



**Zaragoza HPB Meeting and
UEMS HPB Preparatory Course**
Essential and Advanced Knowledge

FACULTY OF MEDICINE
UNIVERSITY OF ZARAGOZA
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EUROPEAN UNION OF MEDICAL SPECIALISTS
The advocate of medical specialists

How do we manage a borderline or locally advanced adenocarcinoma?

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ADENOCARCINOMA OF THE BODY AND

- Larger
- More often metastasized
- Less often resectable
- Survival is similar after resection

ADENOCARCINOMA OF THE BODY AND

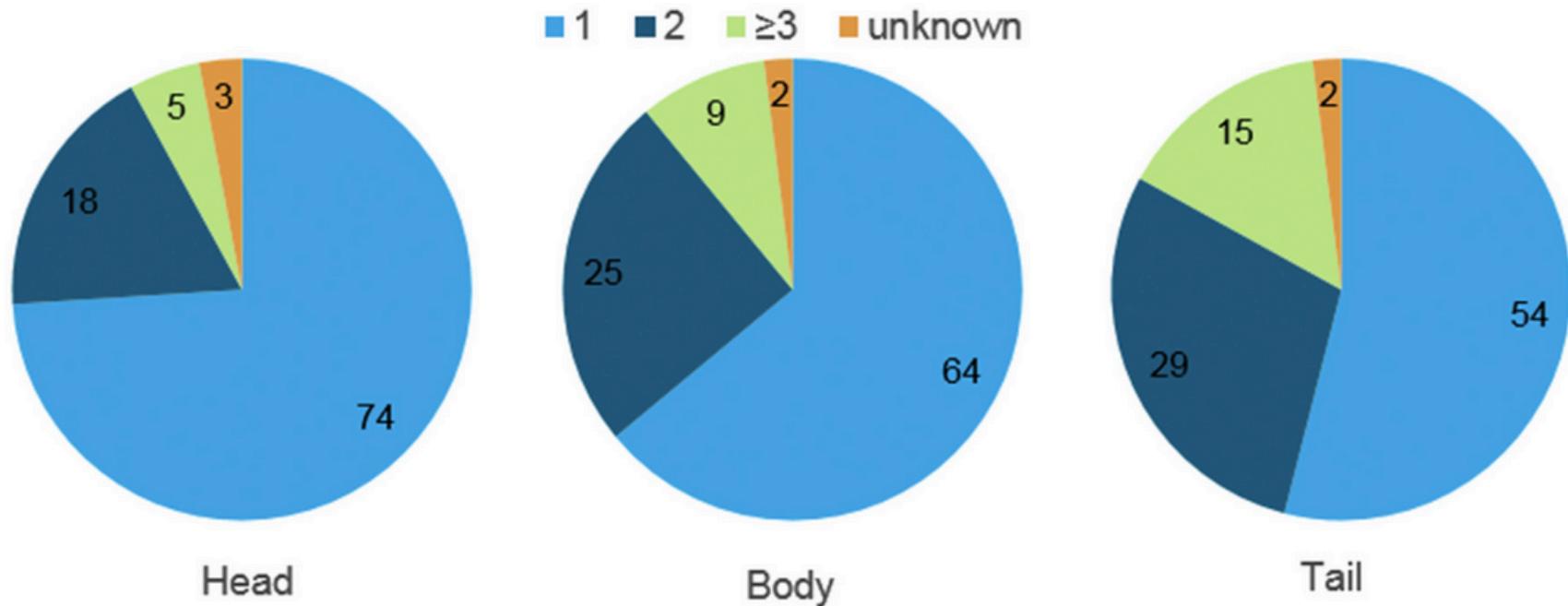
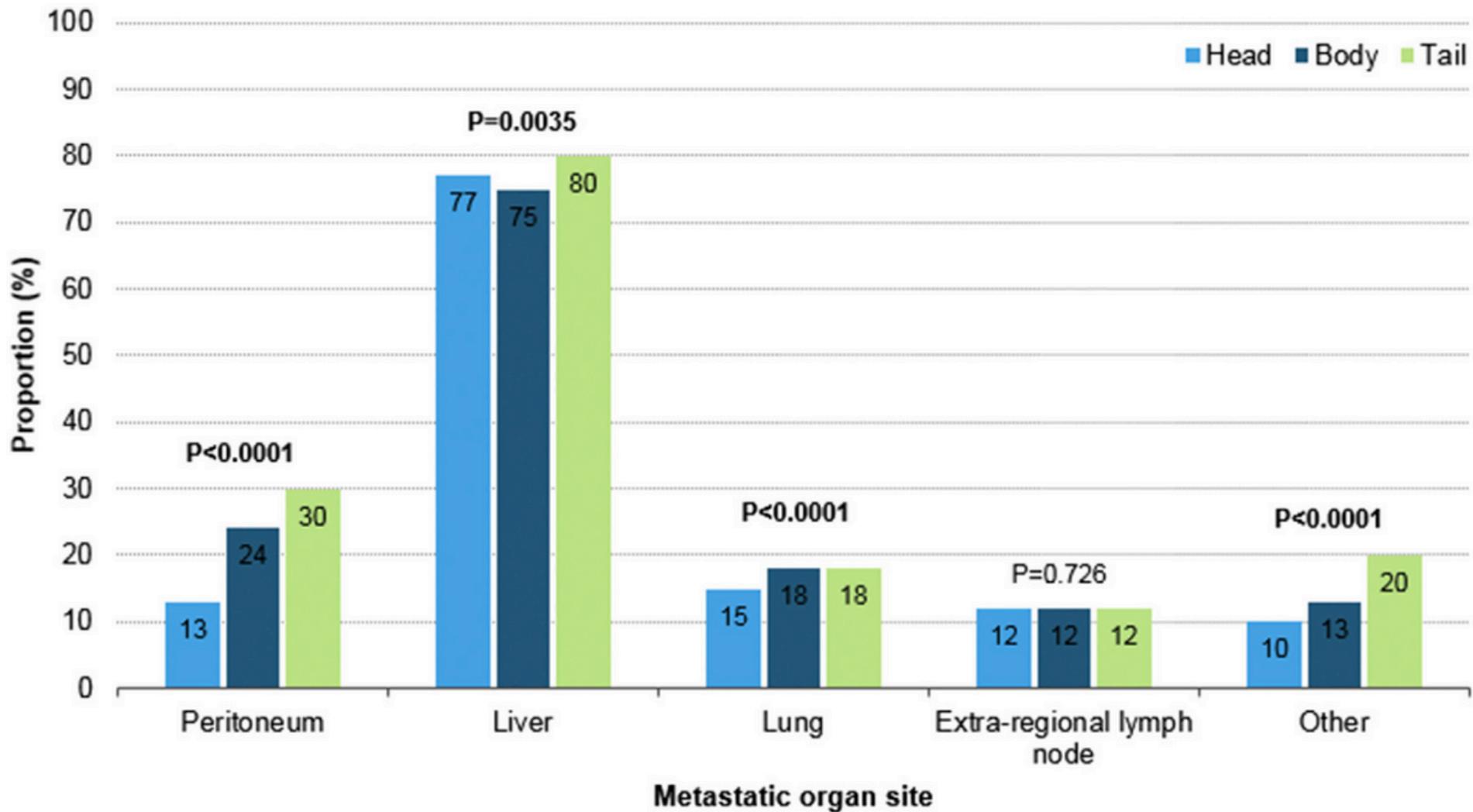


Fig. 2. Proportional distribution of the number of metastatic organ sites by primary tumour location.

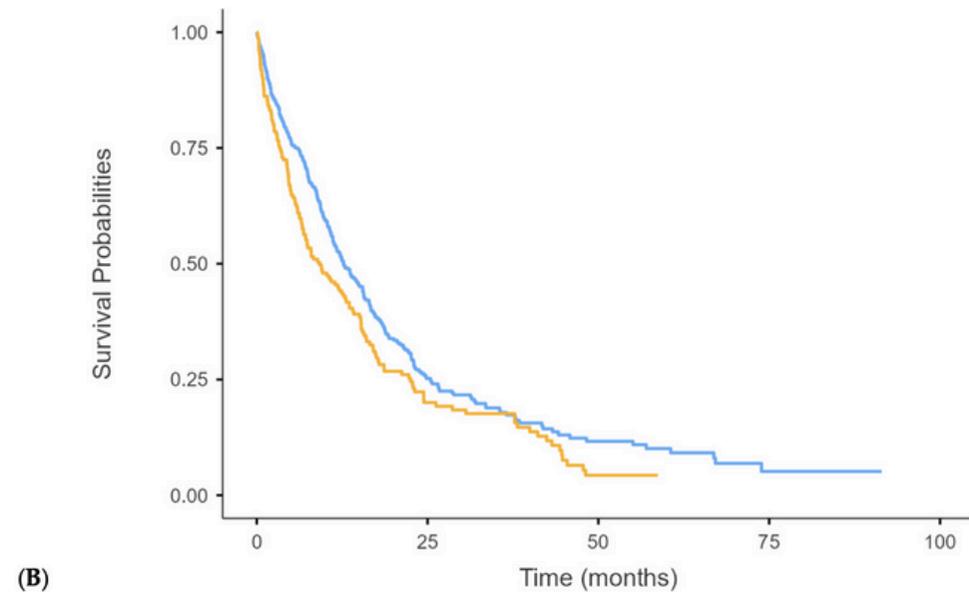
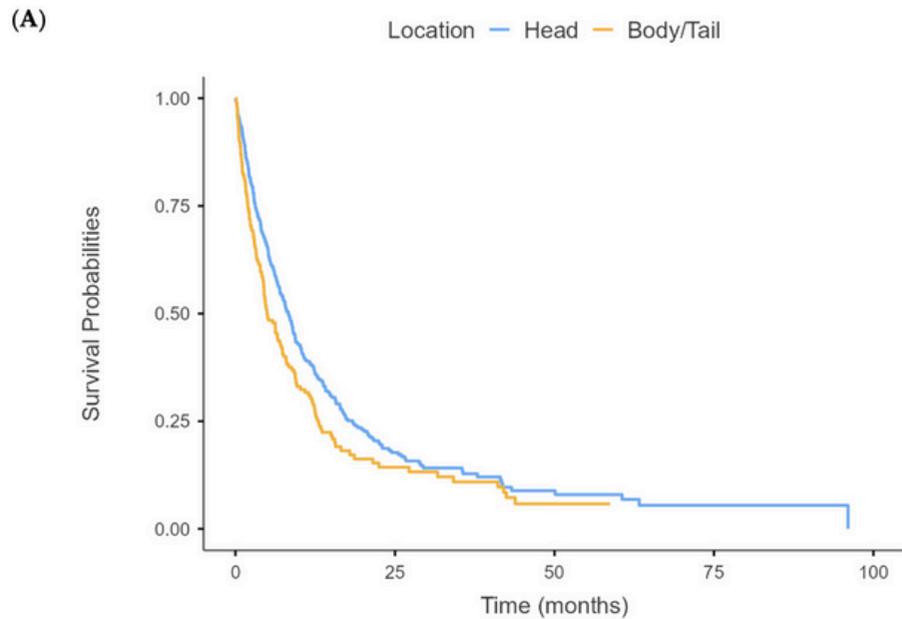




Article

Impact of Tumor Location on Survival Outcomes in Pancreatic Head Versus Body/Tail Cancer: Institutional Experience

Abdullah Esmail ¹ , Vikram Dhillon ¹, Ebtessam Al-Najjar ¹, Bayan Khasawneh ¹, Mohammed Alghamdi ², Fahad Ibnshamsah ³ and Maen Abdelrahim ^{1,4,*}



(B)

Number at risk

Location	0	25	50	75	100
Head	400	38	10	3	0
Body/Tail	204	13	3	0	0

Time (months)

Number at risk

Location	0	25	50	75	100
Head	400	65	17	3	0
Body/Tail	204	26	3	0	0

Time (months)

Radical Antegrade Modular PancreatoSplenectomy

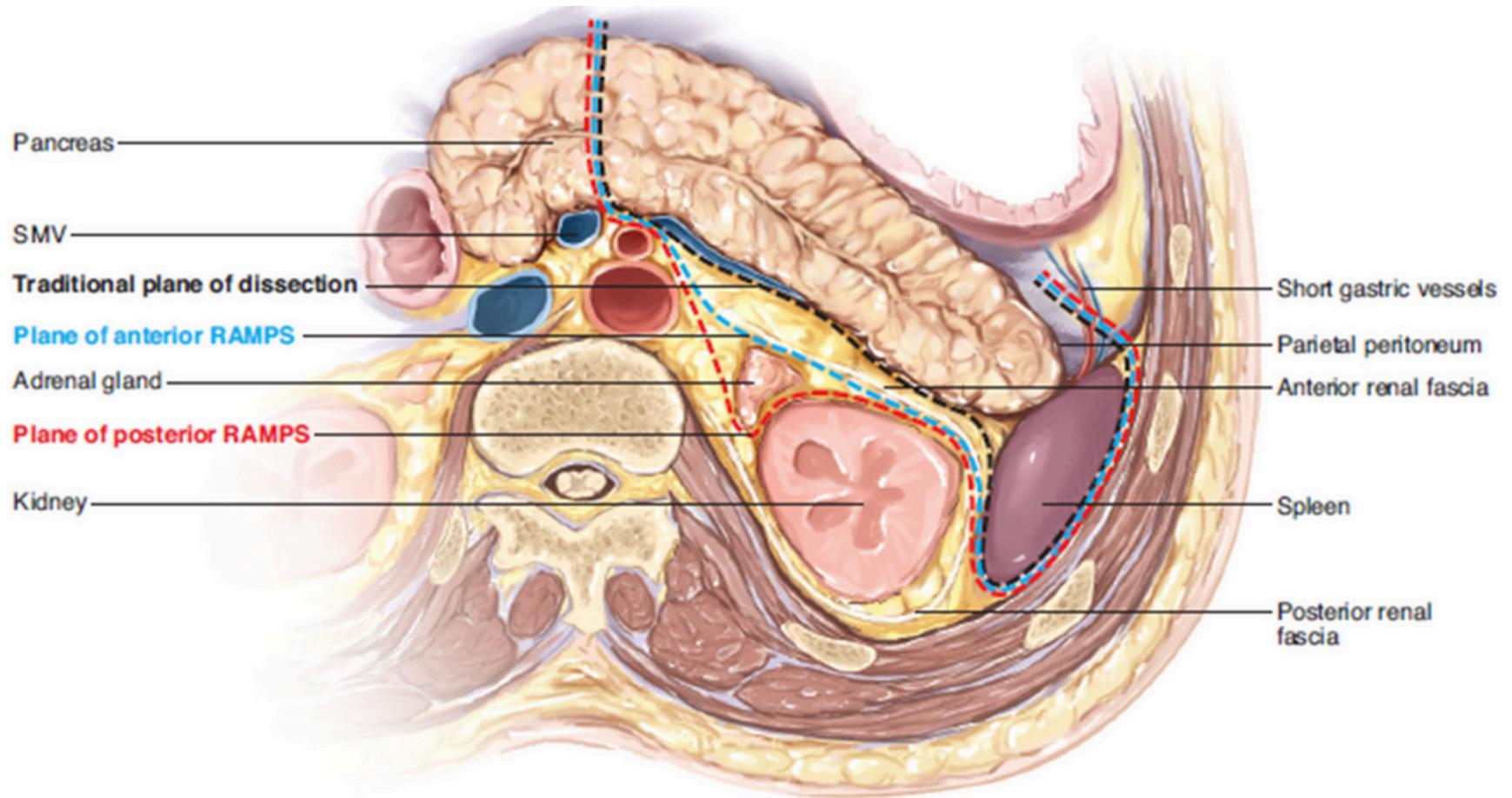
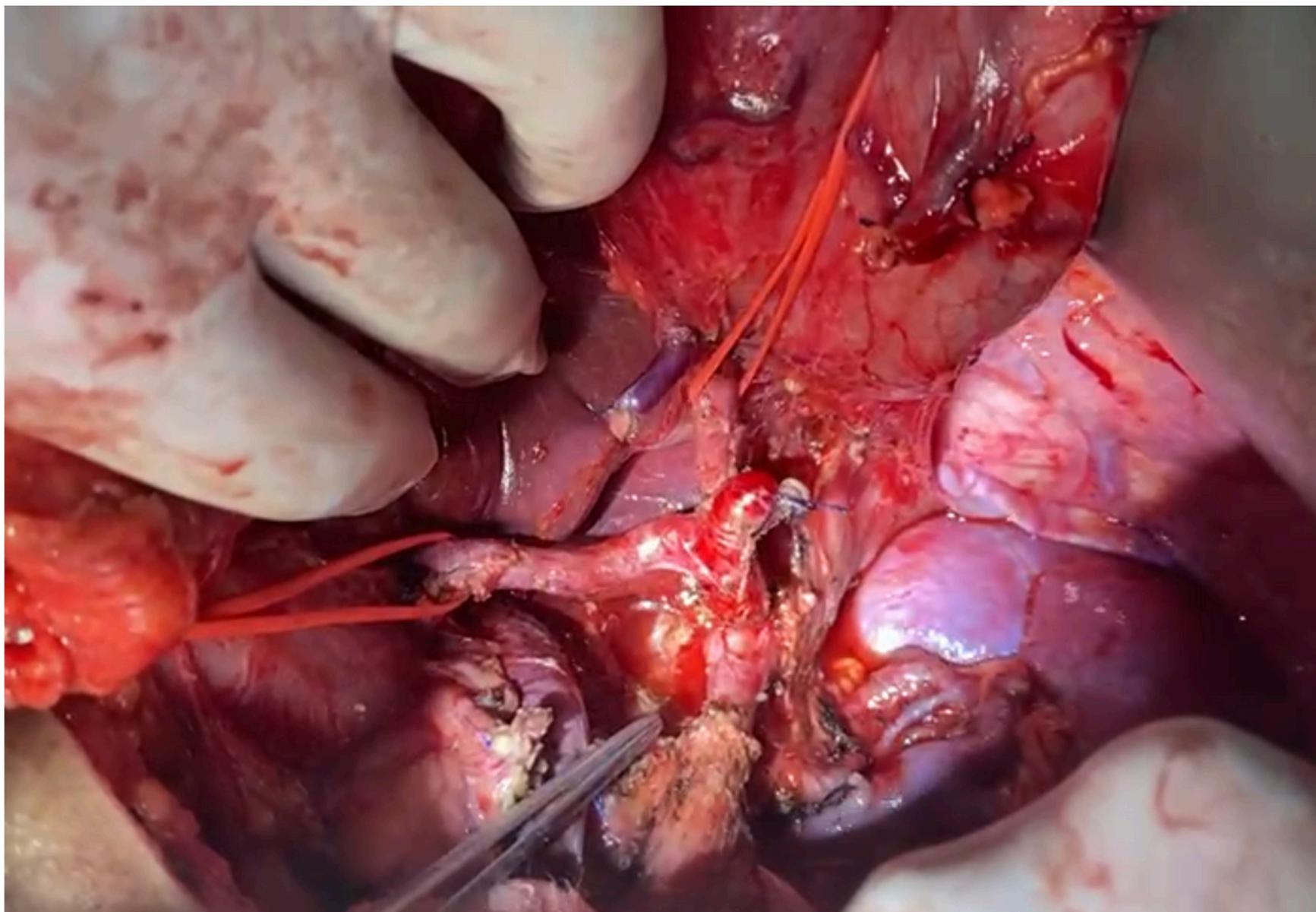


TABLE 1 Differences and similarities in the conduct of RAMPS versus standard distal pancreatectomy and splenectomy for pancreatic adenocarcinoma

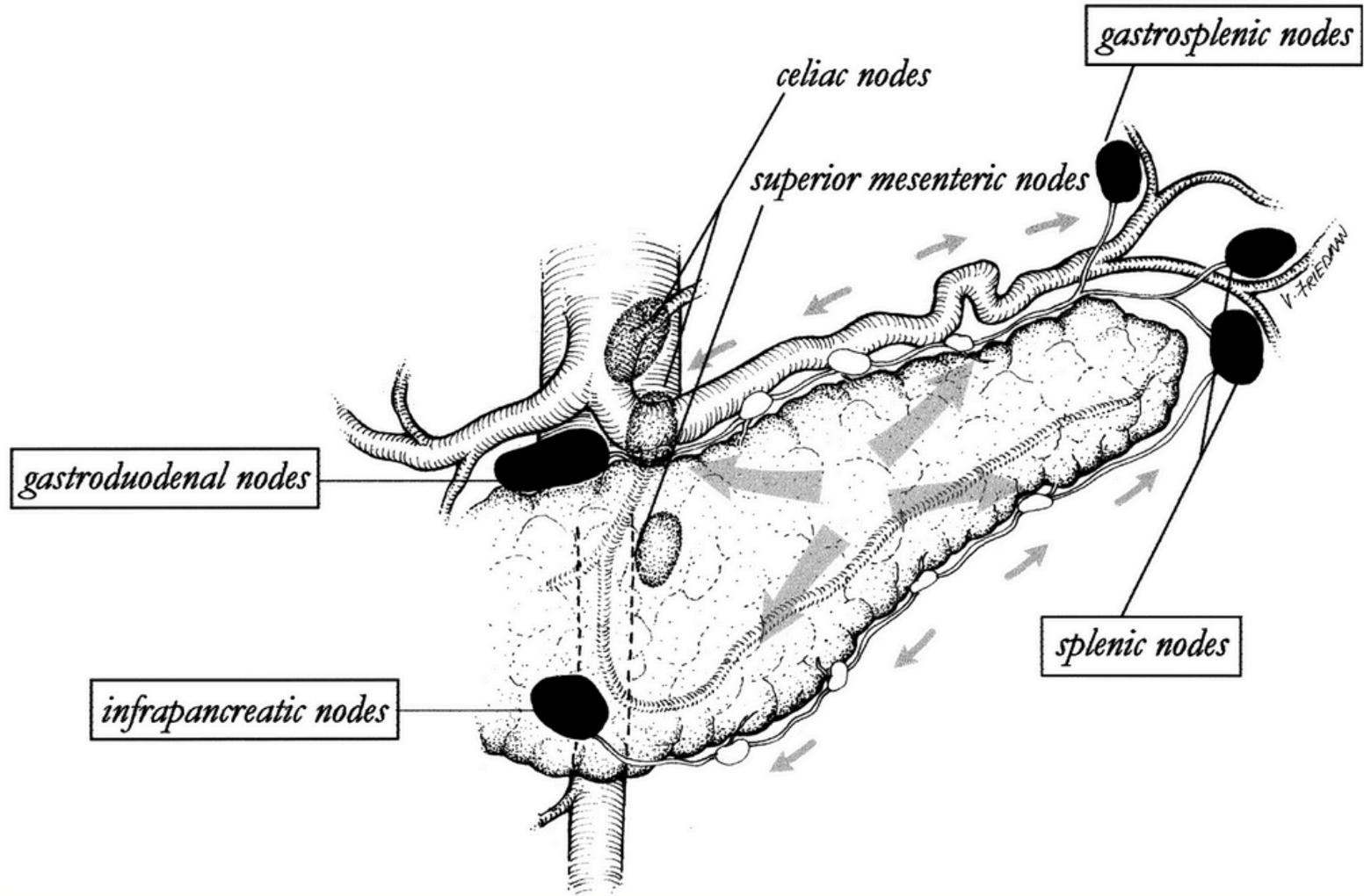
Key element	RAMPS	Standard retrograde distal pancreatectomy
General approach	Right to left: early division of the pancreatic neck, mobilization of the spleen as the final step	Left to right: early mobilization of the spleen, division of the pancreas as the final step
Aim of retroperitoneal dissection	Margin-negative resection with the posterior plane of dissection deep to the anterior renal fascia	Margin-negative resection with the posterior plane of dissection deep to the gross tumor; can be in front of the anterior renal fascia
Aim of proximal parenchymal transection	Transect the neck of the pancreas, proximal to the gross disease	Transection at the neck of the pancreas not obligatory, if the transection margin is proximal to the gross disease
Extent of lymphadenectomy	Regional lymph nodes, which include splenic, gastrosplenic, suprapancreatic, and infrapancreatic nodes. Additionally, nodes around the hepatic artery, celiac trunk, and superior mesenteric artery	Regional lymph nodes

RAMPS radical antegrade modular pancreatosplenectomy



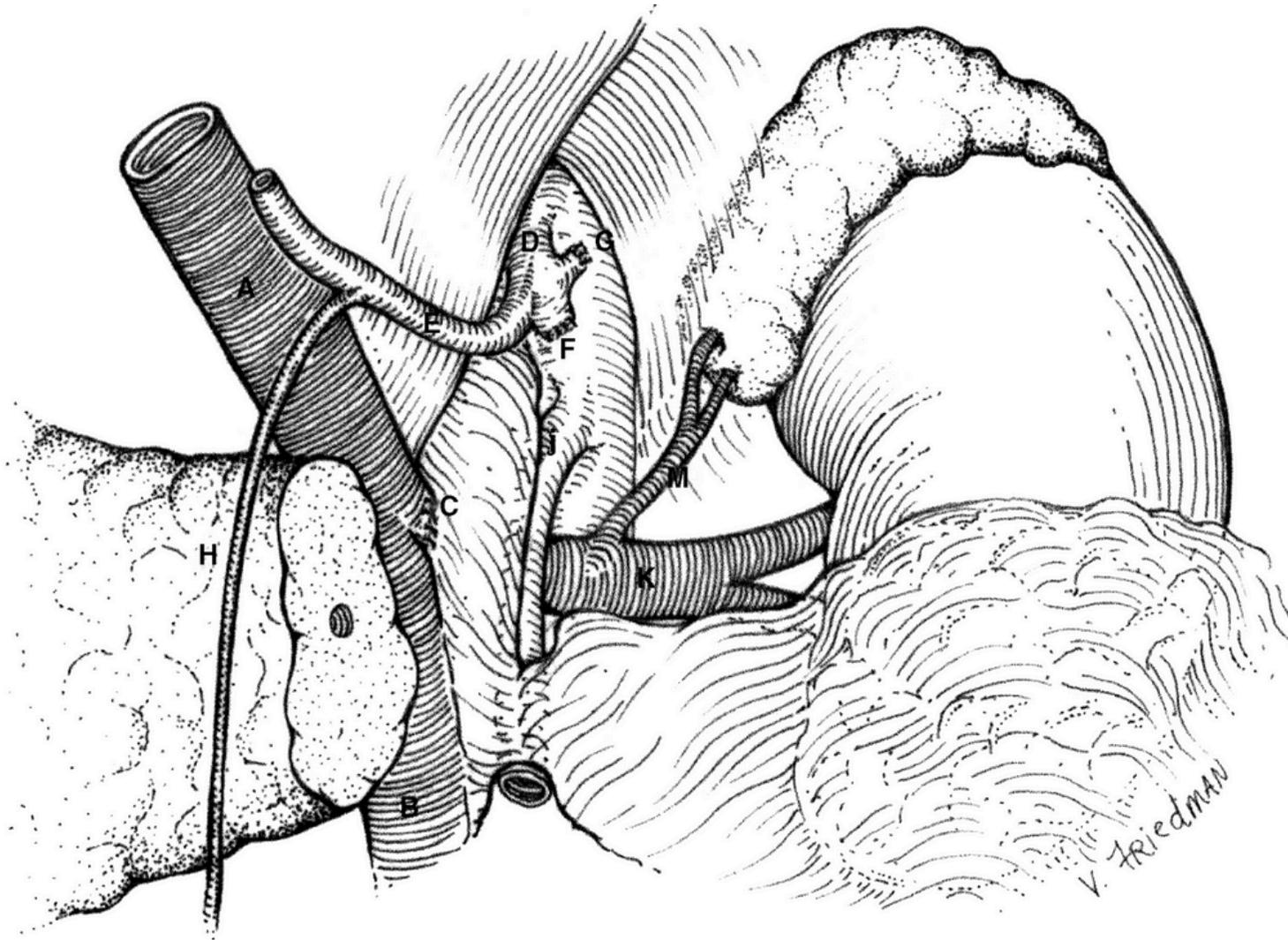
Radical antegrade modular pancreatosplenectomy

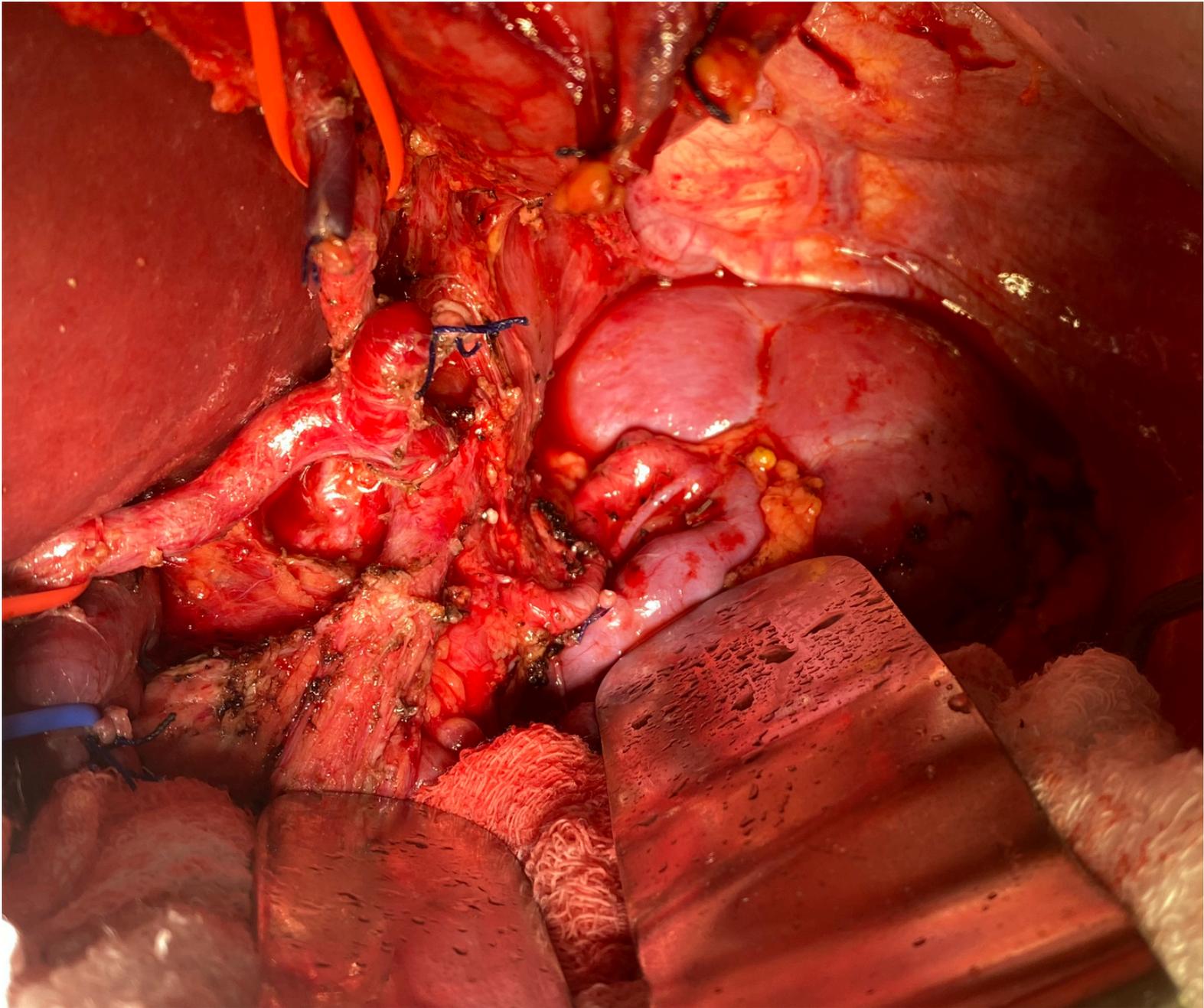
Steven M. Strasberg, MD, Jeffrey A. Drebin, MD, PhD, and David Linehan, MD, St. Louis, Mo



Radical antegrade modular pancreatosplenectomy

Steven M. Strasberg, MD, Jeffrey A. Drebin, MD, PhD, and David Linehan, MD, *St. Louis, Mo*





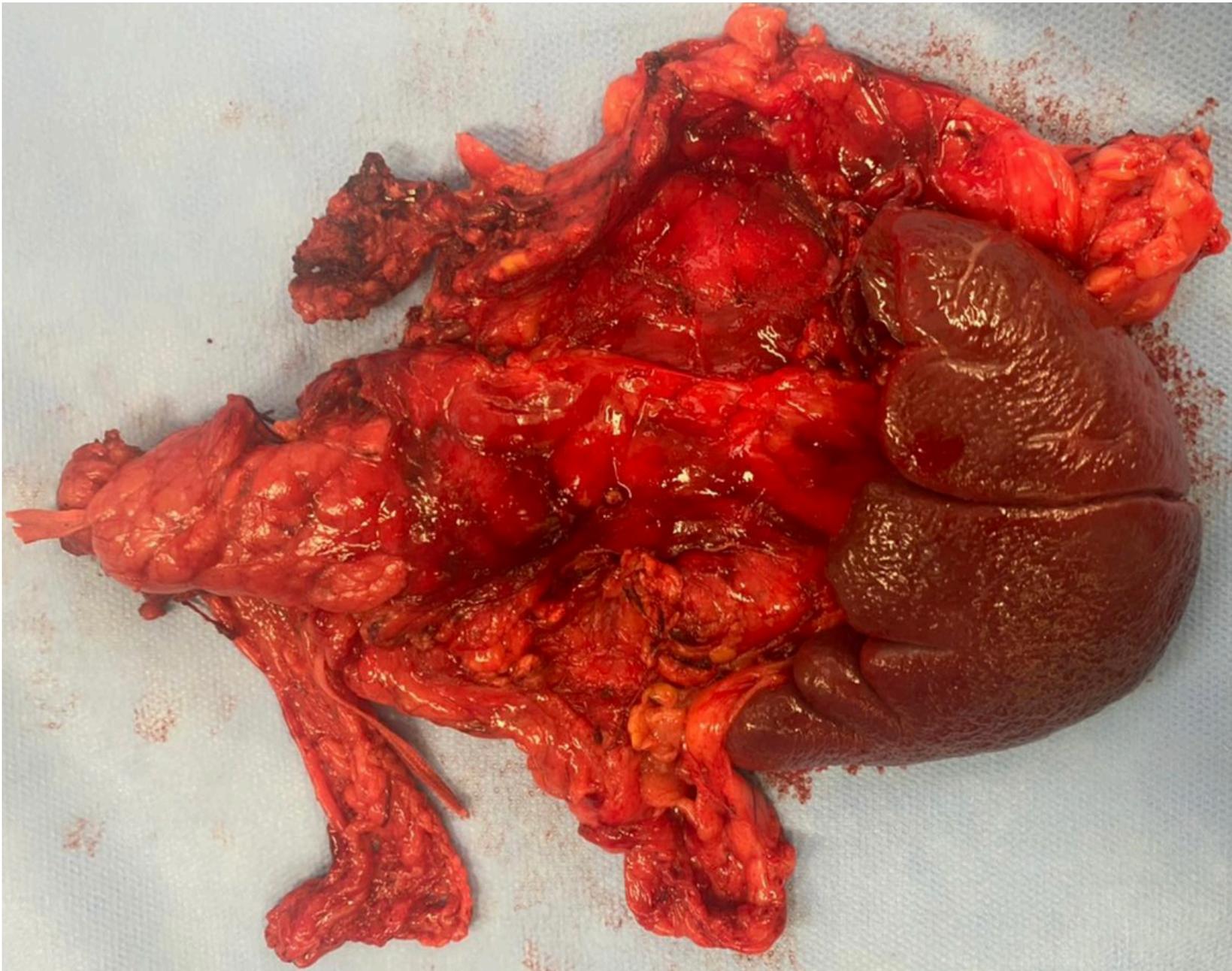


Table 2. Clinicopathological features of included studies.

Reference	Group	Intraoperative blood loss (ml)	Operative time (min)	Harvested lymph node	Hospital stay (days)	RO resection	POPF	Recurrence	HR (95%CI) for OS	HR (95%CI) for DFS
Abe [18]	RAMPS	485.4 ±63.3	267.3 ±11.5	28.4 ±11.6	35.7 ±19.6	48 (90.6%)	6 (11.3%)	32 (60.4%)	0.35 (0.13–0.95)	0.94 (0.51–1.73)
	SRPS	682.3 ±72.8	339.4 ±13.2	20.7 ±10.1	26.7 ±25.5	27 (67.5%)	6 (15.0%)	30 (75.0%)		
Kim [19]	RAMPS	300 ±220	277.8 ±55.6	21.5 ±8.3	6.4 ±4.3	22 (84.6%)	4 (13.3%)	8 (30.8%)	1.11 (0.28–4.37)	0.74 (0.16–3.45)
	SRPS	260 ±180	253.3 ±41.0	13.7 ±7.4	8.2 ±3.3	11 (64.7%)	2 (10.5%)	8 (47.1%)		
Latorre [20]	RAMPS	342	315	20.7 ±8.9	12.1	7 (87.5%)	1 (12.5%)	NA	1.26 (0.45–3.57)	1.32 (0.45–3.92)
	SRPS	369	265	16.2 ±4.2	9.9	15 (88.2%)	3 (17.6%)			
Lee [21]	RAMPS	445.8 ±346.1	324.3 ±154.2	10.5 ±7.1	12.3 ±6.8	5 (41.7%)	2 (16.7%)	5 (41.7%)	2.14 (0.47–9.65)	NA
	SRPS	669.5 ±776.1	270.1 ±140.4	13.8 ±11.1	22.4 ±21.6	49 (62.8%)	18 (23.1%)	58 (74.4%)		
Park [22]	RAMPS	325 (50–3400)	210 (125–480)	14 (5–52)	11.5 (7–32)	34 (89.5%)	1 (2.6%)	25 (65.6%)	0.49 (0.27–0.9)	NA
	SRPS	400 (50–3300)	185 (80–390)	9 (1–36)	10.7 (6–42)	46 (85.2%)	6 (11.1%)	35 (64.8%)		
Trottman [23]	RAMPS	500.0 ±260.8	300.0 ±87.0	11.2 ±6.0	7.7 ±3.0	6 (100%)	0 (0.0%)	NA	NA	NA
	SRPS	581.3 ±559.2	295.3 ±83.8	4.3 ±5.4	6.9 ±1.4	19 (95%)	6 (30.0%)			
Xu [24]	RAMPS	400 (350–650)	235 (180–278)	NA	15 (13–23)	19 (90.5%)	13 (61.9%)	6 (33.3%)	NA	NA
	SRPS	225 (200–400)	180 (130–210)		12 (10–16)	71 (91.0%)	36 (46.2%)	31 (45.6%)		

NA – not available; POPF – postoperative pancreatic fistula; HR – hazard ratio; CI – confidence interval; OS – overall survival; DFS – disease-free survival.

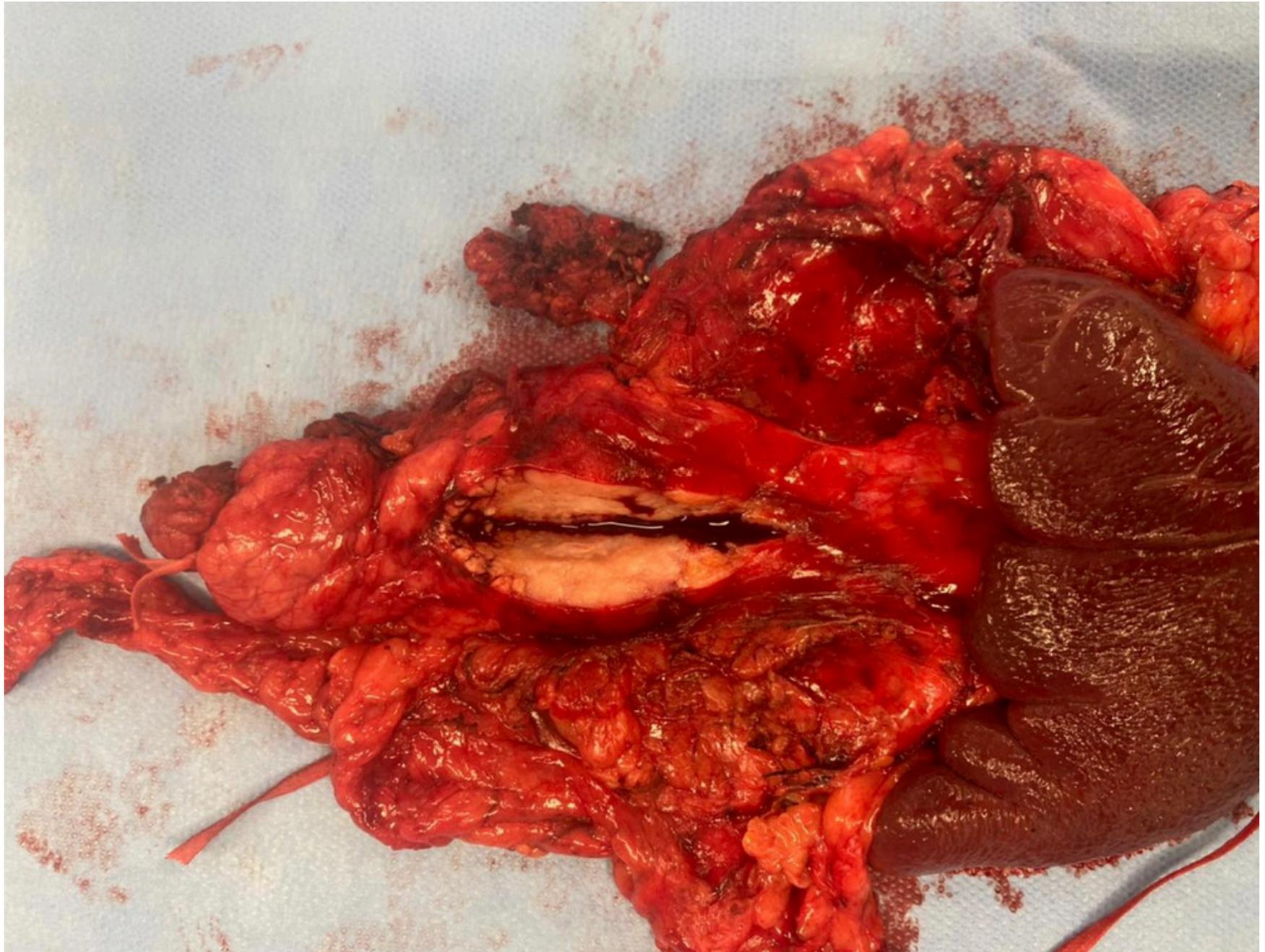


Table 3 Resected cancers of distal body and tail of pancreas—recent series with outcomes

Author	Year	Country	No. of patients	Margins R0%	Mean tumor size cm	Operative mortality %	Median survival months	5-year survival %
Shimada [12]	2006	Japan	88	75	NS	0	22	19
Christein [13]	2005	USA	66	78	5.5	0	16	10
Kooby [14]	2010	USA	212	74	4.4	1.1	16	19
Kanda [15]	2010	Japan	51	74	NS	0	13	6
Yamamoto [16]	2010	Japan	73	76	3.3	0	NS	30
Fujita [17]	2010	Japan	50	90	4.0	0	23	19
Wu [18]	2010	China	45	NS	4.7	2	15	0
Kang [19]	2010	Korea	45	87	4.2	0	28	29
Rosso [20]	2013	France	52	90	4.65	0	20.5	3-year 20.7
Kitagawa [21]	2014	Japan	24	88	3.5	0	NS	53
Trottman [22]	2014	USA	26	88	NS	NS	NS	NS
Murakawa [23]	2015	Japan	49	83.7	NS	0	22.6	3-year 38.6
Grossman [24]	2016	USA	78	85	4.7	0	25	25

Table 2 Surgical outcomes of patients of included studies

References	Group	Intraoperative blood loss(ml)	Operative time (min)	Lymph node harvested	Complication	R0 resection	Combined resection	Hospital stay (days)	Recurrence	HR(95% CI) for DFS	HR(95% CI) for OS
Latorre [28]	RAMPS	342	315	20.7 ± 8.9	2	7(87.5%)	4	12.1	NA	1.32 (0.45–3.92)	1.26 (0.45–3.57)
	Standard	369	265	16.2 ± 4.2	5	15(88.2%)		9.9	NA		
Park [24]	RAMPS	325 (50–3400)	210 (125–480)	14(5–52)	7	34(89.5%)	15	11.5(7–32)	25(65.6%)	NA	0.56 (0.32–0.98)
	Standard	400 (50–3300)	185 (80–390)	9(1–36)	12	46(85.2%)	11	10.7(6–42)	35(64.8%)		
Trottman [27]	RAMPS	500.0 ± 260.8	300.0 ± 87.0	11.2 ± 6.0	3	6(100%)	NA	7.7 ± 3.0	NA	NA	NA
	Standard	581.3 ± 559.2	295.3 ± 83.8	4.3 ± 5.4	12	19(95%)	NA	6.9 ± 1.4	NA		
Abe [20]	RAMPS	485.4 ± 63.3	267.3 ± 11.5	28.4 ± 11.6	19	48(90.6%)	8	35.7 ± 19.6	32(60.4%)	0.96 (0.54–1.71)	0.66 (0.21–2.11)
	Standard	682.3 ± 72.8	339.4 ± 13.2	20.7 ± 10.1	14	27(67.5%)	5	26.7 ± 25.5	30(75.0%)		
Xu ^a [29]	RAMPS	400(350–650)	235(180–278)	NA	16	19(90.5%)	13	15(13–23)	6(33.3%)	NA	NA
	Standard	225(200–400)	180(130–210)	NA	48	71(91.0%)	10	12(10–16)	31(45.6%)		
Kim ^b [30]	RAMPS	300 ± 220	277.8 ± 55.6	21.5 ± 8.3	14	22(84.6%)	NA	6.4 ± 4.3	8(30.8%)	0.90 (0.08–9.92)	0.48 (0.13–1.83)
	Standard	260 ± 180	253.3 ± 41.0	13.7 ± 7.4	8	11(64.7%)	NA	8.2 ± 3.3	8(47.1%)		

NA not available. ^aThree and 10 patients in RAMPS and standard group were loss of follow-up (median 18 months, range 5–37 months) in the study period. ^bTwo patients who had neuroendocrine carcinoma and two who had metastatic renal cell carcinoma in RAMPS group and two patients who had neuroendocrine carcinoma in standard group were excluded from the analyses of R0 and recurrence rate

Table 3 Secondly results of meta-analysis for RAMPS verse standard procedure in treatment of left-sided pancreatic cancer

Outcome	Ref. included	No. of patients with RAMPS vs no standard	Heterogeneity Chi-square test	Model used	OR or Mean difference	95% CI	<i>P</i> value
Intraoperative blood loss(ml)	[20, 27, 30]	89 vs 79	$P < 0.01$; $I^2 = 88\%$	Random effect	-85.11	-278.08-107.85	0.39
Operating time (min)	[20, 27, 30]	89 vs 79	$P < 0.01$; $I^2 = 96\%$	Random effect	-16.81	-95.19-61.57	0.67
Lymph node harvested	[20, 27, 28]	93 vs 94	$P = 0.86$; $I^2 = 0\%$	Fixed effect	7.06	4.52-9.60	<0.01
Complication	[20, 24, 27-29]	135 vs 150	$P = 0.97$; $I^2 = 0\%$	Fixed effect	0.94	0.56-1.59	0.83
Combined resection	[20, 24, 29]	112 vs 172	$P = 0.02$; $I^2 = 73\%$	Random effect	3.30	1.00-10.93	0.05
Hospital stay (days)	[20, 27, 30]	89 vs 79	$P = 0.04$; $I^2 = 68\%$	Random effect	0.49	-2.97-3.94	0.78

OR odds ratio, CI confidence intervals

Table 4 Systemic review of descriptive studies about RAMPS procedure in treatment of left-sided pancreatic cancer

Reference	Year	No. of patients	A/P RAMPS	Tumor size (cm)	N+(%)	R0(%)	Lymph Node harvested	Median follow-up time(months)	Recurrence rate (%)	Median survival time (months)	5-year overall survival (%)
Strasberg [19]	2003	10	6/4	4(2–15)	NA	90	1–28	NA	3(30.0%)	NA	NA
Strasberg [32]	2007	23	15/8	5.1 ± 2.6	48	87	14.3 ± 7.8	17 for alive	11(47.8%)	NA	NA
Kang ^a [41]	2010	5	5/0	2.4 ± 0.7	20	100	8.2 ± 5.9	13(4–21)	1(20%)	NA	NA
Ikegami [42]	2011	6	3/3	3.0 ± 0.9	NA	100	NA	NA	NA	NA	NA
Mitchem [43]	2012	47	32/15	4.4 ± 2.1	55	80.1	18.0 ± 11.7	26.4 for alive	27(57.4%)	25.9	35.5
Chang [44]	2012	24	19/5	4.09 ± 2.15	70.8	91.7	20.92 ± 11.24	20.06	21(87.5%)	18.2	NA
Kim [45]	2013	12	12/0	2(0.8–4.0)	50	NA	17(5–29)	NA	NA	NA	NA
Rosso [46]	2013	10	1/9	4.65(1.0–8.0)	70	90	17(13–95)	19.1 ± 10.1	NA	20.5%	NA
Lee ^b [39]	2014	12	12/0	2.75 ± 1.32	25	100	10.5 ± 7.14	39	5(41.7%)	60.0	55.6
Kitagawa ^c [38]	2014	24	19/5	3.5 ± 1.4	54.2	88	28 ± 12	52 for alive	10(41.7%)	NA	53
Kawabata ^d [37]	2015	11	NA	3.35(1.9–5.5)	91	77	26(9–80)	12.4(3.5–16.4)	1(9.1%)	NA	NA
Murakawa [12]	2015	49	NA	0.5–8.3	55	83.7	15	41.4	30(61.2%)	22.6	27
Grossman [31]	2016	78	56/22	4.71	47	85	20 ± 12.2	20.6 (0.3–145.3)	49(62.8%)	24.6	25.1

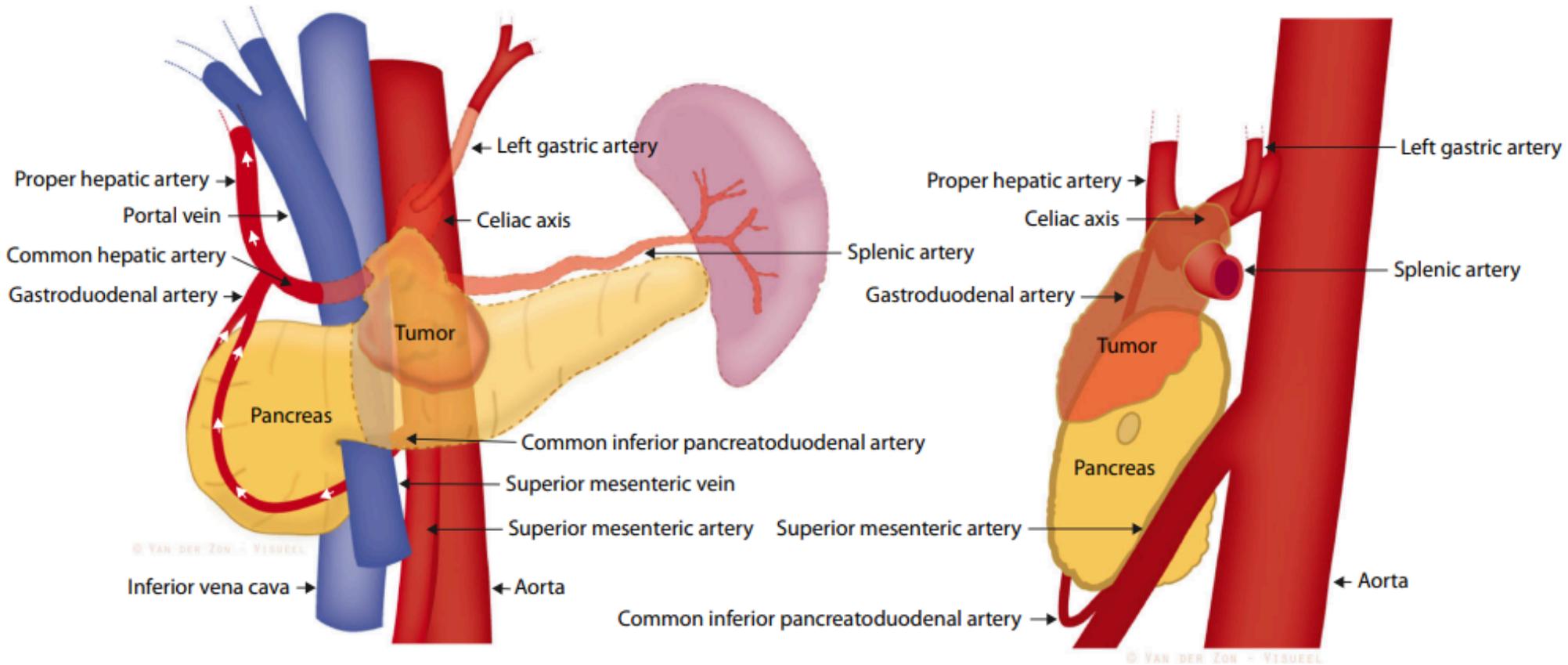
A/P anterior/posterior, NA not available. ^alaparoscopic or robot-assisted anterior RAMPS; ^blaparoscopic modified anterior RAMPS in well-selected patients with Yonsei criteria; ^cmodified RAMPS; ^dRAMPS with artery-first approach

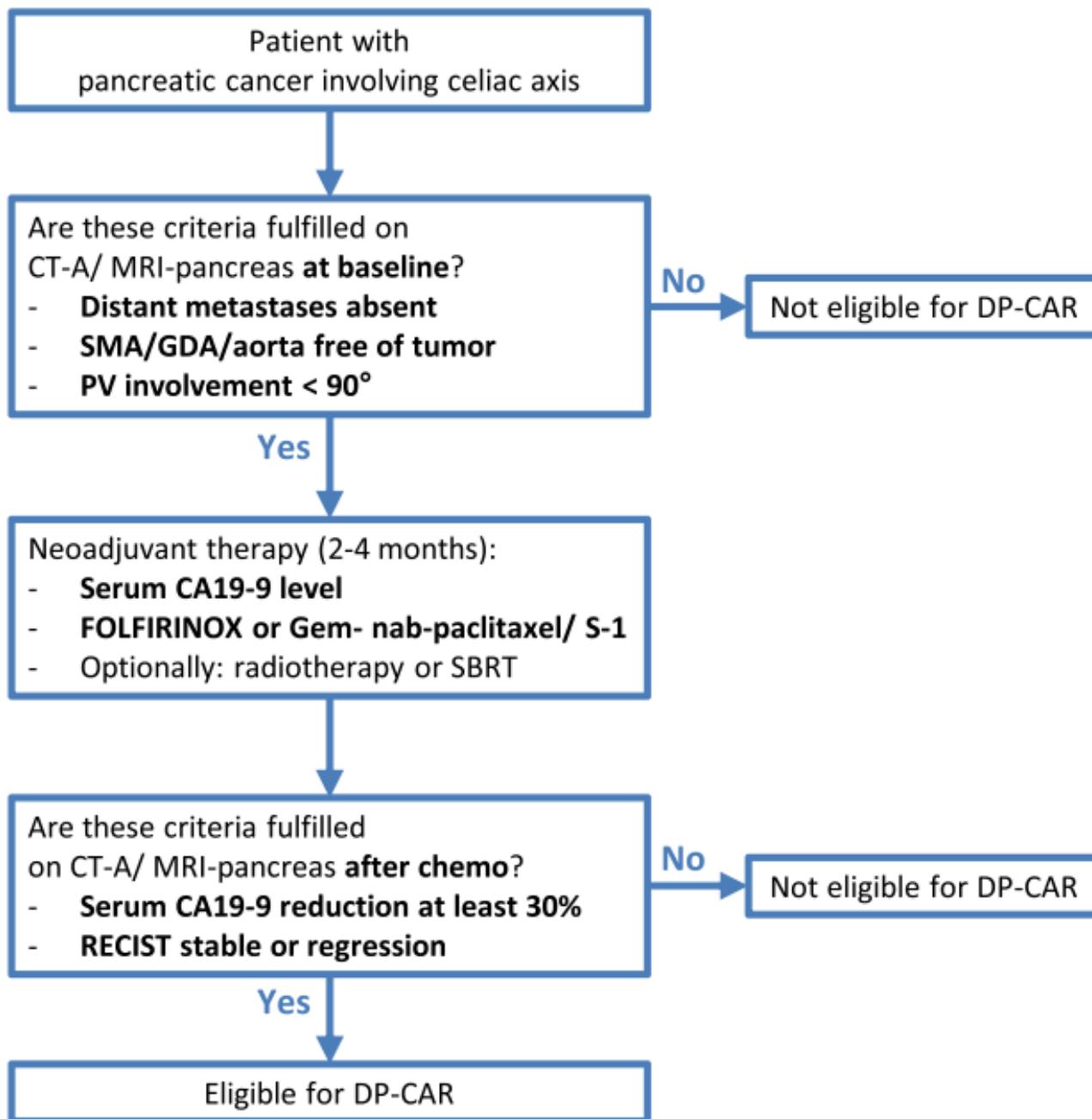
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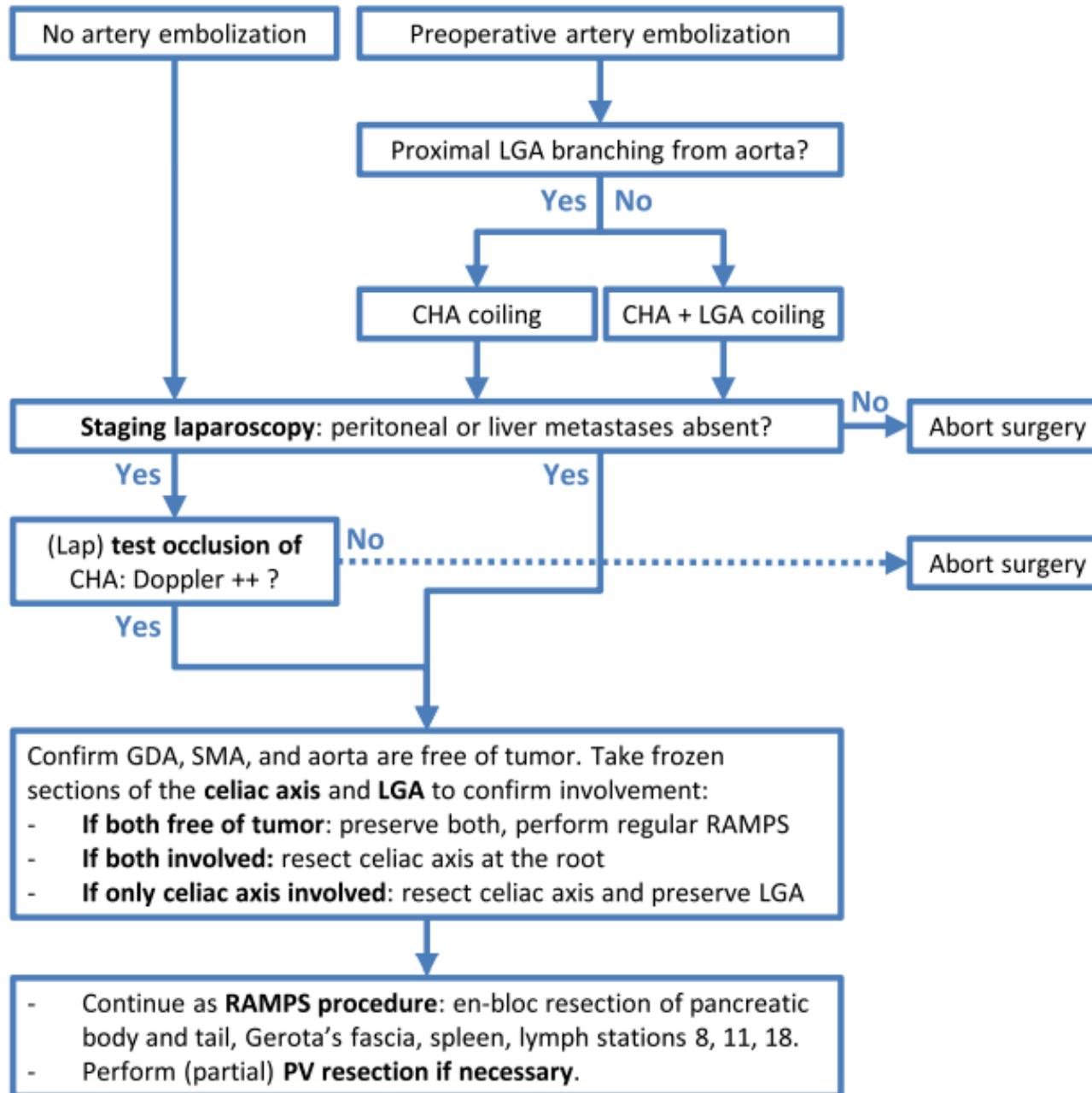
- **Neoadjuvant chemotherapy**
- **Chemoradiation therapy**
- **Arterial anatomy**
 - Replaced right hepatic artery arising from the SMA
- **Embolization of celiac axis branches**
 - to enlarge collateral pathways for the liver and the stomach.
 - after the neoadjuvant treatment
 - at least 1 week before surgery

Coronal

Sagittal







	<i>n</i>	Comparative group?	Neoadjuvant treatment?	Overall morbidity	Pancreatic fistula	R0 resection	Recurrence	Median DFS (mo)	Median OS (mo)
Kondo et al. [16] 2003	13	No	No	62%	8%	100%	54%	NA	12
Shimada et al. [25] 2006	12	Yes, 76 DP	No	36%	NA	NA	NA	NA	17
Hirano et al. [26] 2007	23	No	No	48%	17%	91%	NA	NA	21
Wu et al. [28] 2010	11	Yes, 54 DP and 20 palliative	No	54% (1 deceased)	27%	NA	NA	NA	14
Takahashi et al.	16	Yes, 27 DP	No	56% (1 deceased)	31%	56%	75%	NA	10
Yamamoto et al. [24] 2012	13	Yes, 58 DP and 24 palliative	No	92%	62%	31%	NA	NA	21
Baumgartner et al. [31] 2012	11	No	Yes, RCT	45%	35%	91%	55%	4.7	26
Jing et al. [32] 2013	24	No	No	54%	NA	NA	100%	NA	9

Article

Distal Pancreatectomy with and without Celiac Axis Resection for Adenocarcinoma: A Comparison in the Era of Neoadjuvant Therapy

Table 4. Post-operative characteristics.

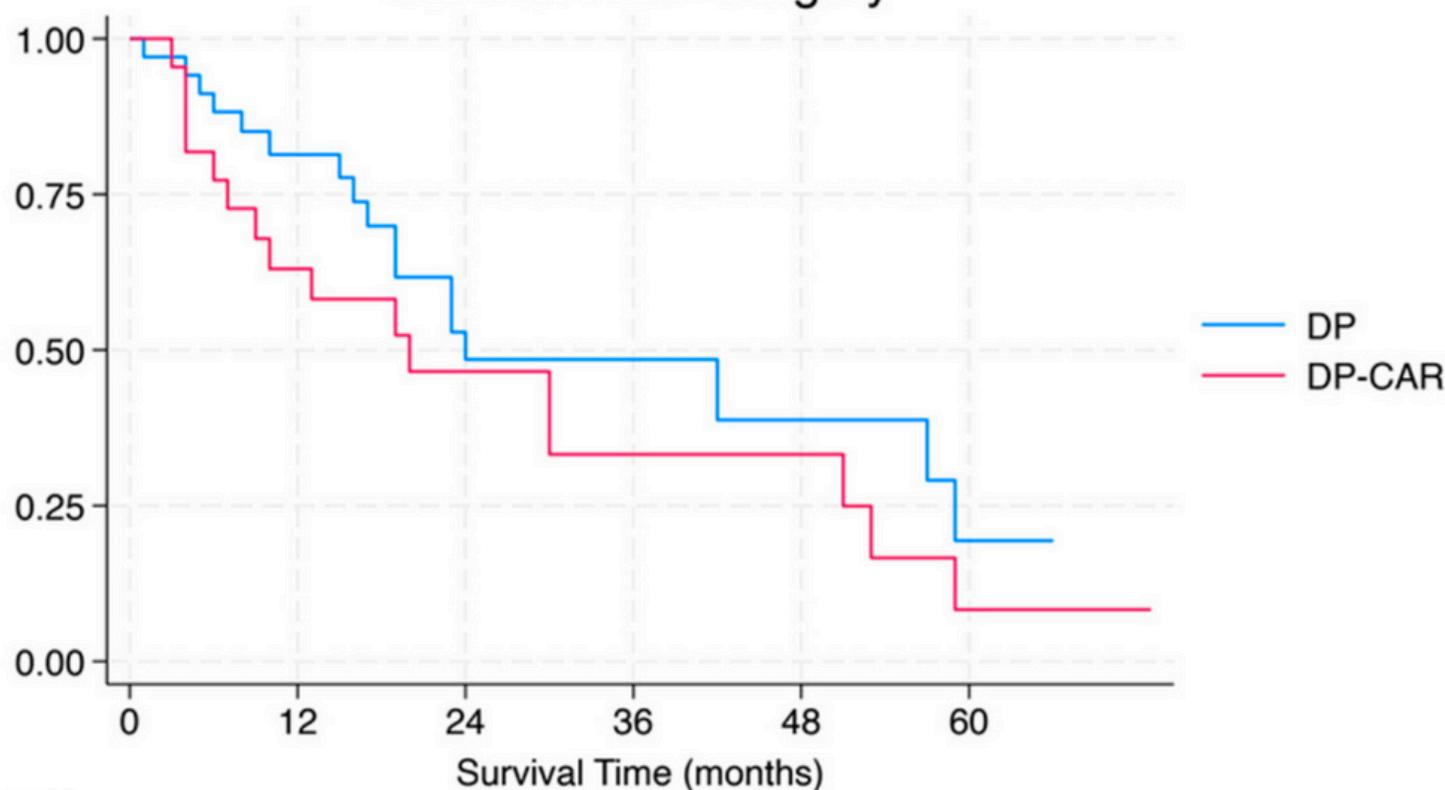
	DP-CAR	DP	
# Patients	22	34	
LOS (days)	7.5 (5–94)	6.0 (3–22)	<i>p</i> = 0.029
Post-operative ICU	7 (31.8%)	4 (11.7%)	<i>p</i> = 0.089
Mortality with 30 days of Surgery	0 (0.0%)	0 (0.0%)	<i>p</i> = 1.00
Mortality with 90 days of Surgery	0 (0.0%)	1 (2.9%)	<i>p</i> = 1.00
Complications within 30 Days of Surgery			
Superficial Incisional SSI	4 (18.2%)	2 (5.8%)	<i>p</i> = 0.198
Deep Incisional SSI	1 (4.5%)	1 (2.9%)	<i>p</i> = 1.00
Organ Space SSI	9 (40.9%)	9 (26.4%)	<i>p</i> = 0.380
PE	1 (4.5%)	2 (5.9%)	<i>p</i> = 1.00
Transfusion	5 (22.7%)	5 (14.7%)	<i>p</i> = 0.491
Unplanned Return to OR	1 (4.5%)	1 (2.9%)	<i>p</i> = 1.00
Chyle Leak	2 (9.1%)	3 (8.8%)	<i>p</i> = 1.00
TPN	5 (22.7%)	5 (15.7%)	<i>p</i> = 0.491
Hepatic Ischemia	3 (13.6%)	0 (0.0%)	<i>p</i> = 0.056
Gastric Ischemia	3 (13.6%)	1 (2.9%)	<i>p</i> = 0.289
Post-operative Weight Loss > 10%	11 (50.0%)	7 (20.6%)	<i>p</i> = 0.039
Morbidity (C-D IIIa or greater)	8 (36.3%)	9 (26.4%)	<i>p</i> = 0.554
Readmission Within 30 Days of Discharge	4 (18.2%)	9 (26.4%)	<i>p</i> = 0.535
ISGPF Fistula Grade B or C	7 (31.8%)	5 (14.7%)	<i>p</i> = 0.089
Recurrence	18 (81.8%)	20 (58.8%)	<i>p</i> = 0.087
Adjuvant Chemotherapy	15 (68.1%)	27 (79.4%)	<i>p</i> = 0.334
Months	2.5 (0.5–24)	3.5 (0–15)	<i>p</i> = 0.499
FOLFIRINOX or FOLFOXIRI	5 (22.7%)	10 (29.4%)	
Gemcitabine/ Abraxane	4 (18.2%)	7 (20.6%)	
Gemcitabine	4 (18.2%)	1 (2.9%)	
Other	4 (18.2%)	8 (23.5%)	
Adjuvant Radiation	6 (27.2%)	5 (14.7%)	<i>p</i> = 0.310
Adjuvant Immunotherapy	1 (4.5%)	3 (8.8%)	<i>p</i> = 1.00
Post-op Labs			
Peak AST	182 (26–4285)	86 (21–274)	<i>p</i> = 0.009
Peak ALT	122 (33–3366)	56 (18–362)	<i>p</i> = 0.007

The bold denotes significant values.

Article

Distal Pancreatectomy with and without Celiac Axis Resection for Adenocarcinoma: A Comparison in the Era of Neoadjuvant Therapy

Survival From Surgery



Number at risk		0	12	24	36	48	60
DP	34	22	12	7	4	1	
DP-CAR	22	13	7	5	4	1	

DISTAL PANCREATECTOMY WITH EN-BLOC CELIAC TRUNK RESECTION FOR LOCALLY ADVANCED PANCREATIC BODY CANCER (APPLEBY PROCEDURE)

Orlando Jorge Martins **TORRES**¹, Jose Maria Assunção **MORAES-JUNIOR**¹, Eduardo de Souza Martins **FERNANDES**²



FIGURE 1 – CT angiography showing narrowing of the celiac trunk, splenic artery and common hepatic

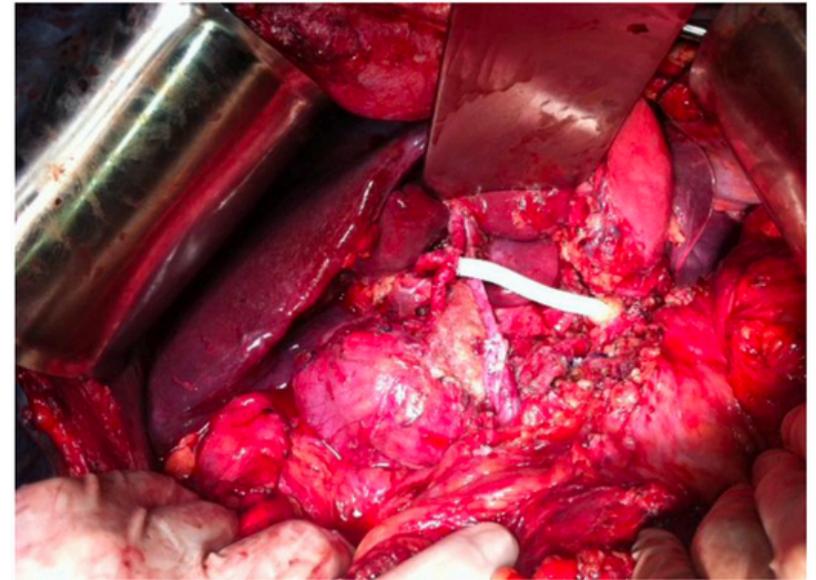


FIGURE 2 – Appleby procedure. Polytetrafluoroethylene (PTFE) prosthesis from the celiac trunk to the common hepatic artery.

Distal pancreatectomy

- Splenectomy
- Spleen preservation (classic)
- Splenic artery preserving
- Warshaw technique

Spleen-preserving distal pancreatectomy

- Benign
- Premalignant
- Low-grade malignant

Risk of inadequate oncological clearance

Splenectomy

- Kimura
- Warshaw

Complications of splenectomy

- Thrombocytosis
- Thromboembolism
- Infections

Original Article

Outcome after spleen-preserving distal pancreatectomy by Warshaw technique for pancreatic body cancer

Table 2. Intraoperative and pathologic parameters

	SPDP group (n = 21)	DPS group (n = 63)	p-value
Surgery time (h)	2.92 ± 1.00	2.90 ± 1.00	0.935 ^{b)}
Blood loss (mL)	100 (75–200)	100 (100–300)	0.541 ^{c)}
Laparoscopic surgery	12 (57.1)	25 (39.7)	0.207 ^{a)}
Pathology			> 0.999 ^{a)}
PDAC	17 (81.0)	49 (77.8)	
Adenosquamous carcinoma	0 (0)	2 (3.2)	
IPMN-inv	3 (14.3)	8 (12.7)	
Undifferentiated carcinoma	1 (4.8)	4 (6.3)	
Tumor size (cm)	3.33 ± 1.33	3.36 ± 1.89	0.953 ^{b)}
R0 resection			0.281 ^{a)}
R0	18 (85.7)	58 (92.1)	
R1 (< 1 mm)	3 (14.3)	3 (4.8)	
R1, direct	0 (0)	2 (3.2)	
Perineural invasion	12 (57.1)	43 (79.6) (n = 54)	0.079 ^{a)}
Number of total lymph nodes	8 [0–20]	11 [2–28]	0.006 ^{c)}
Number of metastatic lymph nodes	0 [0–3]	0 [0–8]	0.666 ^{c)}
Postoperative hospital stay (day)	11 (10–13)	12 (10–16)	0.107 ^{c)}

Original Article

Outcome after spleen-preserving distal pancreatectomy by Warshaw technique for pancreatic body cancer

Table 3. Postoperative complications

	SPDP group (n = 21)	DPS group (n = 63)	p-value
Overall complications	12 (57.1)	32 (50.8)	0.801 ^{a)}
Clavien-Dindo classification			0.387 ^{a)}
I	4 (19.0)	5 (7.9)	
II	7 (33.3)	18 (28.6)	
IIIa	1 (4.8)	9 (14.3)	
Severe morbidity	1 (4.8)	9 (14.3)	0.439 ^{a)}
Pancreatic fistula, Grade B	8 (38.1)	21 (33.3)	0.792 ^{a)}
DGE, Grade B	0 (0)	8 (12.7)	0.192 ^{a)}
Postoperative hemorrhage	0 (0)	1 (1.6)	> 0.999 ^{a)}
Chyle leakage, Grade A	3 (14.3)	4 (6.3)	0.359 ^{a)}
Abdominal infection	1 (4.8)	3 (4.8)	> 0.999 ^{a)}
Ascites	1 (4.8)	3 (4.8)	> 0.999 ^{a)}
Pulmonary infection	2 (9.5)	1 (1.6)	0.153 ^{a)}
Incision complications	0 (0)	1 (1.6)	> 0.999 ^{a)}
Splenic infarction	6 (28.6)	-	
Left-side portal hypertension	2 (9.5)	-	

Values are presented as number (%).

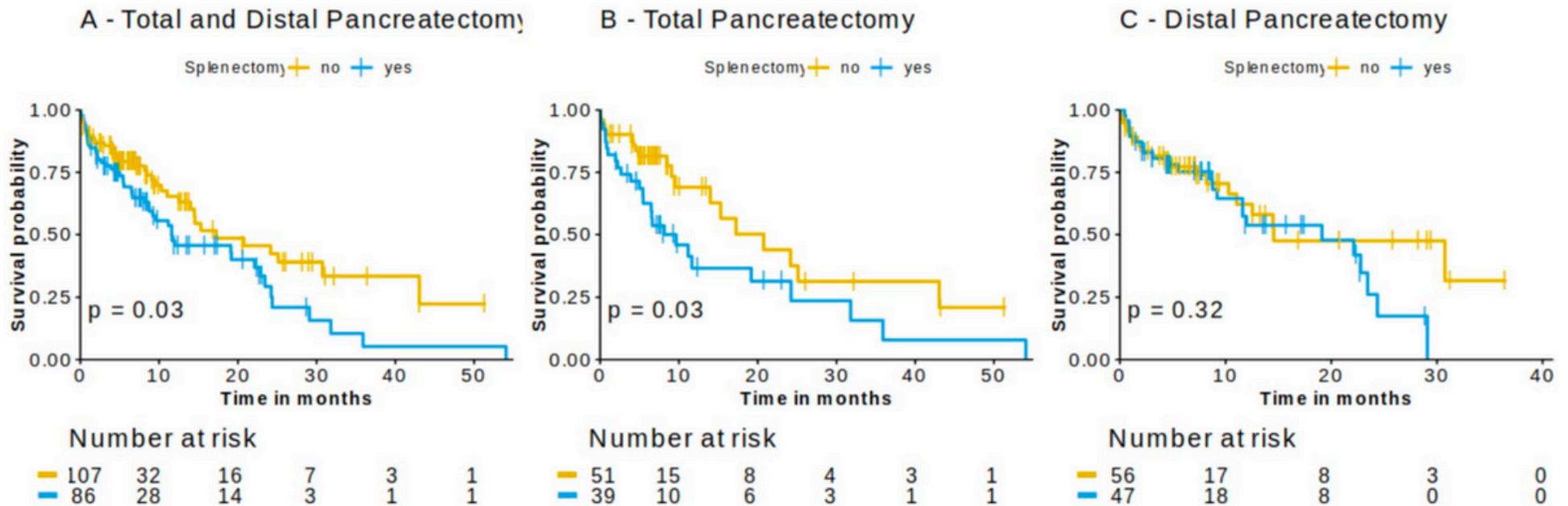
SPDP, spleen-preserving distal pancreatectomy; DPS, distal pancreatectomy with splenectomy; DGE, delayed gastric emptying; NA, not available.

^{a)}Fisher's exact test.



RESEARCH

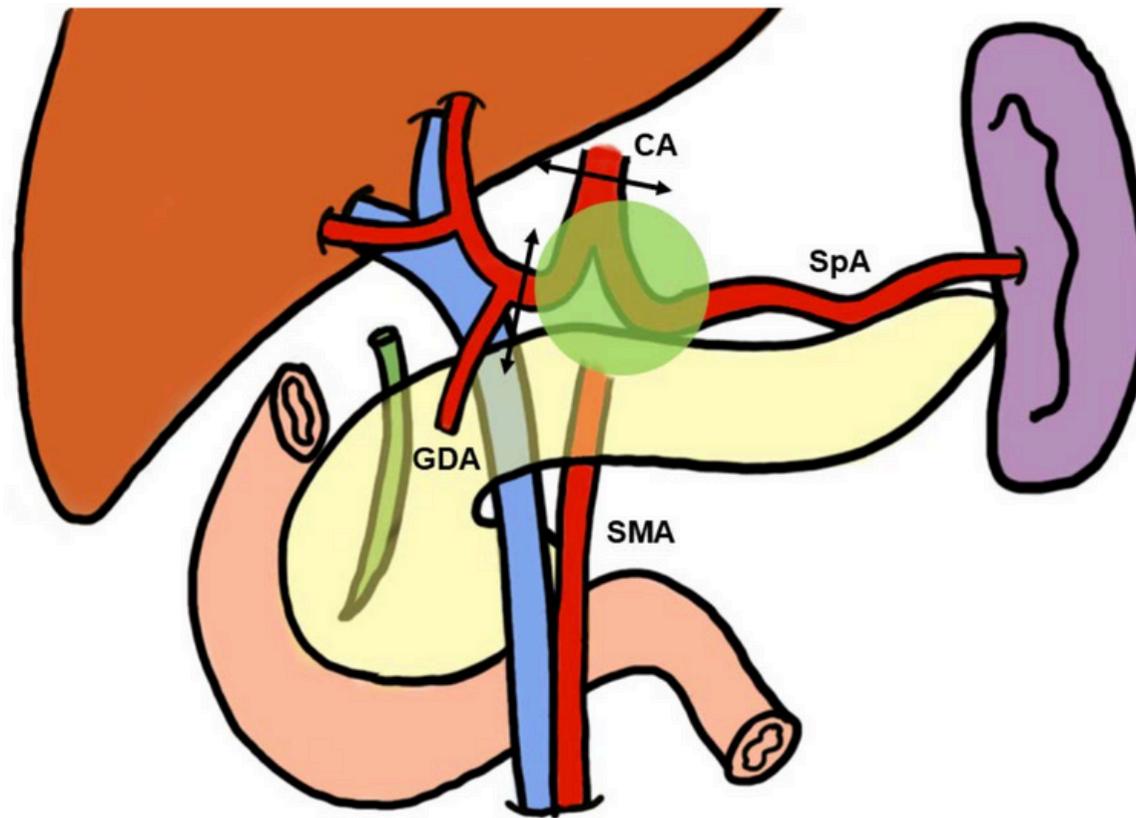
A retrospective, multicentric, nationwide analysis of the impact of splenectomy on survival of pancreatic cancer patients





Article

Pancreatectomy with Celiac Axis Resection and Reconstruction for Locally Advanced Pancreatic Cancer



LAPAROSCOPIC DISTAL PANCREATECTOMY WITH OR WITHOUT SPLEEN PRESERVATION: COMPARATIVE ANALYSIS OF SHORT AND LONG-TERM OUTCOMES

TABLE 1 – Epidemiological characteristics and early results

Groups	1 (Splenectomy)	2 (Spleen preservation)	p
n	32	26	0.87
Bleeding*	244.11 ml (0 – 1000)	119.2 ml (50 – 600)	0.03*
Resected lymph nodes*	7.07 (3-12)	2.72 (1-6)	0.000*
Weight of surgical specimen**	162.3 gr (85.1-565.3)	161.5 gr (81,3-358.5)	0.76
Duration of hospitalization*	5.4 days (2 – 13)	4.8 days (2 – 14)	0.43
Conversion	2 (6.2 %)	1 (3.8%)	0.59
Postoperative complications	7 (22 %)	6 (23 %)	0,93
Mortality	1 (3.4%)	0	0.31
Positive margins	2 (6.8%)	1 (3,8%)	0.66
Pancreatic fistula (grades B and C)	4 (12.5%)	3 (10.3%)	0.76

*=Variables described in means, ***=spleen excluded

LAPAROSCOPIC DISTAL PANCREATECTOMY WITH OR WITHOUT SPLEEN PRESERVATION: COMPARATIVE ANALYSIS OF SHORT AND LONG-TERM OUTCOMES

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Olímpia Alves Teixeira **LIMA**^{1,2,3}, Sandro José **MARTINS**³, Orlando J. **TORRES**⁴

TABLE 2 - Etiology of pancreatic lesions

Histological time	Group 1	Group 2
Adenocarcinoma	5 (17.2%)	0
Mucinous cystadenocarcinoma	1 (3.4%)	0
Mucinous cystadenoma	9 (31%)	7 (24.1%)
Serous cystadenoma	3 (10.3%)	7 (24.1%)
IPMN	3 (10.3%)	7 (24.1%)
Neuroendocrine tumor	6 (20.6%)	5 (17.2%)
PSCT (Frantz)	2 (6.8%)	2 (6.8%)
Accessory spleen	0	1 (3.4%)

IPMN=intraductal papillary mucinous neoplasia; PSCT=pseudopapillary solid cystic tumor

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TABLE 3 – Late results

Groups	1 (Splenectomy)	2 (Spleen preservation)	p
n	32	26	
Late complications	5 (15.6%)	5 (19.2%)	0.93
Follow-up	43.5 months (5 – 96)	31.7 months (12 – 72)	0.35
Recurrence	6 (20.68%)	0	0.01*

REVIEW ARTICLE

Spleen-preserving distal pancreatectomy with and without splenic vessel ligation: a systematic review

Table 4 Complications

	Warshaw's technique	SVP technique	^a P-value
Splenic complications:			
Post-operative splenectomy	2% (7/356)	0% (0/574)	0.001
Splenic infarction	22% (51/233)	2% (2/103)	<0.001
Perigastric varices	17% (39/232)	0% (0/15)	0.14
Submucosal varices	11% (5/46)	0% (0/15)	0.58
Intra-abdominal collections	6% (7/111)	4% (12)	0.29
Pancreatic fistula	11% (17/148)	16% (41/253)	0.15
Chronic left-sided abdominal pain	38% (5/13)	0% (0/15)	0.048

All data in percentage (number of patients/total number of reported patients).

^aP-values calculated using the chi-square test.



Laparoscopic antegrade spleen-preserving distal pancreatectomy with conservation of the splenic vessels: a prospective multi-centre case series

Table 2**Short-term outcomes.**

Index	<i>N</i> = 18
Type of postoperative complications, <i>n</i> , (%)	
Pancreatic fistula	12 (66.7)
Bleeding ^a (GI bleeding, peritoneal hemorrhage)	2 (11.1%)
Pancreatic fistula, <i>n</i> , (%)	
Grade A	8 (44.4)
Grade B	6 (22.2)
Grade C	0
Re-operations ^a	2 (11.1)
Length of hospital stay (mean ± SD, min–max days)	9.4 ± 1.3 (6–15)
In-hospital mortality, <i>n</i> , (%)	0

GI, gastrointestinal; min, minimum; max, maximum.

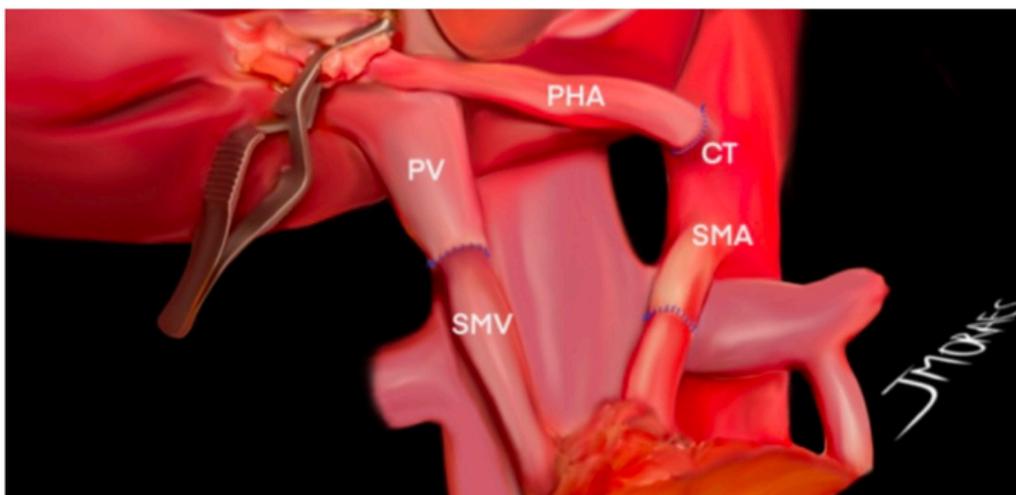
^aTwo cases required re-operation due to postoperative bleeding, with one instance undergoing laparoscopic surgery and another requiring open surgery due to hemorrhagic shock.



COMBINED VENOUS AND ARTERIAL RECONSTRUCTION IN THE TRIANGLE AREA AFTER TOTAL PANCREATODUODENECTOMY

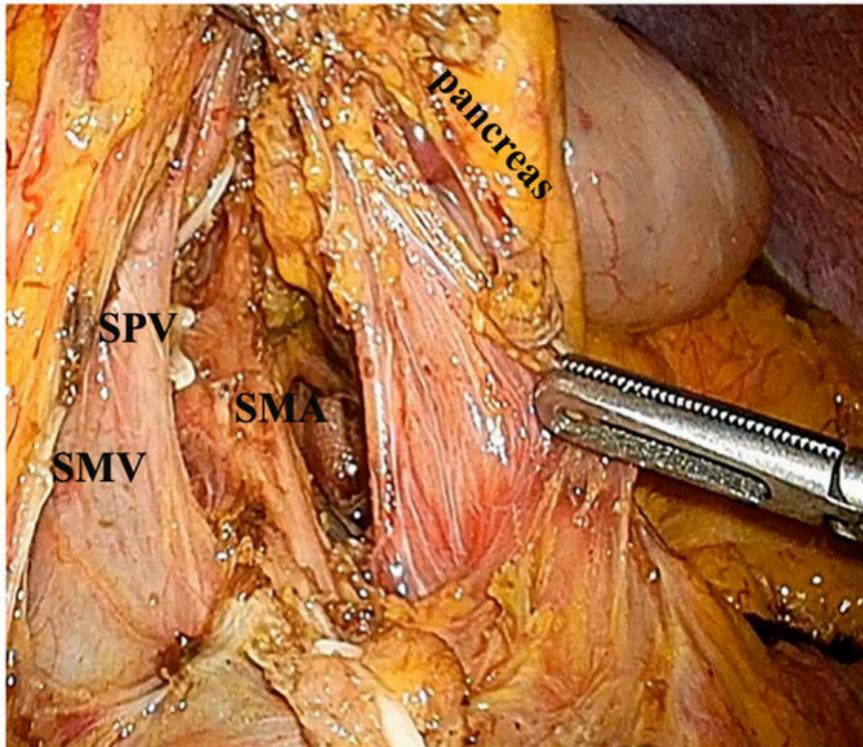
RECONSTRUÇÃO VENOSA E ARTERIAL COMBINADA NA ÁREA DO TRIÂNGULO APÓS PANCREATODUODENECTOMIA TOTAL

Eduardo de Souza Martins **FERNANDES**¹®, Jose Maria Assunção **MORAES-JUNIOR**²®, Rodrigo Rodrigues **VASQUES**²®, Marcos **BELOTTO**³®, Orlando Jorge Martins **TORRES**²®

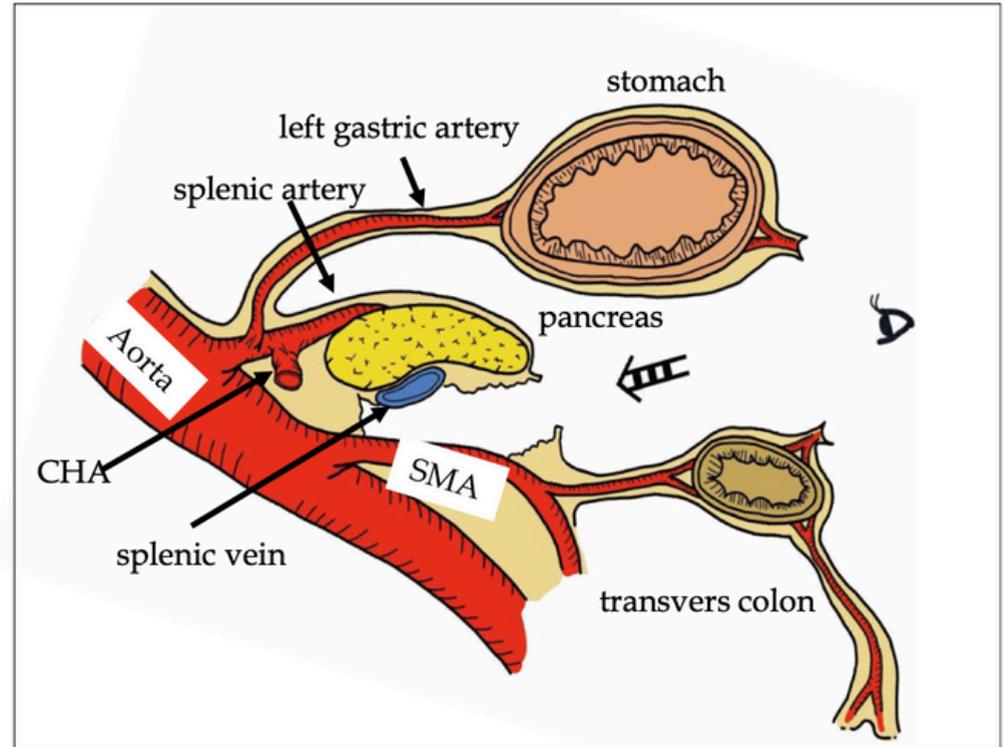




Laparoscopic versus open radical antegrade modular pancreatectomy with artery–first approach in pancreatic cancer



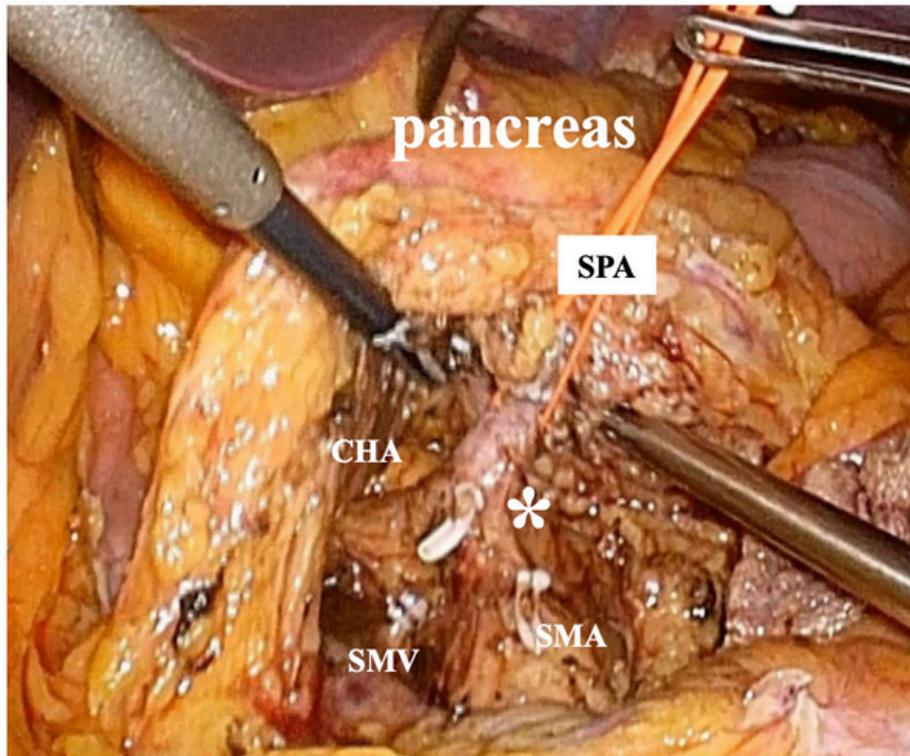
(a)



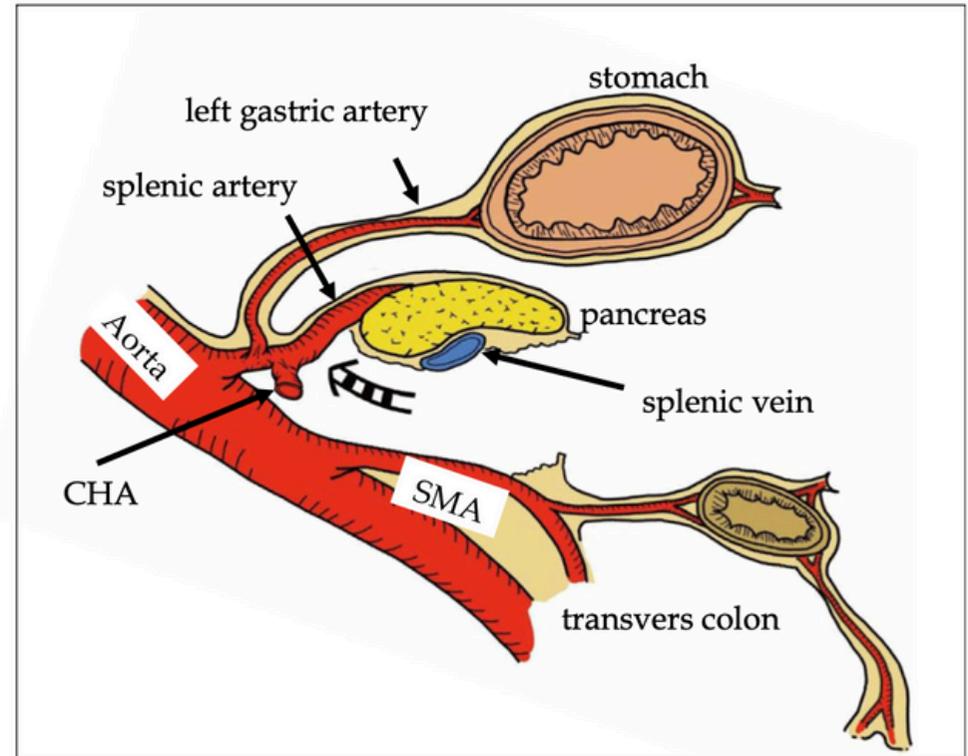
(b)



Laparoscopic versus open radical antegrade modular pancreatectomy with artery–first approach in pancreatic cancer



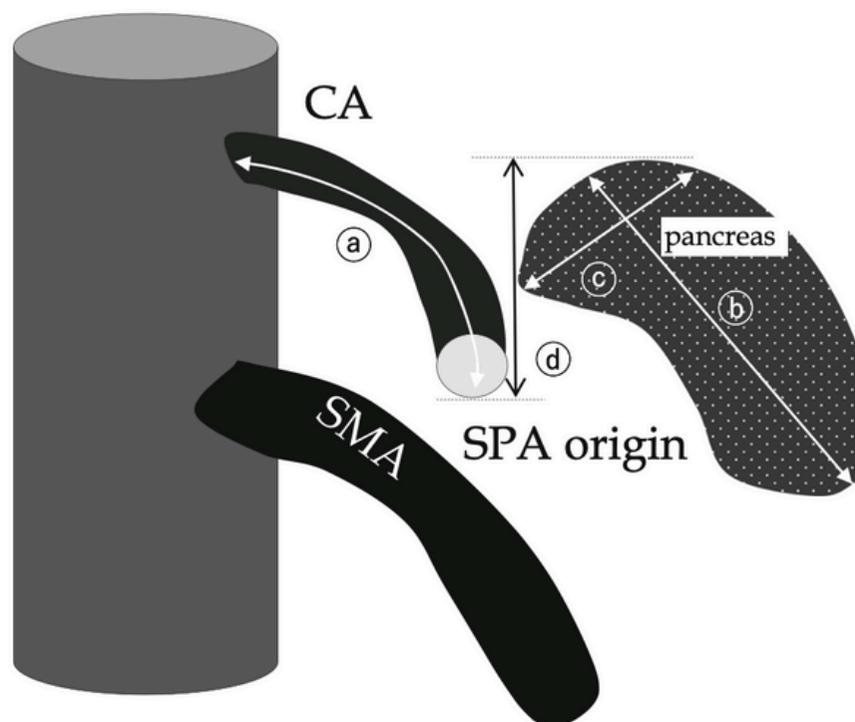
(a)



(b)



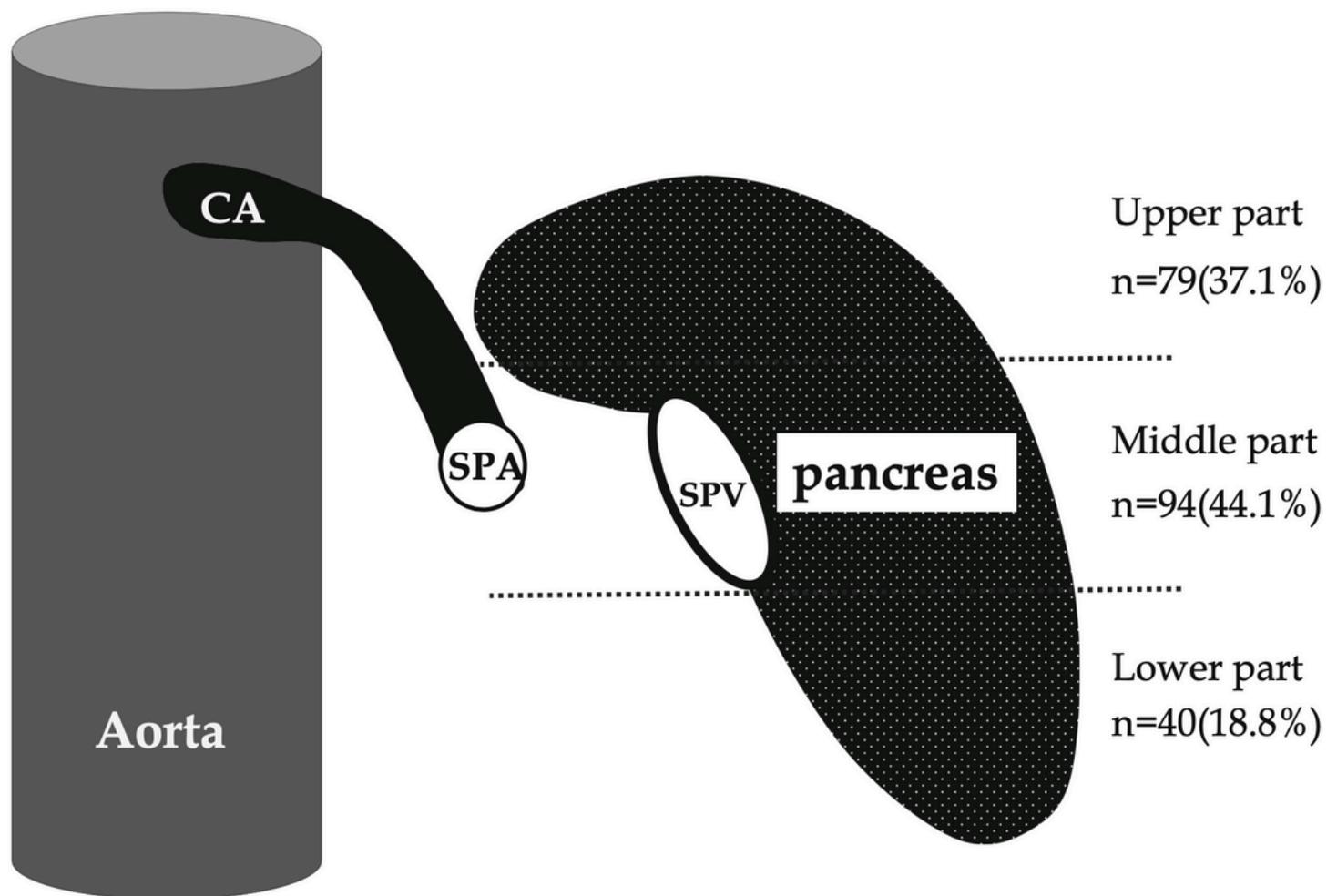
Laparoscopic versus open radical antegrade modular pancreatectomy with artery–first approach in pancreatic cancer



	(a)	(b)	(c)	(d)
mm, median(range)	37.7(16.4-81.9)	30.4(9.6-73.8)	16.7(6.2-30.1)	11.9(-19.7-39.6)

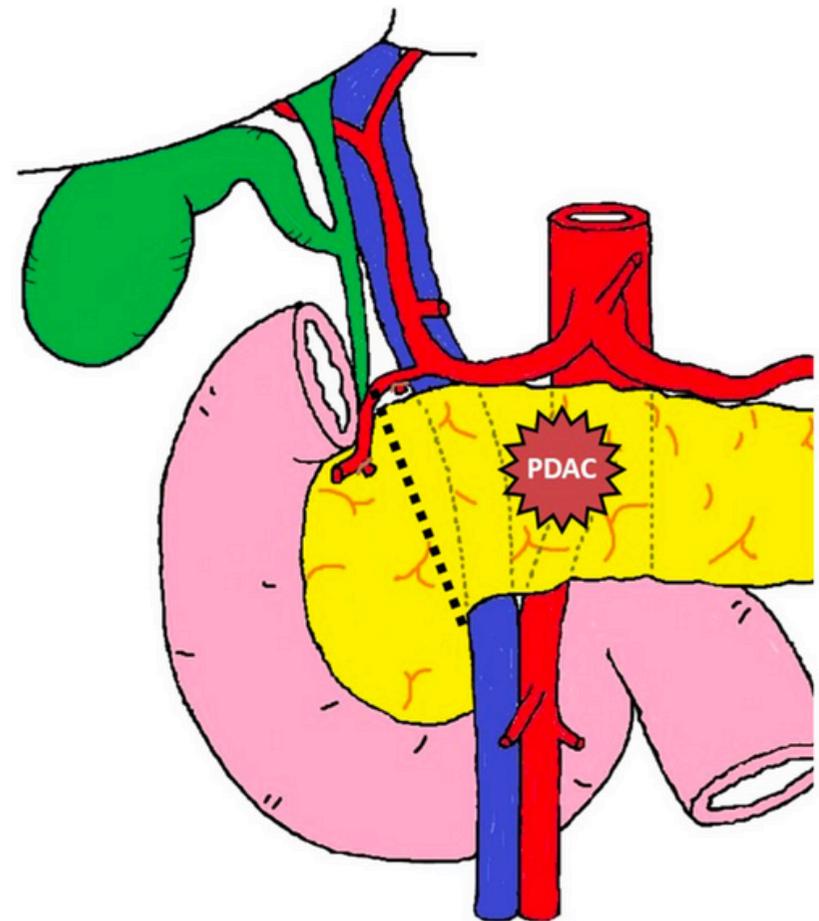
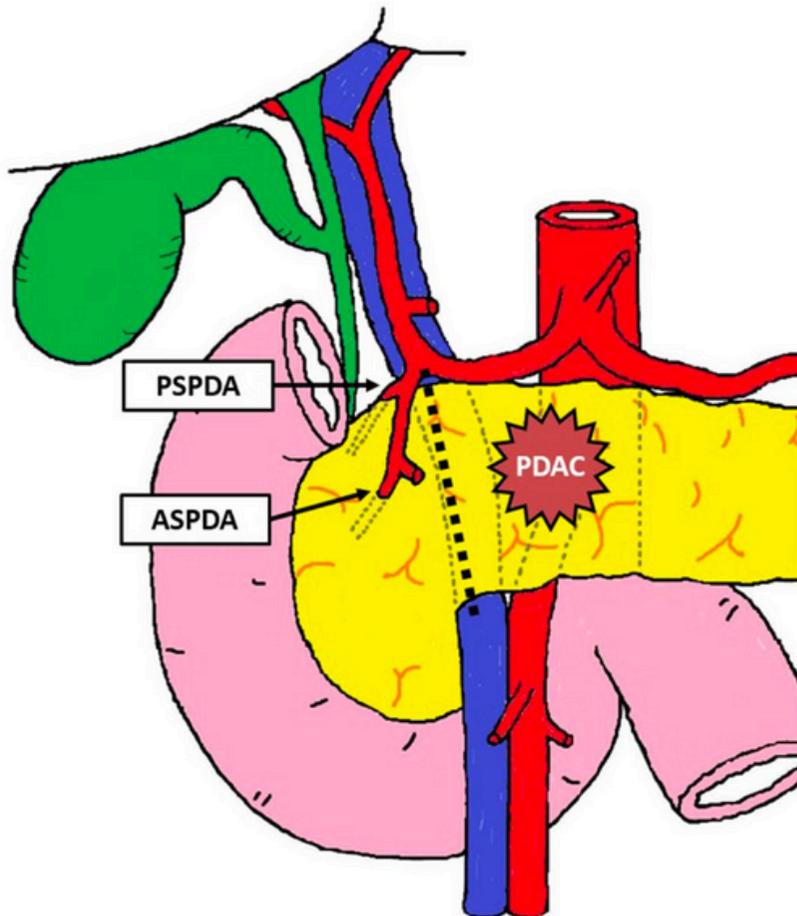


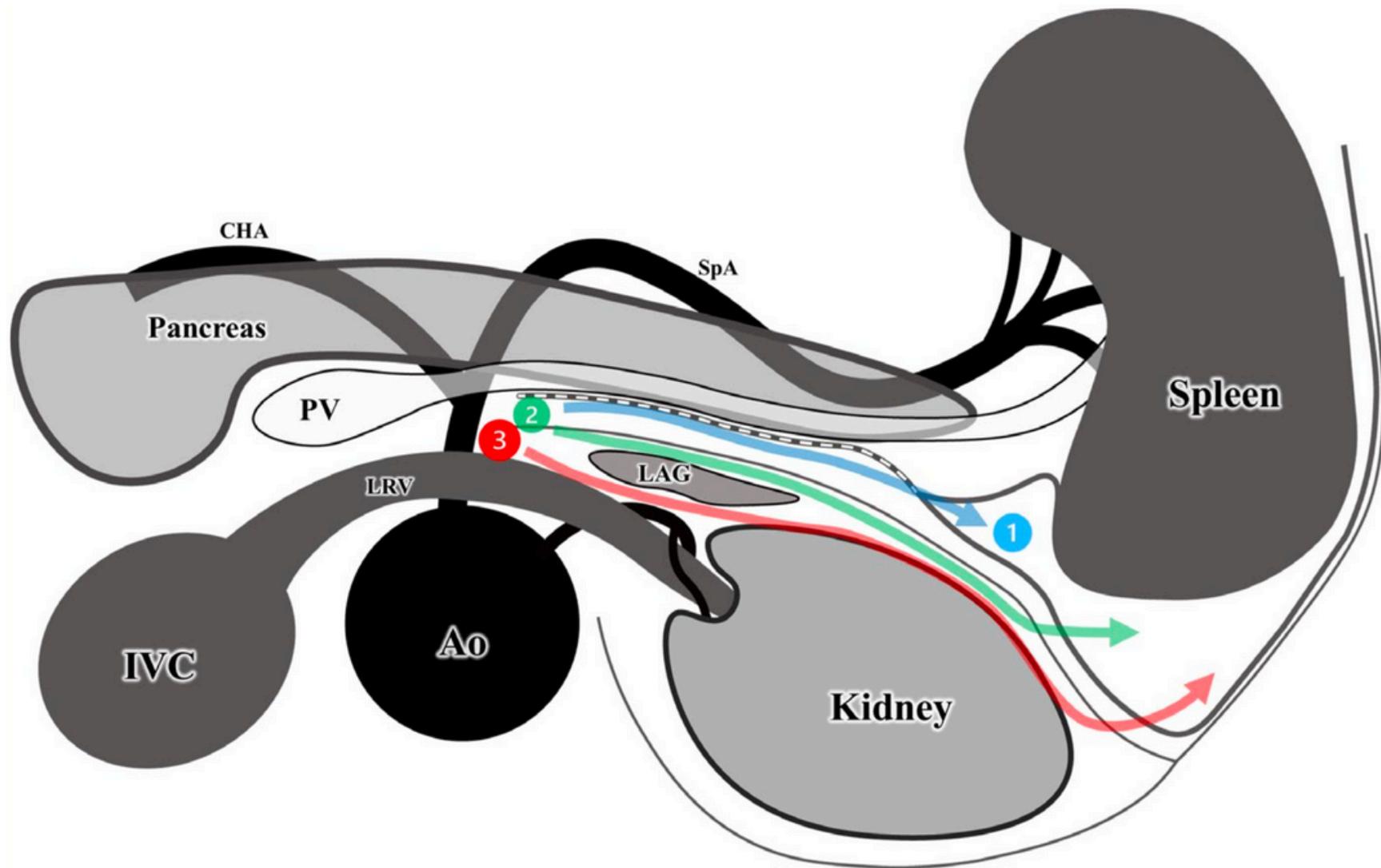
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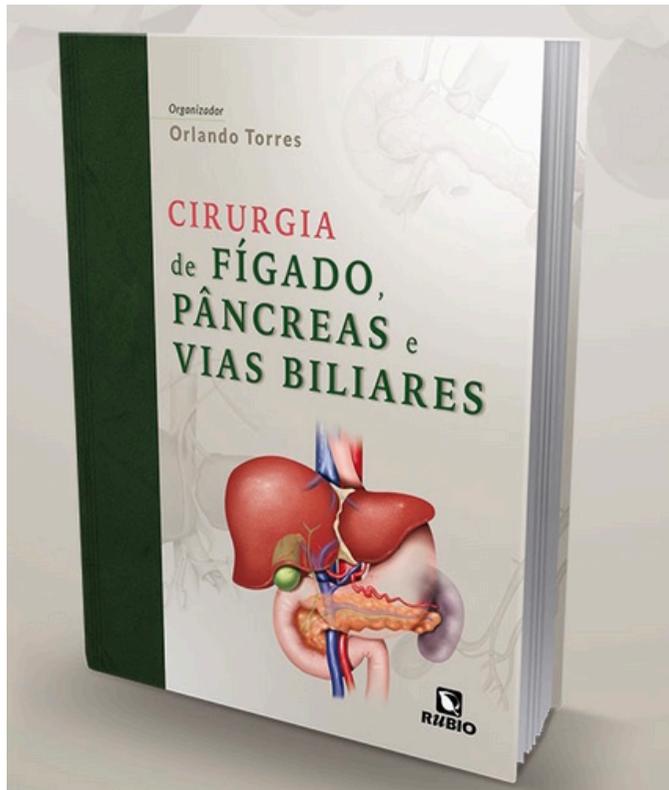


Extensive (subtotal) distal pancreatectomy for pancreatic ductal adenocarcinoma: a propensity score matched cohort study of short- and long-term outcomes compared with those of conventional distal pancreatectomy





Lençóis Maranhenses



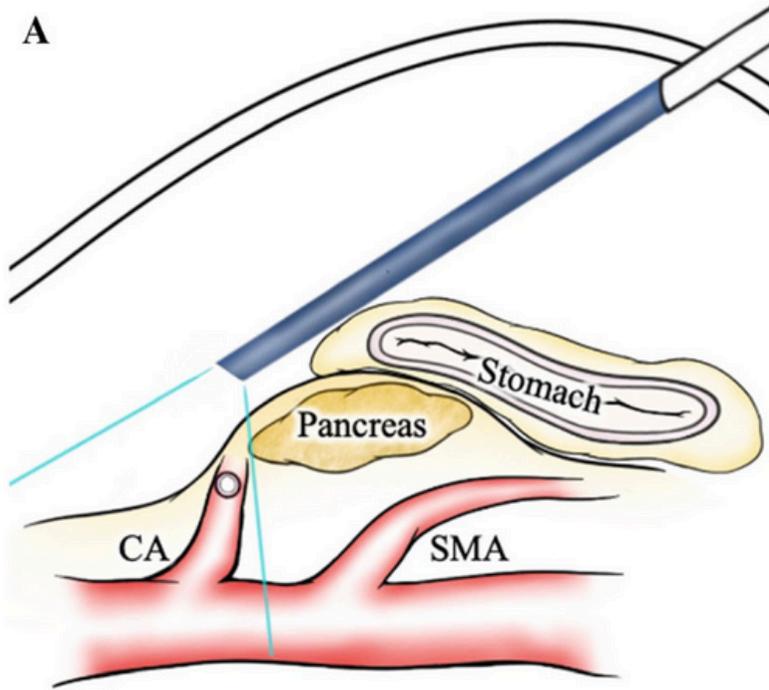
www.drorlandotorres.com.br

Thanks!

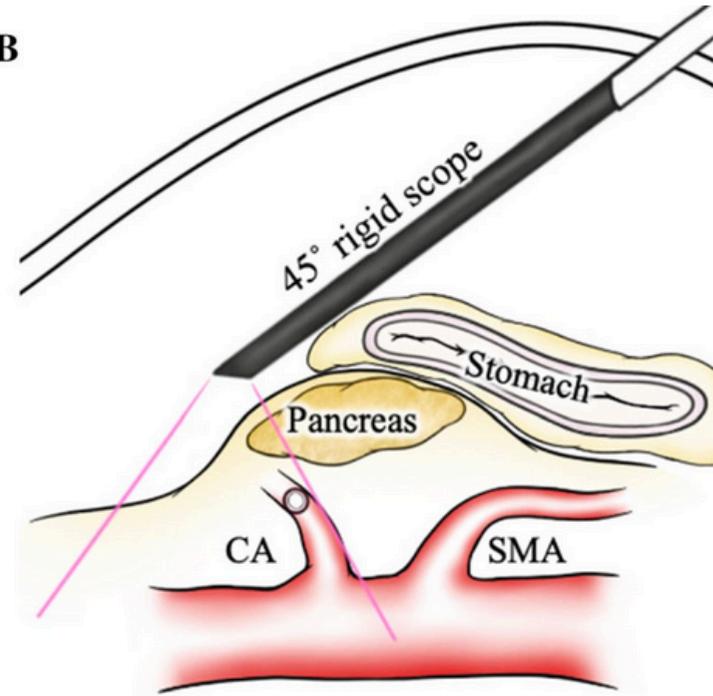


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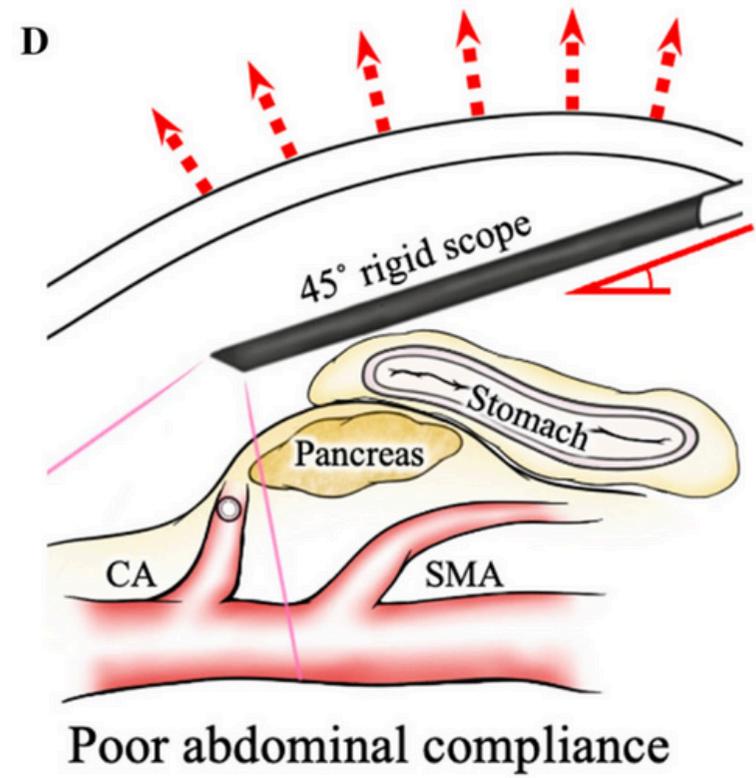
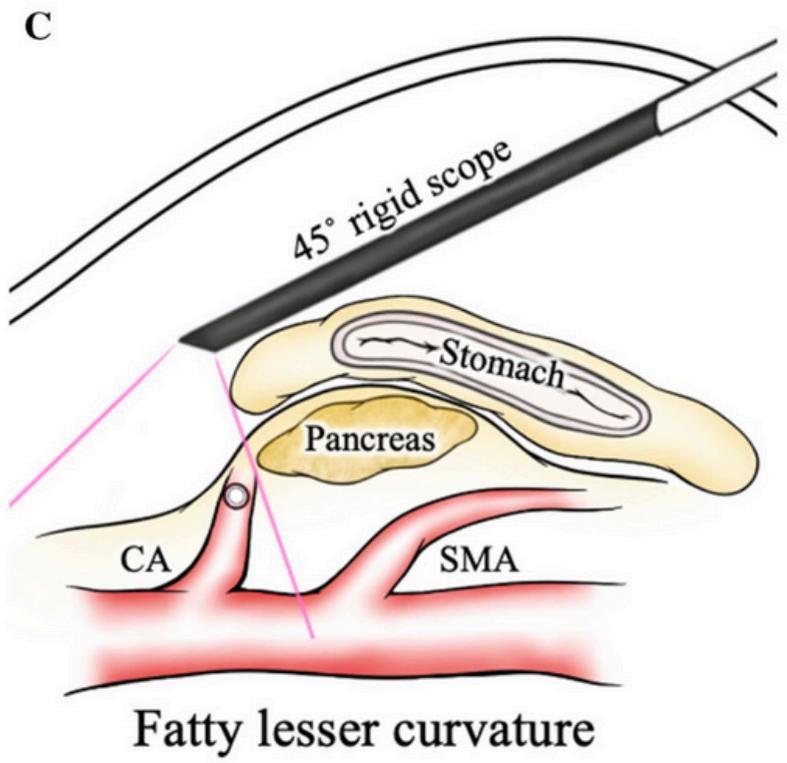
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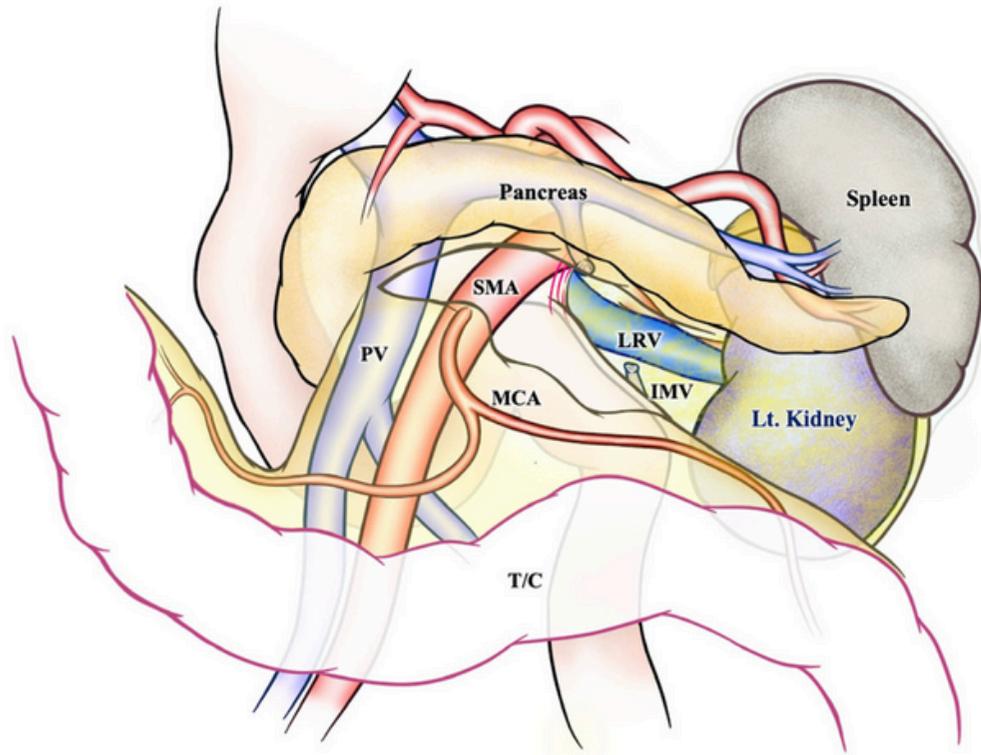
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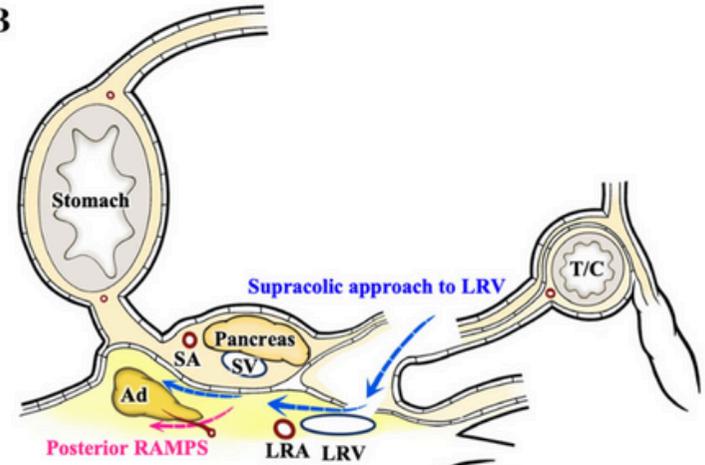
The root of SA behind the pancreas



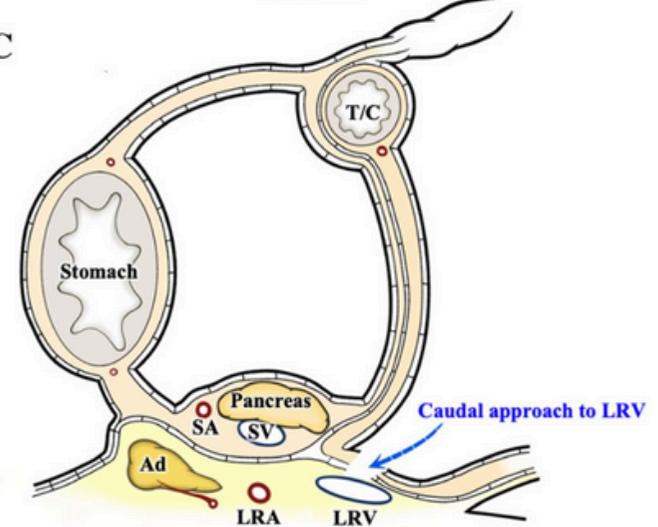
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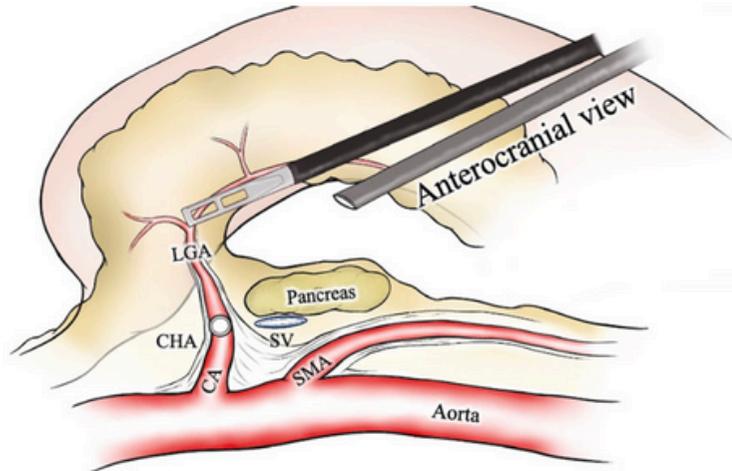
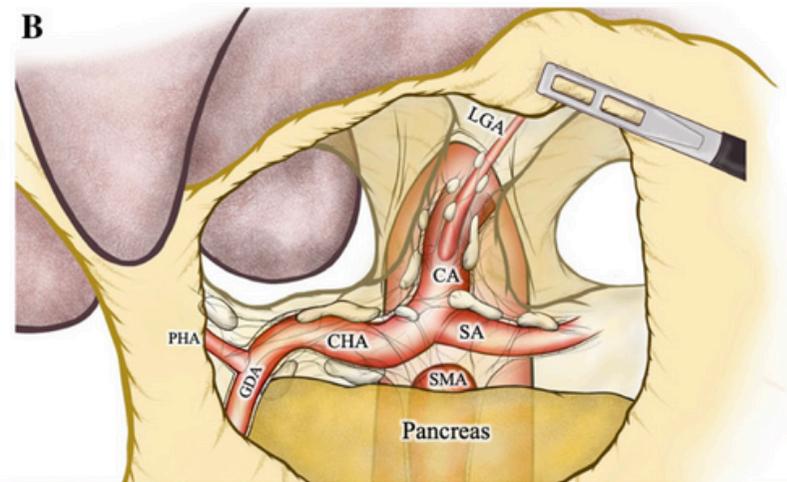
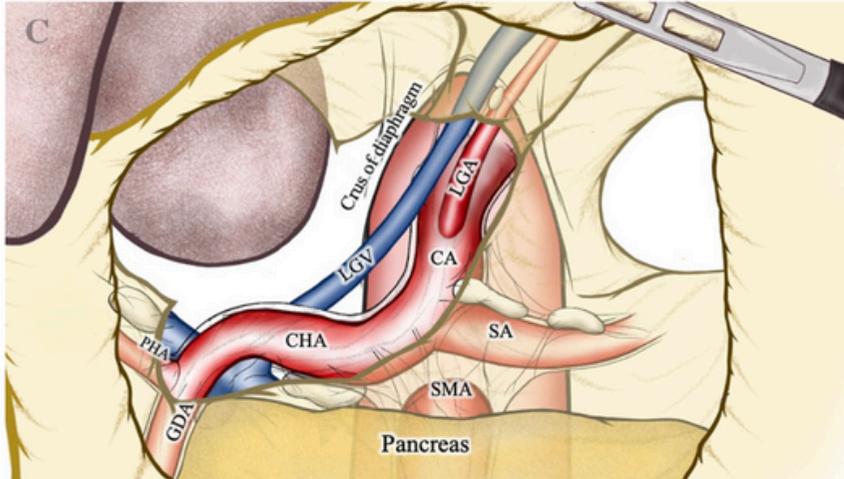
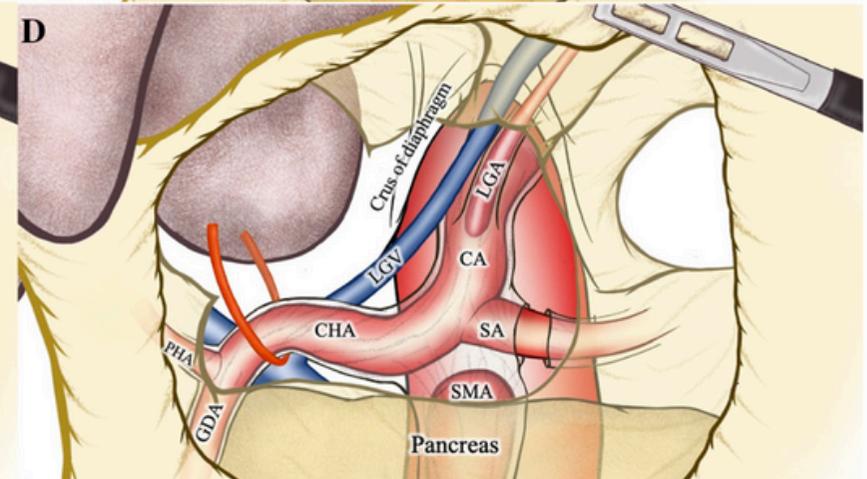


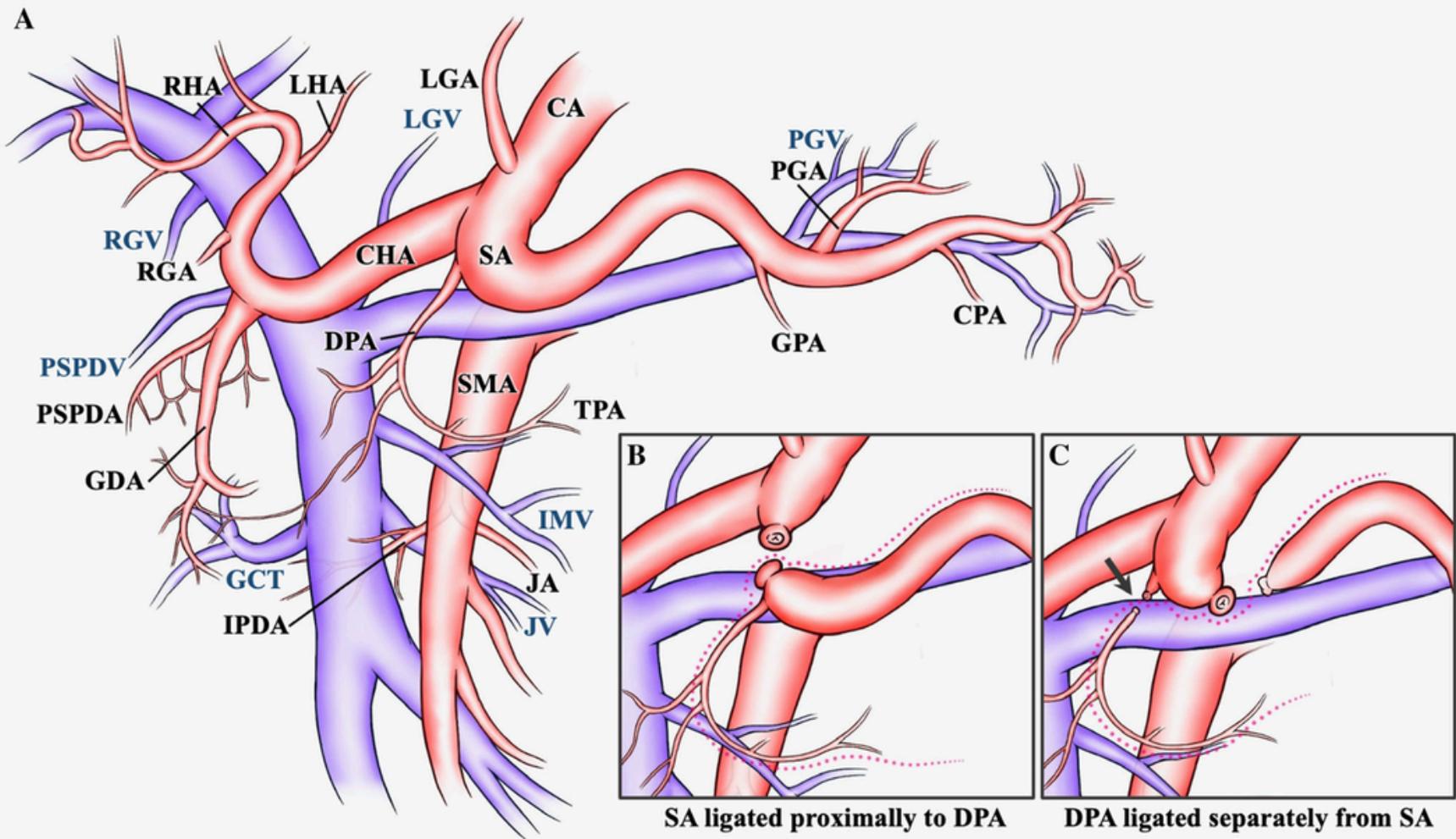
B



C



A**B****C****D**



JAMA Surgery | **Original Investigation**

International Reference Values for Surgical Outcomes of Total Pancreatectomy

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IMPORTANCE Total pancreatectomy (TP) is indicated for advanced pancreatic cancer or multifocal tumors. Furthermore, TP may be performed to avoid the risk of pancreatic fistula in selected patients to improve the perioperative risk profile.

OBJECTIVE To define reference values for TP based on a low-risk cohort treated at expert centers.

DESIGN, SETTING, AND PARTICIPANTS This multicenter study analyzed outcomes from patients undergoing primary TP for malignant or benign lesions from 25 international expert centers from January 2017 to November 2023. Low-risk patients undergoing TP (LR-TP) were without vascular resections or significant comorbidities.

EXPOSURES TP.

MAIN OUTCOMES AND MEASURES Twenty reference values were derived from the 75th or the

[+ Invited Commentary](#)

[+ Supplemental content](#)

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