



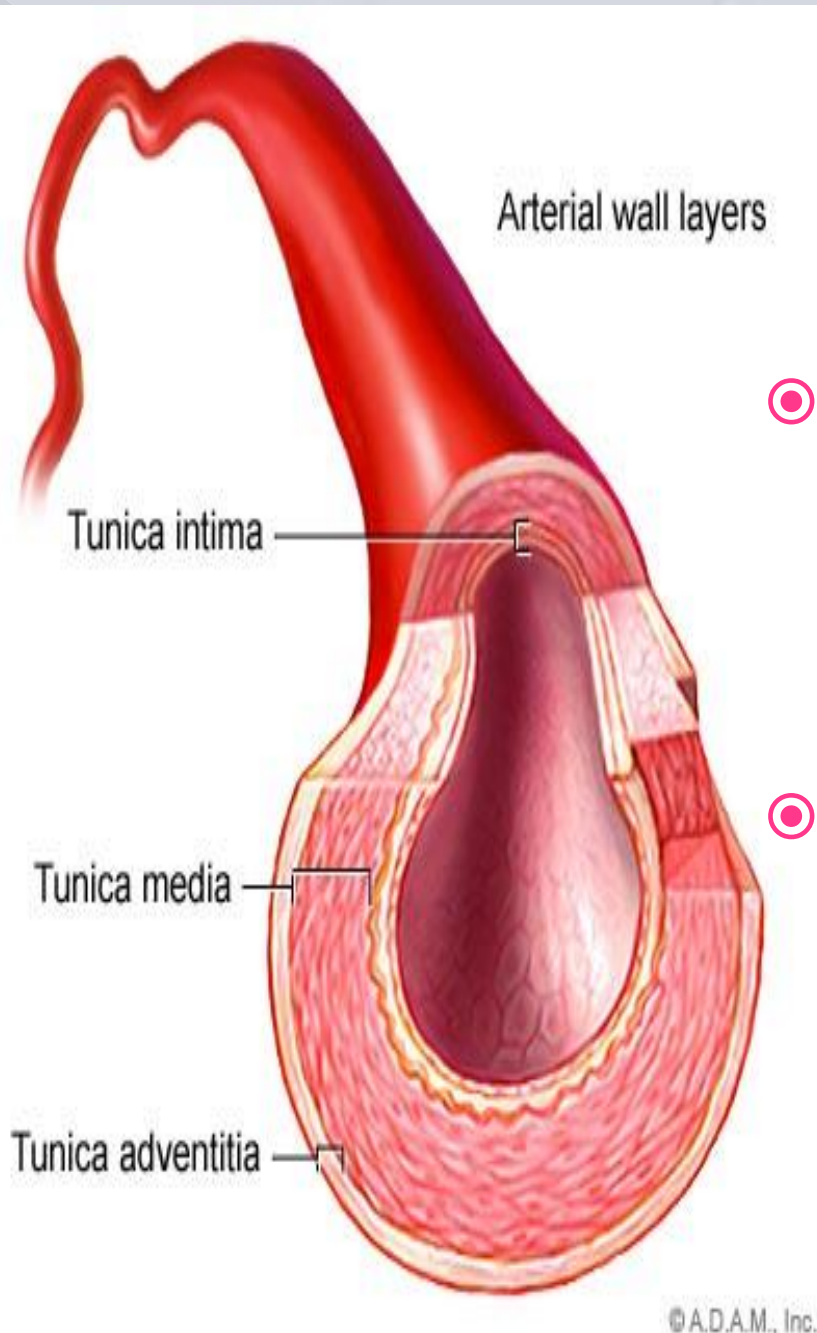
# Visceral Arterial Aneurysms

Vascular Radiology  
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Group 1

# Aneurysm

- Is an abnormal widening or ballooning of a portion of an artery due to weakness in the wall of the blood vessel.
- Wall stretches & swells
  - > more than 50% of original diameter

# Arterial Wall Layers



- ◉ 3 layers
  - > Adventitia: Outer covering
  - > Media: muscular middle
  - > Intima: Inner
- ◉ Type of aneurysm determined by the layer effected.

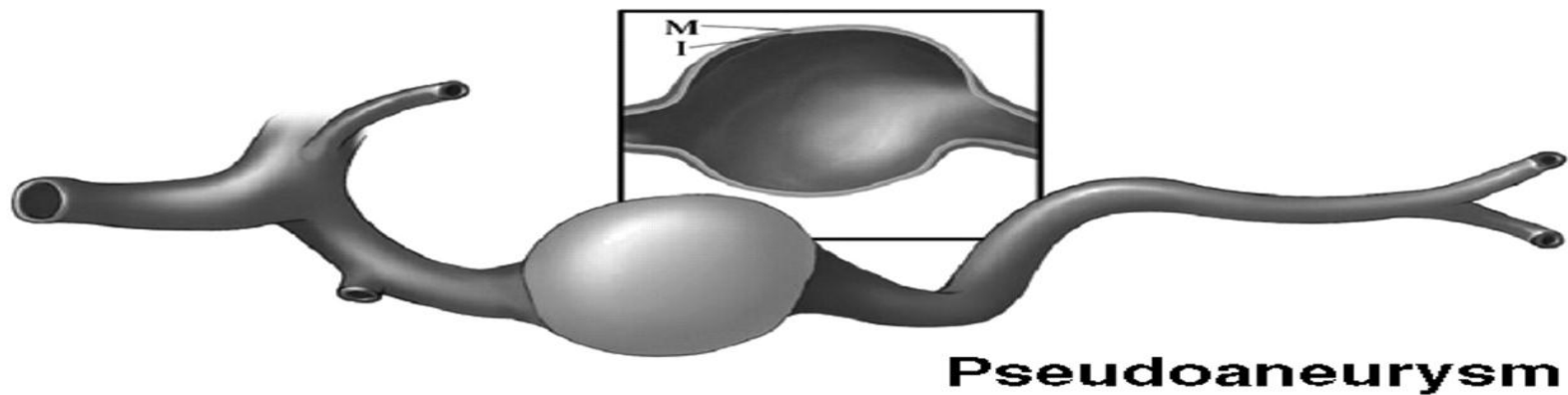
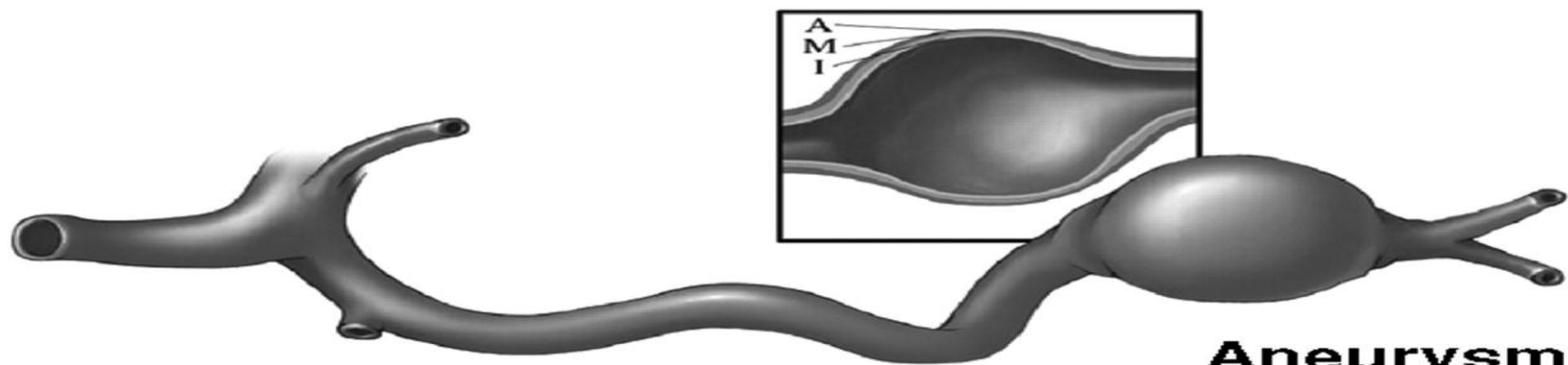
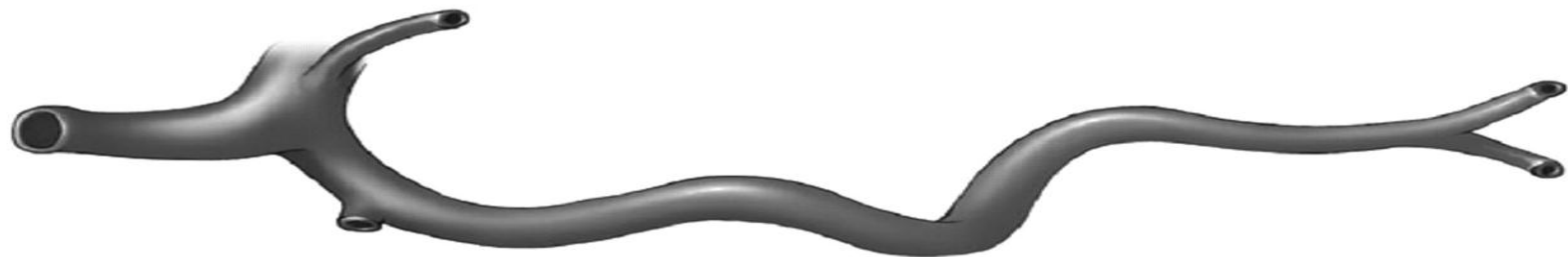
# Types of Aneurysms

- ◎ **True aneurysm:**

- > comprised of all 3 layers

- ◎ **False / Pseudoaneurysm:**

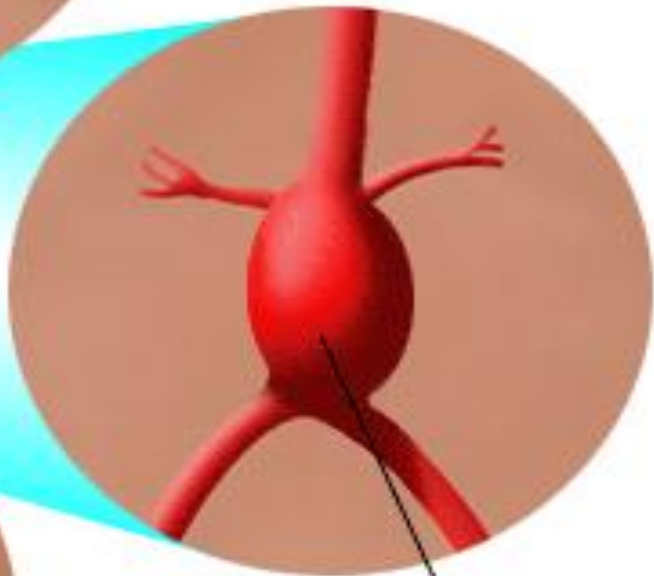
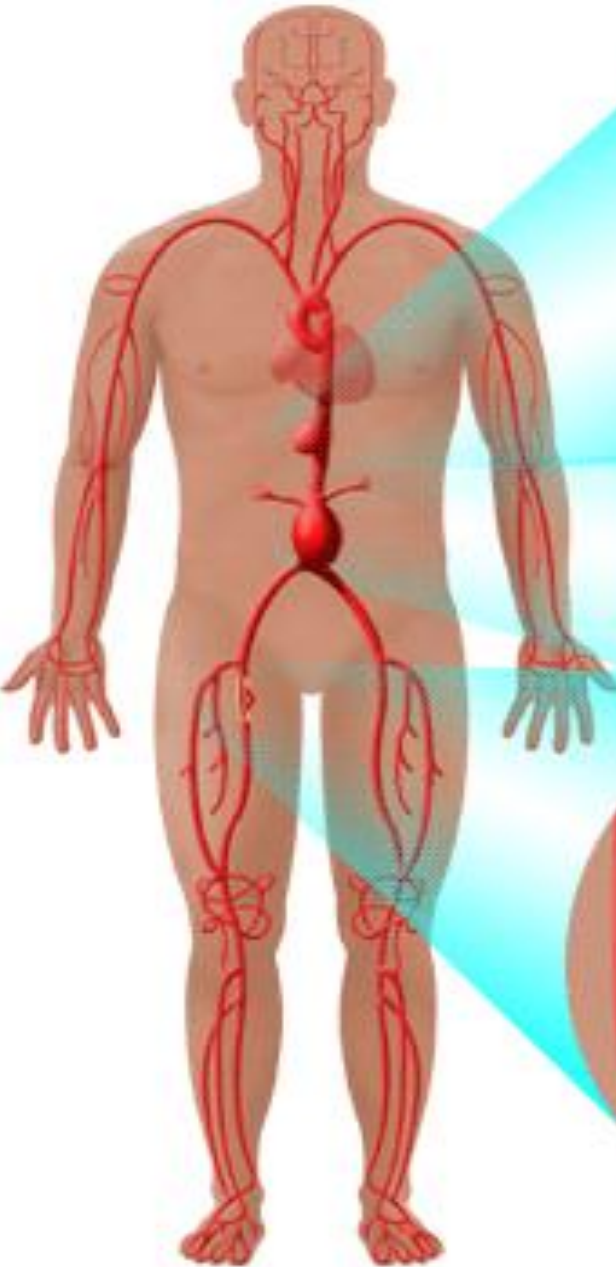
- > puncture in vessel wall → hematoma formation
- > Includes any combo of less than 3 layers



# Classification of Aneurysms

- ◉ Saccular – spherical in shape
  - > Small neck arising from parent vessel
- ◉ Fusiform – longitudinal dilation
  - > Runs along course of artery
  - > True Fusiform aneurysm is rare

# Types of Aneurysms



Pseudoaneurysm

# Visceral Arterial Aneurysms

- Are rare: 0.01% - 0.2%
  - > Found at autopsy
- Life threatening if hemorrhage occurs
- Asymptomatic
  - > Discovered incidentally
- Symptomatic
  - > Vague abdominal pain

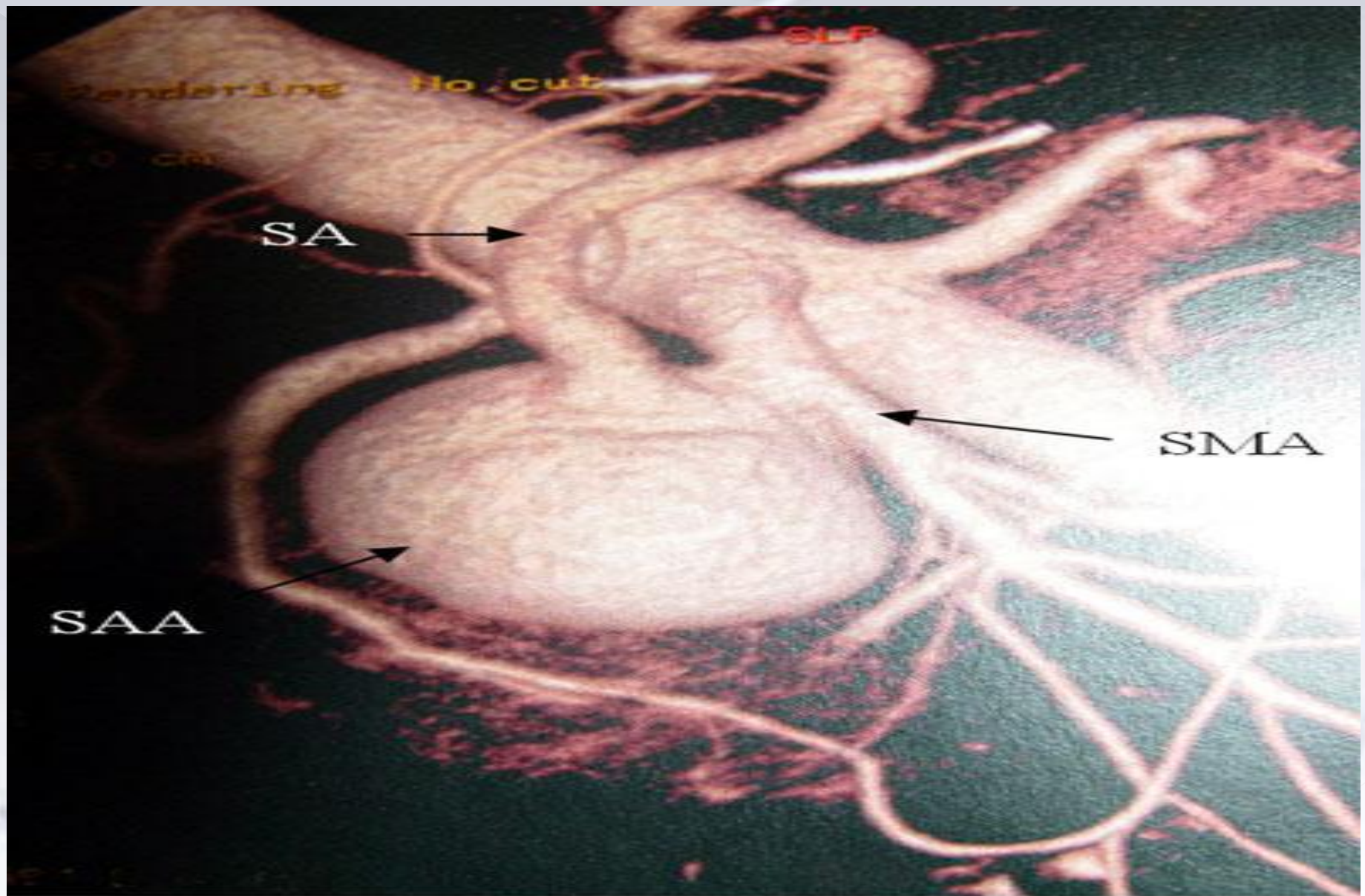


# Location of VAA's

- ◉ Splenic Artery: 60%
  - > Most common location
- ◉ Hepatic Artery: 20%
  - > 2<sup>nd</sup> most common location
- ◉ Superior Mesenteric Artery: 6%
  - > 3<sup>rd</sup> most common location
  - > Sub types: rare
    - Gastroduodenal Artery
    - Pancreaticoduodenal Artery
- ◉ Renal Artery: 0.015% - 9.7%

# Splenic A. Aneurysm

- ◉ Solitary & Asymptomatic
- ◉ Saccular type
- ◉ Located in middle to distal part of artery
- ◉ F:M ratio of 4:1
- ◉ More common in multiparous women
- ◉ ↑ risk of ruptured 3<sup>rd</sup> trimester
- ◉ Rupture causes pain & hypotension
- ◉ Complete occlusion can be preformed



SA = splenic artery; SAA = splenic artery aneurysm;  
SMA = superior mesenteric artery.

**Figure 3** - Abdominal magnetic resonance angiography: presence of splenic artery saccular aneurysm with dimensions of 3.6 x 3.0 cm emerging from the superior mesenteric artery

# Hepatic A. Aneurysm

- ◉ Solitary & found outside the liver
- ◉ Symptomatic triad:
  - > epigastric pain, hemobilia, obstructive jaundice
- ◉ Male predisposition 2:1, 50 year
- ◉ Caused by:
  - > mycotic aneurysm from Bacterial endocarditis
  - > Traumatic / iatrogenic: most common cause

# Superior Mesenteric A. Aneurysm

- ◉ Saccular or fusiform
- ◉ Symptomatic:
  - > acute & colicky upper abdominal pain
  - > Nausea or vomiting
- ◉ Found in proximal 5cm of artery
- ◉ Most common in men
  - > Found in 6<sup>th</sup> – 7<sup>th</sup> decade of life
- ◉ Caused by:
  - > infectious endocarditis & vasculitis
  - > Trauma & arterial dissection

# Gastroduodenal A. & Pancreaticoduodenal A. Aneurysm

- ◉ complications of acute & chronic
  - > pancreatitis & pancreatic surgery
- ◉ Symptomatic:
  - > gastrointestinal, intraperitoneal, or retroperitoneal hemorrhage

# Renal A. Aneurysm

- ◉ Saccular & noncalcified
- ◉ occur at bifurcation of Middle Renal A.
- ◉ Female predisposition
  - > ↑ risk of rupture with pregnancy
- ◉ Caused by:
  - > Fibromuscular dysplasia (common cause)
  - > degenerative aneurysms & vasculitis

# Diagnosis of Aneurysm

The background of the slide features a 3D reconstruction of a brain's vascular system, likely from a CT or MRI scan. The vessels are rendered in a light blue color. A specific area of the vessel is highlighted in a bright yellow, indicating the presence of an aneurysm. The overall image is semi-transparent, allowing the text to be clearly visible.

- Ultrasound
- CT
- MRI



# Treatment

- Open surgical repair with:
  - > Graft of patients veins
- Embolization with:
  - > Coils
  - > Gelfoam
  - > Detachable balloons
  - > Glue
- Placement of stent grafts

# Know before Embolization

- ◉ Arterial anatomy
- ◉ Know vascular supply distal to embolization
  - > tissue ischemia of parent vessel
    - Caused by complete occlusion
- ◉ If good collateral flow exists
  - > Such as in stomach & duodenum
  - > permanent embolization of entire vessels can be performed with some degree of impunity

# Complications Embolization

- ◉ Same as diagnostic angiography
- ◉ Aneurysm rupture
- ◉ Nontarget embolization
- ◉ Ischemia or infarction
- ◉ Abscess formation
- ◉ Rarely sepsis