

# Aneurysms And Dissection

## Aneurysm:

→ It is a congenital or Acquired localized Abnormal, permanent dilation of a blood vessel or the heart.

- Localized, Abnormal, permanent dilation of a blood vessel.

## CLASSIFICATION

- on gross Appearance
- composition of wall

On the basis of gross Appearance: (Shape & size)

→ Fusiform Aneurysm: fusiform dilation of vessel || to the long Axis  
diameter up to 20cm.



→ Saccular aneurysm: is spherical out pouching from the portion of vessel wall 5 to 20cm diameter.



eg. intracranial Aneurysm.

lumen contain thrombus

→ Cylindrical: || dilation

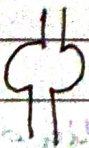
→ Aortic dissection: develop after when blood enter b/w the layer of Aortic wall.

→ Arteriovenous Aneurysm: direct communication b/w an Artery & vein

On the basis of wall:

True Aneurysm: composed of all the layer of thinned Aortic wall

eg. Atherosclerotic, syphilitic, congenital vasculer aneurysm



Fake Aneurysm / pseudo aneurysm: defect in the vascular wall with a hematoma.  
(pulsating hematoma).



eg: ventricular Rupture after myocardial infarction by pericardial Adhesion.

## Cause of Aneurysm:

### Based on Mechanism

- Atherosclerotic Aneurysm
- Syphilitic Aneurysm
- Dissecting hematoma ||  $\rightarrow$  blood
- Mycotic Aneurysm
- Berry Aneurysm.

## PATHOGENESIS

Structural & functional integrity of blood vessels

is maintained by ECM components.

→ where, synthesis, degradation of repair is being done Regularly.

defect

Aneurysm.

1) Inadequate Abnormal synthesis of connective tissue of the wall

2)  $\uparrow$  degradation of connective tissue

TGF  $\beta$  Regulate SM proliferation & migration. Result is that

Marfan syndrome  $\rightarrow$  defective synthesis of fibrillin.  $\rightarrow$

Ehler Danlos syndrome  $\rightarrow$  defective type III collagen.

vit C def.  $\rightarrow$  Altered collagen cross linking.

Loss of smooth muscle cell  $\rightarrow$  due to ischemia

or systemic hypertension.

$\uparrow$  Amount of Amorphous

Proteoglycans  $\rightarrow$  cystic medial degeneration.

$\rightarrow$  Balance of collagen degradation & synthesis is Altered.

$\uparrow$  Metalloproteinase

$\rightarrow$   $\downarrow$  expression of tissue inhibitors of Metalloproteinase

Risk factors: → Atherosclerosis  
→ Hypertension  
→ Trauma, Nasuella, congenital defect,

→ Tertiary syphilis → Rare cause of Aortic Aneurysm.  
Teratomas affect the Vasa Vasorum of Thoracic Aorta.

↓  
lead to ischemic damage to the  
Aortic Media & Aneurysm.

(syphilitic mesoaortitis)

## ABDOMINAL AORTIC ANEURYSM: (AAA)

Cause → Atherosclerosis.

plaque in intima cause  
thinning of media

↓  
Reduce the diffusion of nutrient &  
waste from the lumen of vessel into the Aortic wall

↓  
Undergo necrosis

→ excessive degradation of ECM by MMP → secreted from  
macrophage in plaque

→ Inflammatory AAA

→ Mycotic AAA → due to infection of Aortic wall by organism  
Eg. Salmonella (Media → Aneurysm → Rupture)

→ Immunoglobulin G4 Related disease

MORPHOLOGY:

site: usually below the origin of Renal Arteries Above the  
bifurcation of Aorta.

Appearance: Scalloped, fusiform

lumen: mural thrombus.

wall: complicated Atherosclerosis & destruction & thinning of  
Aortic Media

Management: Aneurysm > 5cm

open surgery

## Clinical features: & complication

- Rupture (May Rupture into peritoneal cavity → fatal hemorrhage)
- Thrombosis lead to ischemia → iliac & Renal
- Embolization: mural thrombus, Atherosclerotic plaque

### AORTIC DISSECTION:

- Associated with cystic medial degeneration.

### Thoracic Aortic Aneurysms:

- Associated with hypertension.

Other cause - Marfan syndrome

Aortic

Loeys-Dietz syndrome.

### Site of compression

→ bony lesion

Chest pain

→ Common Aorta

MI

→ Esophagus

Difficulty swallowing

→ Bronchi

Resp complication.

### Syphilitic Aneurysm:

→ Affect Ascending Aorta.

Show endarteritis & periaortitis (lymphocyte, plasma cell, macrophage)

Petial scar → Produce Roughened internal surface (unsmooth)

often calcified

→ tree bark appearance.

If Aortic valve is involved → incompetence → volume overload  
enlarged heart

COR BOVINUM