

## Oncology

## Transarterial chemoembolization of liver metastasis from renal cell carcinoma



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## ABSTRACT

A 73-year-old woman with chief complaint of macroscopic hematuria was diagnosed as having left renal tumor with pancreatic invasion. Nephrectomy was performed. Pathological diagnosis was clear cell carcinoma, pT3a. Three months after the operation, liver metastasis appeared and sunitinib was started. Most of the liver metastases disappeared; however, a new lesion appeared, and sunitinib was switched to axitinib, which was effective on the residual lesion, but the new lesion had poor response. Transarterial chemoembolization was performed to treat the liver metastases, and all metastatic lesions disappeared. There was no recurrence at 2 years, and axitinib was discontinued.

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## Introduction

Although liver metastasis from renal cell carcinoma accounts for about 20% of metastatic cases, many are intractable to molecular targeted therapy. The 5-year survival rate is reported to be only 20%.<sup>1</sup> In the era of molecular targeted therapy, McKay et al.<sup>2</sup> reported that the presence of bone and liver metastases had a negative impact on survival.<sup>2</sup>

Transarterial chemoembolization (TACE) is an effective local-regional treatment for hepatocellular carcinoma and can improve patient survival rates; hence, it has been recommended as the standard treatment for hepatocellular cell carcinoma. TACE was successfully applied in patients with liver metastases from colorectal and gastric carcinoma. However, to our best knowledge, there is no report on the effectiveness of TACE for metastatic renal cell carcinoma.

Here, we report a case where TACE was effective on multiple liver metastases from renal cell carcinoma after administration of molecular targeted drugs.

## Case presentation

A 73-year-old woman visited our hospital with a chief complaint of macrohematuria. Computed tomography (CT) scan revealed a left renal mass with direct pancreatic invasion. Blood test showed no abnormality. We diagnosed her with T4N0M0 renal cell carcinoma, and radical nephrectomy, partial pancreatectomy, splenectomy, and descending colectomy were performed. The histopathological diagnosis was clear cell carcinoma, Fuhrman grade 2, v1, pT3aN1M0, with no pancreatic invasion.

Three months after surgery, CT scan confirmed liver metastasis in five lesions (Memorial Sloan Kettering Cancer Center risk criteria: intermediate), and sunitinib (dose, 37.5 mg) was started (Fig. 1). One month after sunitinib administration, side effects such as high blood pressure, general malaise, and stomatitis appeared, and the dose was reduced to 25 mg. Four of the five lesions disappeared 13 months after sunitinib treatment. However, a new lesion appeared in the liver; thus, the molecular targeted drug was switched from sunitinib to axitinib. Four months after starting axitinib, the residual lesion shrunk further, but the new lesion remained, which had contrast enhancement at the margin and necrosis at the inner part. Considering intratumor heterogeneity, we decided to carry out local hepatic therapy and performed TACE. The residual and new lesions disappeared with stagnated lipiodol after TACE. Two years after TACE, no metastatic lesion could be seen (complete response), and axitinib was discontinued (Fig. 2).

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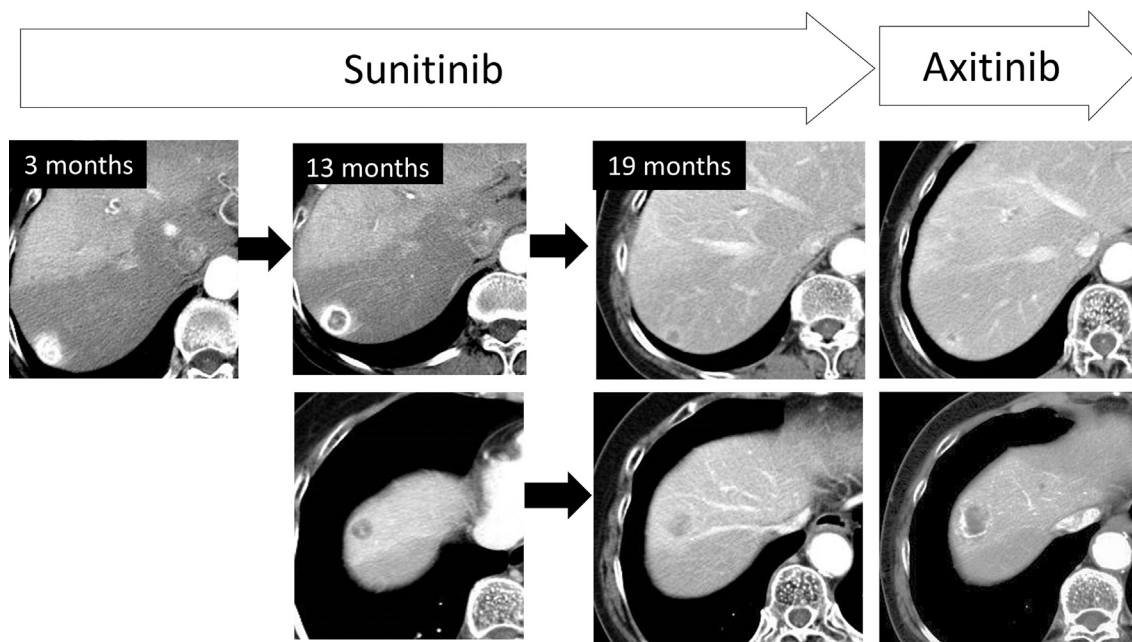


Fig. 1. Changes in the liver metastasis after administration of molecular targeted drugs.

## Discussion

According to Nabil et al.,<sup>3</sup> 22 cases of liver metastasis from renal cell carcinoma were treated by TACE and had good response (partial response, 13.7%; stable disease, 59.0%; progressive disease, 27.3%),

but no complete response was obtained. We herein reported for the first time a case with complete response.

Interventional radiology is divided into TACE and liver local therapy. Local liver therapy comprises radiofrequency ablation (RFA), percutaneous ethanol injection therapy, and percutaneous

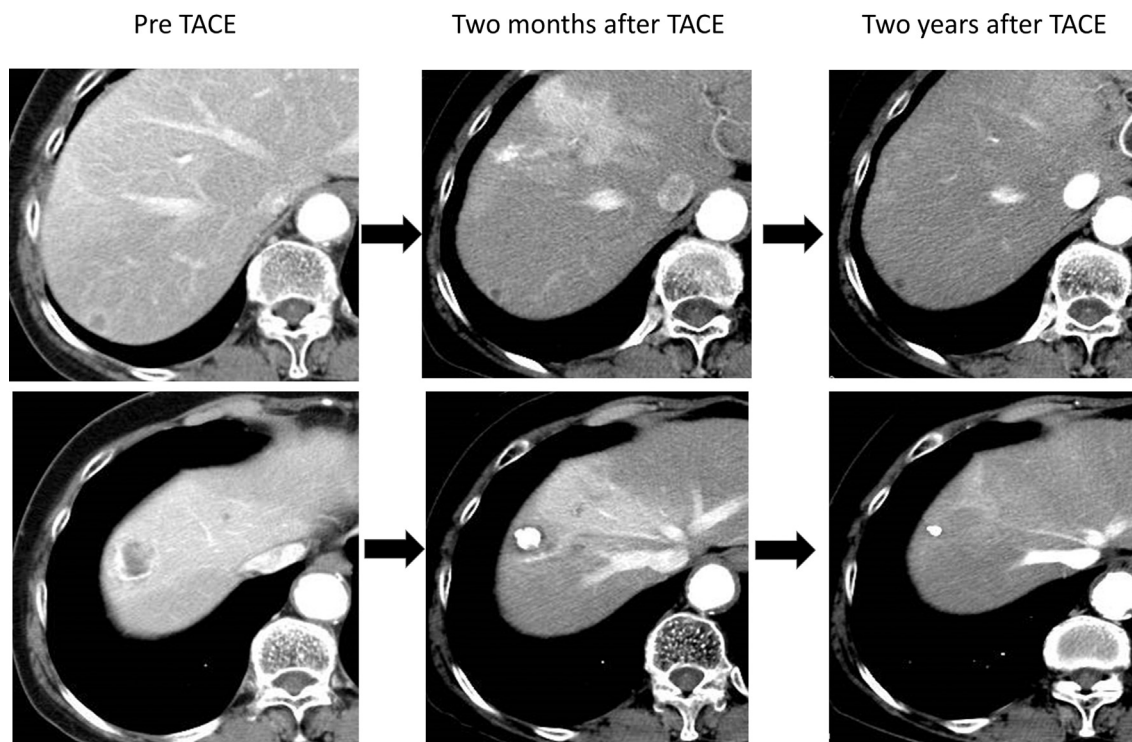


Fig. 2. Changes in the liver metastasis after transarterial chemoembolization (TACE).

microwave coagulation therapy, but RFA is the most common treatment. TACE has no limitation on tumor diameter and number, but RFA is limited to three tumors or fewer within 3 cm. In addition, RFA has complications such as peritoneal dissemination by lancing and damage to neighboring organs. TACE is a chemoembolization therapy involving selective injection of a solution comprising lipiodol and an anticancer agent, which then passes through the nutrient blood vessels of a tumor, embolizes with a gelatin sponge, and causes partial hepatic infarction and tumor necrosis. The anticancer drug used is epirubicin, but instead of aiming for an antitumor effect, it is used to expand the extent of liver infarction by necrotizing nutrient blood vessels. Since renal cell carcinoma is a vascular-rich tumor, the target lesion is easy to approach through the artery, and hence to obtain a therapeutic effect. Apart from its antitumor effect, another advantage of TACE is that lipiodol stagnates in the tumor and the area with tumor spread becomes clear after TACE, making follow-up easier.

The survival rate in patients with metastatic renal cell carcinoma appears to have improved after the introduction of molecular targeted drugs.<sup>4</sup> Although liver metastasis is frequent, it is associated with dismal survival.<sup>1</sup> It has been reported that the presence of liver metastasis had a negative impact on survival even in the era of targeted therapy.<sup>2</sup> Treatment of liver metastasis from renal carcinoma has room for improvement.

Metastatectomy has long been considered a valid treatment option for patients with oligometastatic renal cell carcinoma. Accumulated evidence suggests that metastatectomy is feasible with acceptable morbidity. However, Meyer et al.<sup>5</sup> reported that univariable logistic regression analysis identified increasing age and hepatic metastases as independent predictors of overall complications. Only Staehler et al.<sup>1</sup> reported that liver metastatectomy is an independent valuable tool in the treatment of metastatic RCC and significantly prolongs patient's survival, but the incidence of perioperative complications is 20%, which is very high. Therefore, hepatectomy of metastatic lesion from renal cell carcinoma can be hardly considered a standard treatment.

If the same metastatic tumor recurs in the liver after TACE, additional RFA treatment can be done. With RFA, the margin of tumor is clearly shown due to the stagnation of lipiodol and easily approaches to this lesion.

## Conclusion

TACE can be a new treatment option for hepatic metastatic

lesion from renal cell carcinoma.

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## Consent

Written informed consent was obtained from the patient for publication of this case report.

## Conflict of interest statement

None.

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## Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.eucr.2018.01.015>.

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