

Top 5 Tips and Tricks Radioembolization

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Disclosures

Consultant

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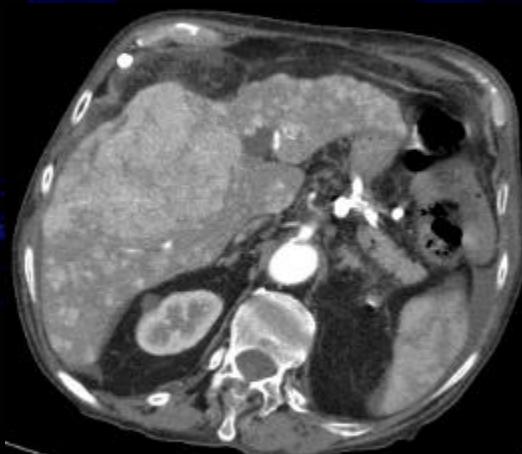
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Tip #1 (Pick a Fair Fight)



Patient Selection

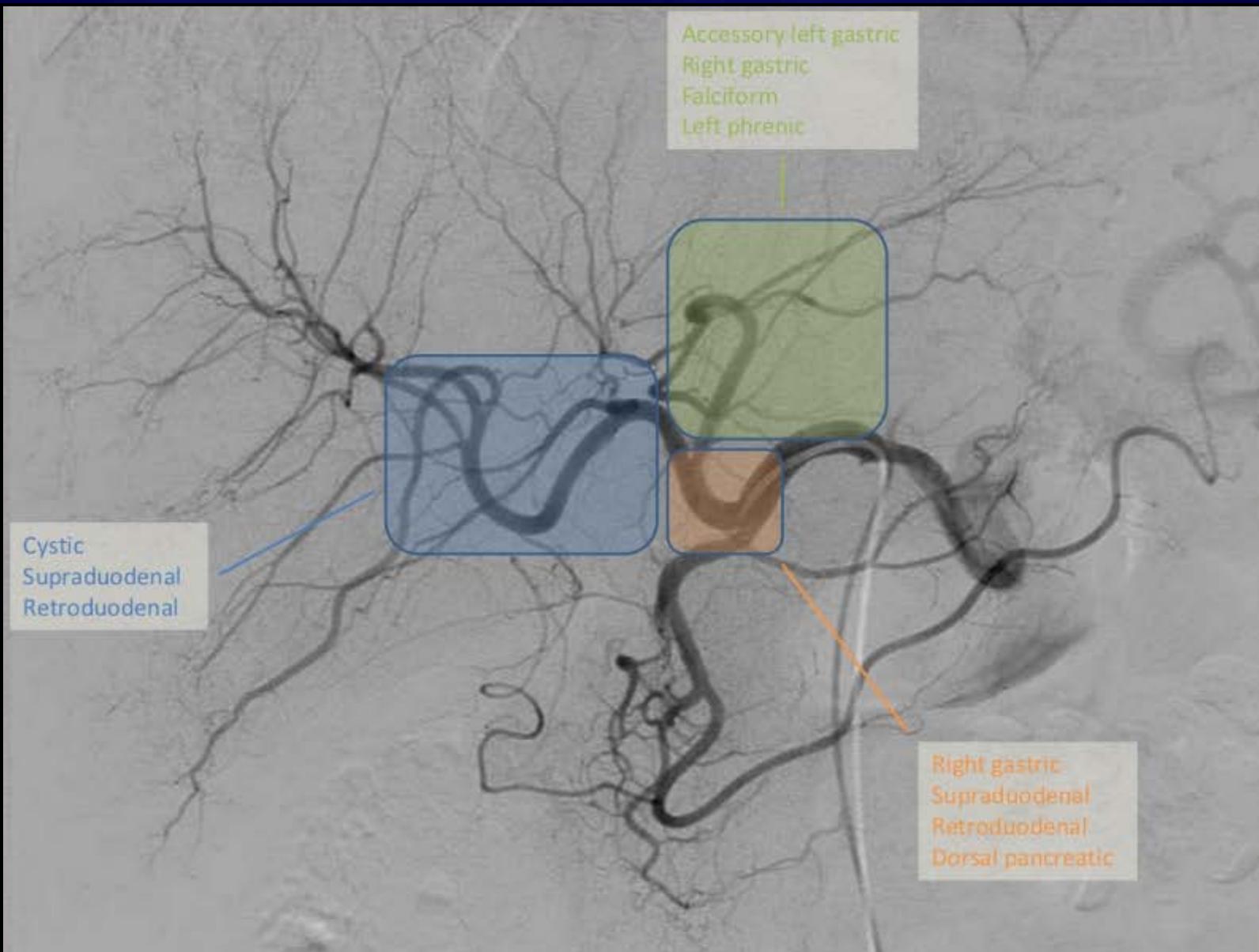
- ▶ Liver Function (CPT or ALBI, look at trend)
- ▶ ECOG Performance Status (Generally between 0-1)
- ▶ Tumor Burden (Generally < 50-70%)
- ▶ Prior therapies and embolization (TACE or Chemo)
- ▶ Prior radioembolization



Tip #2 (Know Your Territory)



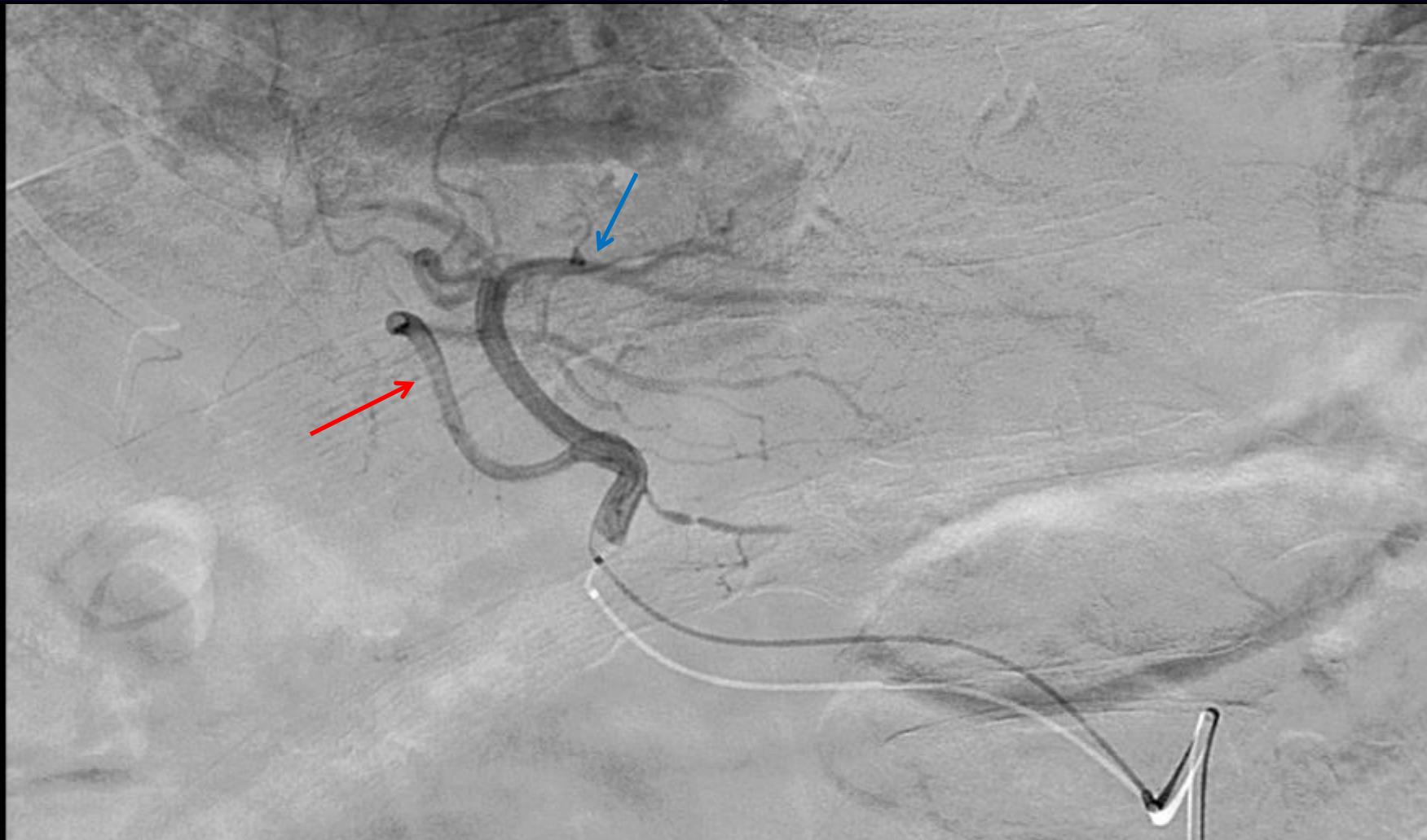
Know Your Anatomy



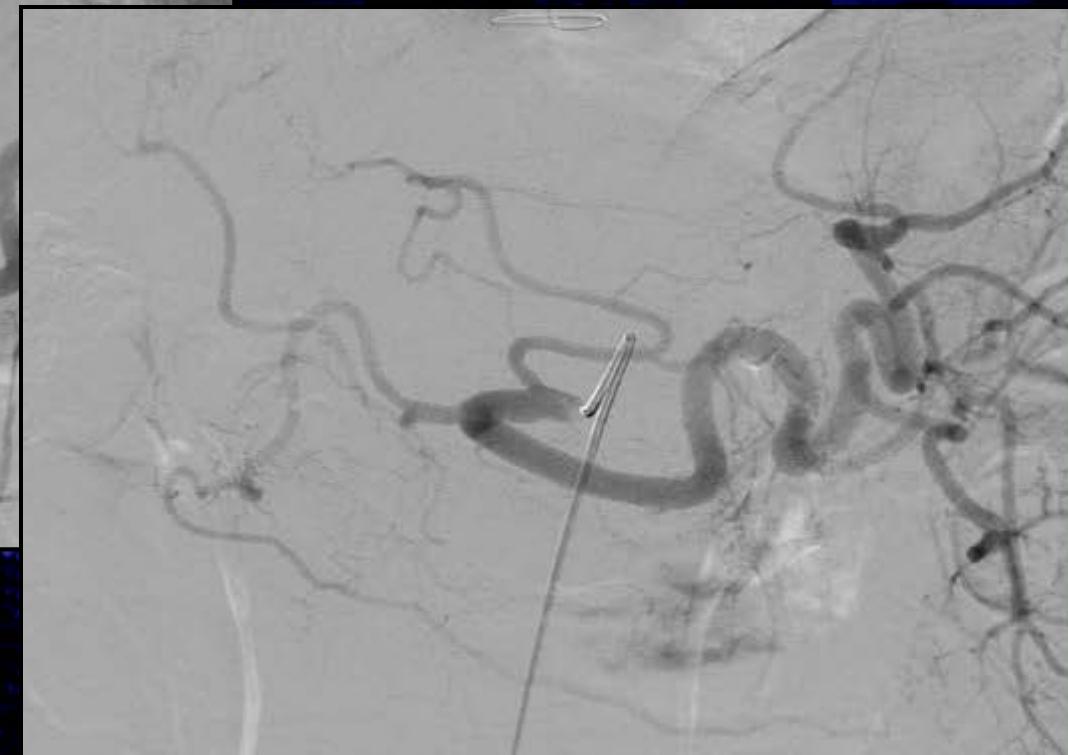
Left Hepatic Artery



Separate S2 and S3



Gastro-Hepatic Trunk

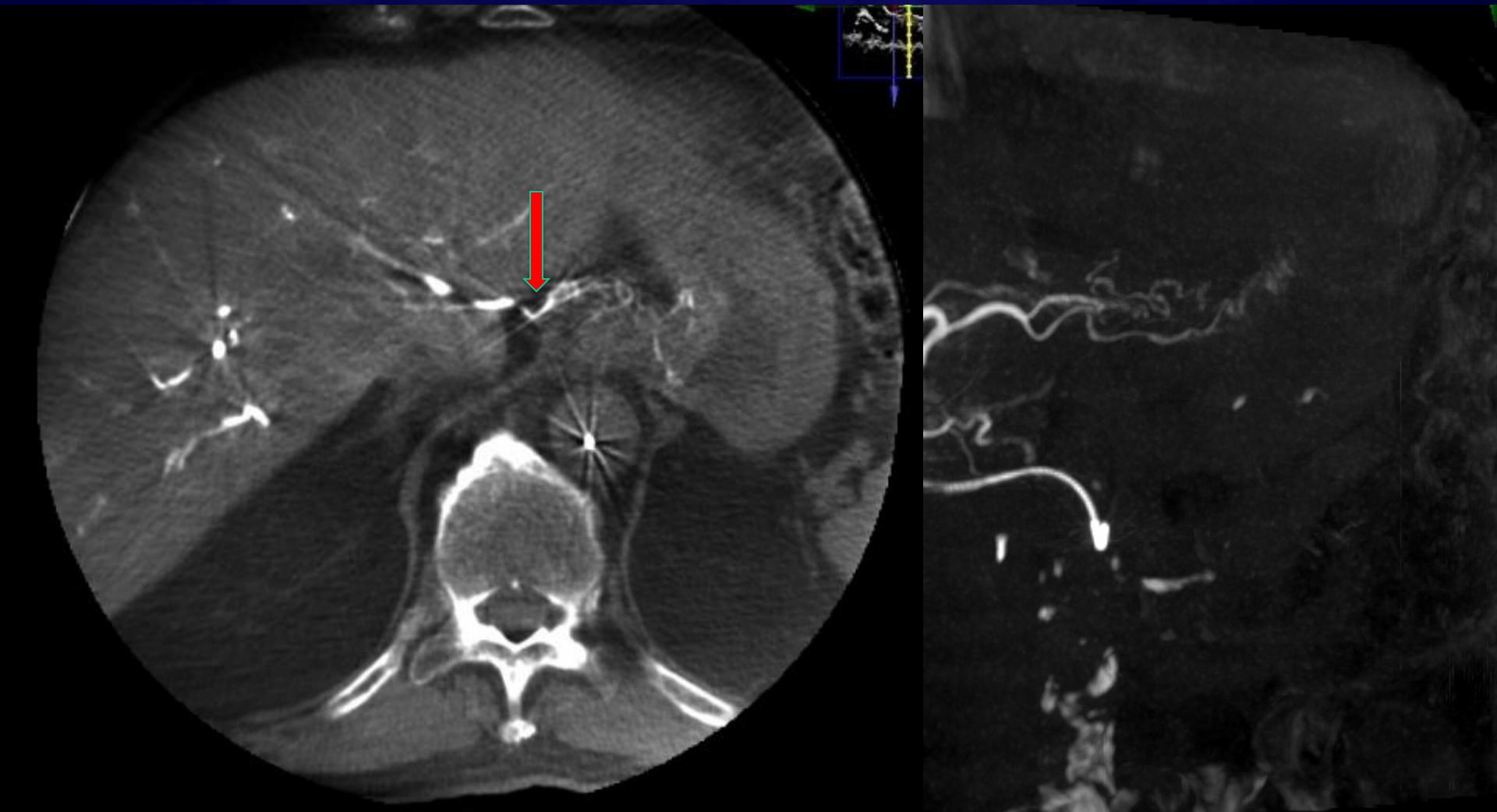


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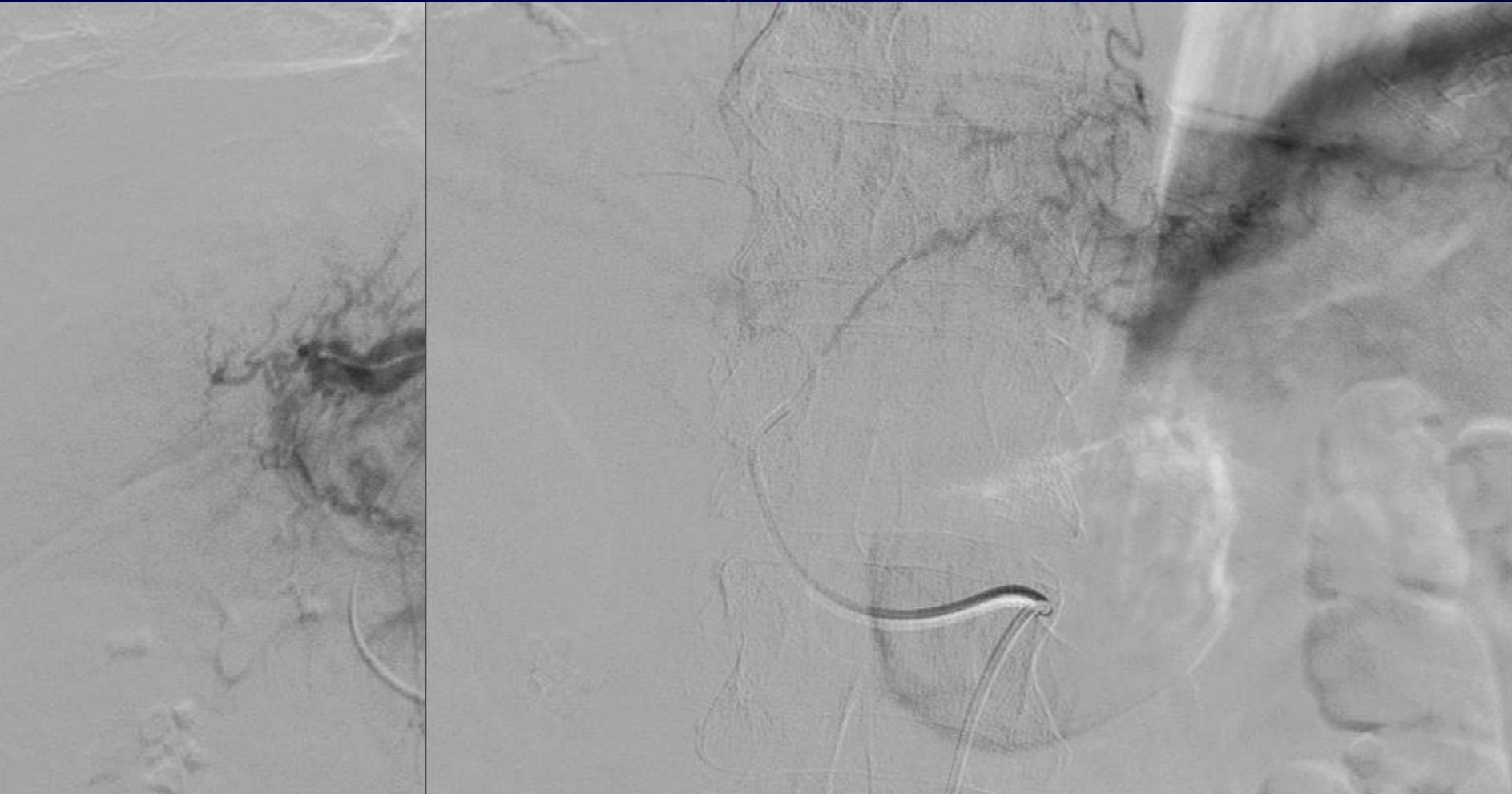
Accessory Left Hepatic Artery



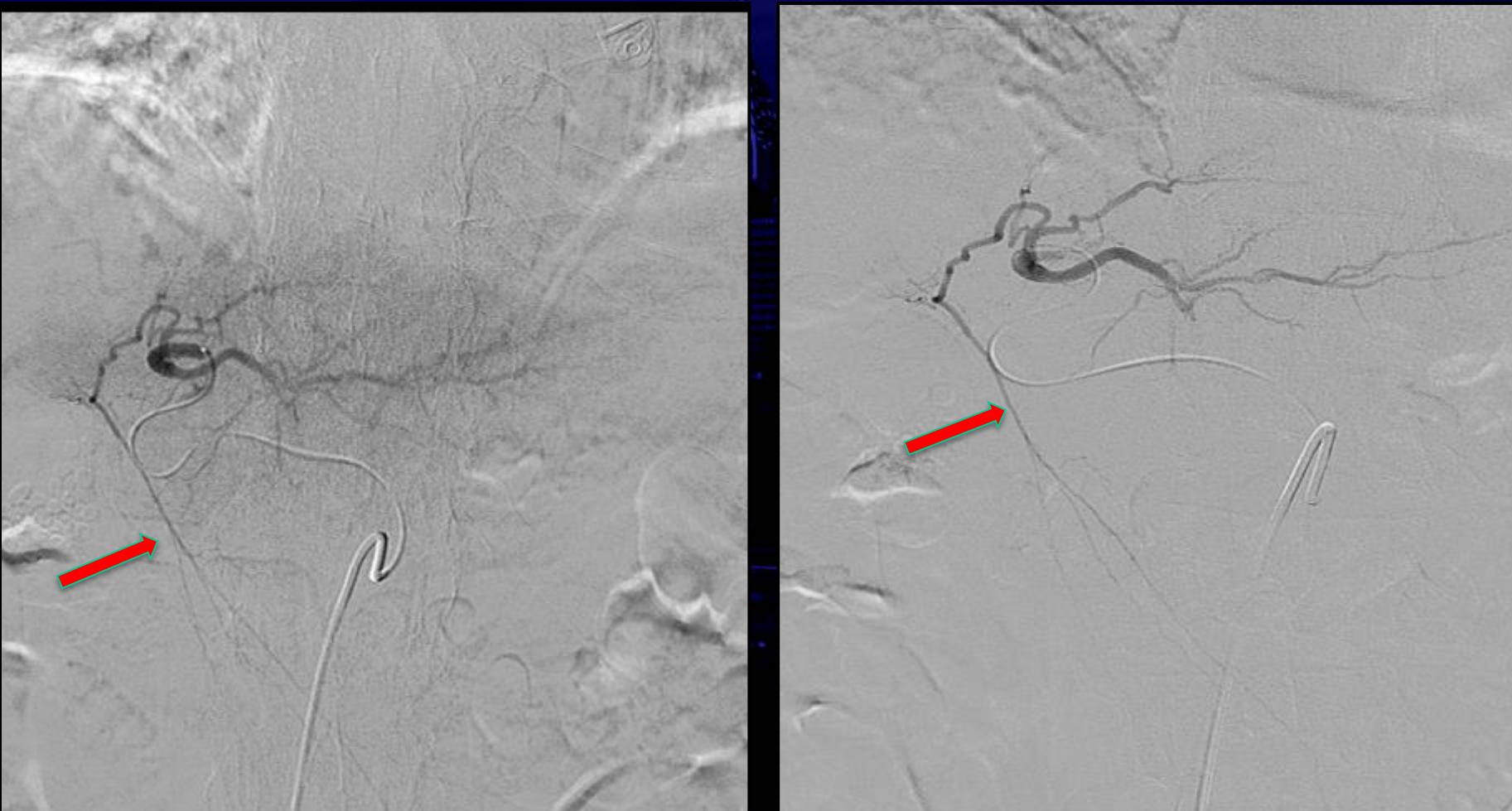
Accessory Gastric Artery



Inferior Esophageal Artery



Falciform Off LHA



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Right Gastric Artery



- Proper Hepatic 55%

- LGA 20

- CFA 5%

- RA 5%

- RA + LGA

- RA + CFA

- RA + LGA + CFA

- RA + LGA + CFA + LGA

- RA + CFA + LGA

- RA + CFA + LGA + LGA

- RA + CFA + LGA + LGA + LGA

- RA + CFA + LGA + LGA + LGA + LGA

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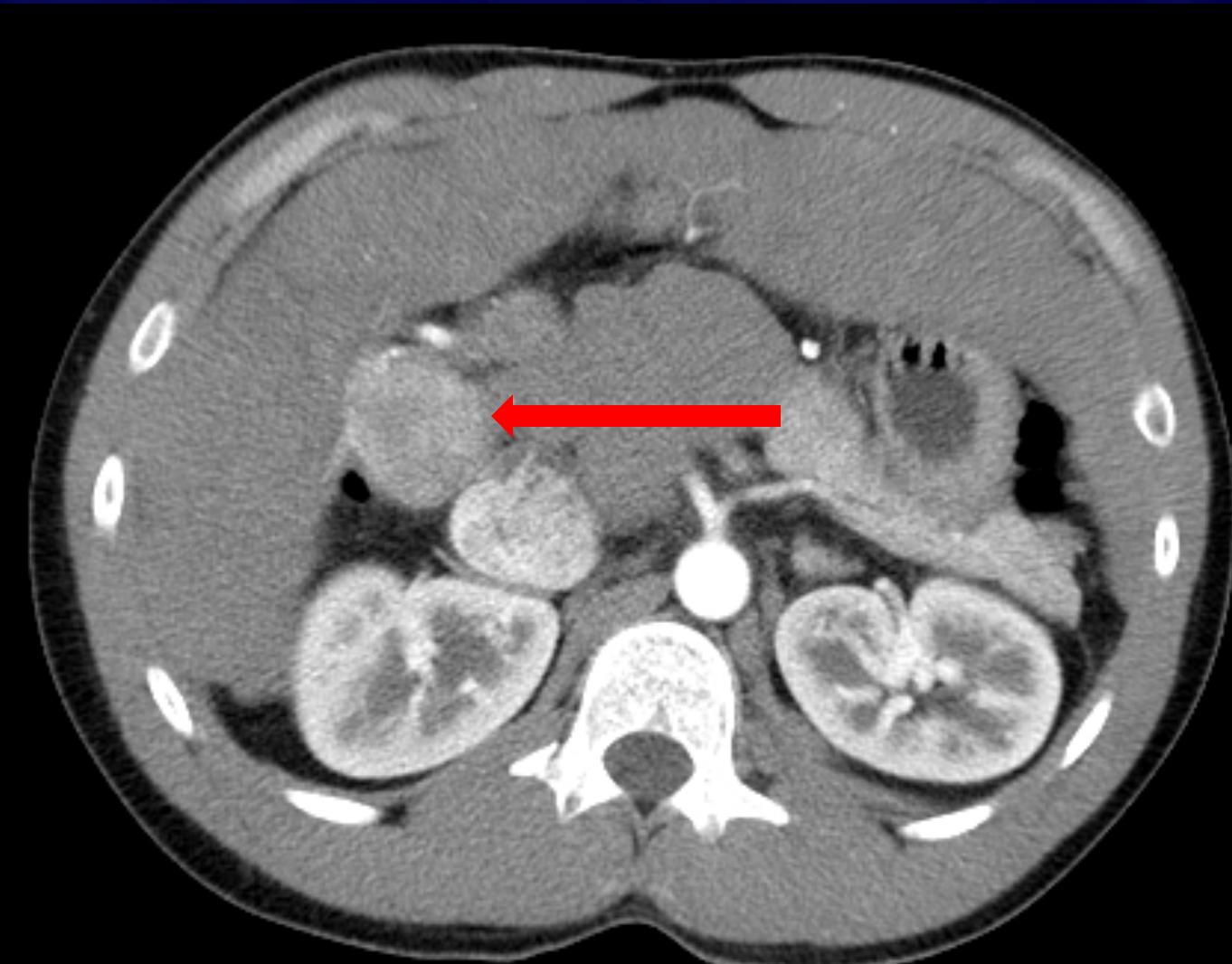
- RA + CFA + LGA + LGA

Tip #3 (Go with the Flow)



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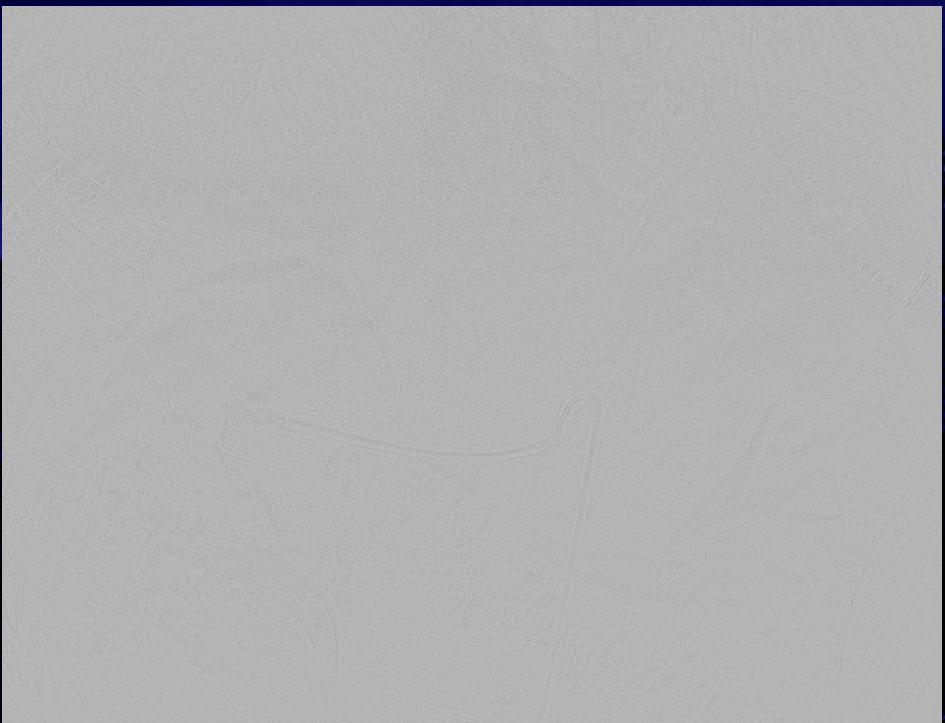
Simulate Normal Flow and Confirm with CBCT



Flow



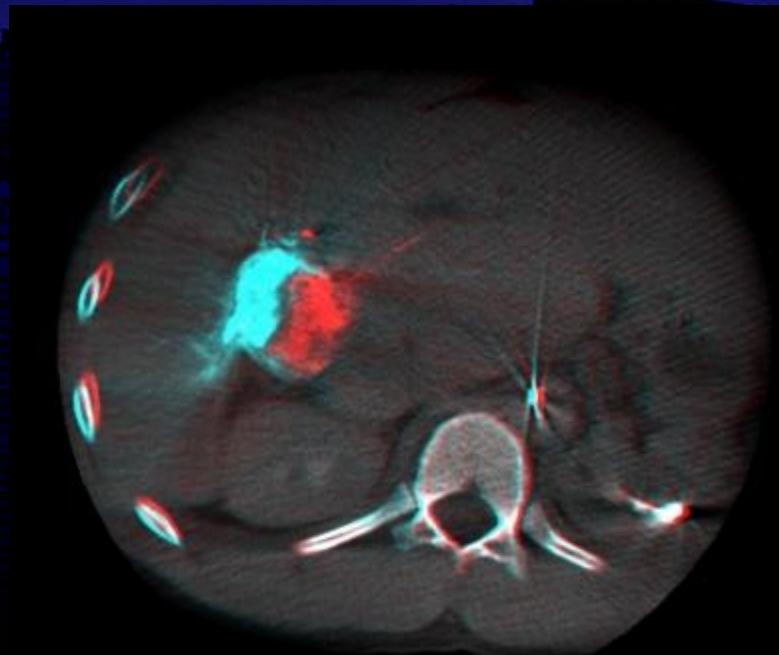
0.5 cc/sec to Simulate Thera Injection



Left Injection



Post Y90 SPECT

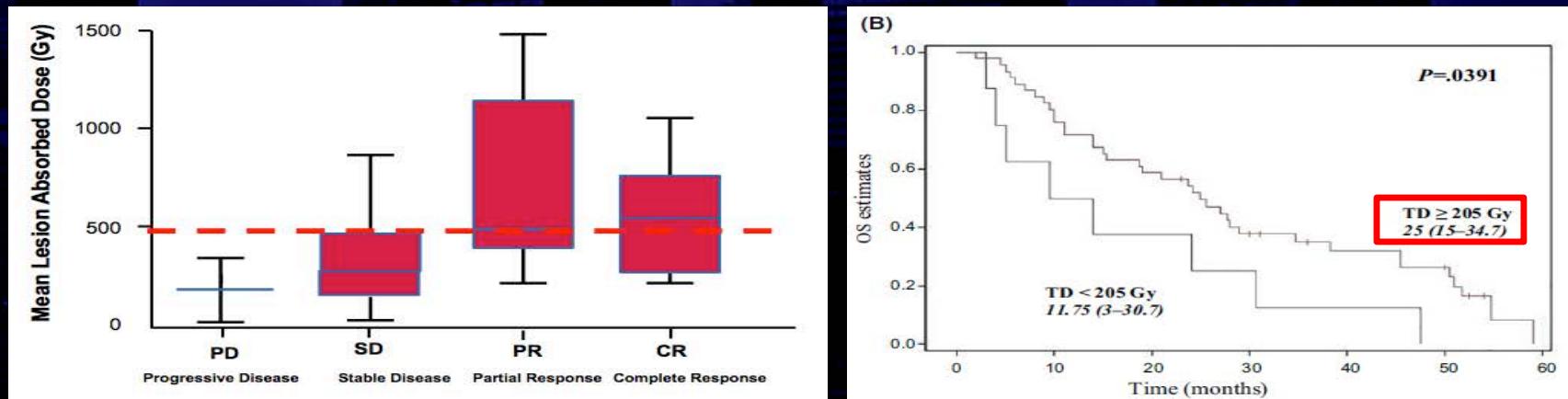


Tip #4 (Absorbed Dose – Reach Threshold)



Increased Tumoral Target Dose (HCC)

- ▶ Survival and PVT: 26.7 m if ≥ 205 Gy (Garin, et al.)
- ▶ Increased Objective Response ≥ 500 Gy (Mazzaferro, et al.)
- ▶ Increased Pathologic Necrosis ≥ 190 Gy (Vouche L.)

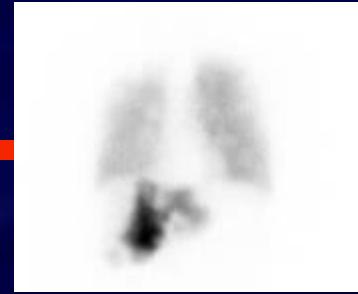


Radiation Dosage	Complete Necrosis	Partial Necrosis	Total
<190Gy	3	9	12
>190Gy	14	7	21
Total	17	16	33

Tip #5 (Know When to Punt)



Beware of Increased Lung Shunts



- ▶ Prevention of Radiation Pneumonitis
 - ◆ Arterio-venous shunting in neoplastic vasculature
 - ◆ Tc-99m MAA scans used to assess lung shunt fraction and lung dose
 - ◆ Exclude patients with lung shunting that could result in lung radiation dose $> 25\text{-}30 \text{ Gy}$ per treatment or $> 50 \text{ Gy}$ cumulative dose

SIR-Spheres	
Lung Shunting	Reduction Factor
<10%	No Reduction
10-15%	20% Reduction
15-20%	40% Reduction
>20%	No Treatment

Lung Dose per Treatment $< 25 \text{ Gy}$

TheraSphere	
Lung Dose Limit	Gy
Per Treatment	30 Gy
Cumulative	50 Gy

Top 5 Tips/Tricks Recap

1. Patient Selection
2. Know Your Anatomy (Beware of Left)
3. Understand Flow and Use CBCT to Verify
4. Absorbed Dose
5. Be Careful of High Lung Shunts (Tumor Biology)



Thanks!

