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CASE REPORT

Embozene™ Microspheres for Treatment of Neuroendocrine Tumors

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A 63-year-old man had a medical history significant for aortic valve replacement, chronic anticoagulation, and osteoarthritis. He was in his usual state of health until he was diagnosed with a neuroendocrine tumor of the small bowel after an emergent small bowel obstruction in 2013. He began care in August 2014, when staging workup confirmed multifocal liver metastasis, low-grade carcinoid syndrome, and nodal disease in his abdomen. Treatment with lanreotide was administered from 2014 until September 2016 with slowly progressive disease. Treatment was discontinued in September 2016 due to acute and recurrent pancreatitis requiring hospitalization. A suspicious mass in the area of the pancreas was identified at that time, and further workup indicated it was not another malignancy but rather nodal metastatic disease from his neuroendocrine tumor. The cause of pancreatitis was thought to be from gallstones, so cholecystectomy was performed laparoscopically in February 2017. He had not been on treatment since September 2016. On imaging, his disease was slowly progressive, with further increase in bilobar disease on MRI in June 2017.

Since November 2016, the patient became increasingly symptomatic with carcinoid syndrome manifested primarily by worsening diarrhea. The interventional radiology department was consulted for liver-directed therapy.

Preoperative MRI (Figures 1A and 1B) confirmed numerous bilobar metastases up to 6 cm in diameter, which had progressed by RECIST (Response Evaluation Criteria in Solid Tumors) criteria since a previous scan in November 2016.

Because the patient was being considered as a candidate for possible peptide receptor radionuclide therapy with lutetium 177 dotatate, it was elected to proceed with bland embolization rather than yttrium-90 radioembolization to control radiation exposure to the healthy liver.

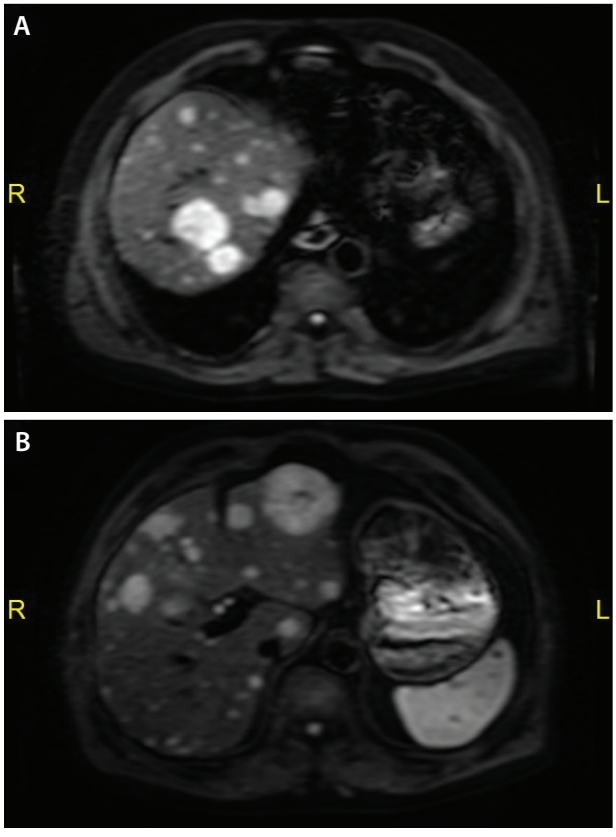

Figure 1. Preoperative MRI.

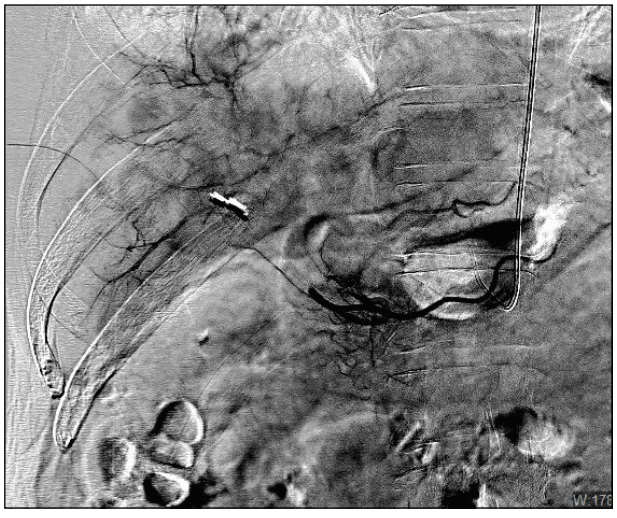

Figure 2. Angiogram of the celiac artery.

Results from case studies are not necessarily predictive of results in other cases. Results in other cases may vary.

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Figure 3. Angiogram of the left hepatic artery.

PROCEDURE DESCRIPTION

The treatment was performed as an outpatient procedure utilizing a left radial access approach to minimize the anticoagulant interruption. Left radial access was achieved with ultrasound guidance, and selective superior mesenteric and celiac artery arteriography was performed using a 5-F base catheter. The celiac study (Figure 2) confirmed extensive bilobar disease with standard hepatic vascular anatomy and a widely patent portal vein. Selective microcatheter angiography of the left and right hepatic vessels (Figure 3) was performed with a 0.027-inch Renegade® HI-FLO Microcatheter (Boston Scientific Corporation) over a Fathom®-16 Guidewire (Boston Scientific Corporation).

Superselective catheterization of the dominant feeding vessels to the largest tumors in each lobe was achieved, and embolization was performed to stasis using 100-µm Embozene™ Microspheres (Boston Scientific Corporation). One syringe total was used to accomplish the bilobar embolization.

FOLLOW-UP

Follow-up CT scans (Figures 4A and 4B) were obtained and confirmed excellent localization and penetration

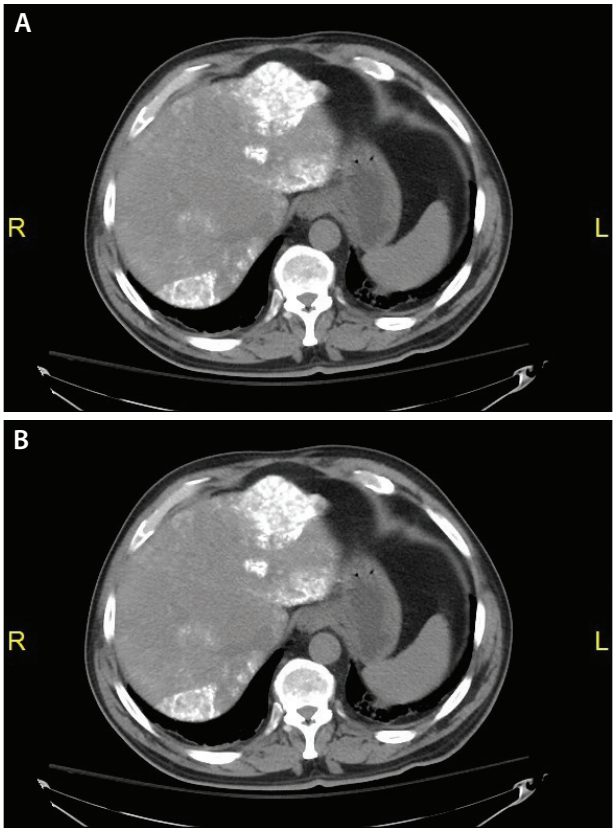

Figure 4. Postembolization CT scans.

of the tumors in each lobe. The patient was monitored overnight with minimal postembolization pain and was discharged the next day. The patient's diarrhea was significantly improved by 1 week postprocedure, and he was scheduled for follow-up imaging including Ga 68 Netspot imaging (Advanced Accelerator Applications USA, Inc.) at 3-month follow-up. ■

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Disclosures: None.