# Radioembolization Tumor Lysis and Segmental Seeding: Unusual Progression After Segment 7 Radioembolization

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## Purpose:

- Yttrium-90 (Y-90) radioembolization is an established treatment for liver-dominant metastases.
- Post-treatment progression is usually **systemic** or **multi-segmental**.
- This case presents a **highly localized recurrence** pattern confined predominantly to the **treated angiosome**.
- Such a pattern is **rare and underreported**, particularly in the setting of Y-90 treatment for lung cancer metastases.

## Case Summary:

- A 59-year-old female with a history of stage IV lung adenocarcinoma presented with a solitary 5.2 cm hypervascular liver metastasis, localized to segment 7.
- Pre-procedural mapping and angiography confirmed segmental perfusion, and she underwent **successful segmental Y-90 radioembolization** targeting segment 7 and 1.
- Initial imaging demonstrated a favorable treatment response, with no evidence of residual enhancement or distant metastases.
- Follow-up imaging multiple new hepatic lesions predominately confined to segment 7.
- Ultrasound biopsy of segment 7 lesion was consistent with metastatic adenocarcinoma.

## Images:

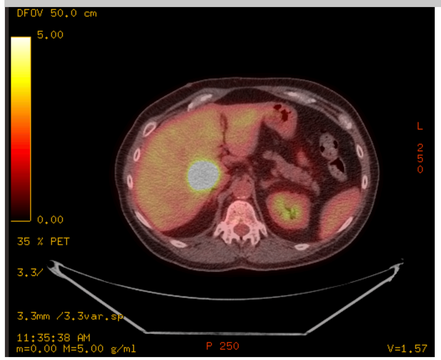


**Figure 1:** Pre-embolization Positron Emission Tomography (PET) scan demonstrating an avid segment 7 hepatic lesion .

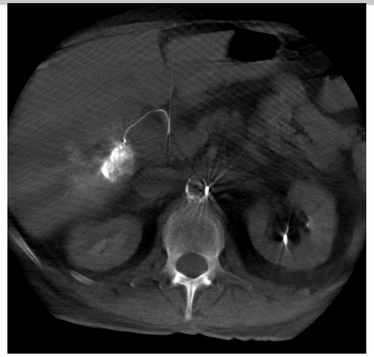

**Figure 2:** Selective contrast injection cone beam CT showing the segment 7 mass.

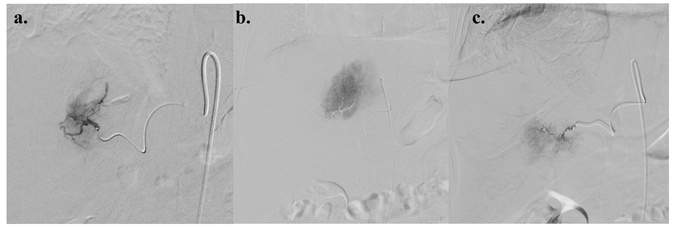


**Figure 3:** Super selective hepatic angiograms of segment 7 (a) and segment 1 (b) demonstrating target tumor enhancement as well as an additional tumor feeder (c).

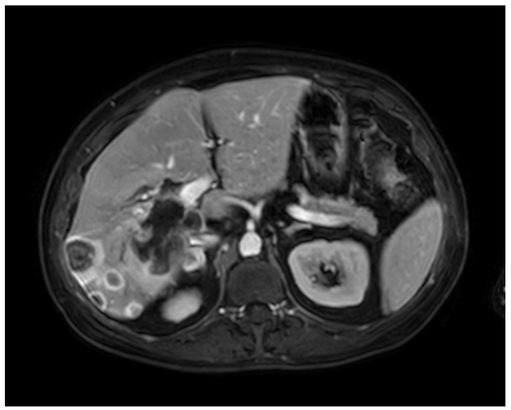

**Figure 4:** T1 post gadolinium contrast axial Magnet Resonance Image (MRI) demonstrating multiple new rim enhancing lesions in only the distal segment 7 zone.

## Discussion & Hypothesis:

- This recurrence pattern is **rare and highly atypical.**
- This **segmentally confined** pattern suggests a **distinct post-treatment mechanism**.
- We propose a hypothesis of “tumor lysis with vascular release”
- Other plausible contributors include:
  - **Radiation-induced immune suppression**
  - **Microscopic disease escape**
  - **Y-90-induced hypoxia and inflammation**

## Conclusion:

- This is a **novel post-radioembolization recurrence pattern**, with implications for understanding tumor biology after Y-90 and investigating mechanisms of **local recurrence** and **segmental progression**.

- Highlights the need for deeper exploration of **Angiosomal treatment effects**, **embolization-induced microenvironmental changes** and the role of inflammation and angiogenesis in tumor resurgence.

**References**


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