Robotic-Assisted Placement of a Hepatic Artery Infusion Pump and Catheter in the Setting of a Replaced Right Hepatic Artery and Accessory Left Hepatic Artery

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Introduction
Hepatic artery infusion pump (HAIP) placement is an effective option for regional chemotherapy. Open hepatic artery infusion pump is associated with 3-5 day hospital stay with a larger risk of wound infection with potential delay in chemotherapy, slower recovery, and potential future risk of hernia. We describe a case of robotic-assisted HAIP placement in the setting of a replaced right hepatic artery and accessory left hepatic artery.

Method
Our patient is a 78 year-old male with history of T3N1 rectal cancer s/p neoadjuvant chemoradiation therapy followed by low anterior resection and adjuvant chemotherapy. Subsequently, he was treated with chemotherapy for lung and liver recurrence. His lung disease remained stable for almost two years with later progression of liver disease. After discussion at our multi-disciplinary conference, we scheduled him for a HAIP placement. Our patient had a replaced right hepatic artery and a sizeable accessory left hepatic artery with diminutive proper hepatic artery. We isolated the gastroduodenal artery (GDA), placed the HAI Pump with the catheter tip at the junction of the hepatic and GDA, ligated the right hepatic artery and divided the gastrohepatic and hepatoduodenal attachments (Figure 1).

Result
Our case demonstrates successful placement of robotic-assisted HAI pump with ligation of the right hepatic artery. Methylene blue injection after pump placement revealed uptake by the entire liver. Patient was discharged on the first postoperative day. The patient will get the accessory left hepatic artery embolized as an outpatient.

Conclusion
Robotic-assisted placement of HAIP results in shorter hospital stay and a quicker recovery with the benefits of lower rate of wound infection and hernia. Our case shows that robotic-assisted placement is feasible and safe in the setting of altered hepatic arterial anatomy.

Figure 1. Demonstrated the Aberrant Arterial Anatomy of the Patient, the Operative Management of the Arteries and Placement of Hepatic Artery Infusion Pump Catheter