



Robotic pancreaticoduodenectomy after Roux-en-Y gastric bypass – Video article



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Morbid obesity is a growing problem worldwide and a known risk factor for development of pancreatic cancer [1]. The Roux-en-Y gastric bypass (RYGB) has proven to be a highly effective operation against obesity and its associated comorbid conditions and has a favorable metabolic side effect profile when compared with the more radical biliopancreatic diversion with duodenal switch. Numerous high-quality studies have demonstrated the efficacy and safety of the procedure. It has since become and remains the gold standard operation in the battle against the obesity epidemic [2]. Although the risk of developing pancreas cancer after a gastric bypass is low [3], with the increased number of gastric bypass procedures being performed, it is anticipated that the number of patients with gastric bypass requiring a pancreaticoduodenectomy will certainly increase [4,5]. In the event of a periampullary tumor or pancreatic head lesion requiring resection of the head of the pancreas, the operation poses an additional challenge that is the reconstruction of the alimentary tract due to the altered anatomy. This video shows a robotic pancreaticoduodenectomy in a patient with prior laparoscopic Roux-en-Y gastric bypass.

Supplementary video related to this article can be found at <https://doi.org/10.1016/j.suronc.2019.04.007>.

A 50-year-old man underwent laparoscopic Roux-en-Y gastric bypass three years ago. He did well postoperatively, achieving a 54 Kg weight-loss and stable body mass index (BMI) at 22 kg/m², since then. Three weeks ago, he presented with progressive jaundice and weight loss. Magnetic resonance imaging was performed and showed a stop at the level of Ampulla of Vater with both biliary and pancreatic duct dilation. Percutaneous biliary drainage was performed along with a

biopsy which was consistent with malignancy. Multidisciplinary team decided for upfront surgery. Robotic pancreaticoduodenectomy was indicated with resection of the remnant stomach. Pancreato and hepatico-jejunostomy were performed using the bilio-pancreatic limb (Fig. 1). Total operative time was 418 min. Blood loss was minimum, recovery was uneventful, and patient was discharged on the 7th post-operative day. No pancreatic fistula was observed, and drain was removed early. Pathology disclosed a 5.6 cm ampullary adenocarcinoma with free margins. There was one positive lymph node out of 16 harvested. He is doing fine with no evidence of the disease 4 months after the procedure.

The literature on patients undergoing pancreaticoduodenectomy after Roux-en-Y gastric bypass is limited. In a recent systematic review, only 26 patients underwent pancreaticoduodenectomy after Roux-en-Y gastric bypass [4]. Among them, seven patients underwent laparoscopic RYGB, in five the technique was not reported and in the remaining 15 patients open procedure was done. Only one patient underwent laparoscopic PD, after laparoscopic RYGB [6]. Most cases (25/26) were performed by open approach and remnant gastrectomy was done in 69% of cases (18/26). Although resection of remnant stomach may increase morbidity of the procedure, it is recommended because reduces the number of anastomosis, delayed gastric emptying and other complications related to drainage of the stomach [5]. Robotic pancreaticoduodenectomy is feasible and safe in experienced hands even in patients with prior Roux-en-Y gastric bypass. This video shows the different steps necessary to perform this complex operation.

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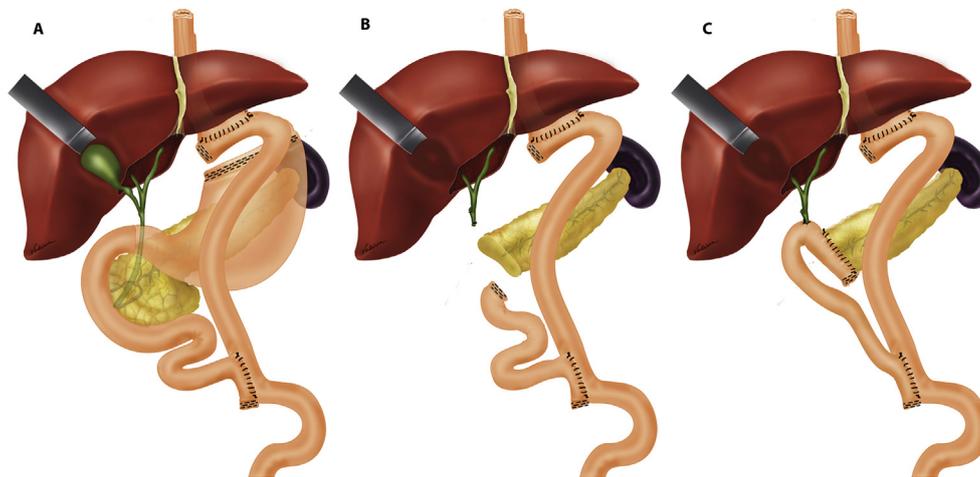


Fig. 1. Robotic pancreaticoduodenectomy after Roux-en-Y gastric bypass.
 A. Original anatomy after Roux-en-Y gastric bypass
 B. Anatomy after pancreaticoduodenectomy with remnant gastrectomy
 C. Reconstruction using bilio-pancreatic limb.

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Authorship statement

All authors have made substantial contributions to all of the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://>

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References

- [1] R. Pothuraju, S. Rachagani, W.M. Junker, S. Chaudhary, V. Saraswathi, S. Kaur, et al., Pancreatic cancer associated with obesity and diabetes: an alternative approach for its targeting, *J. Exp. Clin. Cancer Res.* 37 (1) (2018 Dec 19) 319.
- [2] L. Berbiglia, J.G. Zografakis, A.G. Dan, Laparoscopic Roux-en-Y Gastric Bypass: surgical Technique and Perioperative Care, *Surg. Clin.* 96 (4) (2016 Aug) 773–794.
- [3] J.M. Swain, R.B. Adams, M.B. Farnell, F.G. Que, M.G. Sarr, Gastric and pancreaticoduodenal resection for malignant lesions after previous gastric bypass—diagnosis and methods of reconstruction, *Surg. Obes. Relat. Dis.* 6 (6) (2010 Nov-Dec) 670–675.
- [4] W.F. Morano, M.F. Shaikh, E.M. Gleeson, A. Galvez, M. Khalili, J. Lieb 2nd et al., Reconstruction options following pancreaticoduodenectomy after Roux-en-Y gastric bypass: a systematic review, *World J. Surg. Oncol.* 16 (1) (2018 Aug 13) 168.
- [5] J.S. Peng, R. Corcelles, K. Choong, M. Poturalski, N. Gandhi, R.M. Walsh, et al., Pancreatoduodenectomy after Roux-en-Y gastric bypass: technical considerations and outcomes, *HPB* 20 (1) (2018 Jan) 34–40.
- [6] N. de la Cruz-Muñoz, S. Hartnett, D. Sleeman, Laparoscopic pancreaticoduodenectomy after laparoscopic gastric bypass, *Surg. Obes. Relat. Dis.* 7 (3) (2011 May-Jun) 326–327.