

Conversion surgery for advanced hepatocellular carcinoma following complete response to transarterial radioembolization combined with atezolizumab and bevacizumab

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Background:

The current update of Barcelona Clinic Liver Cancer Classification recommends systemic treatment with atezolizumab and bevacizumab as the first-line therapy. However, recent studies suggest that integration of immune checkpoint inhibitors (ICIs) with locoregional therapies like transarterial radioembolisation (TARE) presents a potentially successful strategy for improving outcomes in advanced HCC. Combining radiation with ICIs has proven to have a synergistic and an abscopal effect.

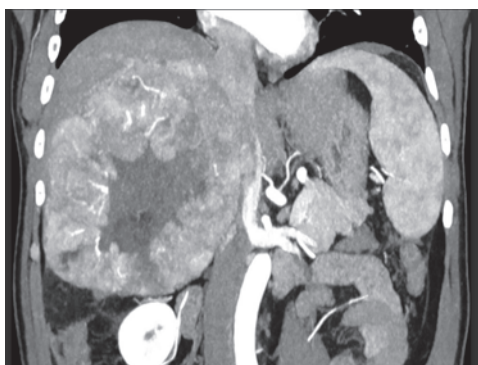
Aim:

Our study presents a case series of three consecutive patients with advanced hepatocellular carcinoma, who were treated with TARE 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.

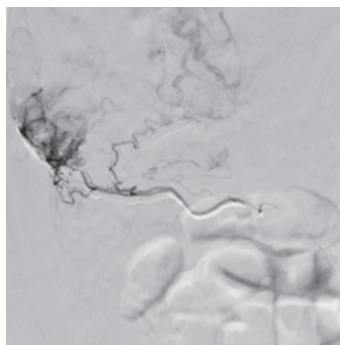
- **Patient 1:** A 59-year-old female, Child-Pugh A, with a 12 cm tumor and a 1,5 cm satellite lesion located in the liver, with hepatic vein and inferior vena cava (IVC) tumor thrombosis (Vv3).
- **Patient 2:** A 63-year-old male with chronic HCV, without cirrhosis, presenting with a 10 cm tumor and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



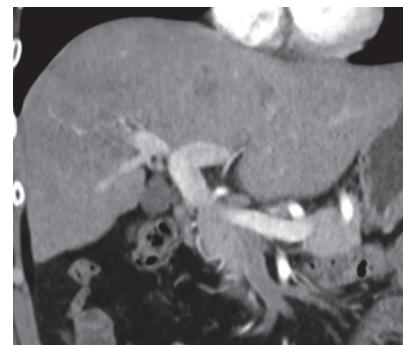
Patient 3: CT scan before treatment showed a 170 mm HCC in the right hepatic lobe, involving the right portal vein branch and extending into the right hepatic vein, with tumor thrombus identified in the IVC (Vp3, Vv3).

Results:

- All three patients achieved complete radiologic response according to the mRECIST criteria.

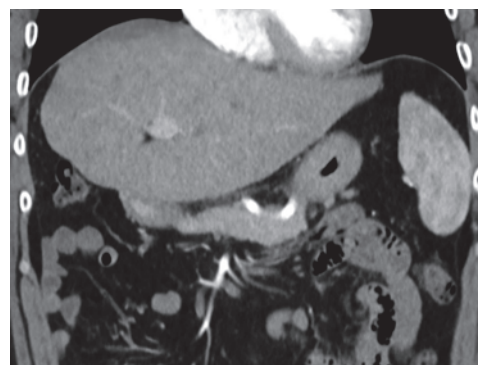


Patient 3: Angiography revealed a complex tumor perfusion. The right hepatic artery supplied approximately 70% of the tumor, while the remaining vascular supply came from two smaller branches of the right renal artery and a dominant branch from the right renal hilus.



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

- The combined treatment approach enabled surgical resection in all three patients, each achieving a complete pathological response.
- Follow-up dosimetric analysis showed that all tumors had received a subtherapeutic absorbed radiation dose.
- No serious adverse events were recorded during the course of the treatment.



Patient 3: Follow-up CT after TARE and immunotherapy, followed by a right hepatectomy showed homogenous liver parenchyma with no radiologic signs of HCC recurrence.

Conclusion:

Our findings indicate that in carefully selected patients, the combination of transarterial radioembolization and systemic immunotherapy may enable surgical resectability of advanced hepatocellular carcinoma, even in cases where an adequate tumor absorbed dose cannot be provided.

References:

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