

## HCC CASE REPORT

### SUCCESSFUL YTTRIUM-90 SIRT FOR UNRESECTABLE MULTIFOCAL DISSEMINATED HEPATOCELLULAR CARCINOMA

This case describes a patient with multifocal intrahepatic hepatocellular carcinoma who achieved complete response after treatment with selective internal radiation therapy using Yttrium-90 resin microspheres.

A 79-year-old man presented with vague abdominal pain. He was a non-smoker, with no history of hepatitis B or C virus infection or alcohol abuse. Fatty infiltration of the liver with multiple focal lesions was detected on ultrasound. Computed Tomography (CT) depicted multiple hepatic tumours ranging in size from approximately 0.5 to 4 cm (Figure 1). Histological examination showed a moderately differentiated hepatocellular carcinoma (HCC). No extra-hepatic metastases were detected. The patient's alpha-fetoprotein was low (10.1 ng/ml) and his bilirubin was 0.4 mg/dl. The patient had Child-Pugh A disease and a performance status of 0.

Surgery was not an option because of the patients' age, and chemoembolisation was refused due to fear of liver toxicity, therefore, selective internal radiation therapy (SIRT) with Yttrium-90 (Y-90) resin microspheres (SIR-Spheres® microspheres) was planned.

Hepatic angiography revealed multiple hypervascular tumours of various sizes disseminated across both lobes (Figure 2). The right gastric artery was coil embolized and the lung shunt was 2.2%. As the tumour burden was approximately 65%, sequential treatment of the right lobe and the left lobe was carried out, one month apart. The doses – 1.85 GBq and 1.3 GBq, respectively – were calculated according to modified body surface area (mBSA) method.

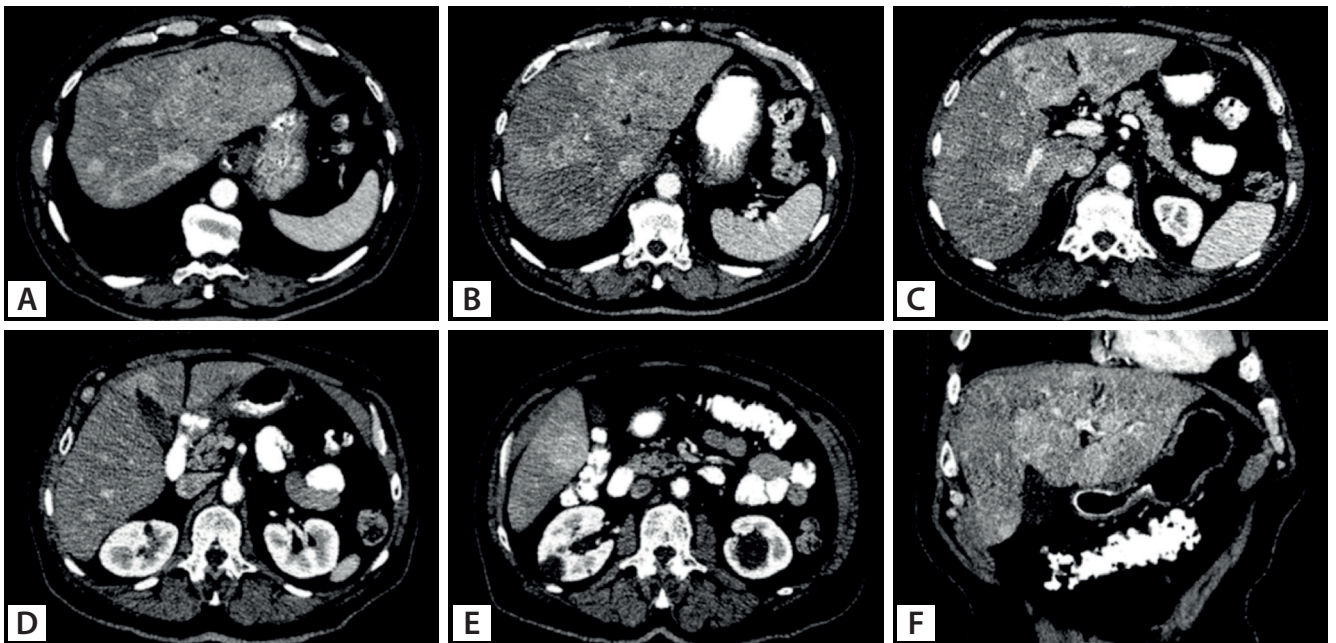
Regular clinical and laboratory follow-up showed no grade 3 or 4 toxicities according to Common Terminology Criteria for Adverse Events of the National Cancer Institute (CTCAE-NCI). Three months after the treatment with SIRT, partial response to treatment, with some residual enhancing tumour tissue in the left lobe (segments II, III) and a small residual focus in the right lobe (segment VI) (Figure 3) were detected. Therapeutic changes following Y-90 SIRT may take longer than 3 months, and a further CT scan at 5 months' follow-up showed the absence of any enhancing tumors and complete response according to modified RECIST criteria (Figure 4). The patient remains alive, more than 2 years after receiving SIRT.

### Conclusion:

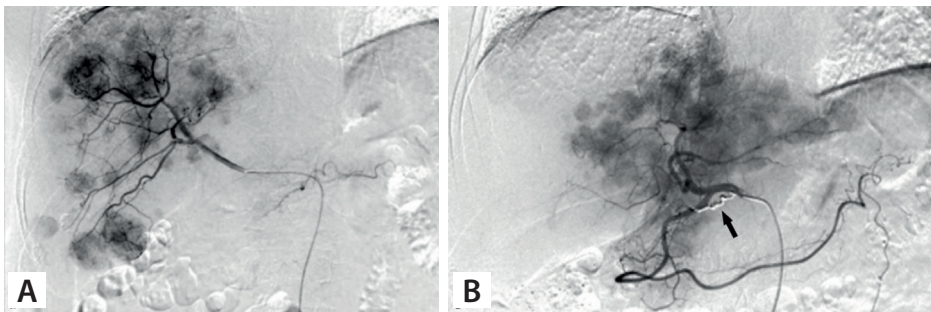
**A patient with complete response remained tumour free for more than 2 years after SIRT of a multifocal disseminated HCC. SIRT with Y-90 resin microspheres achieved very favourable results and was well-tolerated even though it was an elderly patient with high tumour burden.**

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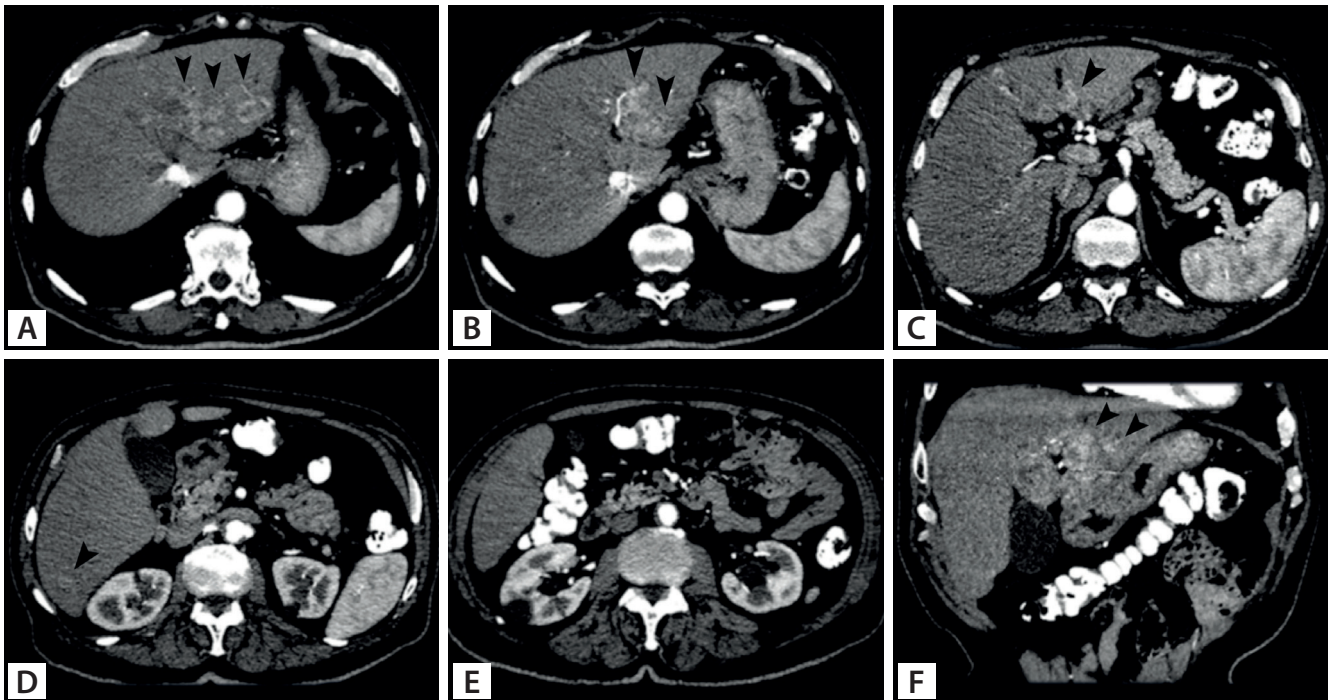
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**Figure 1.** CT scan in axial (A-E) and coronal (F) views showing multiple hypervascular tumours disseminated across both hepatic lobes.

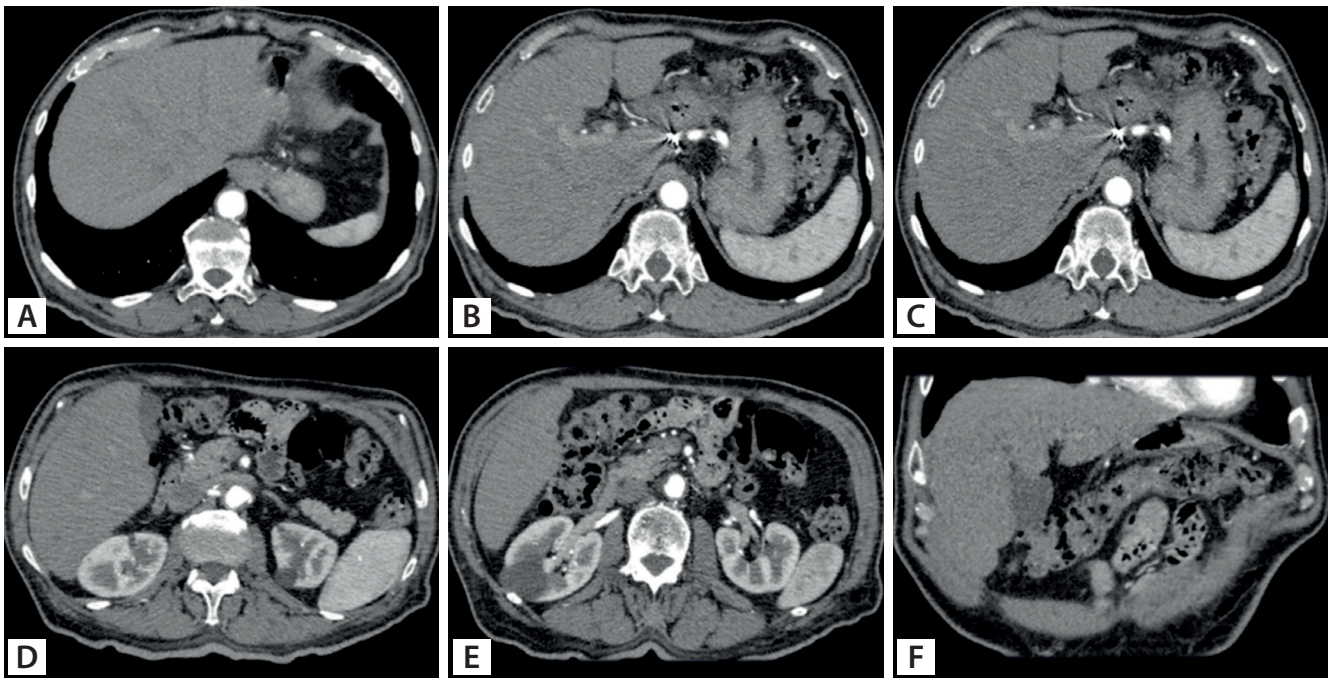


**Figure 2.** Hepatic artery angiogram in AP view (A,B) showing numerous hypervascular tumours in both hepatic lobes. Note the coil embolized right gastric artery (arrow in B).



**Figure 3.** Follow-up CT scan 3 months from the start of treatment in axial (A-E) and coronal (F) views showing partial response to treatment with residual enhancing areas seen in the right and left lobes (black arrowheads).





**Figure 4.**

Follow-up CT scan 5 months from the start of treatment in axial (A-E) and coronal (F) views showing apparent complete necrosis of the tumors, with no evidence of any viable tumours (complete response).