Unusual Case

Robot-assisted lateral pancreaticojejunostomy in a patient with chronic pancreatitis and history of liver transplantation

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Abstract

A 52-year-old female patient with a history of liver transplantation due to alcoholic liver cirrhosis presented with persistent post-prandial pain, leading to substantial weight loss of 16 kg. The findings of contrast-enhanced computed tomography were consistent with the diagnosis of chronic pancreatitis, and endoscopic treatment provided no functional improvement. The patient was scheduled for a robot-assisted lateral pancreaticojejunostomy which was performed after initial lysis of adhesions from her prior liver transplantation. The procedure was completed safely using the robotic da Vinci Xi platform in 180 min, with an estimated blood loss of 300 mL. During the post-operative course, anaemia was noted and treated with a blood transfusion, and the patient was discharged on the post-operative day 4. The patient fully recovered without post-prandial pain and began regaining weight 1 month after the procedure. To the best of our knowledge, this is the first report of a successful robot-assisted lateral pancreaticojejunostomy following prior liver transplantation.

Keywords: Robotic surgery, lateral pancreaticojejunostomy, chronic pancreatitis, liver transplantation

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INTRODUCTION

Minimally invasive surgical approaches for managing chronic pancreatitis are gaining increasing momentum. Compared with laparoscopic techniques, robotic platforms provide enhanced visualisation and precise dissection, even in complex clinical scenarios. We present a case of robot-assisted lateral pancreaticojejunostomy in a patient with chronic pancreatitis and a history of liver transplantation. To the best of our knowledge, this is the first report on this topic.

CASE REPORT

A 52-year-old female with a history of chronic atrophic pancreatitis with a dilated main pancreatic duct (7 mm), chronic obstructive pulmonary disease and osteoporosis presented with post-prandial pain, exocrine insufficiency and a subsequent weight loss of 16 kg. In 2017, the patient underwent liver transplantation for ethanol-induced liver cirrhosis. Computed tomography revealed an atrophic pancreatic gland with no signs of a tumour mass and a newly formed 7 mm pancreatolith impacted in the neck of the pancreas. Consequent distal dilatation of the main pancreatic duct to 10 mm was observed [Figure 1]. Given the failure of endoscopic pancreatolith removal, surgical decompression with lateral pancreaticojejunostomy (PJA) was considered. After laparoscopy, with port placement in the umbilical area, adhesiolysis of the omentum from the anterior abdominal

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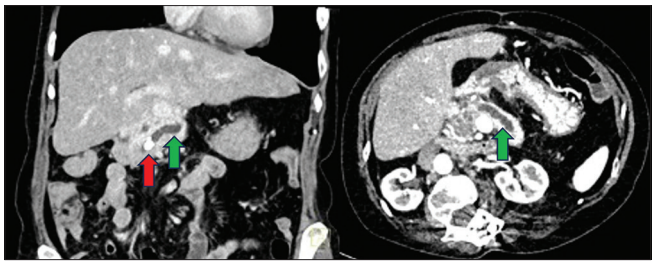

Figure 1: Computed tomography scan of a patient with chronic pancreatitis indicating atrophic pancreatic gland with an impacted pancreatolith (red arrow) and resulting dilated main pancreatic duct (green arrow)

wall was performed. For robotic da Vinci Xi trocar placement, we followed the standard operative protocol described by the UT Southwestern Group for left-sided pancreatic surgery.[1] We used four 8 mm robotic trocars and two assisting ports (AirSeal and 12 mm). After docking, robot-assisted adhesiolysis of the upper abdomen was performed. The next step was the division of the gastrocolic ligament above the gastroepiploic arcade and exposure of chronically altered atrophic pancreatic glands. Intraoperative US was performed to visualise the dilated main pancreatic duct. Using monopolar scissors, the main pancreatic duct was opened from the tail to the head of the pancreas, at a length of 8 cm. Debris and intraductal calculi were removed [Figure 2]. The proximal jejunal loop was pulled through the left avascular mesocolic plane and divided using a stapler device, 20 cm behind the ligament of Treitz. Roux limb (50 cm) was formed, and side-to-side anastomosis was performed at a length of 50 cm with a barbed suture. Lateral pancreaticojejunostomy was performed using 4-0 barbed running sutures. The duration of the operative procedure was 180 min, with an estimated blood loss of 300 ml. Abdominal drain was placed near PJA. Indocyanine green test confirmed normal perfusion of the liver, pancreas and Roux limb.

After the procedure, the patient was admitted to a high-dependency unit and transferred to the ward on post-operative day (POD) 1. Immunosuppressive therapy (tacrolimus and hydrocortisone) was administered intravenously on the day of the operation. On POD 1, the patient started oral intake of clear fluids and standard immunosuppressive therapy. On POD4, the patient was discharged with normal laboratory results. Post-prandial pain resolved after the procedure. Currently, she remained independent of insulin with ongoing exocrine insufficiency. With the support of our nutritional team, she gradually regained weight.

DISCUSSION

The robot-assisted approach offers a feasible and safe method for the surgical management of patients with

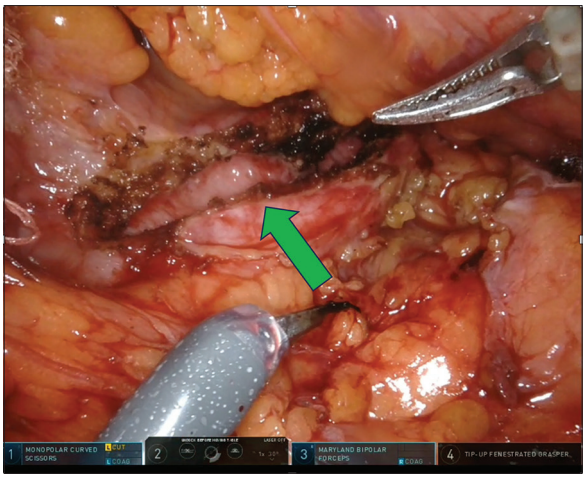

Figure 2: Intraoperative photo of an open dilated pancreatic duct (green arrow) prior to lateral pancreaticojejunostomy formation

chronic pancreatitis (CP). Our findings are supported by the literature, where robotic lateral pancreaticojejunostomy was associated with adequate relief of pancreatic intraductal pressure and long-term outcomes comparable to those of open procedures in patients with symptomatic CP.[2] Early reports showed that the laparoscopic approach is limited owing to technical considerations, especially in the reconstructive phase of surgical procedures.[3] Anatomical distortions due to severe fibrosis and inflammation in patients with CP are also considered reasons for avoiding the laparoscopic approach.[3] There are several reports of successful laparoscopic-assisted drainage procedures, with results comparable to those of open surgery.[4] Owing to better visualisation, magnification, dexterity and ergonomics, robotic platforms enable all types of surgical procedures, resection and derivation in patients with CP.[2,5] Reports should be carefully interpreted because of the low number of patients, lack of standardisation and low quality of evidence, especially long-term follow-up. We believe that our case report demonstrates the safety and efficacy of the robotic platform, even in patients with a history of complex procedures involving the upper abdomen.

CONCLUSION

Robotic-assisted lateral pancreaticojejunostomy is a feasible and safe method for patients with CP and dilated main pancreatic duct. Precise dissection and properly executed surgical procedures with clearly defined steps can result in successful outcomes even in complex clinical scenarios.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name

and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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