A Pulmonary Arteriovenous Malformation Case treated by Transcatheter Coil Embolization

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Pulmonary Arteriovenous Malformation

- **Definition of P-AVM:** Rare abnormal vascular structures

  ; Direct communication between the pulmonary artery-to-vein, bypassing the normal pulmonary capillary bed resulting in intrapulmonary right-to-left shunt.

- **Incidence:**

  ; 2–3 per 100,000 population.

- **Common symptoms:**

  ; exertional dyspnea, hemoptysis and cyanosis.

- **Severe complications:**

  paradoxical embolization and serious neurologic complications, including TIA, stroke, and brain abscess, occur in 30–40% of patients with P-AVMs

Patient's Baseline Clinical Data

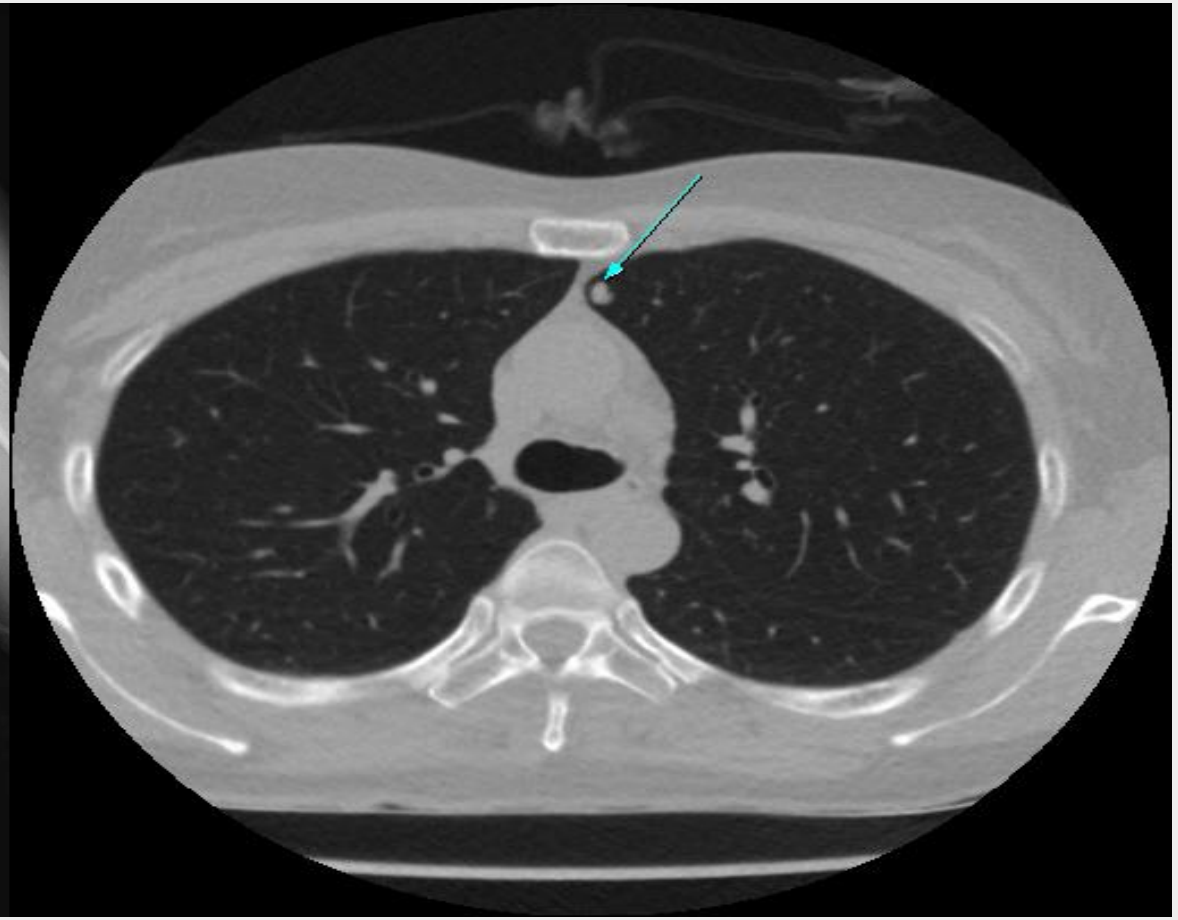
1. A/S: 51-year-old female

2. C.C.: without obvious subjective symptoms, found at general checkup

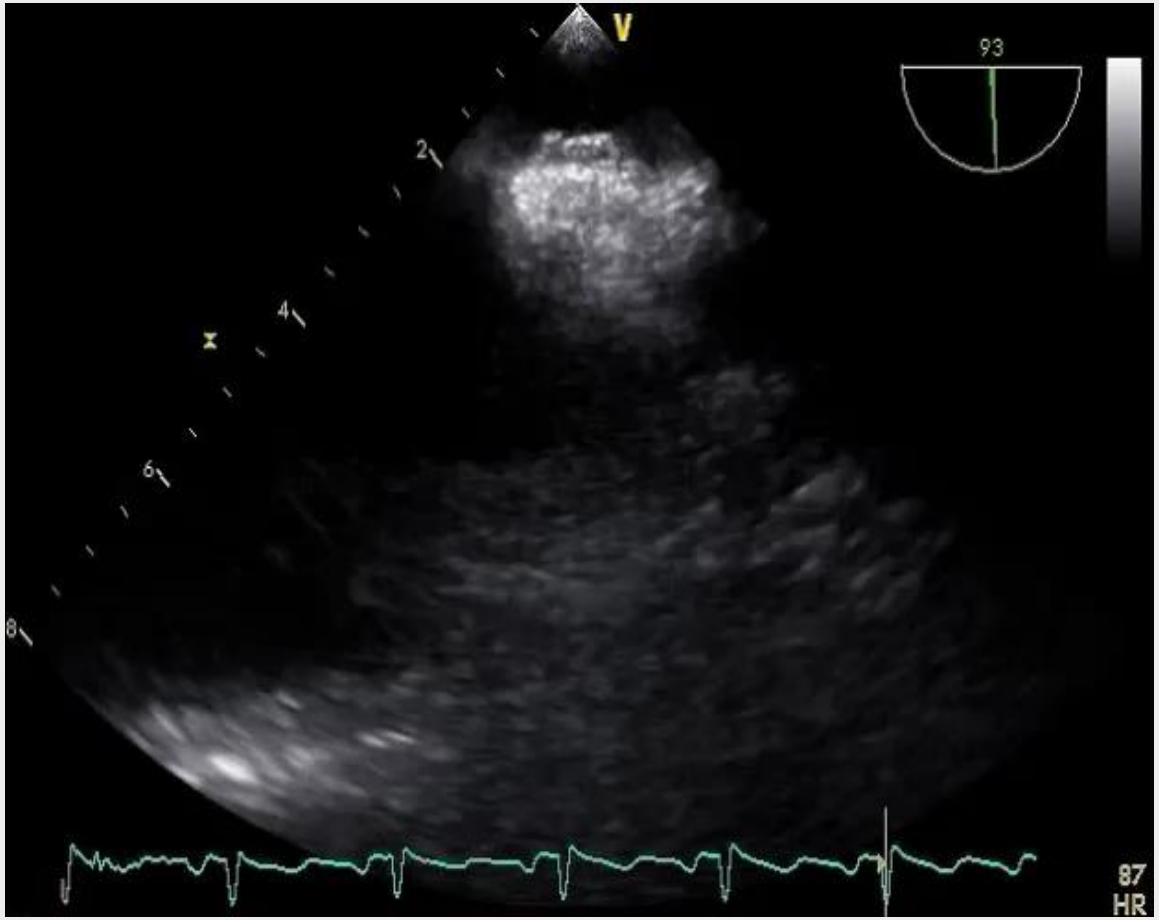
3. Past History:
   pulmonary hypertension (-), Osler-Weber-Render syndrome(-), hereditary hemorrhagic telangiectasia (HHT)(-), DM (-), HTN (-)

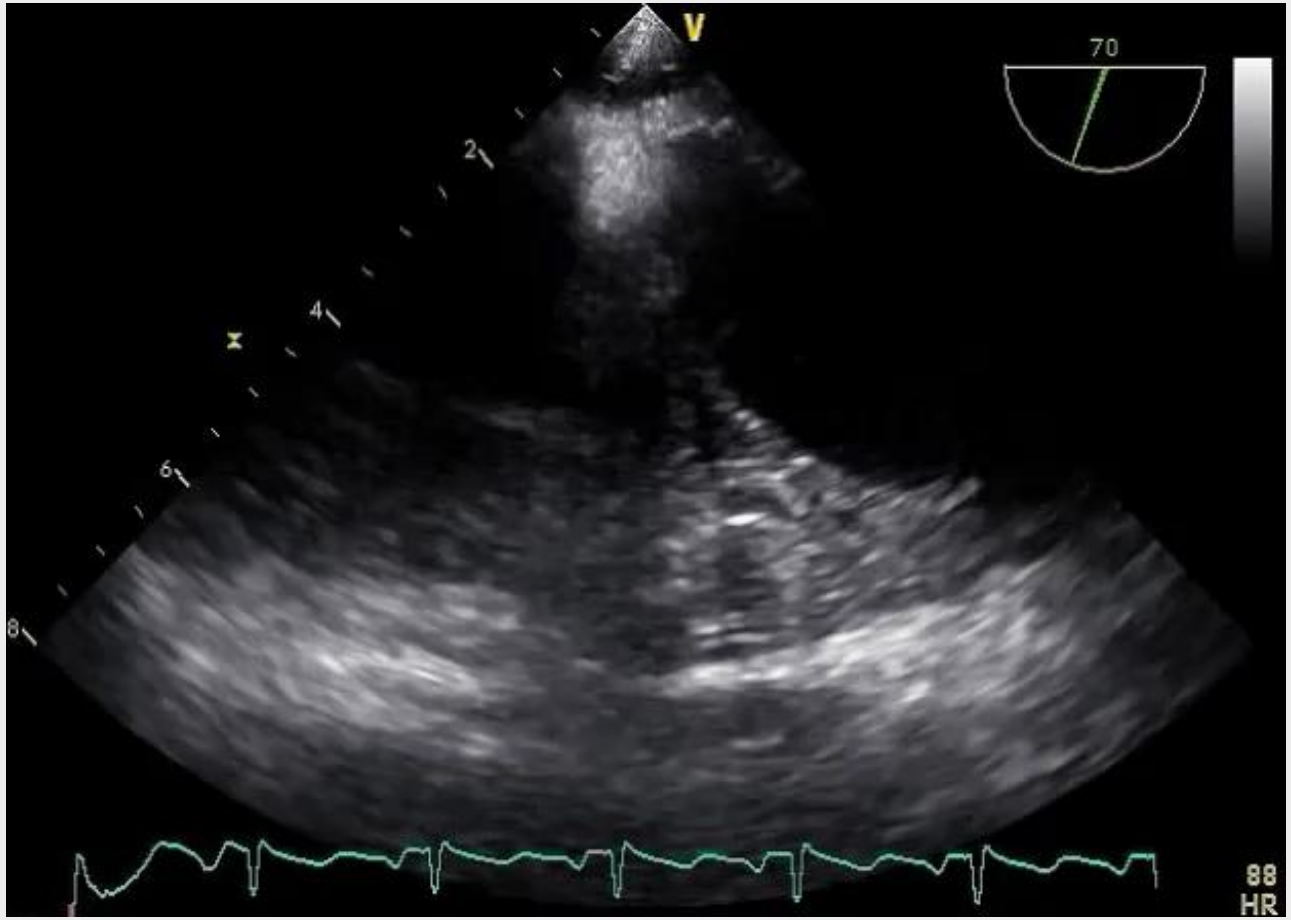
4. Diagnosis and Clinical setting
   1) Abnormal finding at the medical screening in the chest CT
   2) Treatment with coil embolization was decided to close the shunt and to prevent future complications.

X-ray and contrast-enhanced chest computed tomography (CT)

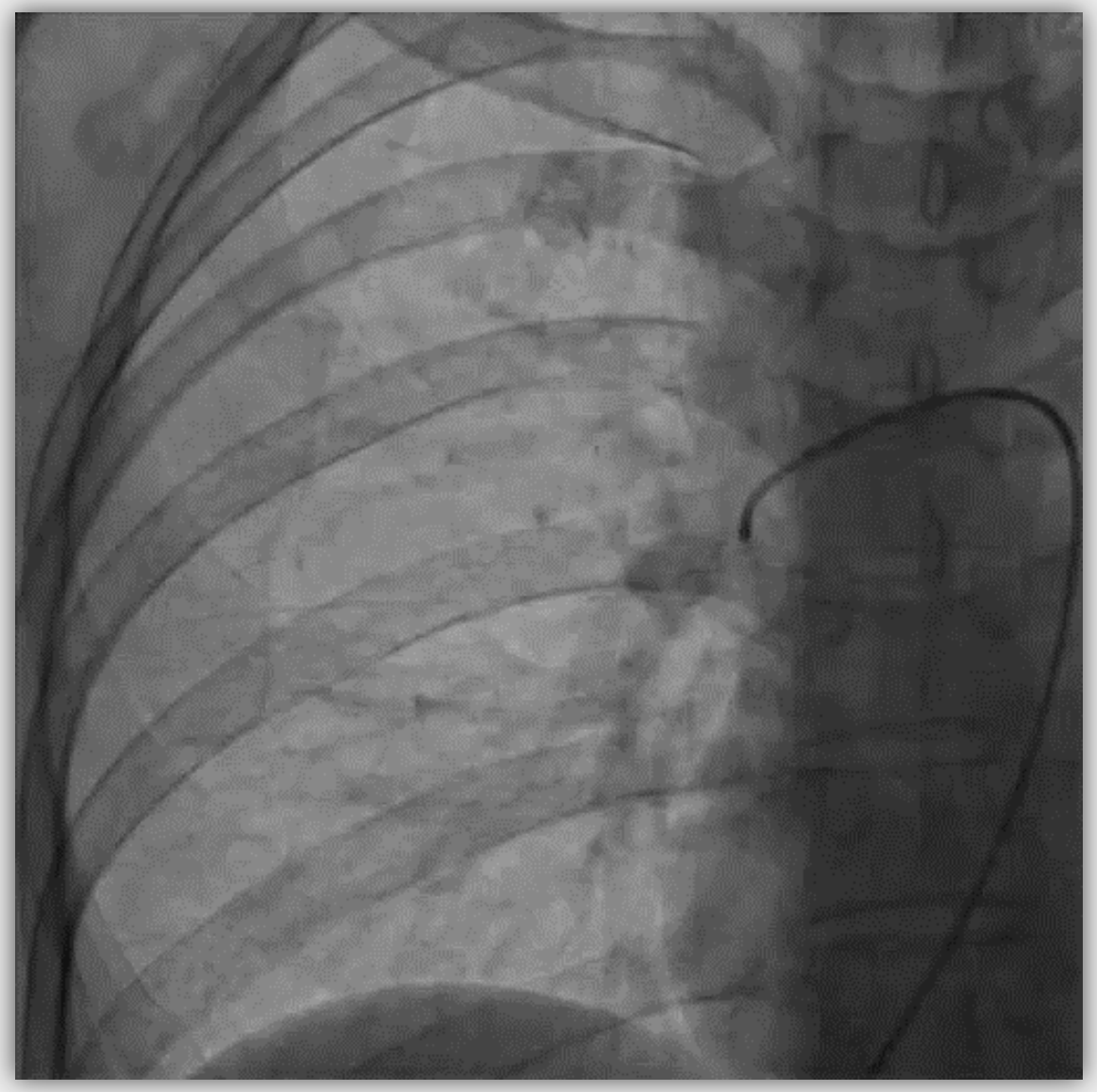


Contrast Echocardiography

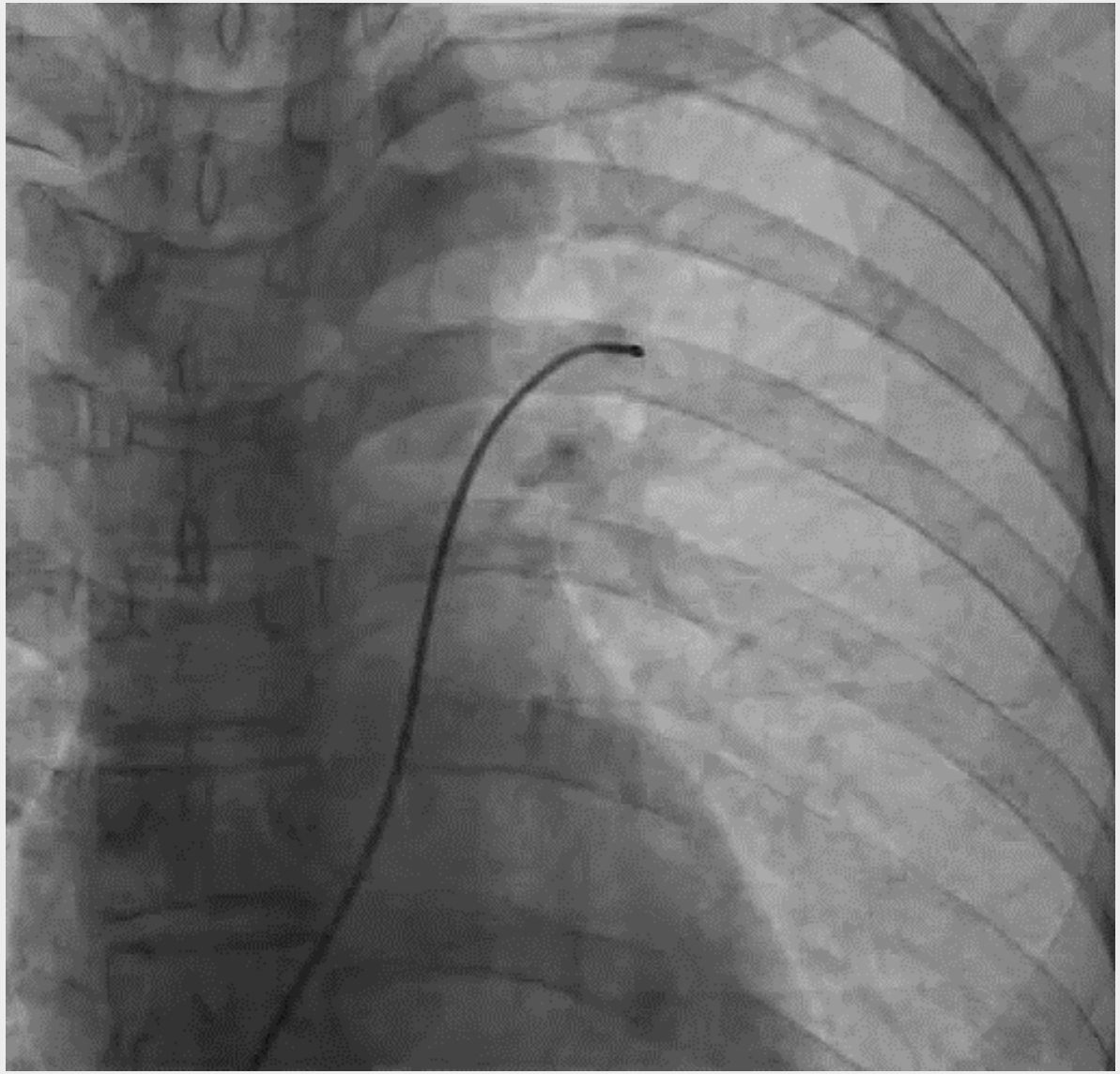




Selective pulmonary artery angiography

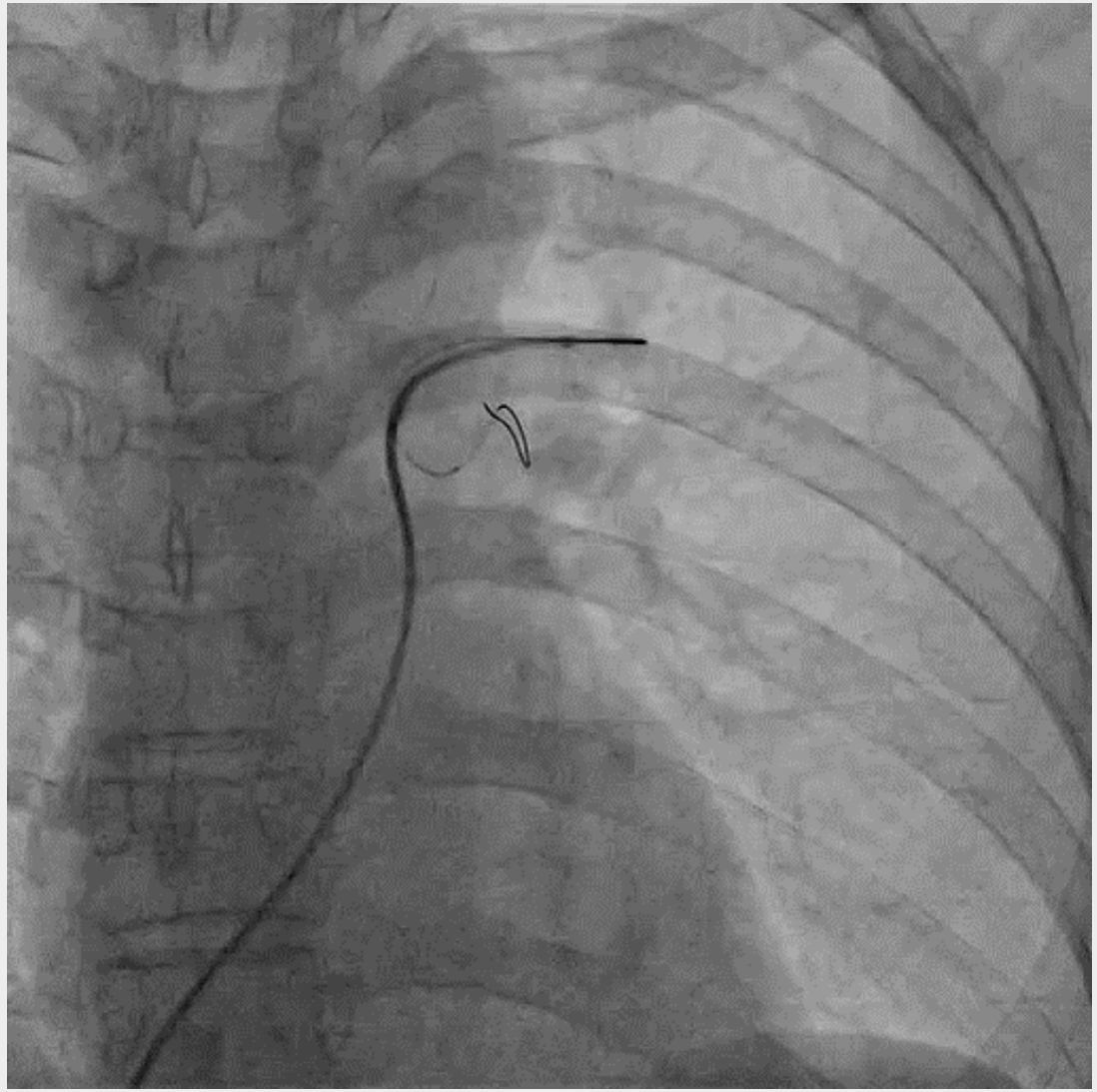


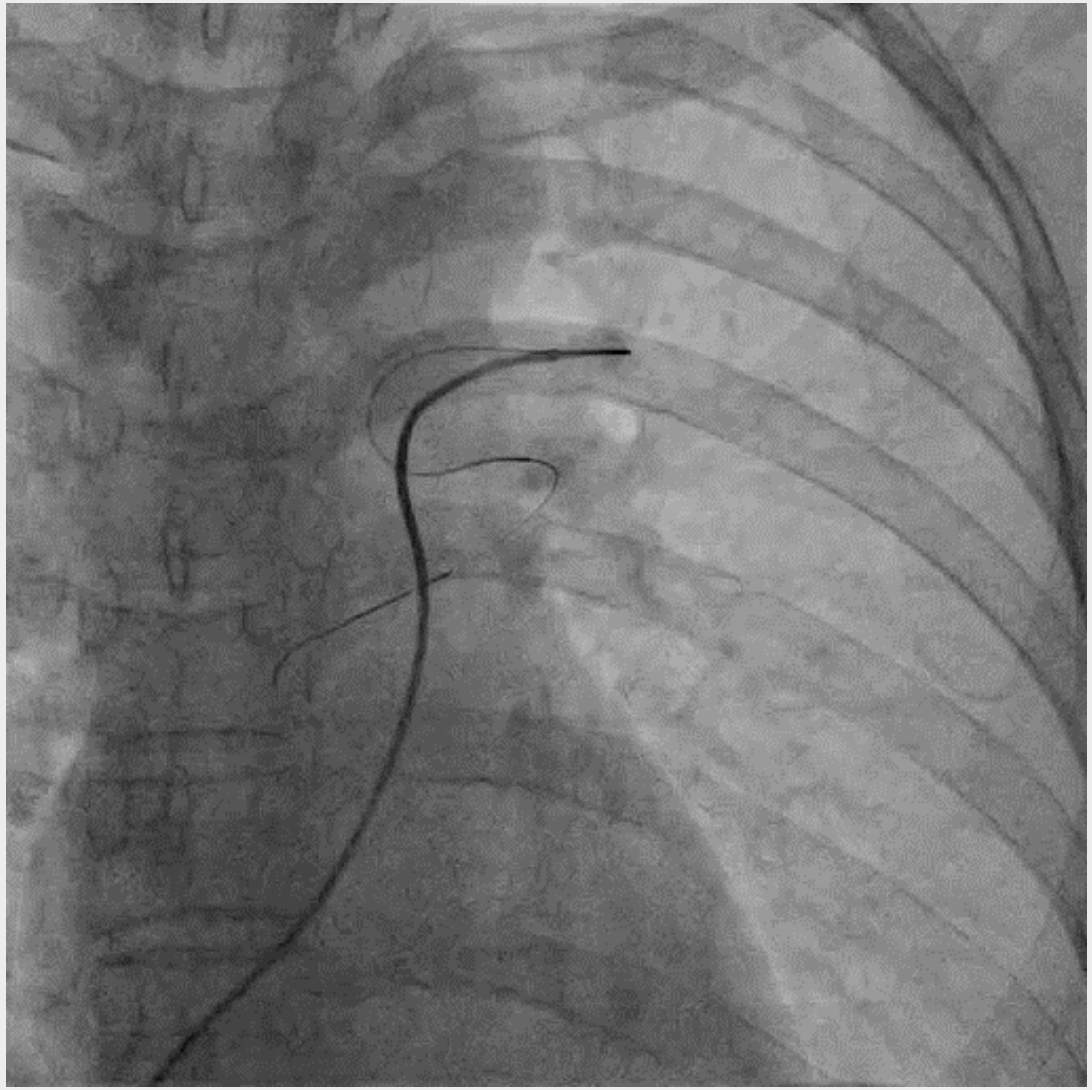
Rt. Pulmonary angiogram



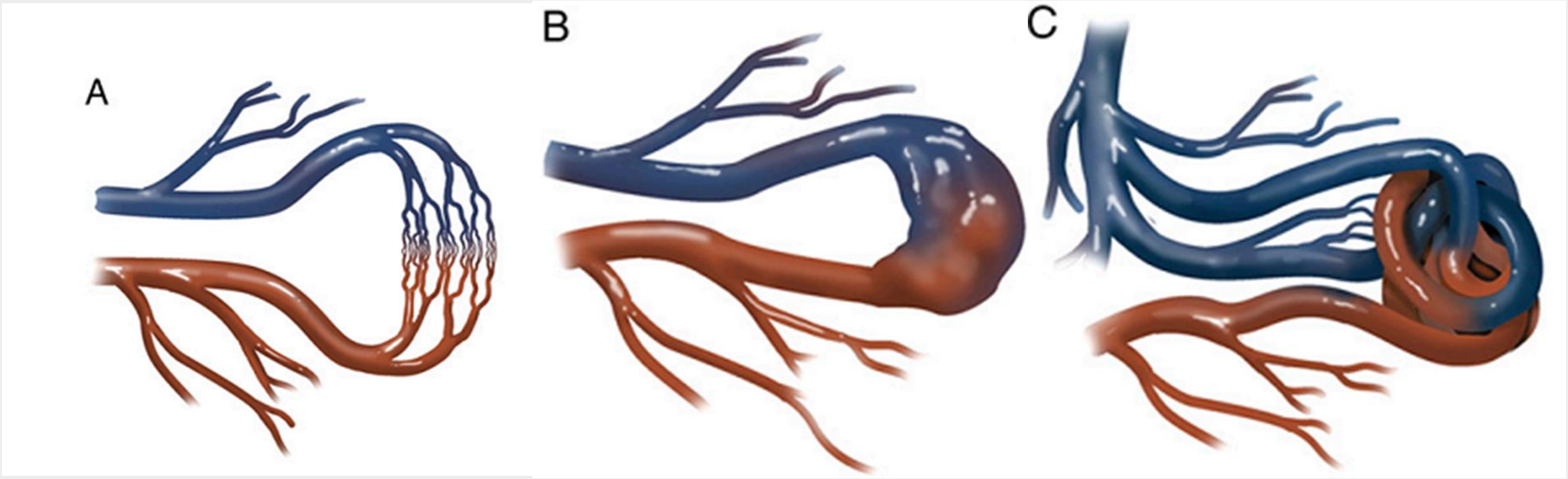
Lt. Pulmonary angiogram

Wiring and coli embolization





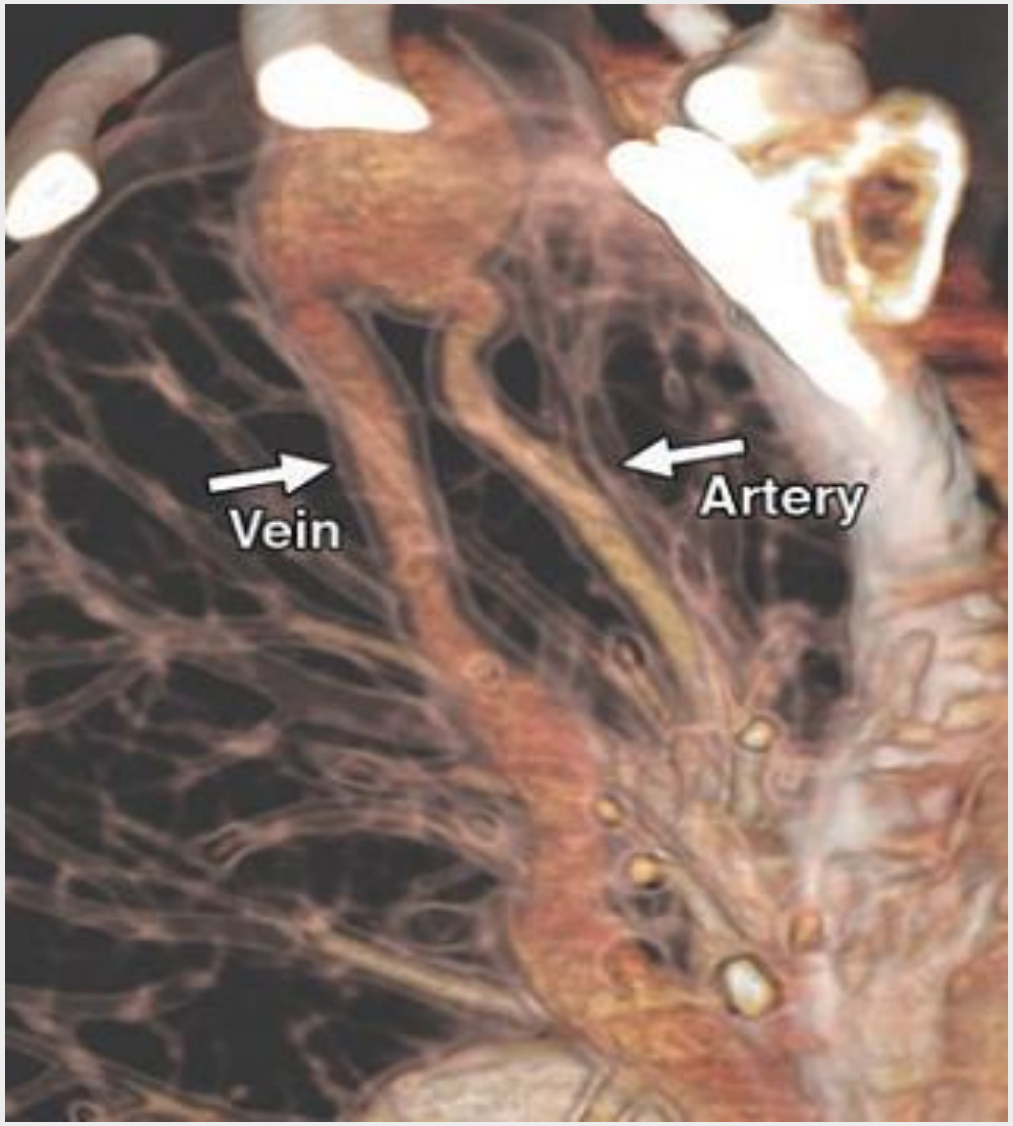
Pathophysiology of P-AVM:

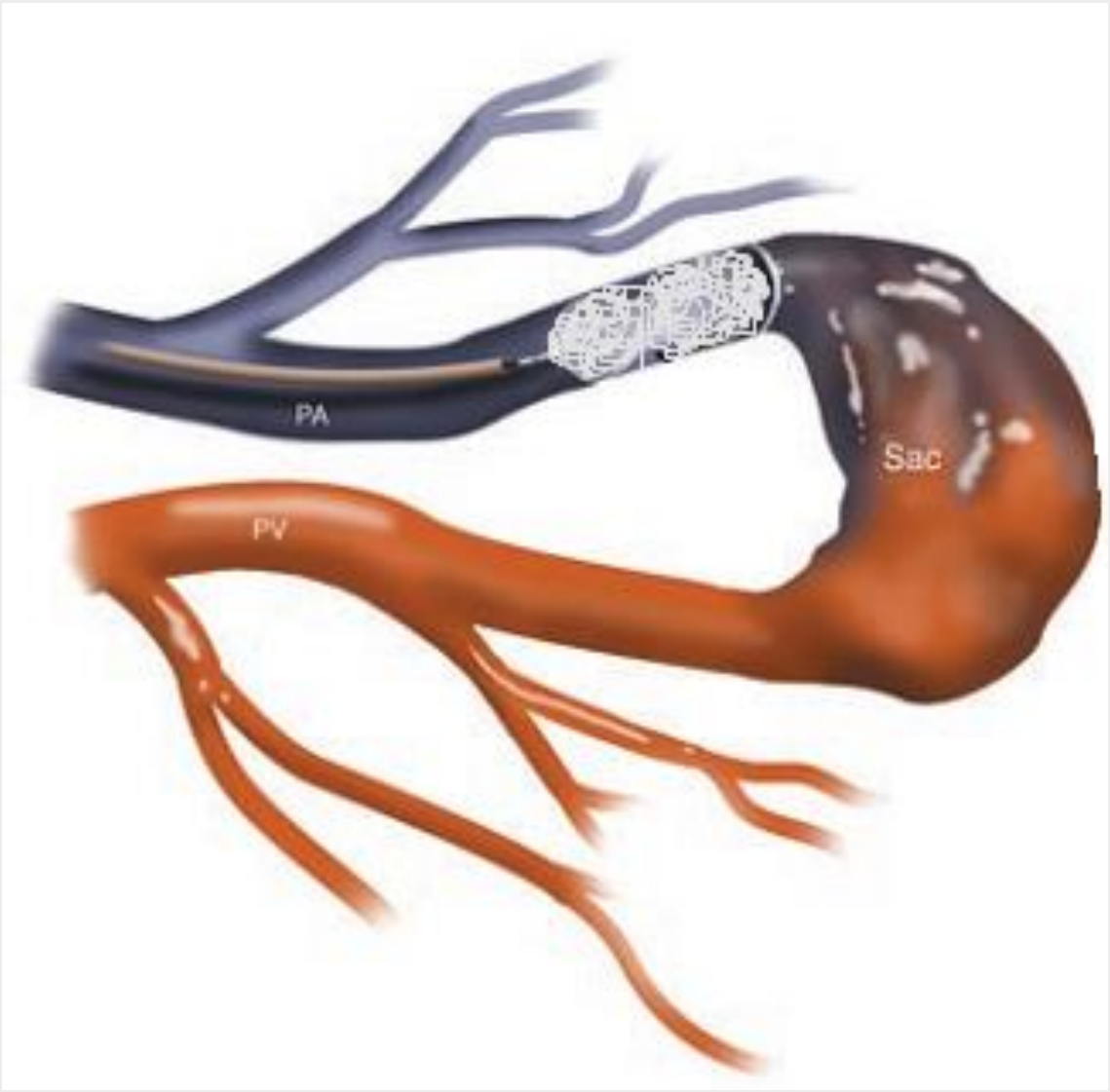


80%

20%

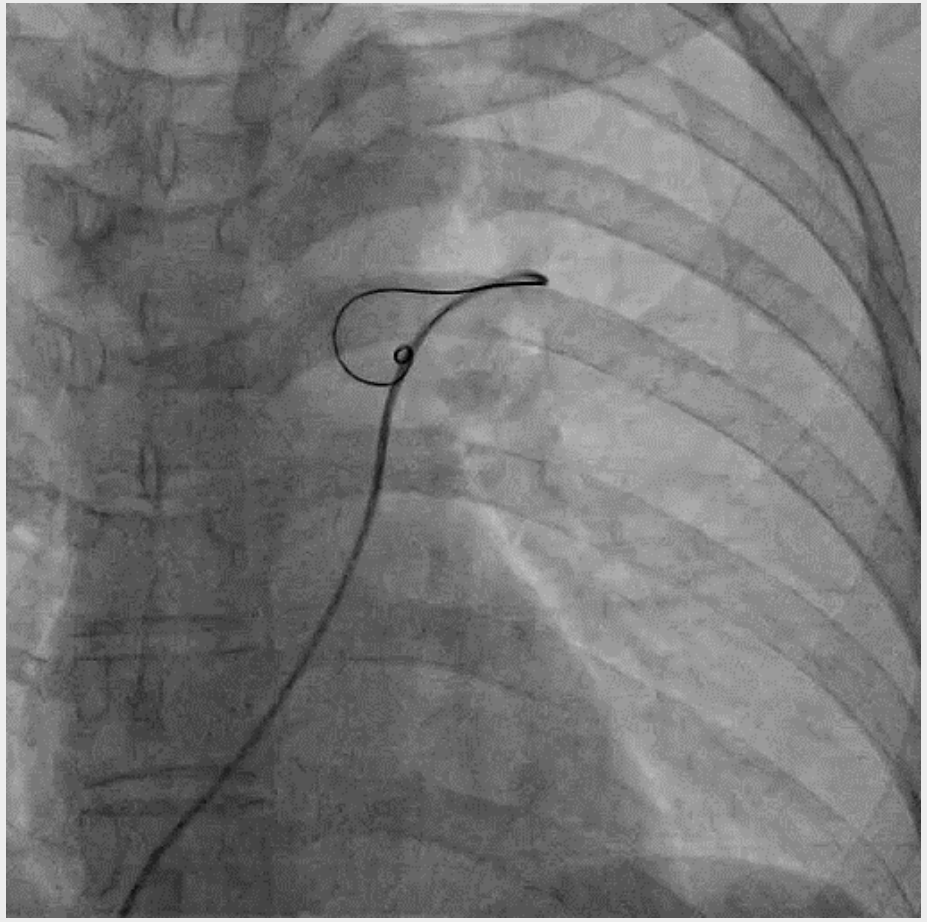
Simple type



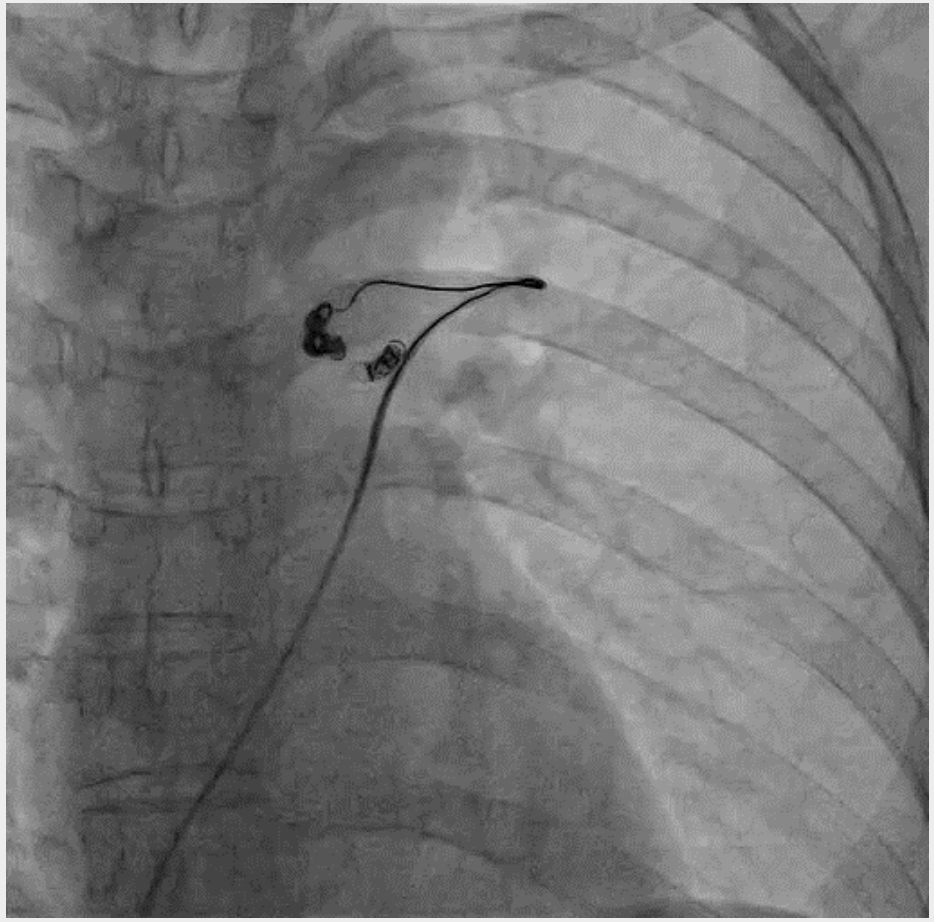


P-AVM Embolotherapy: Retrievable Interlock Coil (Boston)

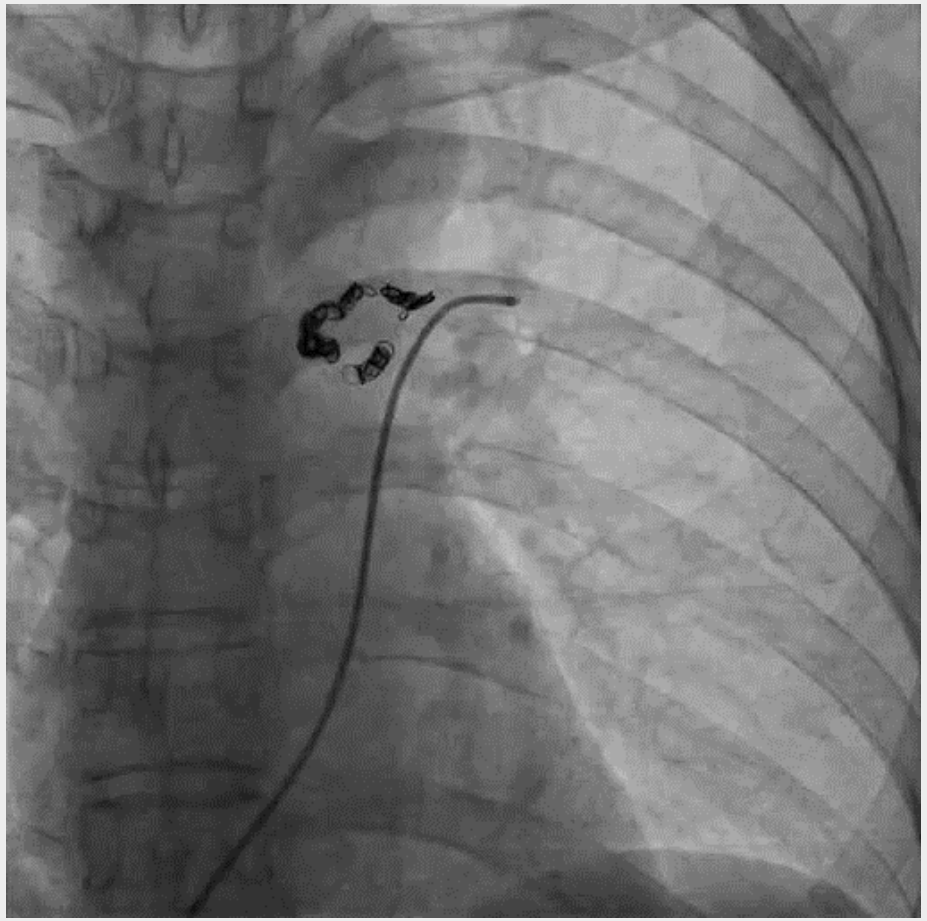
3.0X12mm

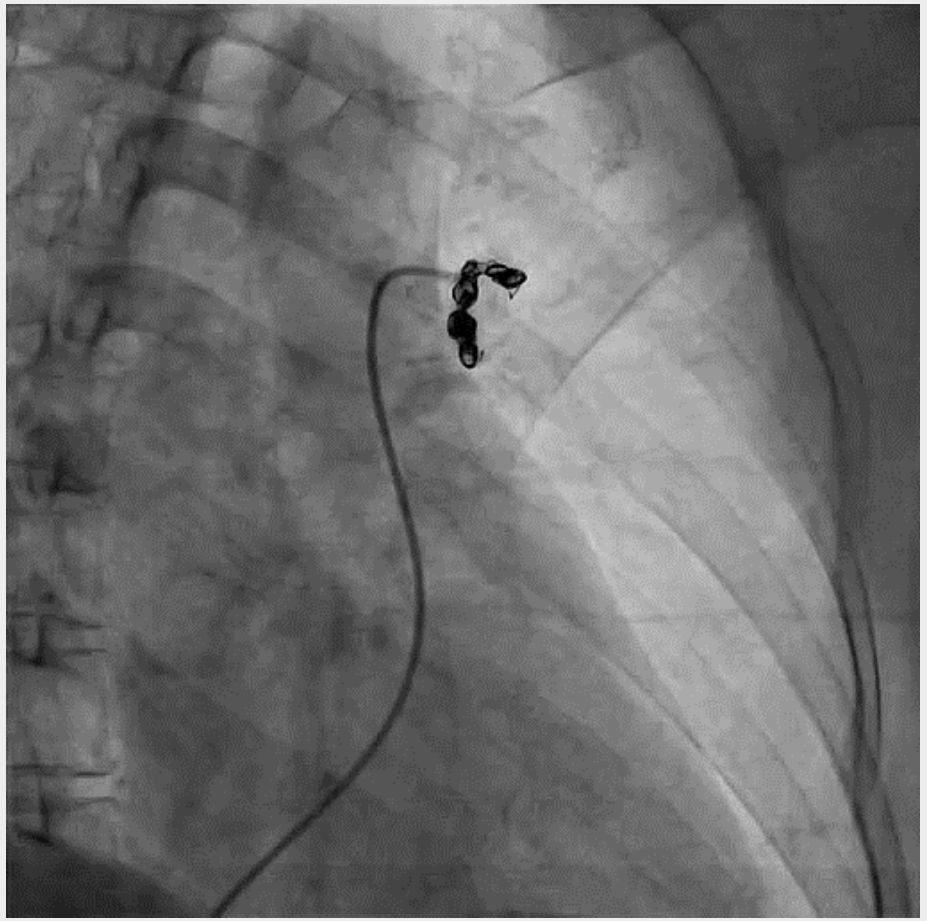


4.0X15mm

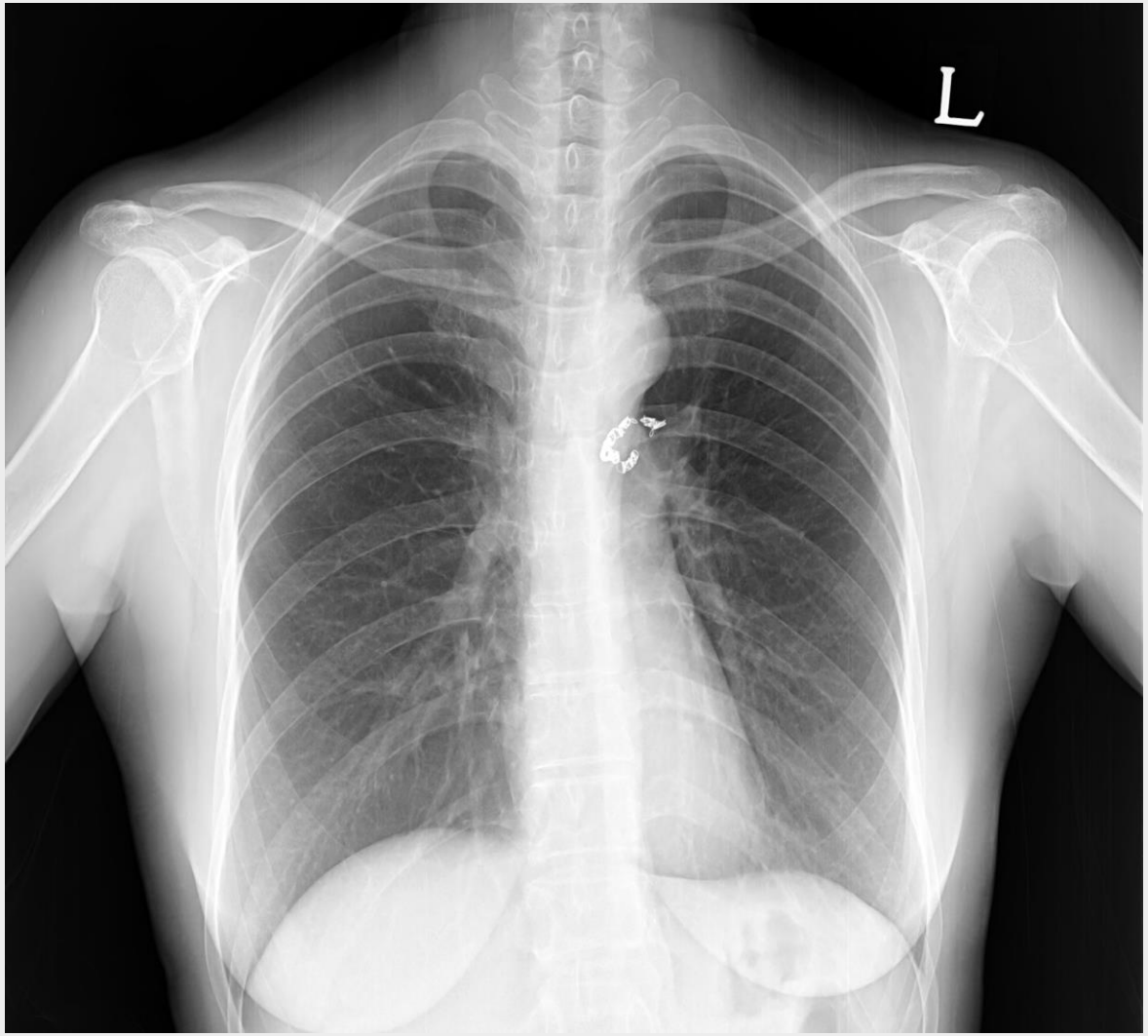


Final Angiography:
Complete occlusion of the feeding artery

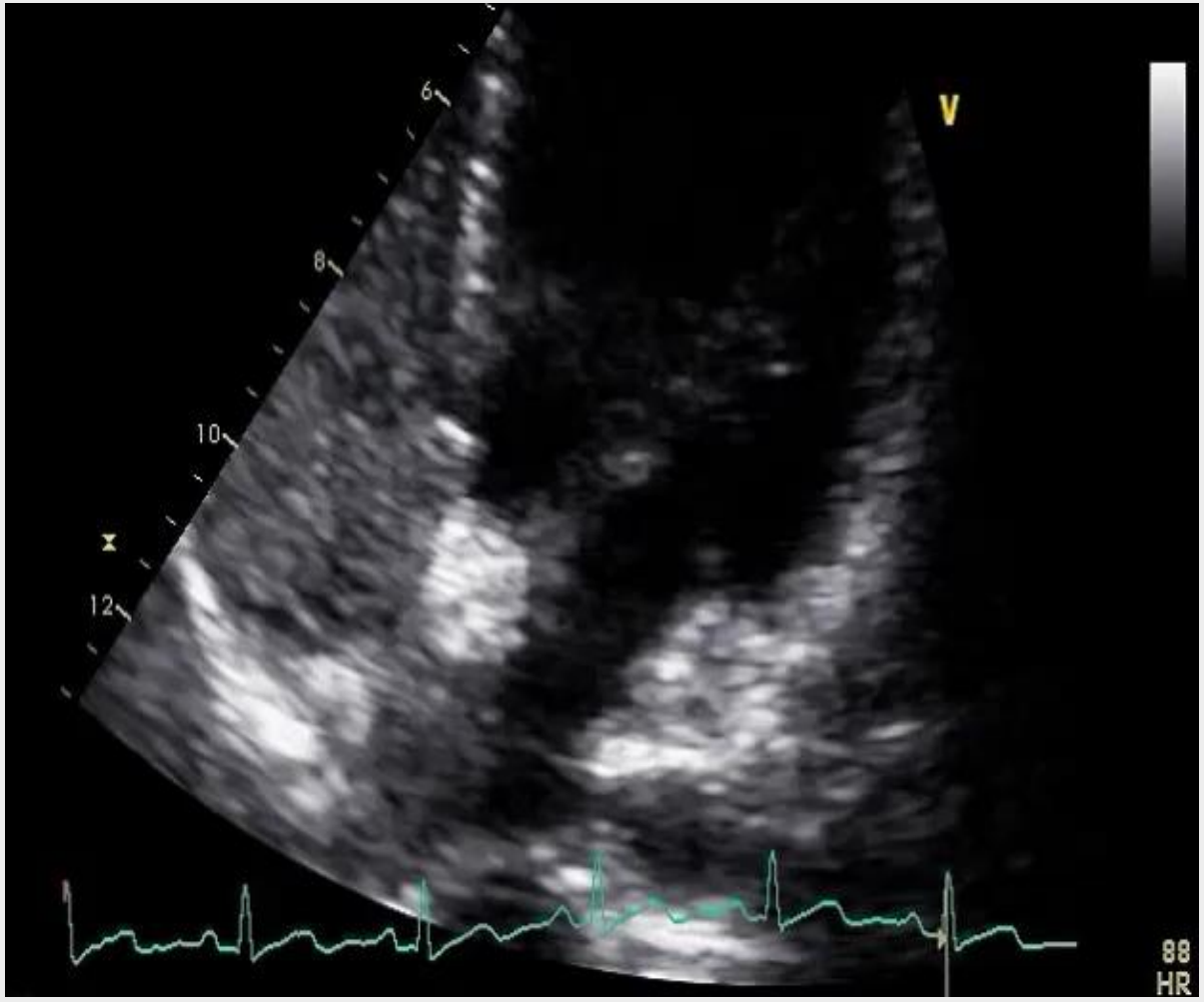


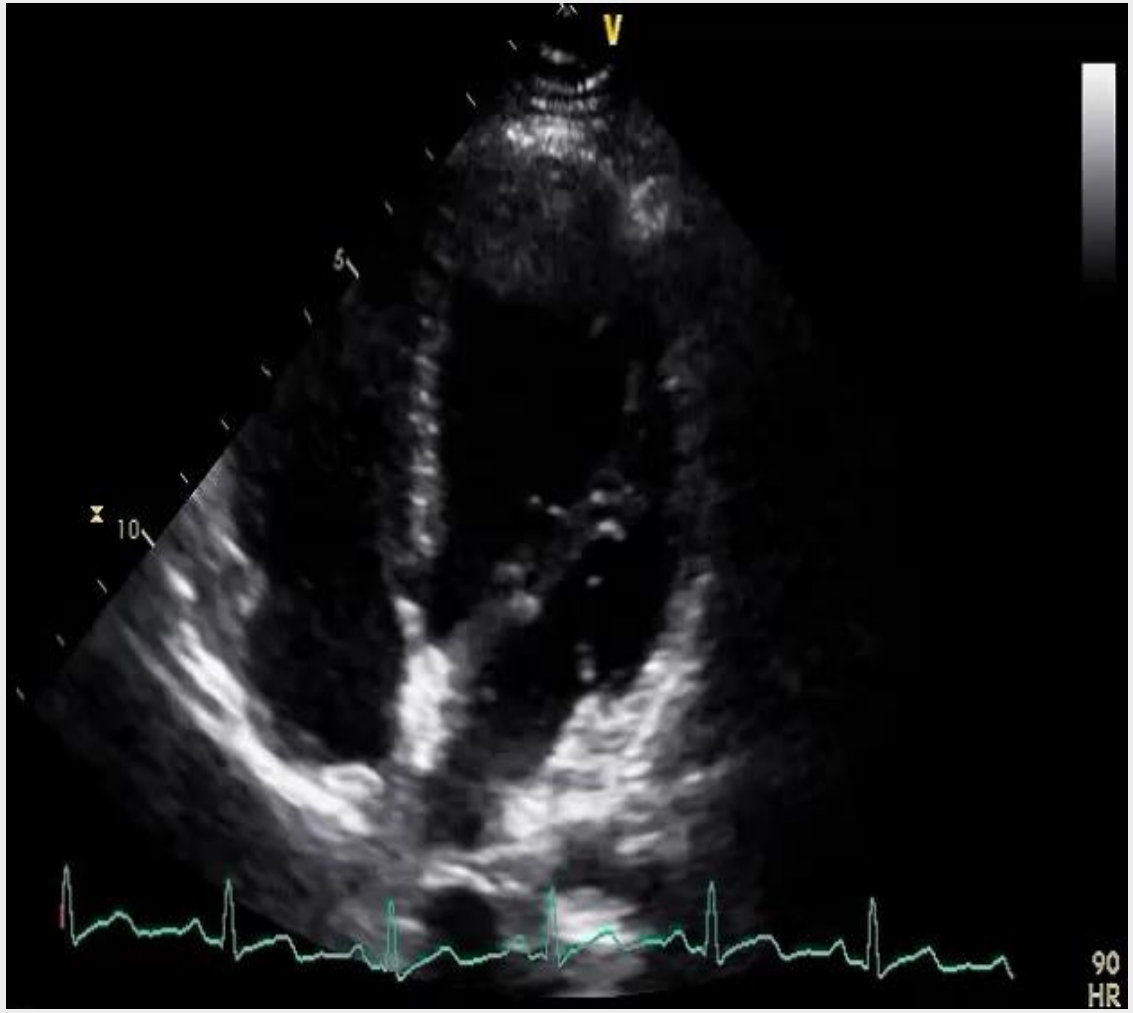


F/U chest X-ray



F/U Contrast Echocardiography





Summary; P-AVM

1. Etiology

1) About 80% of P-AVM are congenital.

2) Acquired P-AVM is related to injury, mitral stenosis or actinomycosis caused by chest trauma or chest surgery.

2. Clinical symptoms

; hemorrhage from a ruptured P-AVM and various neurological complications such as cerebrovascular accidents from brain abscess and paradoxical embolism may occur.

3. Management

1) In the past, surgical resection was the first approach used.

2) However, because of high surgery-related morbidity and mortality, **endovascular embolization with coil or balloon is currently preferred.**

; we demonstrated a successful coil embolization case.

Discussion Point

- **Diagnosis and follow up of P-AVM?**
  Transthoracic Contrast Echocardiography and Chest CT scanner examination are the two main tools.
- **Clinical Indication of closure in P-AVM?**
  1). Progressive enlargement of the lesions
  2). Paradoxic embolization
  3). Symptomatic hypoxemia
  4). Feeding vessels diameter of 3 mm or larger
- **Methodology of shunt closure in P-AVM?**
  Surgery or Embolotherapy
- **Possible complication during the embolization?**
  hemorrhage, vascular disruption after balloon dilation, pain, arterial or venous obstruction from thrombosis or spasm.

Thank You for Your Attention!!

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