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CASE REPORT

Metastatic Neuroendocrine Tumor Using Direxion™ Microcatheter and Embozene™ Microspheres

BY EDWARD KIM, MD

A 72-year-old man had a metastatic neuroendocrine tumor of the liver that had undergone radioembolization 2 years prior; he presented with an enlarging 4-cm solitary lesion in Couinaud segment 5 visible on recent 3-month follow-up surveillance MRI. Of note, the patient had a prior history of surgery with ligation of the common hepatic artery origin. A history and physical examination was performed without evidence of encephalopathy or abdominal ascites. The patient's performance status assessment indicated an ECOG (Eastern Cooperative Oncology Group) score of 0. Laboratory studies revealed unremarkable liver function tests, total bilirubin level of 0.6 mg/dL, and albumin level of 4.2 g/dL. The coagulation profile and platelet levels were unremarkable. MRI demonstrated multiple lesions throughout the noncirrhotic liver with an enlarging solitary lesion in segment 5 (Figure 1). The patient was reviewed in a multidisciplinary neuroendocrine conference, and it was decided to proceed with embolization using 40-µm Embozene™ Microspheres (Boston Scientific Corporation) for palliative treatment of oligometastatic disease.

PROCEDURE

Angiography was performed to identify the tumor vascular supply and determine the optimal route for delivery of embolic materials. Through radial access, initial superior mesenteric angiography was performed, which identified a reconstitution of the right hepatic artery (RHA) arising through the pancreaticoduodenal arcade (Figure 2). Catheterization of the celiac artery was performed and reconstitution of the RHA arising from the right gastric artery was demonstrated (Figure 3). The RHA and segmental branch artery were selectively catheterized with a 2.4-F Direxion™ Microcatheter (Boston Scientific Corporation) over a Fathom®-16 Guidewire (Boston Scientific Corporation) (Figure 4). Embolization was performed with 40-µm Embozene™ Microspheres

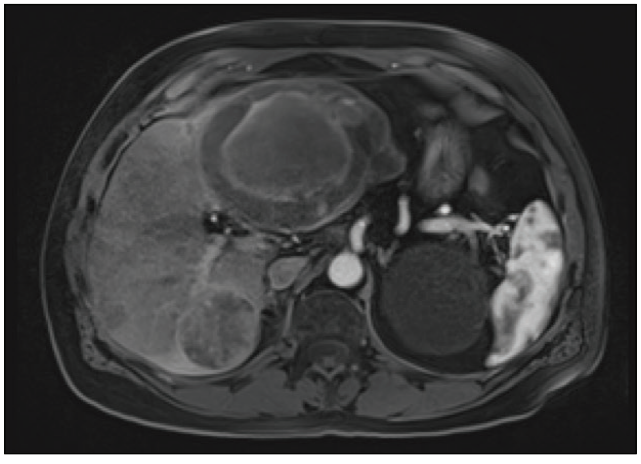

Figure 1. MRI demonstrated multiple lesions throughout the noncirrhotic liver with an enlarging solitary lesion in segment 5.

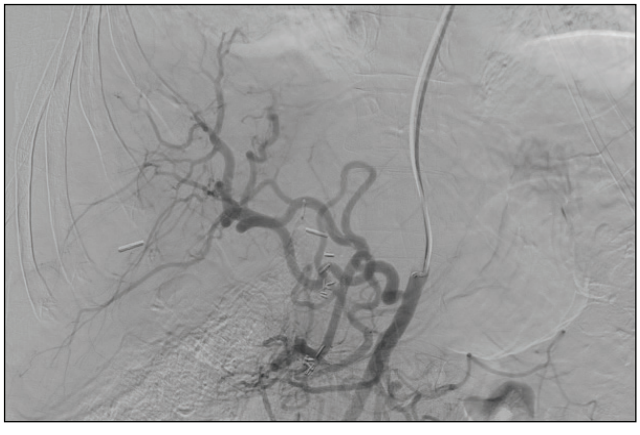

Figure 2. Initial superior mesenteric angiography was performed from radial access and identified a reconstitution of the RHA arising through the pancreaticoduodenal arcade.

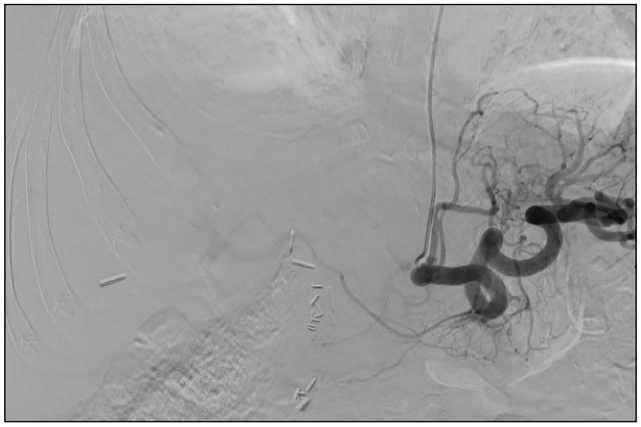

Figure 3. Catheterization of the celiac artery was performed, and reconstitution of the RHA arising from the right gastric artery was demonstrated.

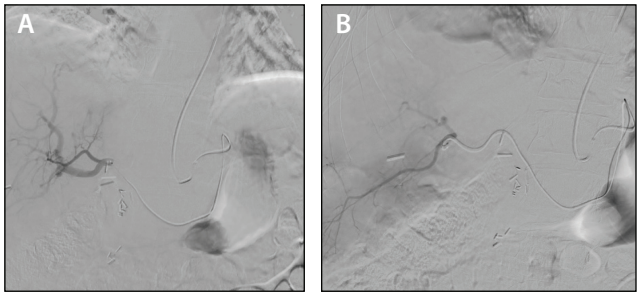

Figure 4. The RHA (A) and segmental branch artery (B) were selectively catheterized with a 2.4-F Direxion™ Microcatheter over a Fathom®-16 Guidewire.

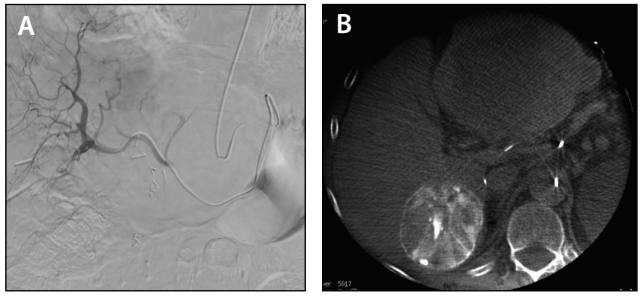

Figure 5. Embolization was performed with 40-µm Embozene™ Microspheres until stasis. Confirmation postembolization angiography (A) and cone-beam CT were performed (B).

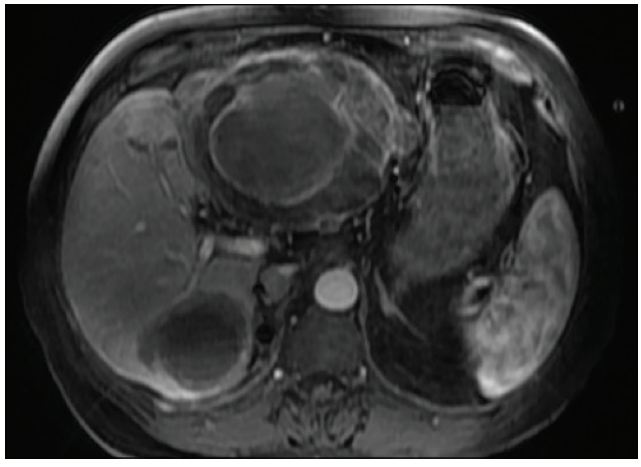

Figure 6. A 4-week postprocedure liver MRI demonstrated 100% complete response.

until stasis was achieved. Confirmation postembolization angiography as well as cone-beam CT were performed (Figure 5).

A 4-week postprocedure liver MRI demonstrated 100% complete response (Figure 6). Follow-up laboratory studies were unremarkable and without treatment toxicity.

DISCUSSION

Catheterization and navigation through collateral vessels with microcatheter and wire manipulation may be challenging due to difficulty in selection and tracking of the microcatheter. As demonstrated in this case, the shapeable tip of the Fathom®-16 Guidewire and stable support in combination with the trackability of the Direxion™ Microcatheter allowed ease of catheterization of the RHA through the left and right gastric arteries despite surgical ligation of the common hepatic artery. Further subselection of segment 5 of the RHA was possible from radial access without an issue with length despite multiple turns. Tightly calibrated 40-µm Embozene™ Microspheres allowed distal embolization of the target tumor vessels with complete response on follow-up MRI. ■

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Disclosures: None.