



Hepatic artery infusion (HAI) chemotherapy is an effective regional therapy for unresectable colorectal liver metastases (U-CRLM).<sup>1, 2</sup> One of its limitations is the need for a laparotomy, which can delay the use of systemic therapy.<sup>3</sup> Here, we describe a purely robotic technique for placement of an HAI pump (Fig 1)” Dhir et al (2016).

Abstract:

**BACKGROUND:** Hepatic artery infusion (HAI) chemotherapy is an effective regional therapy for unresectable colorectal liver metastases (U-CRLM).<sup>1, 2</sup> One of its limitations is the need for a laparotomy, which can delay the use of systemic therapy.<sup>3</sup> Here, we describe a purely robotic technique for placement of an HAI pump (Fig 1).

**PATIENT:** A 62-year-old male presented with a symptomatic ascending colon cancer and multiple bilobar unresectable liver metastases. He underwent laparoscopic right colectomy followed by six cycles of FOLFOXIRI and bevacizumab with stable disease by RECIST (Response Evaluation Criteria in Solid Tumors) criteria, and also underwent robotic HAI pump placement.

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**TECHNIQUE:** The patient was placed supine on a split-leg table, and four robotic and two laparoscopic assistant ports were placed as shown. Use of the robot allowed for precise dissection of the common hepatic artery (CHA) and gastroduodenal artery (GDA), as well as a portal lymphadenectomy. A standard cholecystectomy was performed and the GDA was dissected for a distance of 2-3 cm from its takeoff from the CHA. The robotic scissors were used to create a precise transverse GDA arteriotomy, and the HAI pump catheter tip was advanced to the CHA/GDA junction and secured with two silk ties. Finally, a methylene blue dye injection test was performed to ensure uniform distribution within the liver. Operative time was 147 min, estimated blood loss was 20 ml, and the postoperative course was uneventful. The first dose of HAI with floxuridine was administered on postoperative day 4 (day of discharge) and systemic chemotherapy was administered 2 weeks later.

**CONCLUSION:** The robotic platform allows for minimally invasive HAI pump placement. Fig. 1 Port placement for robotic-assisted hepatic artery infusion pump placement using the DaVinci Si platform. Illustration depicts a 12 mm periumbilical port for the robotic camera (upper green port), three 8 mm (purple) robotic working ports (the left MCL, right MCL, and right AAL for robotic arms R1, R2, and R3, respectively), and 12 mm (lower green) and 5 mm (red) laparoscopic assistant ports in the right and left lower quadrants, respectively. The pump pocket is created in the left lower quadrant just below the 5 mm (red) port site.

Reference:

Dhir, M., Magge, D., Novak, S., Bartlett, D.L. and Zureikat, A.H. (2016) Robotic-Assisted Placement of an Hepatic Artery Infusion Pump and Catheter for Regional Chemotherapy of the Liver. *Annals of Surgical Oncology*. August 5th. .

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