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National Military  
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# Complexities in Managing Malignant Pulmonary Artery Stenosis: Difficult Decisions in a Patient with Prior Pneumonectomy

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# Disclosure

Speaker name: Clayton Brittingham

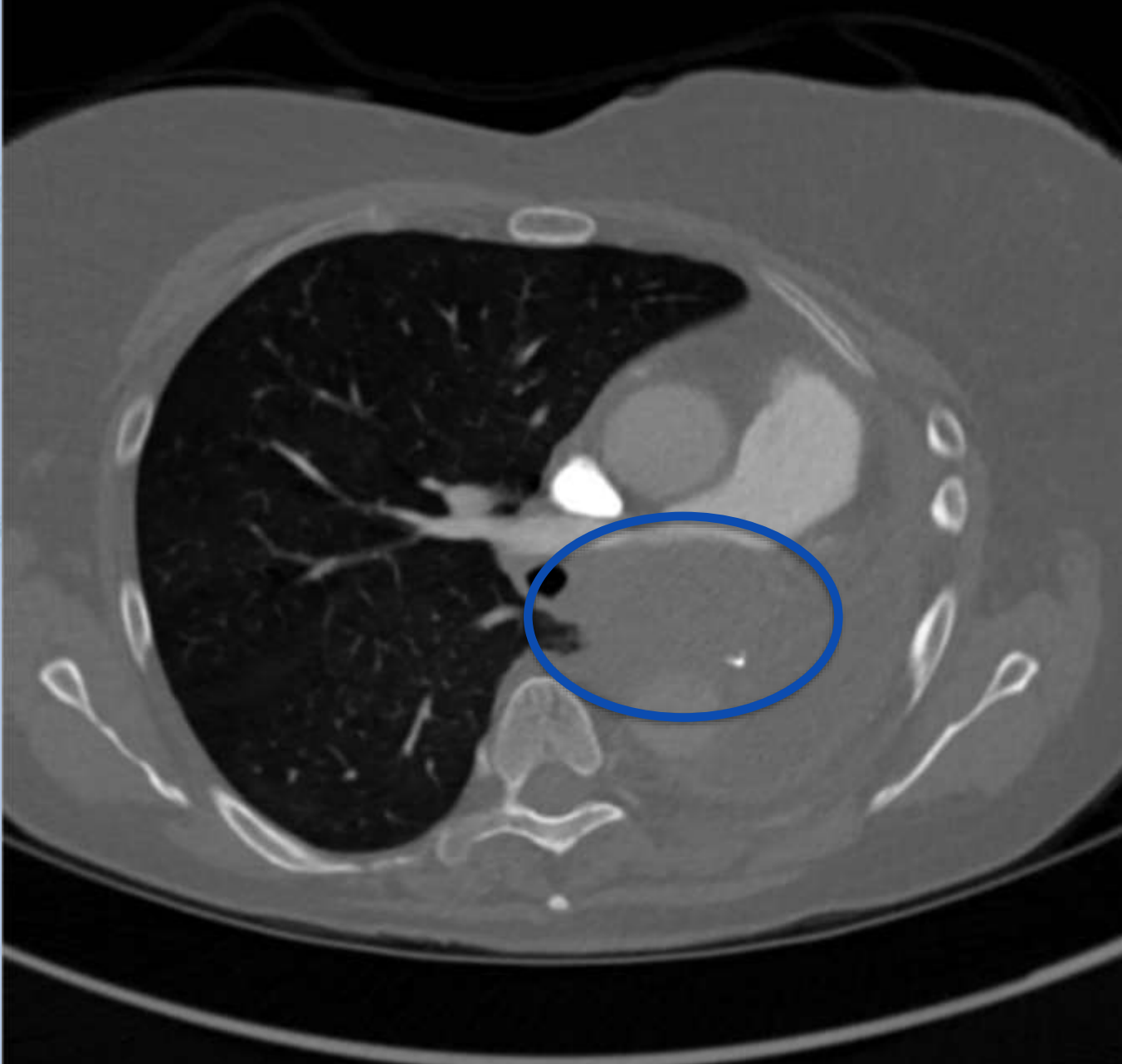
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I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)
  
- I do not have any potential conflict of interest

# Case

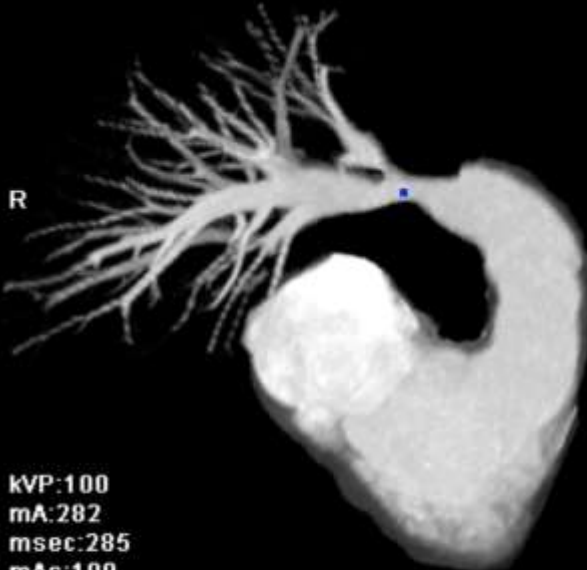
- 60-year-old caucasian female presenting with **acute** shortness of breath, exertional dyspnea, and hemoptysis
- PMHx: Stage IIa squamous cell carcinoma status post left pneumonectomy



30 Jan 2017  
11:05:58

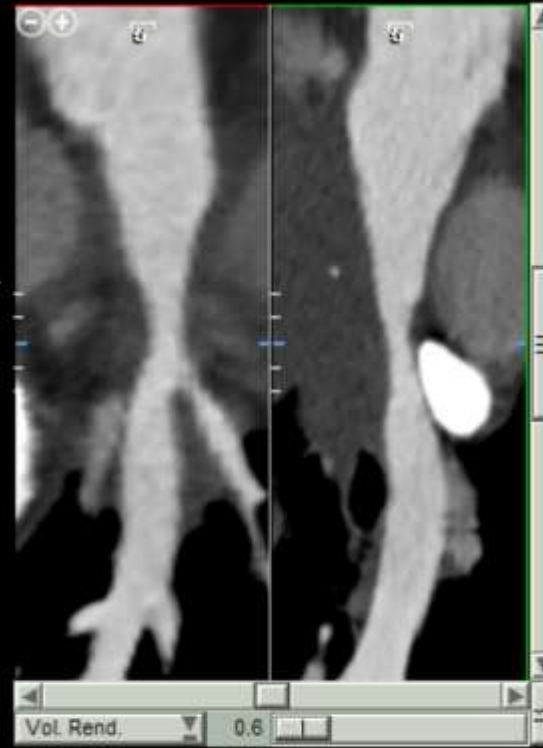
S

CT  
CT, THORAX, WITH CONTR  
STANDARD 2.0



KVP:100  
mA:282  
msec:285  
mAs:100  
Thk:2 mm  
SOMATOM Definition Flash  
Orient: 27°,27°,29°

L



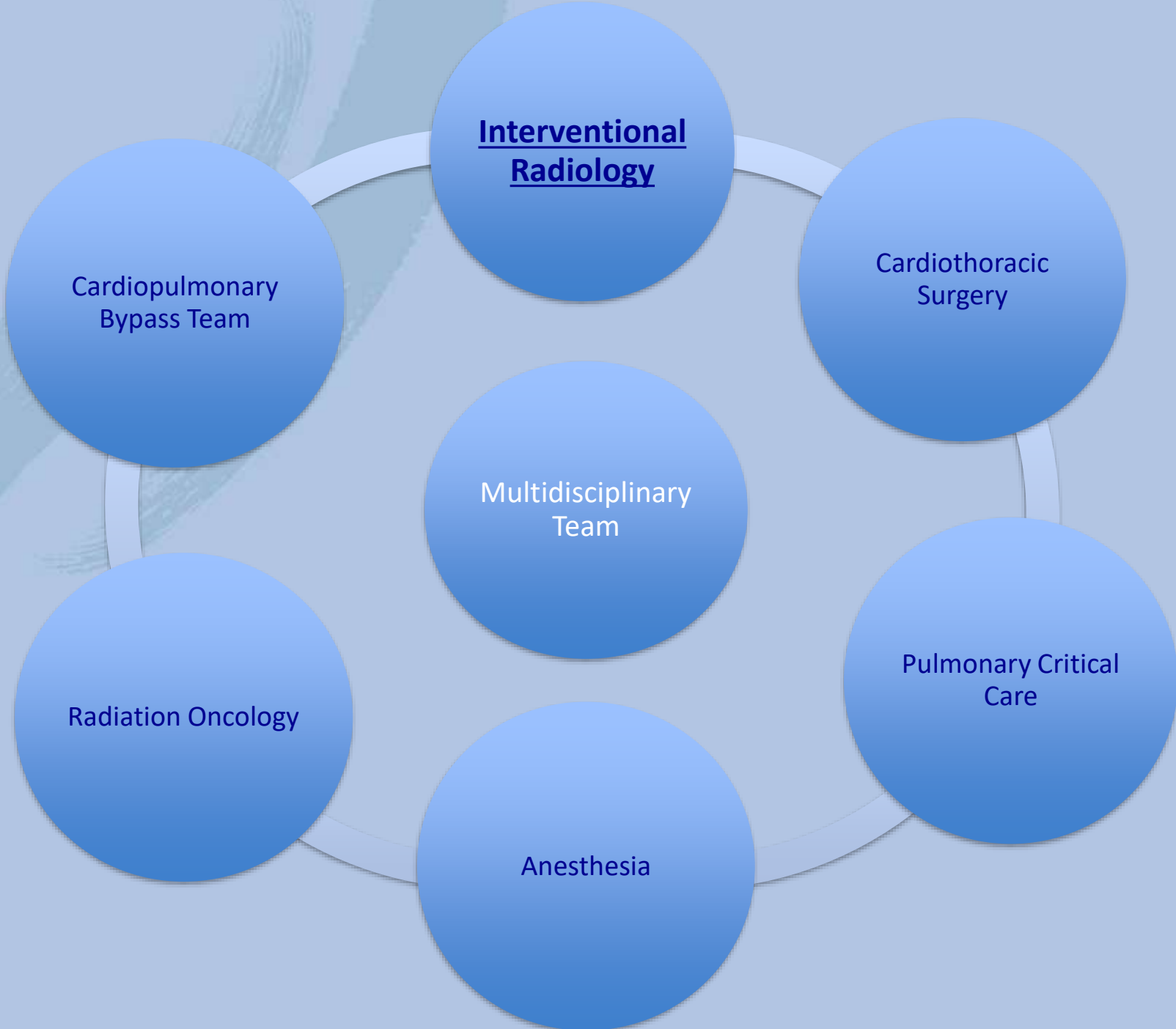
W/L:1000/300  
MIP Segmented  
Vessel 1

# Brain Natriuretic Peptide (BNP)

- 14 DEC 2016: 325 pg/mL
- 30 JAN 2017: 9270 pg/mL

# Transthoracic Echocardiogram

- 14 DEC 2016:
  - 1) PA systolic pressure, 28.4 mmHg
- 01 FEB 2017:
  - 1) Right atrial and ventricular enlargement
  - 2) PA systolic pressure, 89.3mmHg



**Interventional Radiology**

**Cardiothoracic Surgery**

**Multidisciplinary Team**

**Pulmonary Critical Care**

**Anesthesia**

**Cardiopulmonary Bypass Team**

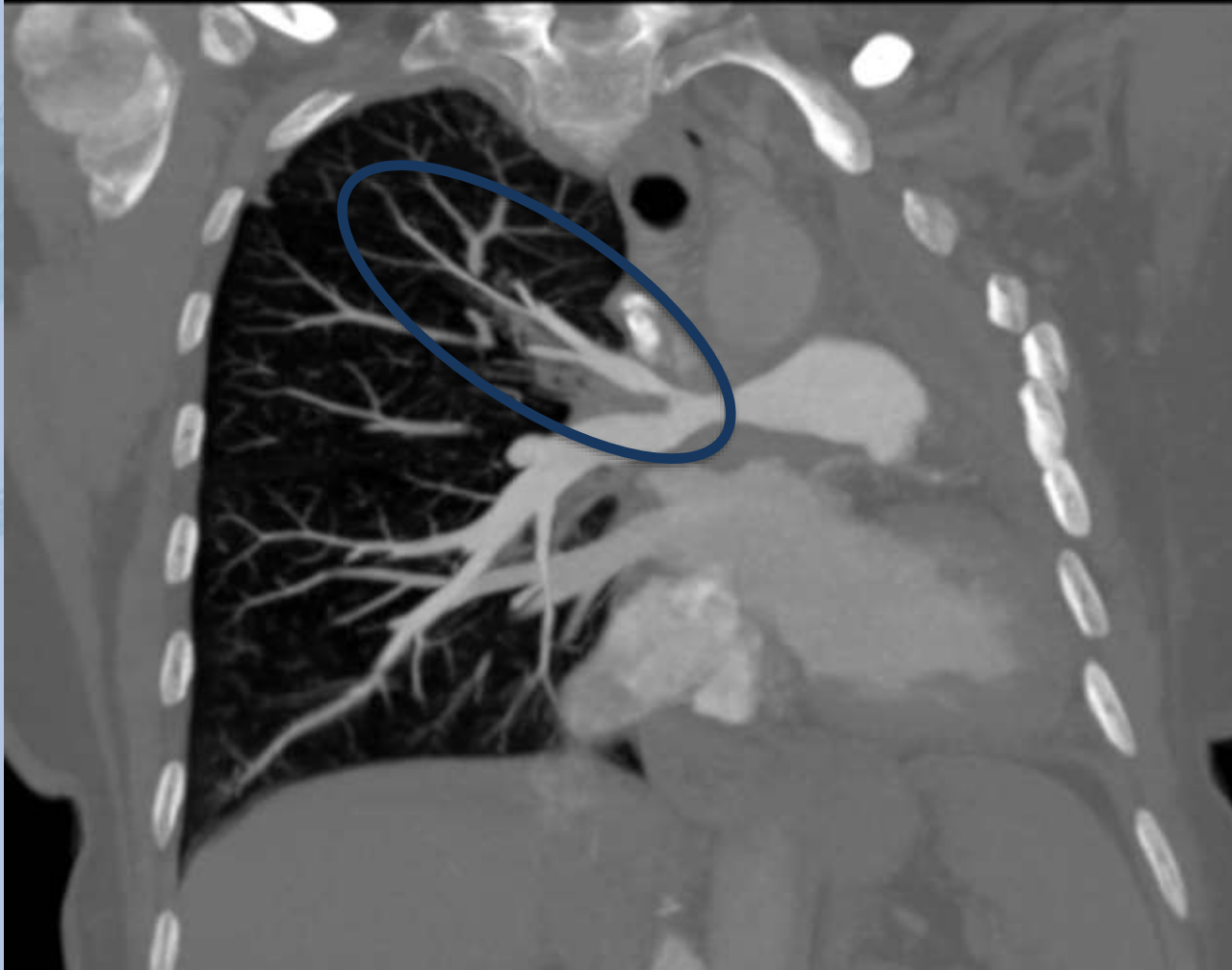
**Radiation Oncology**

# Intervention

- Patient deemed an adequate candidate for radiation therapy
  - However, pre-treatment stent needed to prevent occlusive swelling



# Stent Selection





Cardiothoracic  
Surgery

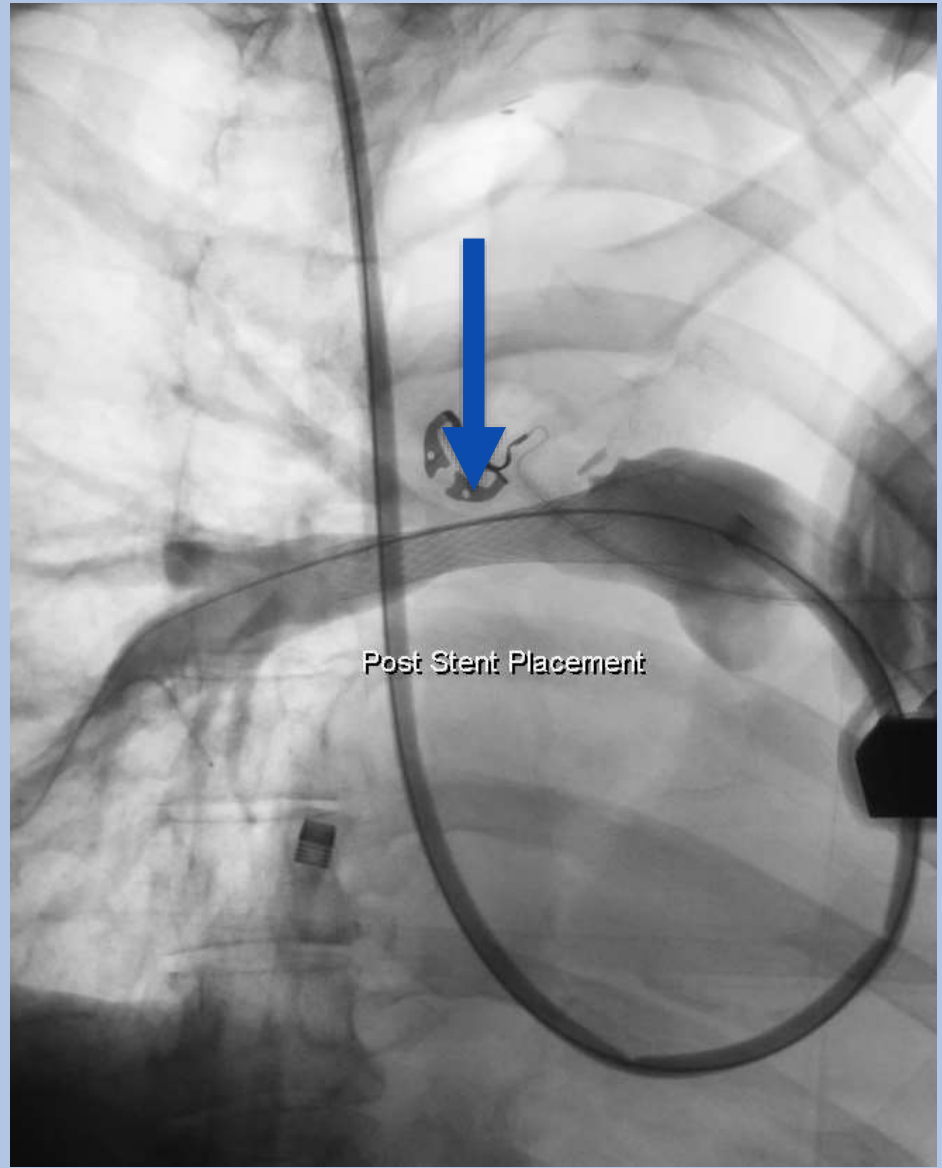
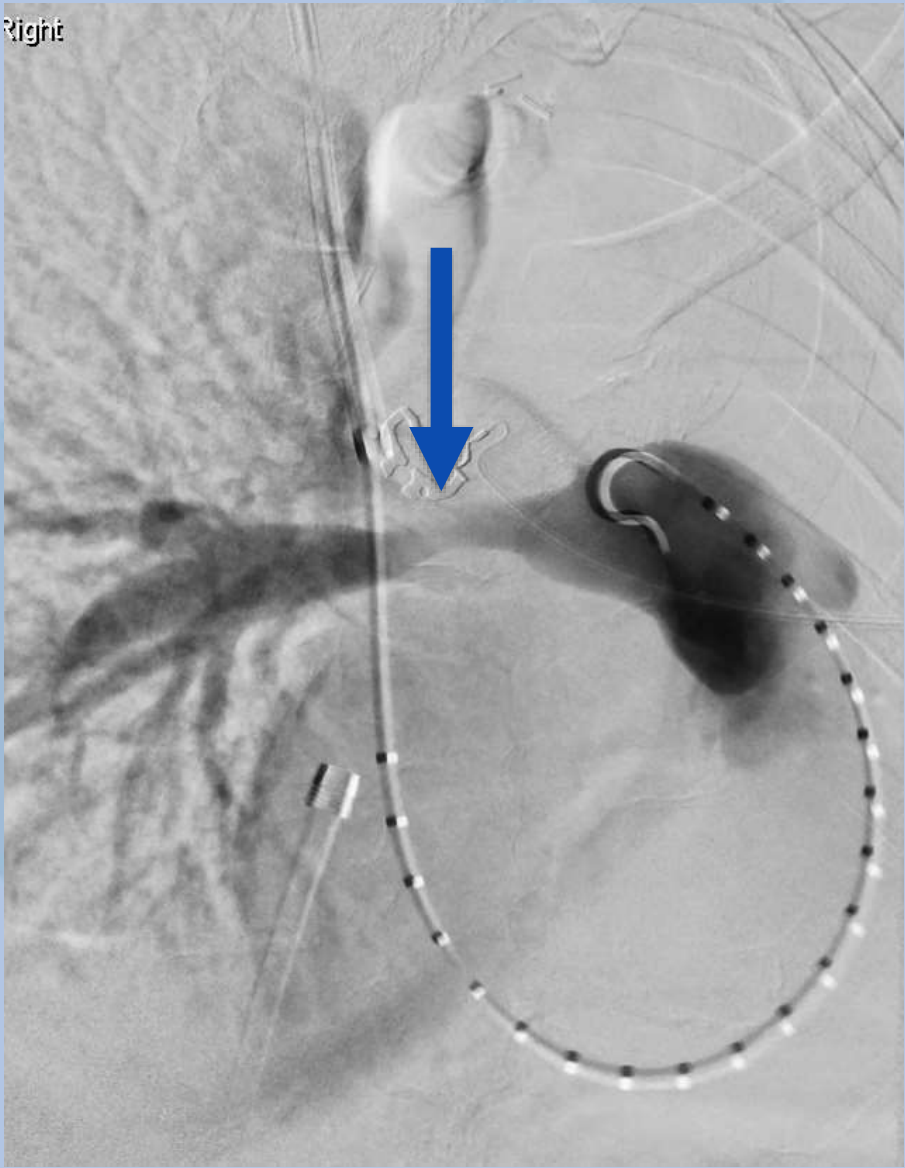


Cardiopulmonary  
Bypass Machine

Right Groin Cut-  
Down Done in IR  
SUITE



Right

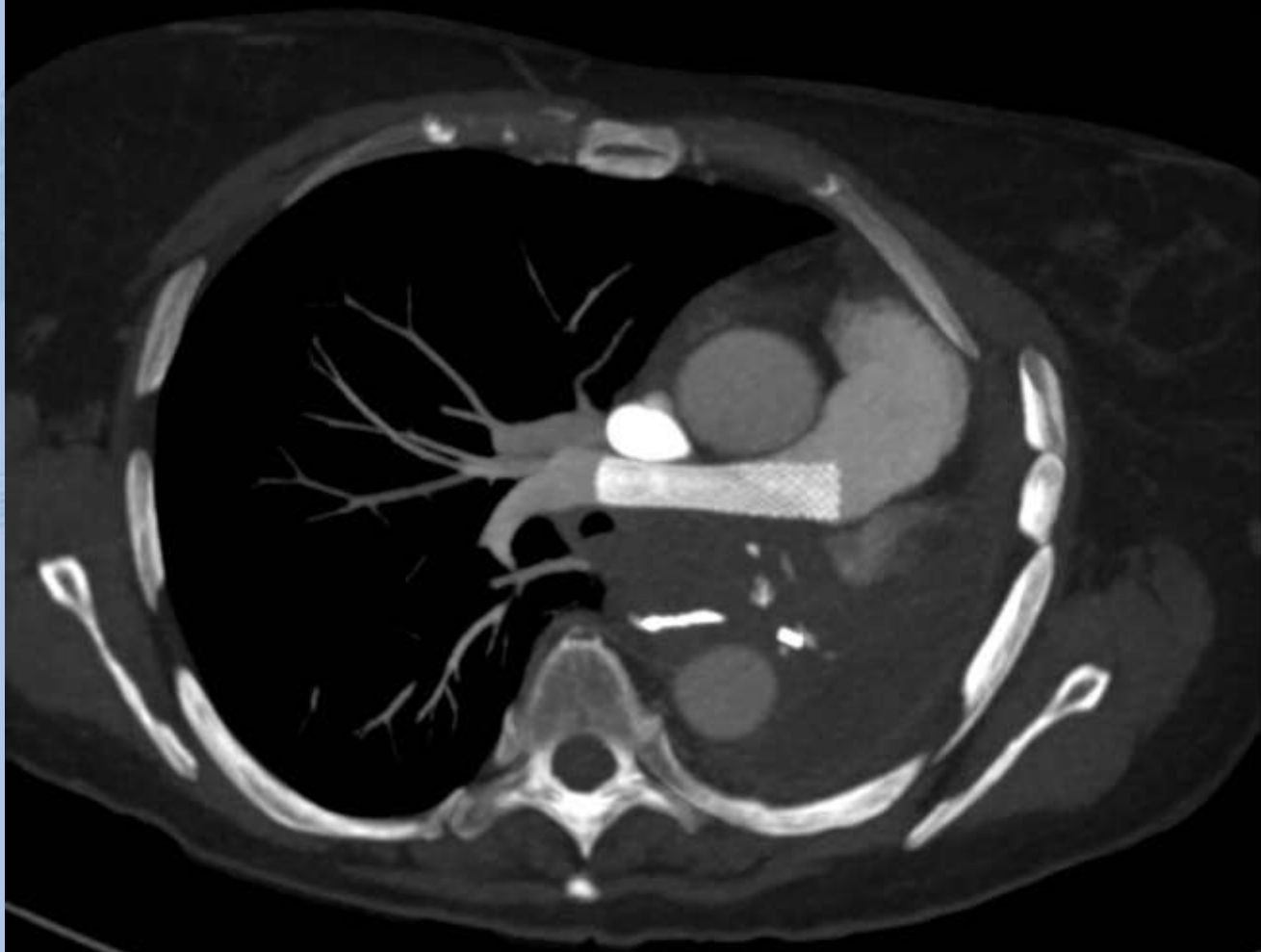


# Anticoagulation

- No significant literature covering this topic
- High flow through the pulmonary artery should prevent thrombus formation without anticoagulation
- However, stent failure would be fatal to the patient

# Follow Up

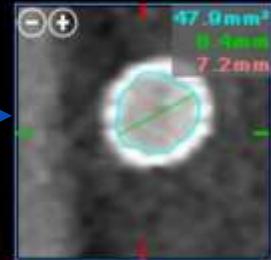
- Patient did well over the next week during her stay in the intensive care unit
- Reported a “90%” improvement in her shortness of breath



09 Feb 2017  
11:37:26

S

CT  
Thorax\_ROUTINE\_NONCO  
THINS



R



L

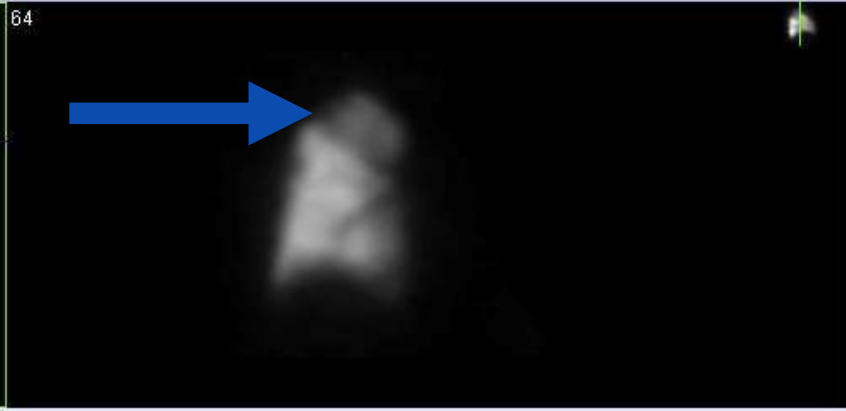
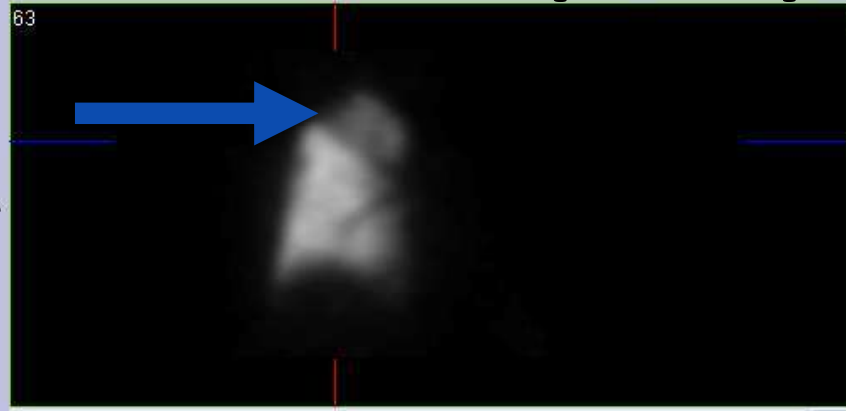


KVP:100  
mA:406  
msec:285  
mAs:144  
Thk:0.6 mm  
SOMATOM Definition Flash  
Orient: 3°,-7°,10°

W/L:1203/452  
MIP  
Vessel 1

Vol Rend. 0.6

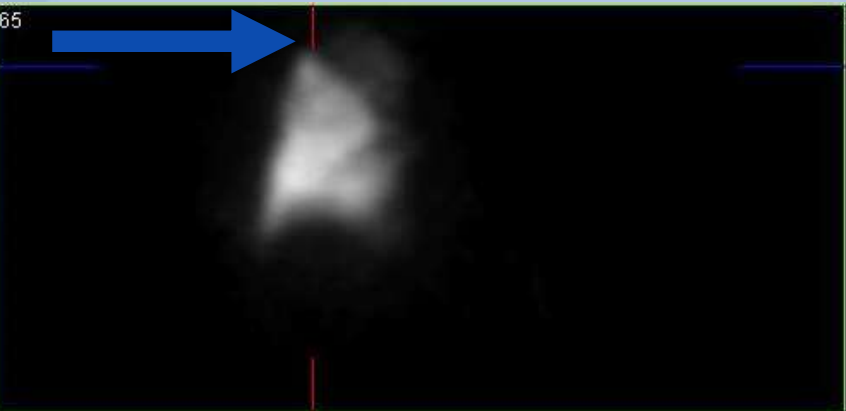
# Pre Stent (13%)



Anterior to Posterior

A: (B:0%,T:100%)

# Post Stent (11%)



Anterior to Posterior

A: (B:0%,T:97%)



# Radiation Therapy

- Day 6 :
  - First radiation treatment
- Day 7 :
  - Acute respiratory failure
- Bedside bronchoscopy:
  - Diffuse tissue breakdown
  - Tumor invasion
  - Small airway hemorrhage (oozing)
- Day 9 – Family withdrew care

# Discussion

- Stenting of malignant pulmonary artery stenosis is a highly complex procedure that presents a variety of unique challenges
- Pulmonary artery stents are effective in the urgent and palliative treatment of malignant pulmonary artery stenosis
- A multidisciplinary approach is paramount to appropriately manage these patients

# References

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# Questions

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