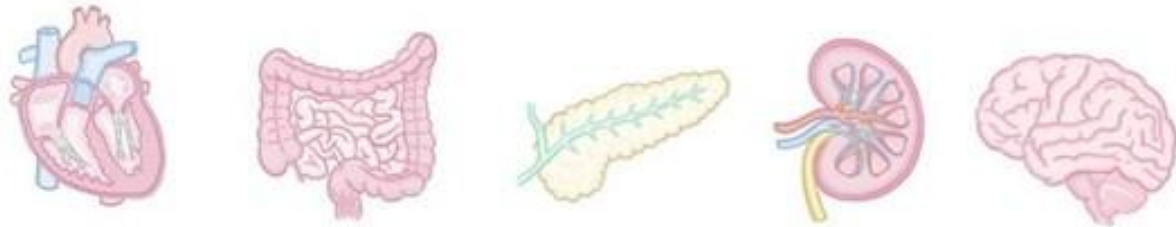


AMYLOIDOSIS



Course Title: (VETERINARY PATHOLOGY (Paper-I))
UNIT No. : I

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Introduction

- ▶ **Amyloidosis** is a rare disease that occurs when an abnormal protein, called amyloid, builds up in the organs and interferes with their normal function.
- ▶ Amyloid isn't normally found in the body, but it can be formed from several different types of proteins.
- ▶ Organs that may be affected include the heart, kidneys, liver, spleen, nervous system and digestive tract. Some varieties of amyloidosis may lead to life-threatening organ failure.
- ▶ It is a group of diseases in which **abnormal proteins**, known as amyloid fibrils, build up in tissue.

Definition of Amyloidosis

- ❖ It is believed to be an **immunological disorder** characterised by deposition of a homogeneous, translucent substance/ waxy starch like substance in the perivascular space(in between capillary endothelial cells and adjacent cells or tissue).

OR

- ❖ It is a group of diseases characterised by extracellular deposition of **fibrillary-insoluble-proteinaceous** substances(=Amyloid) having common morphological appearance and staining properties.

Amyloid

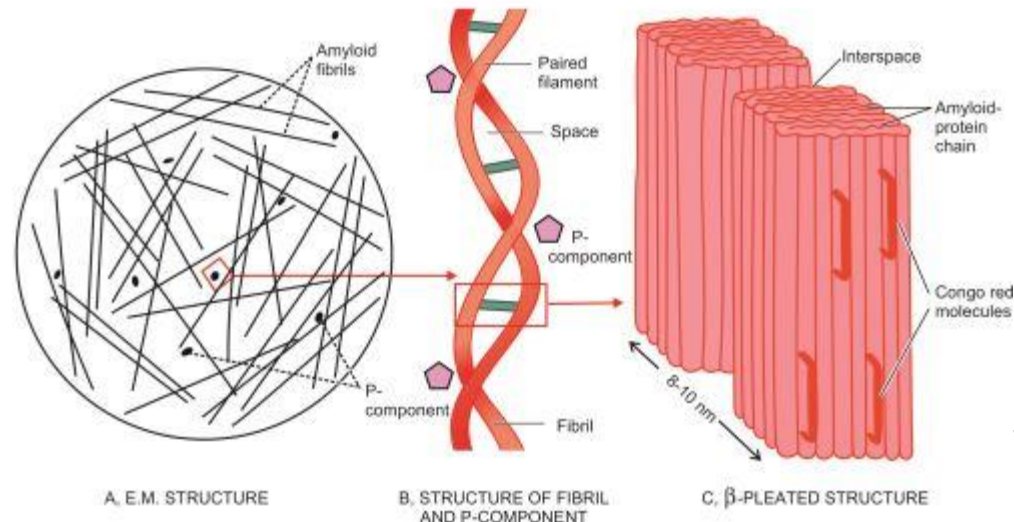
- The name Amyloid was given by Virchow under the mistaken belief that the material was **starch-like** (Amylon=starch).
- The cut surface of organ containing amyloid stained BROWN with iodine and turned VIOLET after addition of sulphuric acid.
- Confirmatory staining property is **congophilia** (+with congo red) followed by examination under polarising microscopy showing **apple-green birefringence**.

Chemical Composition of Amyloid

It is composed of TWO main types of complex proteins

I. Fibril Protein(=about 95%)

I. Non-Fibrillar Component which contains P-component(=remaining 5%)



Reference: BOOK TITLE: [Essential Pathology for Dental Students](#) ;Chapter-07 Amyloidosis

Classification of Amyloidosis

Based on Causes:

- Primary Amyloidosis-** -due to plasm cell dyscrasias/disorder and
-due to deposition occurring as a part of the disease itself
- Secondary Amyloidosis:** -due to complication of chronic inflammatory condition
-found classically in TB/ bronchiectasis

Based on extent of amyloid deposition:

- Systemic/Generalised Amyloidosis:** involving multiple organs
- Localised Amyloidosis:** involving one or two organs or site

Pathogenesis of Amyloidosis

Regardless of the organ involved, deposition of amyloid occurs in the perivascular space of tissues with progressive accumulation of amyloid around the Blood vessel.

THREE IMPORTANT CHANGES OCCURS:

The extravascular amyloid deposits produces pressure atrophy of adjacent cells/tissues

Due to impervious amyloid deposition; exchange of gases, nutrients & waste materials between the blood vessels and adjacent cells can't occurs resulting into degeneration and necrosis of surrounding cells/tissue

Enlarged amyloid mass put pressure upon the vessel and causes stenosis of vessels and causes ischemia in portion of the involved organs

Lesions of Amyloidosis

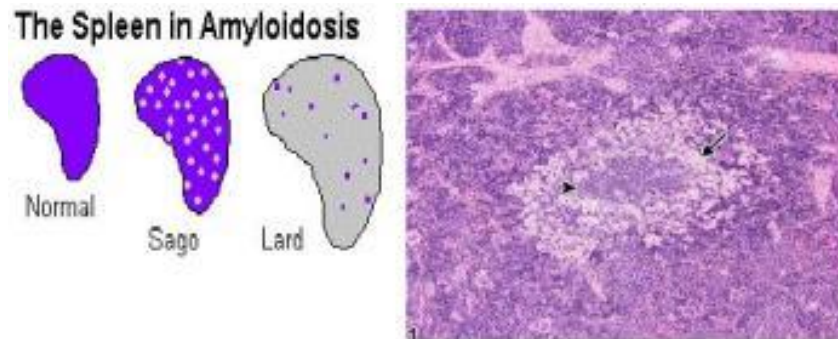
It can be found in all organs including the heart, kidneys, liver, spleen, nervous system and digestive tract but incidence may varies with species and organs.

Amyloidosis of spleen:

one of two pattern of deposition is seen:

Sago spleen -deposits are large but limited to the splenic follicles, producing tapioca -like granules grossly.

Lardaceous spleen - Amyloid involves the walls of the splenic sinuses and connective tissues fram-work in the red pulps. Fusion of the early deposits gives rise to large, map like areas of amyloidosis.



References:

1. Book : “Textbook of Pathology” By Harsh Mohan, Eighth edition.
2. Pictures are taken from [www.google .com](http://www.google.com)



Thank you

