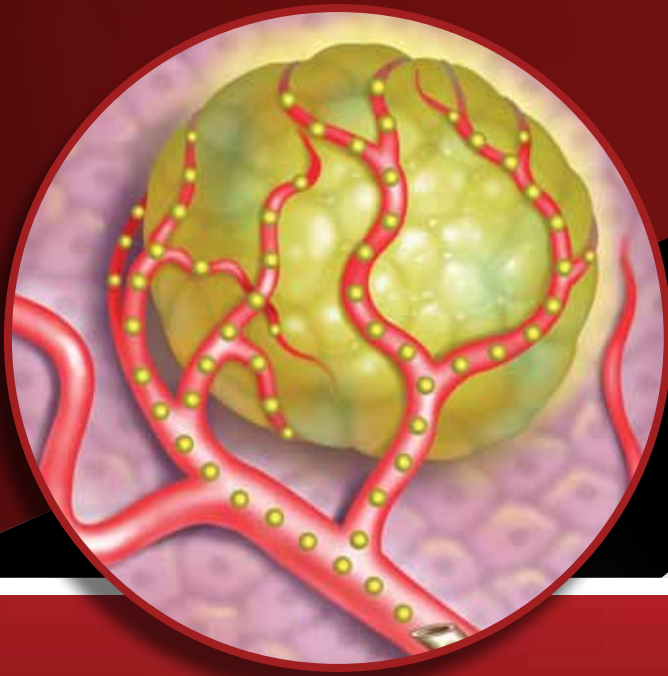


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SIRT Y-90 CASE STUDY



**Radioembolization in Secondary Hepatic Tumors
from Primary Colorectal Cancer to Extend
Progression Free Survival**



SYNERGY
RADIOLOGY ASSOCIATES®

an affiliate of **MEDNAX®**

SIRT Y-90 CASE STUDY

Overview

Selective Internal Radiation Therapy (SIRT) with yttrium-90 (Y-90) glass microspheres has gained increasing acceptance as a treatment option in patients with unresectable primary hepatocellular carcinoma and unresectable metastatic liver tumors from primary colorectal cancer.

This minimally invasive, interventional radiology procedure takes advantage of the fact that primary and secondary hepatic tumors are vascularized mostly by arterial blood flow in comparison to healthy liver

parenchyma, which obtains its blood supply mainly from portal venous blood.¹ The microspheres lodge in the arterial microvasculature surrounding a tumor, thus maximizing tumoricidal effects while minimizing the impact on healthy tissue.²

We review the use of SIRT Y-90 in a 70-year-old patient determined to be a candidate for this minimally invasive therapy performed by a Synergy Radiology Associates interventional radiologist.

Discussion

The liver is the most common site of metastasis in patients with colorectal cancer, with progression of liver metastases being the primary cause of death.³

The most recent statistics report that 14 to 18 percent of patients with colorectal cancer exhibit metastases at the first medical consultation, with 10 to 25 percent presenting with metastases at resection of the primary colorectal cancer.³

SIRT treatment with SIR-Spheres (Sirtex Medical Limited) is a Category 2A recommended treatment based on 2016 National Comprehensive Cancer Network® (NCCN®) Clinical Practice Guidelines for colon cancer and rectal cancer.⁴ SIR-Spheres are the only fully FDA-approved microspheres for colorectal cancer that has metastasized to the liver.

Appropriate patient selection is critical to achieving optimal results and minimizing side effects of the SIRT

procedure. SIRT Y-90 should be used in unresectable liver cancer patients with:

- Liver-dominant or liver-only disease
- Good performance status (ECOG/WHO PS 0-2)
- Life expectancy > 3 months
- Adequate liver function (bilirubin <34 µmol/L or 2.0 mg/dL)⁵

Originally indicated for inoperable liver cancer, Y-90 SIRT is an appropriate option in chemotherapy resistant patients whose colorectal disease has spread to the liver. Synergy radiologists are now performing this advanced, minimally invasive procedure at several Memorial Hermann hospitals with good results. We present this recent case, which is performed by a Synergy radiologist and involves a multidisciplinary team approach to treatment.

Case History

A 70-year-old male patient presented with rectal bleeding. He reported an active lifestyle and no history of alcohol, smoking or drug use; previous mitral valvuloplasty (no anticoagulants) was noted. CT imaging of the abdomen and pelvis indicated a large ileocecal mass between the large and small intestine. The patient immediately underwent primary resection (right hemicolectomy, including cancerous mass) and was diagnosed with metastatic colorectal carcinoma (mCRC). Metastatic disease was discovered in 13 mesenteric lymph nodes, and wedge biopsy of the liver was diagnostic of mCRC. Staging was T4a N2a M1b.

Additional History

FDG PET-CT imaging showed multiple lesions in the right liver; no disease was seen in the left lobe. The patient then underwent port placement and four cycles of chemotherapy with FOLFOX and bevacizumab. Despite chemotherapy, the patient developed progression of disease with rising CEA levels.

The patient was then referred to Synergy for locoregional liver-directed SIRT Y-90 radioembolization treatment for unresectable right lobe cancer. Patients undergoing SIRT and chemotherapy may also be candidates for targeted therapies such as thermal ablation.

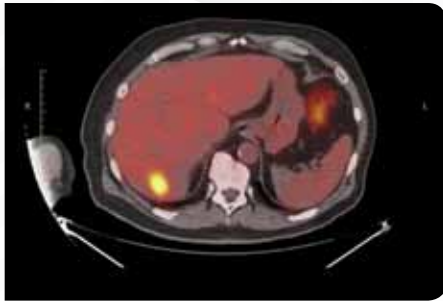
Clinical Summary

The post-treatment clinical course proceeded normally, and the patient was able to complete hepatic arterial anatomy mapping and intra-arterial infusion treatment phases on an outpatient basis.

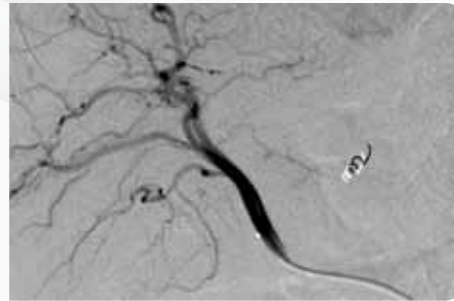
Mild fatigue and nausea was experienced for several days after treatment but was adequately controlled with oral medications. No symptoms of cholecystitis

were reported, despite the gallbladder being within the treatment zone. The patient was able to return to his active lifestyle within five days of treatment.

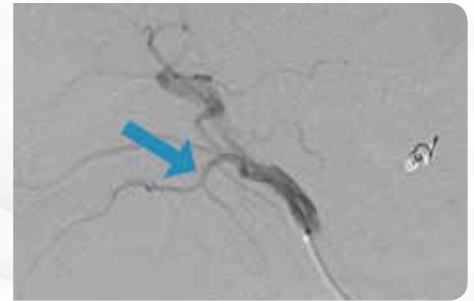
A two-month follow-up PET-CT showed no evidence of metabolically active disease in the liver, reflecting a **COMPLETE INITIAL RESPONSE** in this patient.



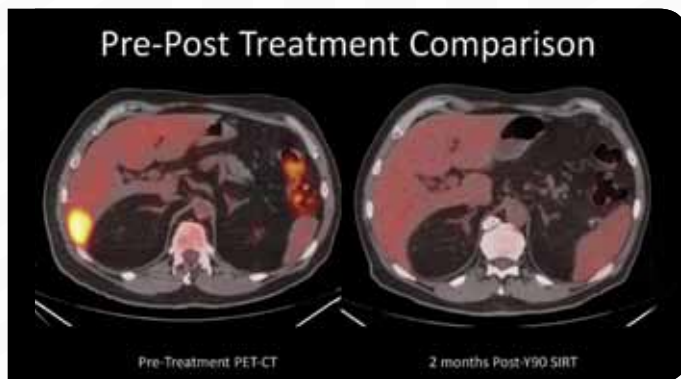
PET-CT images showing multiple hypermetabolic lesions in the right lobe of the liver.



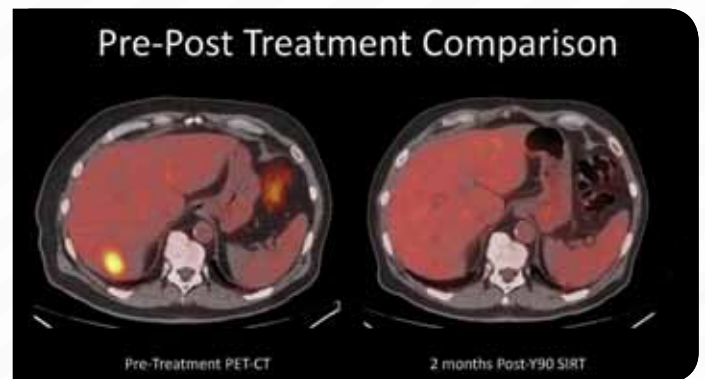
Microcatheter used to select the right hepatic artery, where Tc-99m MAA particles were infused as a planning surrogate for yttrium-90 microspheres.



Yttrium-90 radioembolization of the right hepatic lobe. Blue arrow shows position of the cystic artery supplying the gallbladder, which was too close to the planned treatment site to be avoided.



Two-month follow up PET-CT scan showing no evidence of metabolically active disease within the liver, reflecting **COMPLETE INITIAL RESPONSE.**



Conclusion

This case demonstrates the treatment of unresectable metastatic liver tumors from primary colorectal cancer with SIRT Y-90 to extend progression-free survival. More than 120 peer reviewed publications have assessed the use of SIRT Y-90 resin microspheres for mCRC.⁶ Several recent and ongoing clinical trials have further increased the understanding of SIRT Y-90 as a treatment option in select patient populations while demonstrating its safety, effectiveness, progression-free

survival and increased quality of life, including:

- CLOCC study: long-lasting survival benefit, even in patients with a large number of lesions.⁷
- SIRFLOX study: extended progression-free survival by 7.9 months with a 31% reduction in risk of progression in the liver using SIRT Y-90 in combination with first line chemotherapy, versus chemotherapy alone.

