



# Conversion Surgery for Advanced Hepatocellular Carcinoma Following Complete Response to Transarterial Radioembolization Combined with Atezolizumab and Bevacizumab

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## BACKGROUND

The current Barcelona Clinic Liver Cancer Classification recommends systemic treatment with atezolizumab and bevacizumab as the first-line therapy for advanced hepatocellular carcinoma. Recent studies suggest that combining systemic immunotherapy with locoregional treatments, such as transarterial radioembolization (TARE), may enhance immune responses and improve overall treatment outcomes.

## AIM

This article presents a case series of three consecutive patients with advanced hepatocellular carcinoma, who were treated with transarterial radioembolization followed by atezolizumab and bevacizumab.

## MATERIAL AND METHODS

Between June 2020 and April 2024, three patients with advanced HCC were treated with TARE followed by atezolizumab and bevacizumab. The cohort

included: Patient 1: A 59-year-old female, Child-Pugh A, with a 12 cm tumor and a 1,5 cm satellite lesion located in the liver, with hepatic vein and inferior vena cava (IVC) tumor thrombosis (Vv3). Patient 2: A 63-year-old male with chronic HCV, without cirrhosis, presenting with a 10 cm tumor and portal vein tumor thrombosis (Vp4). Patient 3: A 50-year-old male, Child-Pugh A, with a 17 cm tumor with portal vein and IVC tumor thrombosis (Vp3, Vv3).

## RESULTS

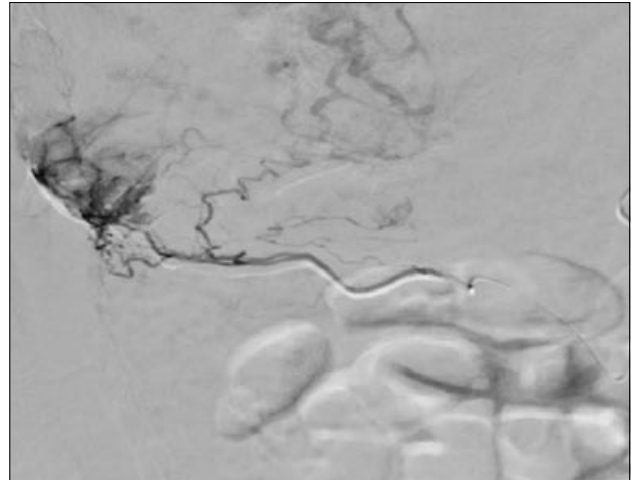
The combined treatment approach enabled surgical resection in all three patients, each achieving a complete pathological response. Interestingly, follow-up dosimetric analysis showed that all tumors had received a subtherapeutic absorbed radiation dose.

## CONCLUSION

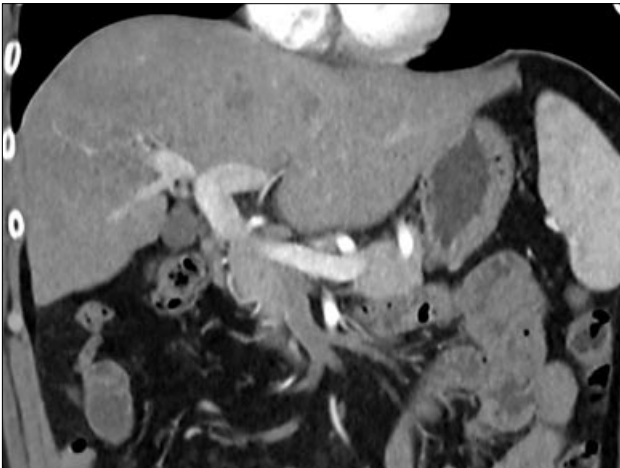
Our findings indicate that in carefully selected patients, the combination of transarterial radioem-



*Image 1. CT scan before treatment showed a 170 mm HCC in the right hepatic lobe, involving the right portal vein branch and extending into the right hepatic vein, with tumor thrombus identified in the IVC (Vp3, Vv3).*



*Image 2. Angiography revealed a complex tumor perfusion. The right hepatic artery supplied approximately 70% of the tumor, while the remaining vascular supply came from two smaller branches of the right renal artery and a dominant branch from the right renal hilus.*



*Image 3. Follow-up CT after transarterial radioembolisation (TARE) and 7 cycles of atezolizumab/bevacizumab showed complete response according to mRECIST criteria.*



*Image 4. Follow-up CT after TARE and immunotherapy, followed by a right hepatectomy showed a homogenous liver parenchyma with no radiologic signs of HCC recurrence.*

bolization and systemic immunotherapy may enable surgical resectability of advanced hepatocellular carcinoma, even in cases where an adequate tumor absorbed dose cannot be provided.

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