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Distal Pancreatectomy with Celiac Axis Resection-with Posterior Ramps Approach-for Locally Advanced Pancreatic Adenocarcinoma with Celiac Trunk Infiltration (Modified Appleby Procedure) (with Video)

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**DISTAL PANCREATECTOMY WITH CELIAC AXIS RESECTION - *WITH
POSTERIOR RAMPS APPROACH* - FOR LOCALLY ADVANCED PANCREATIC
ADENOCARCINOMA WITH CELIAC TRUNK INFILTRATION
(*MODIFIED APPLEBY PROCEDURE*) (*WITH VIDEO*)**

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Locally advanced pancreatic cancer (LAPC) of the body/tail of the pancreas involving the celiac axis, with excellent clinical, biological and radiological response to neoadjuvant treatment, can be eligible to a distal pancreatectomy with celiac axis resection (modified Appleby procedure). Besides accurate patient's selection and surgical expertise, this procedure also requires experienced radiologist, oncologist, **intensive care anesthesiologist** and should be performed in high-volume centers¹⁻³.

This **didactic** video presents a distal pancreatectomy with celiac axis resection in a 68-year-old woman, with a LAPC. Clinical symptoms started with abdominal pain radiating in the back. Abdominal CT scan and MRI showed a 4 cm pancreatic tumor of the isthmus, with complete infiltration of the celiac axis and proximal splenic artery, **abutting the left adrenal gland**. After 7 **courses** of neoadjuvant FOLFIRINOX completed with 50,4 Gy radiotherapy, she had a complete clinical response with total disappearance of pain, a decrease of Ca 19-9 from 1800 to 35 UI/ml and a RECIST stability on CT and MRI with a regression of tumor-vein contact. Surgery including **distal pancreatectomy with celiac axis and adrenal resection according to a posterior RAMPS approach was decided in a dedicated tumor boards including specialists from surgery, medical oncology, radiation oncology, radiology, genetics and pathology**. One month before surgery, the patient had preoperative arterial embolization of the splenic artery and proximal common hepatic artery (**figure 1**), **to improve collateral flow and reduce postoperative liver ischemia, even if there is no clear evidence in the literature indicating a beneficial effect of preoperative embolization on the need for unplanned arterial reconstruction**. Through a bi-subcostal laparotomy, surgical procedure began with a complete abdominal exploration. A large colo-epiploic detachment, a Kocher maneuver and opening of the right diaphragmatic pillar allowed a good exposure of the celiac trunk and the origin of the superior mesenteric artery which is released on its first centimeters. This is followed by lymph node dissection of the hepatic pedicle **preserving the right gastric artery** and control of

the common hepatic artery. The pancreas is then sectioned on the left edge of the superior mesenteric artery, with a careful preservation of its right-side collaterals. Adequate backflow of the gastroduodenal artery in the hepatic vasculature is first checked with intraoperative ultrasonography, and then the common hepatic artery is ligated with 3/0 polypropylene (Prolene®) and sectioned just upstream the origin of the gastroduodenal artery (figure 2). Then the coeliac trunk (8-9 mm in diameter) is ligated with 2/0 polypropylene (Prolene®) and sectioned at its origin (figure 3). The pancreatectomy is continued according to a posterior RAMPS (Radical Antegrade Modular Pancreatosplenectomy) approach with en bloc resection of left adrenalectomy for oncological reason. At the end of the procedure, the presence of an intrahepatic arterial flow is once again checked by liver doppler ultrasound. Postoperative course was marked by a grade B chylous ascites and no pancreatic fistula. The final pathological analysis finds a 23 mm pancreatic ductal adenocarcinoma with a 90 % tumor regression, classified ypT2N0, with R0 margin.

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