

Right Hepatic Glass Y90 Treatment Using TriNav[®] in Patient with HCC Shows Improved Tumor Targeting Compared to Standard Microcatheter Used in Mapping Procedure

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OVERVIEW

A patient diagnosed with hepatocellular carcinoma (HCC) was treated with glass Y90. The mapping procedure was performed using a standard microcatheter and the glass Y90 treatment was delivered using a TriNav Infusion System. MR imaging obtained 5 weeks post-treatment demonstrates complete imaging response. Comparing the post-MAA SPECT-CT and post-Y90 SPECT-CT from this case demonstrates how TriNav was used to achieve preferential delivery to the tumor, deeper tumor penetration, and less non-target activity in surrounding hepatic parenchyma.

PATIENT HISTORY

An 86-year-old male with a history of hypertension, type II diabetes, hyperlipidemia, and peripheral vascular disease presented with a 7.4 x 6.2 x 5.9 cm biopsy proven HCC tumor involving segments 6/7 (Figure 1). The patient was not a surgical candidate due to age and medical comorbidities, and so was referred for treatment with glass Y90 to be delivered via posterior division of the right hepatic artery.

TREATMENT

The mapping procedure was performed using a standard microcatheter. Tc-99m MAA was injected via the posterior division of the right hepatic artery through a standard high-flow microcatheter. Figure 2 shows procedural angiography with the microcatheter placed within the posterior division of the right hepatic artery for delivery to segment 6/7. Post-MAA SPECT-CT demonstrates minimal radiotracer activity within the target tumor and intense activity in the surrounding hepatic parenchyma (Figure 4).

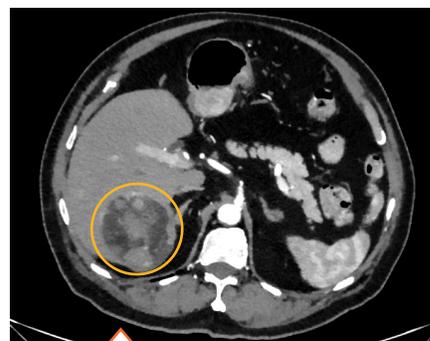


Figure 1: Pre-treatment CT showing 7x6 cm biopsy proven HCC in segment 6/7.



Figure 2: Procedural angiography showing the standard microcatheter in place within the posterior division of the right hepatic artery for delivery to segment 6/7 (yellow arrow).



Figure 3: Procedural angiography showing TriNav in place within the posterior division of the right hepatic artery for delivery to segment 6/7 (yellow arrow).

The treatment procedure was performed using a TriNav Infusion System. Figure 3 shows procedural angiography with the tip of the TriNav placed in the same position to that of the MAA infusion. No reflux was observed during contrast injection from where the TriNav was seated in a curved part of the vessel. Glass Y90 particles were delivered via TriNav and post-Y90 SPECT-CT demonstrates preferential delivery to the target tumor (Figure 5).

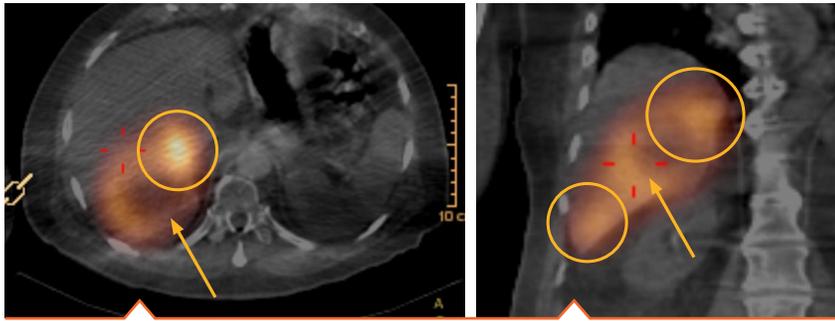


Figure 4: Post-MAA SPECT-CT imaging in axial (left) and coronal (right) projections. Tc-99m MAA was injected via the posterior division of the right hepatic artery through a standard microcatheter. SPECT-CT demonstrates minimal radiotracer activity within the target tumor (yellow arrows) and intense activity in the surrounding hepatic parenchyma (yellow circles).

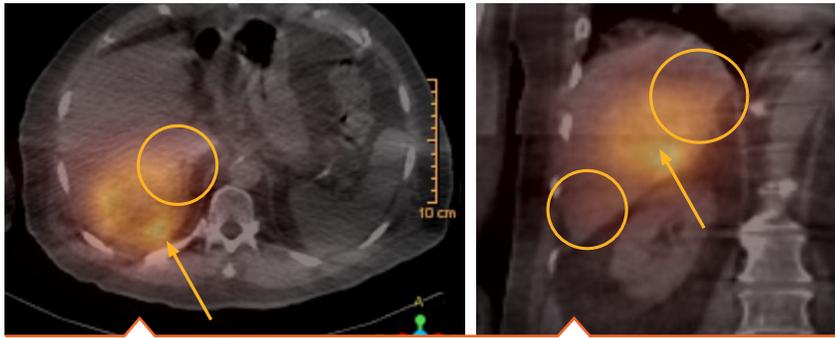


Figure 5: Post-Y90 SPECT-CT imaging in axial (left) and coronal (right) projections. Glass Y90 particles were delivered using TriNav via the posterior division of the right hepatic artery. SPECT-CT demonstrates preferential delivery to the tumor (yellow arrows), and less non-target activity in surrounding hepatic parenchyma (yellow circles) compared to MAA delivery using standard microcatheter.

Axial and coronal contrast enhanced T1 weighted MR images obtained 5 weeks after Y90 treatment demonstrate complete imaging response (CR) according to mRECIST criteria (Figure 6). High signal tissue on axial image did not wash out on delayed phase imaging and was deemed low suspicion for residual viable tumor.

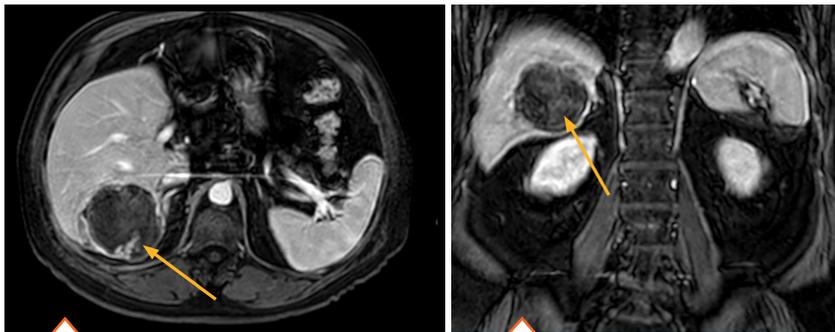


Figure 6: Axial (left) and coronal (right) contrast enhanced MR images obtained 5 weeks after Y90 treatment demonstrate complete imaging response (CR) according to mRECIST criteria. High signal tissue on axial image did not wash out on delayed phase imaging and was deemed low suspicion for residual viable tumor.

DISCUSSION

Comparing the post-MAA SPECT-CT (Figure 4) and post-Y90 SPECT-CT (Figure 5) from this single patient case demonstrates how TriNav was used to achieve preferential delivery to the target tumor and deeper tumor penetration compared to MAA delivery using a standard microcatheter. Furthermore, intense MAA activity can be seen in the surrounding hepatic parenchyma using a standard catheter (Figure 4, yellow circle) but less non-target activity is seen in the post-Y90 SPECT-CT after treatment with TriNav (Figure 5, yellow circle). This demonstrates how TriNav may be used to achieve a favorable T:N ratio for glass Y90 delivery.

CONCLUSION

This case demonstrates how TriNav may be used to achieve preferential delivery to the tumor, deeper tumor penetration, and less non-target activity in surrounding hepatic parenchyma for glass Y90 treatment.

ABOUT THE AUTHOR

Sam McCabe is Associate Professor of Clinical Radiology, VIR Division, at New York Medical College/Westchester Medical Center. His clinical interests include interventional oncology, portal hypertension, hepatobiliary disease, and vascular embolization.

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INDICATIONS FOR USE: The TriNav Infusion System is intended for use in angiographic procedures. It delivers radiopaque media and therapeutic agents to selected sites in the peripheral vascular system.

CONTRAINDICATIONS: TriNav is not intended for use in the vasculature of the central nervous system (including the neurovasculature) or central circulatory system (including the coronary vasculature).

Rx ONLY. For the safe and proper use of the TriNav device, refer to the Instructions for Use.