



SURGICAL MANAGEMENT OF CHRONIC PANCREATITIS



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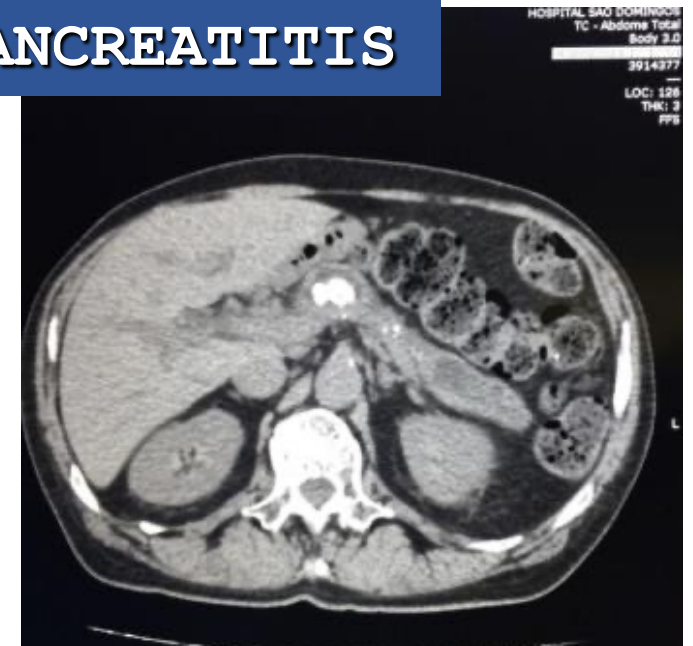
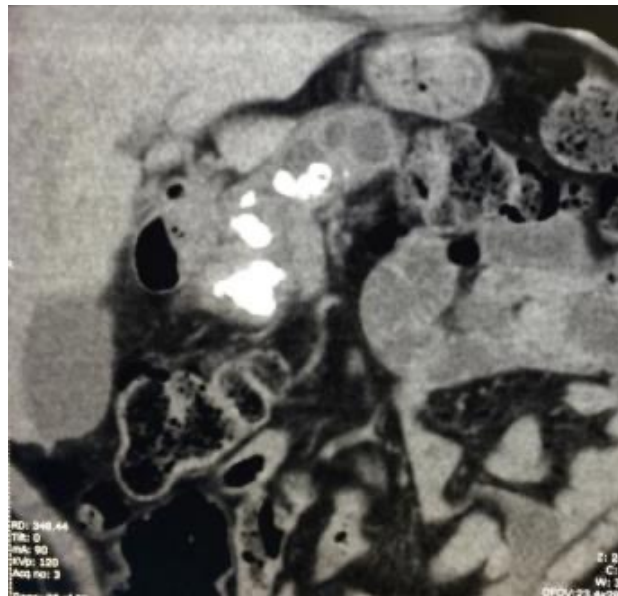
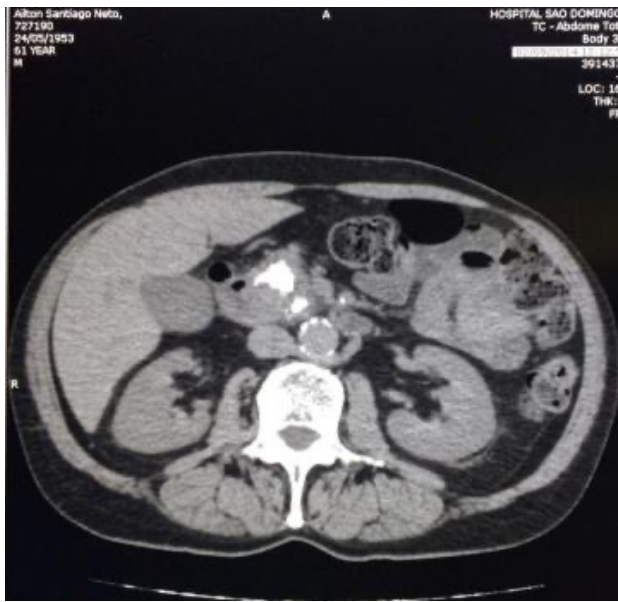
CLASSIFICATION

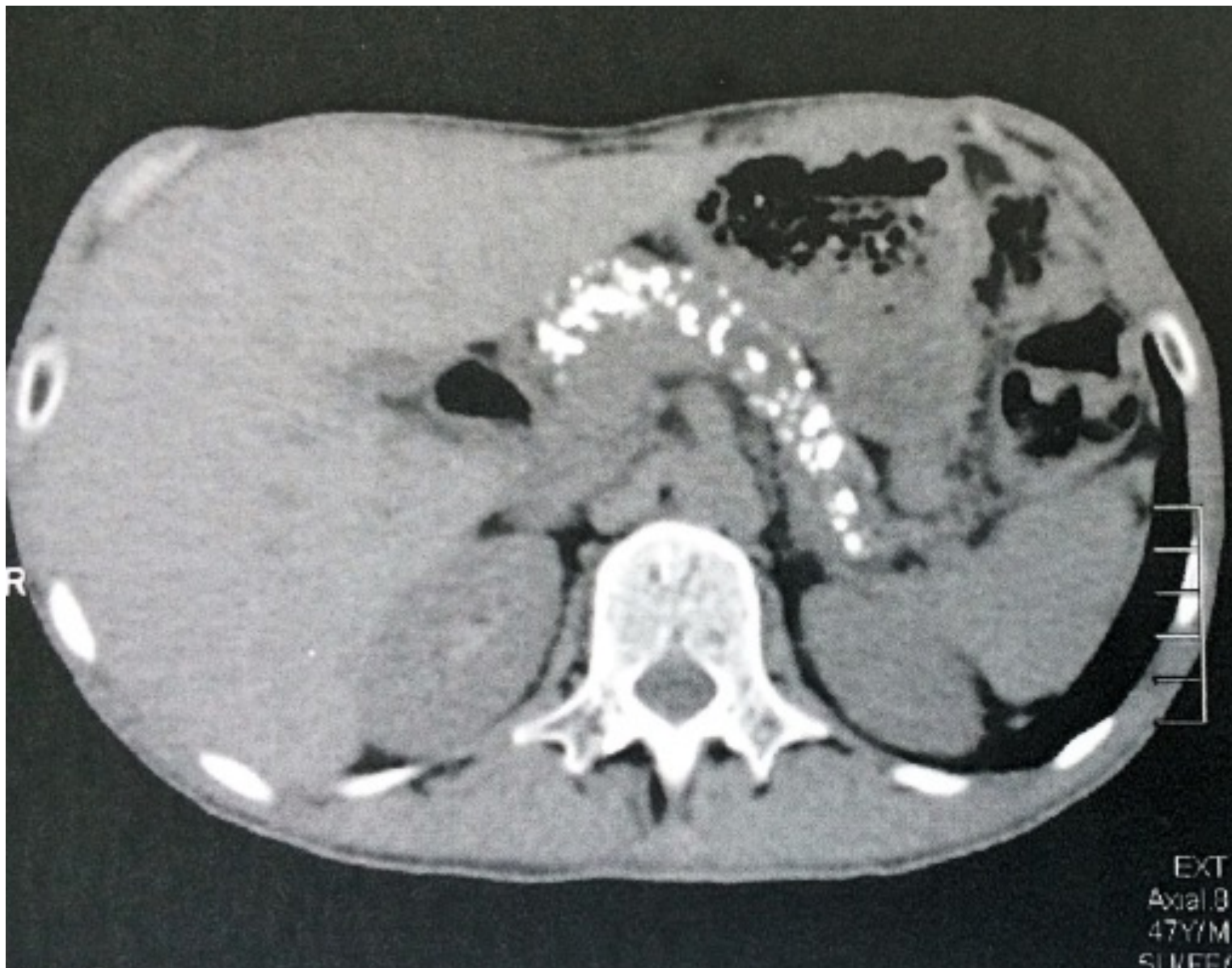
Chronic Calcific Pancreatitis	Chronic Obstructive Pancreatitis	Chronic Inflammatory Pancreatitis	Chronic Autoimmune Pancreatitis	Asymptomatic Pancreatic Fibrosis
- Alcohol - Hereditary - Tropical - Hyperlipidemia - Hypercalcemia - Drug-induced - Idiopathic	- Pancreatic tumors - Ductal stricture - Gallstone- or trauma-induced pancreas divisum	Unknown	- Associated with autoimmune disorders (e.g., primary sclerosing cholangitis) - Sjögren's syndrome - Primary biliary cirrhosis	- Chronic alcoholic - Endemic in asymptomatic residents in tropical climates

SIGNS AND SYMPTOMS

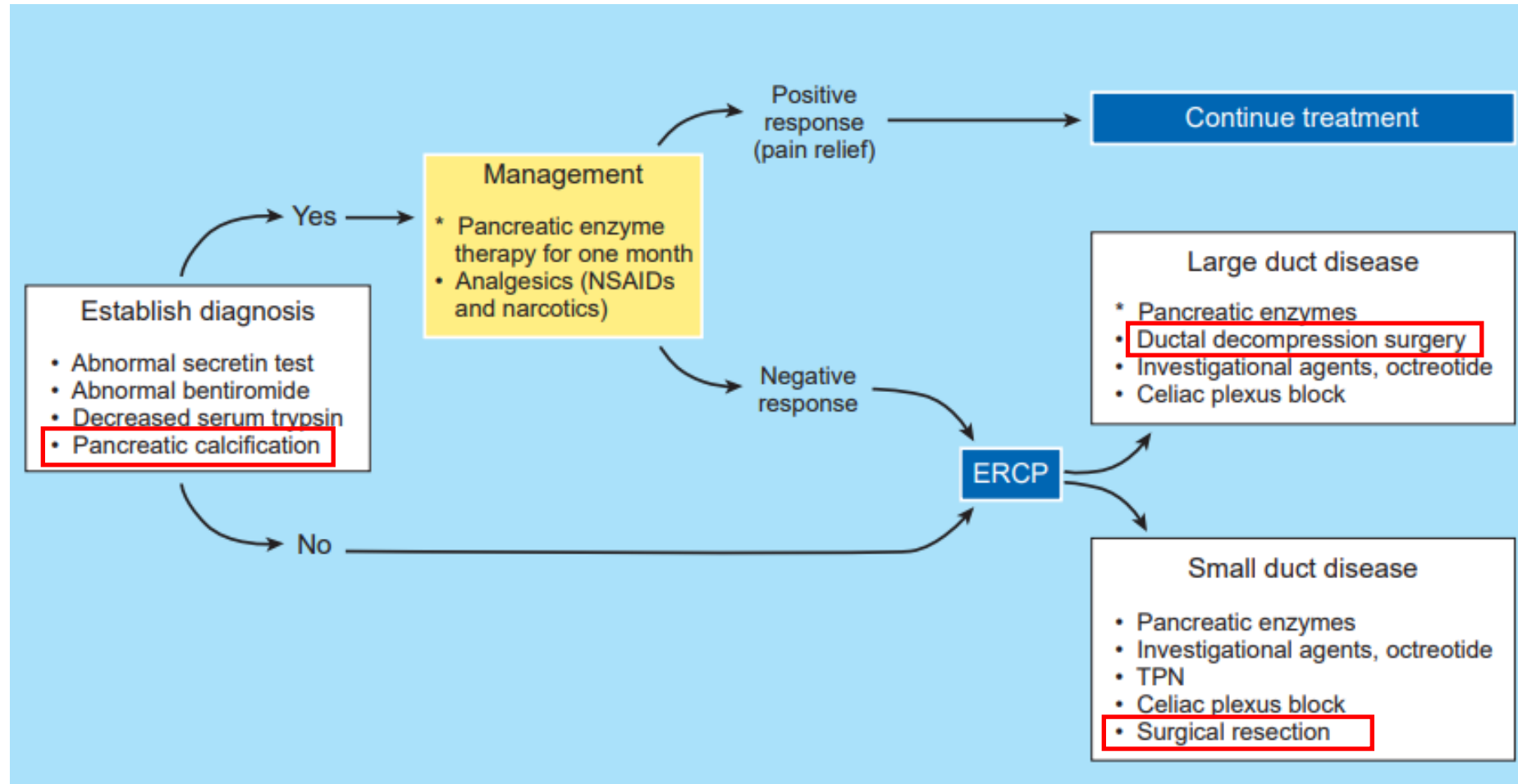
Signs and Symptoms	With Head Enlargement (<i>n</i> = 138) (%)	Without Head Enlargement (<i>n</i> = 141) (%)
Daily severe pain	67	40
Cholestasis	46	11
Slight to frequent pain	33	60
Duodenal obstruction	30	7
Diabetes mellitus	18	30
Vascular involvement	15	8

CHRONIC PANCREATITIS





CHRONIC PANCREATITIS



COMPLICATIONS

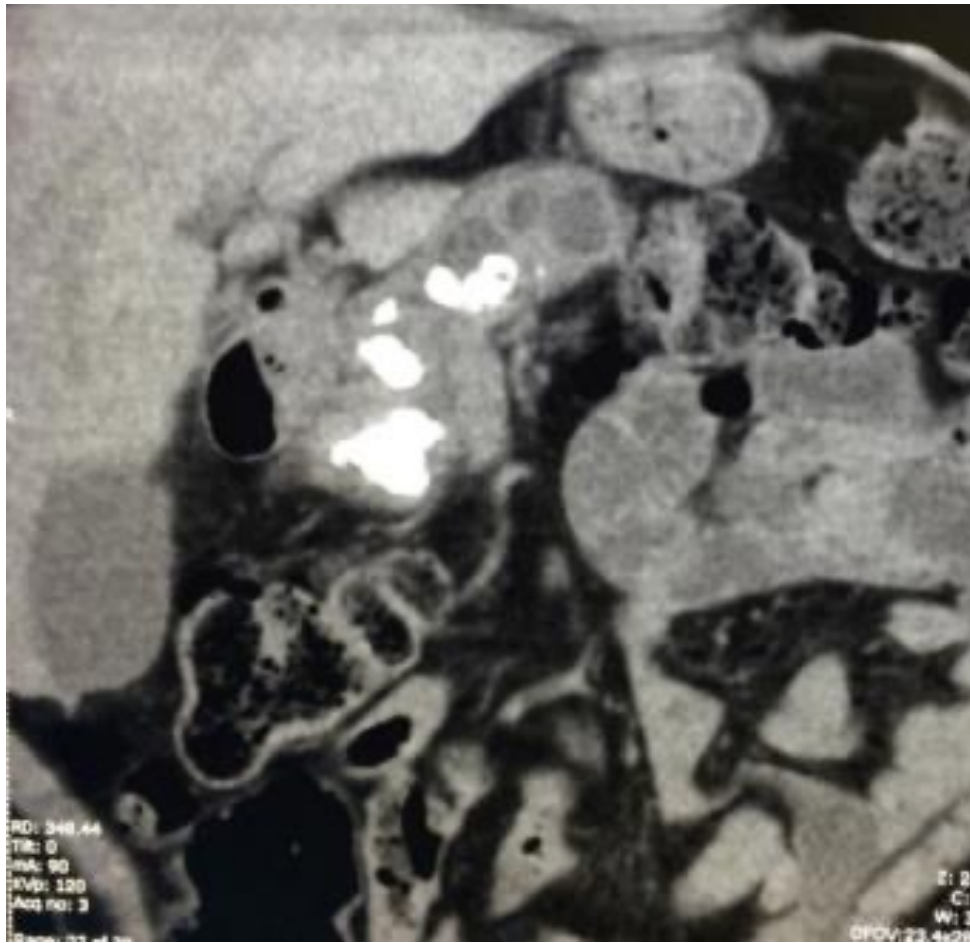
- ▶ Diabetes mellitus type 3c
- ▶ Pancreatic exocrine insufficiency
- ▶ Metabolic bone disease
- ▶ Pancreatic cancer
- ▶ Splenic vein thrombosis
- ▶ Pseudocysts
- ▶ Duodenal obstruction
- ▶ Biliary obstruction

CP, chronic pancreatitis

SURGERY

- ▶ Intractable resistant pain
- ▶ Small duct disease
- ▶ Enlargement of pancreatic head
- ▶ Failure of previous drainage procedures
- ▶ Suspicion of malignancy

PANCREATIC HEAD



PANCREATIC DUCT



❑ DUCTAL DRAINAGE PROCEDURES

Partington-Rochelle Pancreatojejunostomy

Puestow-Gillesby Pancreatojejunostomy

❑ DRAINAGE AND RESECTION COMBINED

Duval pancreatojejunostomy

Beger pancreatojejunostomy

Frey pancreatojejunostomy

Pancreatoduodenectomy

❑ PURE RESECTION PROCEDURE

Distal pancreatectomy (Bell)

Total pancreatectomy

(and islet transplantation)



Surgical management of chronic calcified pancreatitis

Orlando Jorge M. Torres^{a,*}, José Maria A. Moraes-Junior^{a,b}, Rennan Abud Pinheiro Santos^a,
Agamenon Dias de Oliveira-Neto^a, Taffarel de Castro Pereira e Silva^{a,b}, Marcelo Lima Rocha^a,
Luís Eduardo Veras-Pinto^{a,b}, Rodrigo Rodrigues Vasques^{a,b}, Eduardo de Souza M. Fernandes^c



TABLE 2: Randomized controlled studies comparing endoscopic and surgical treatment of painful CP.

Authors	Publication	Number of patients	Results
Díte et al.	Endoscopy. 2003 [21]	72	Surgery better than endoscopy
Cahen et al.	N. Engl. J. Med. 2007 [22]	39	Surgery better than endoscopy
Cahen et al.	Gastroenterology. 2011 [23]	39	Surgery better than endoscopy

Review Article

Surgical Approaches to Chronic Pancreatitis

TABLE 3: Randomized controlled studies on the surgical treatment of painful CP.

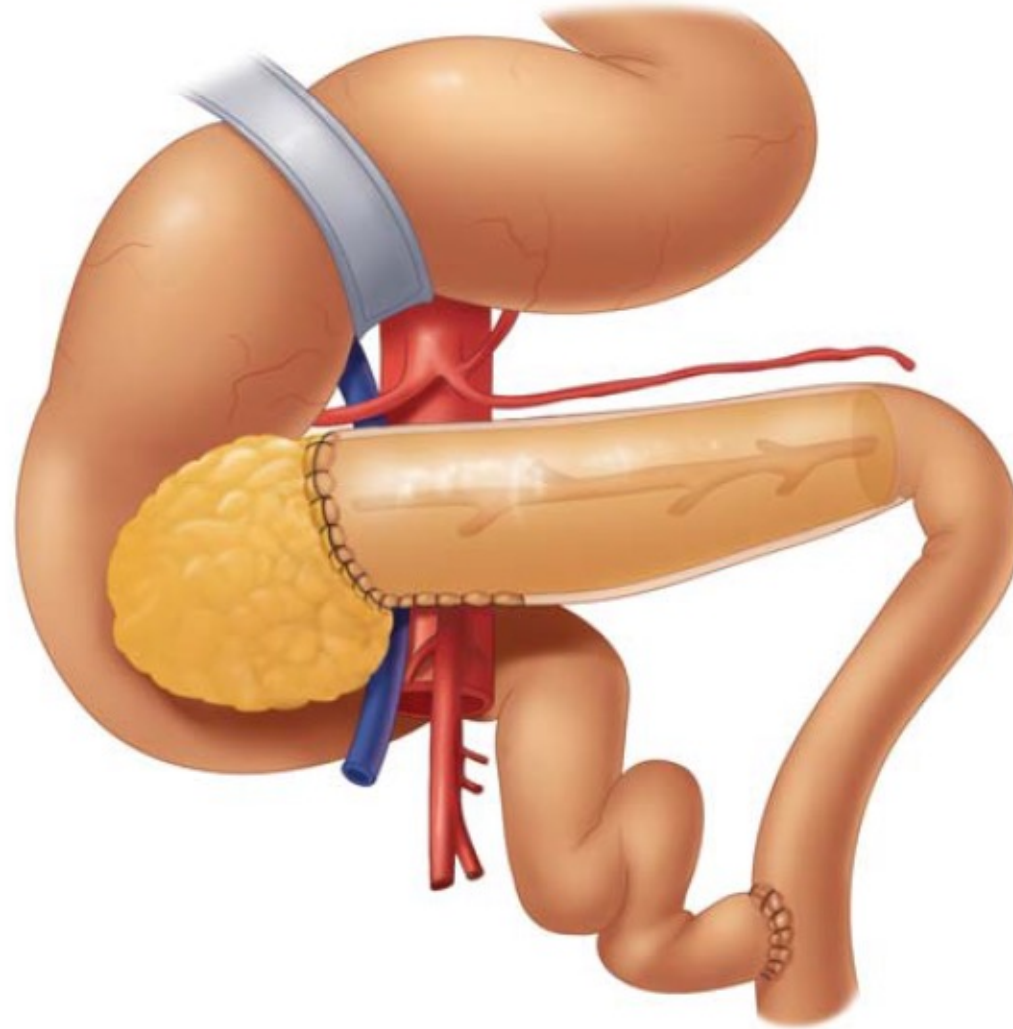
Authors	Publication	Number of patients	Results
Izbicki et al.	Ann. Surg. 1995 [33]	42	Frey equal to Beger
Izbicki et al.	Chirurg 1997 [37]	74	Frey equal to Beger
Strate et al.	Ann. Surg. 2005 [34]	74	Frey equal to Beger
Klempa et al.	Chirurg 1995 [27]	43	Beger better than Whipple
Büchler et al.	Am. J. Surg. 1995 [13]	40	Beger better than Whipple
Köninger et al.	Surgery 2008 [35]	65	Berne/Farkas better than Beger
Izbicki et al.	Ann. Surg. 1998 [30]	61	Frey better than Whipple
Farkas et al.	Langenbecks Arch Surg. 2006 [29]	40	Frey better than Whipple
Bachmann et al.	Ann. Surg. 2013 [31]	64	Frey better than Whipple

❑ Ductal drainage procedures

Partington-Rochelle Pancreatojejunostomy

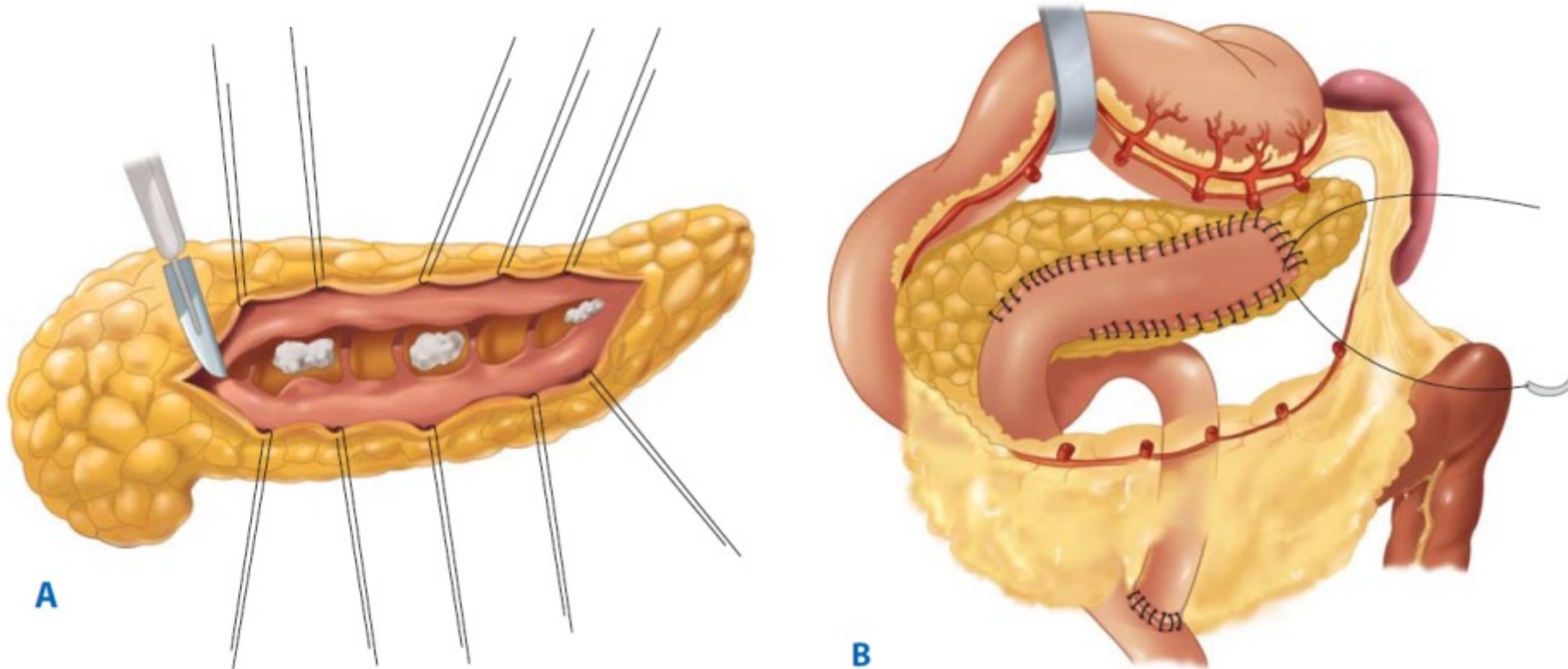
Puestow-Gillesby Pancreatojejunostomy

Ductal drainage procedures



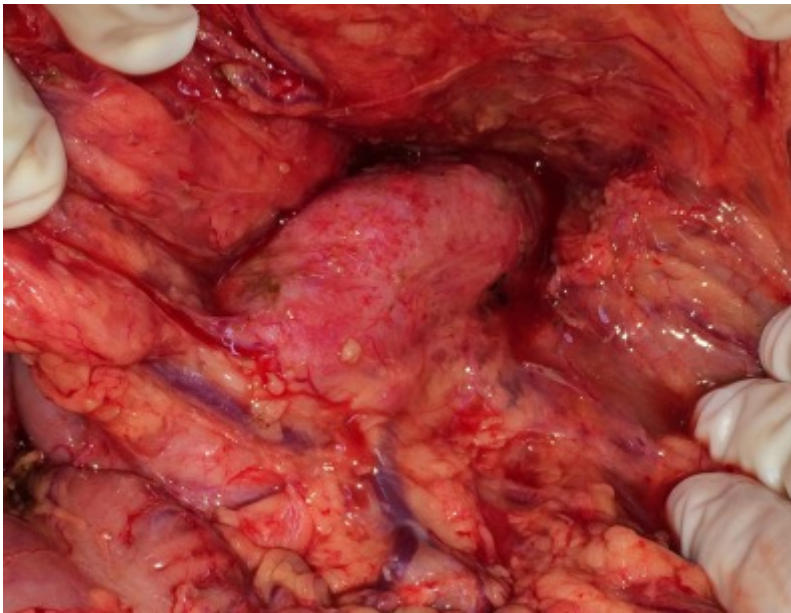
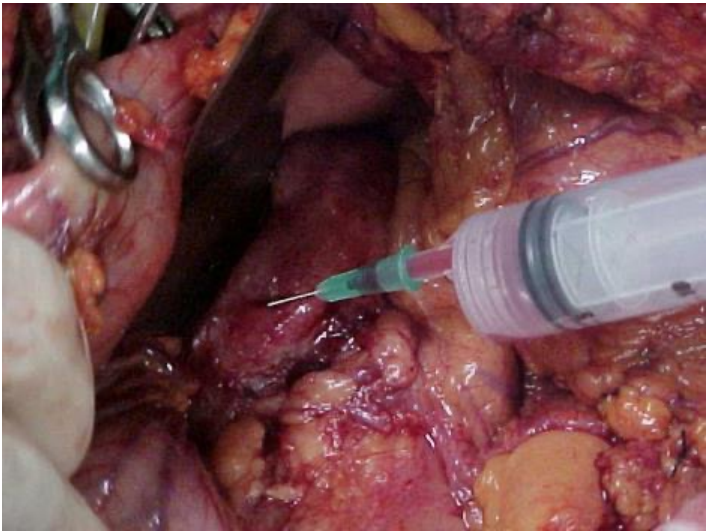
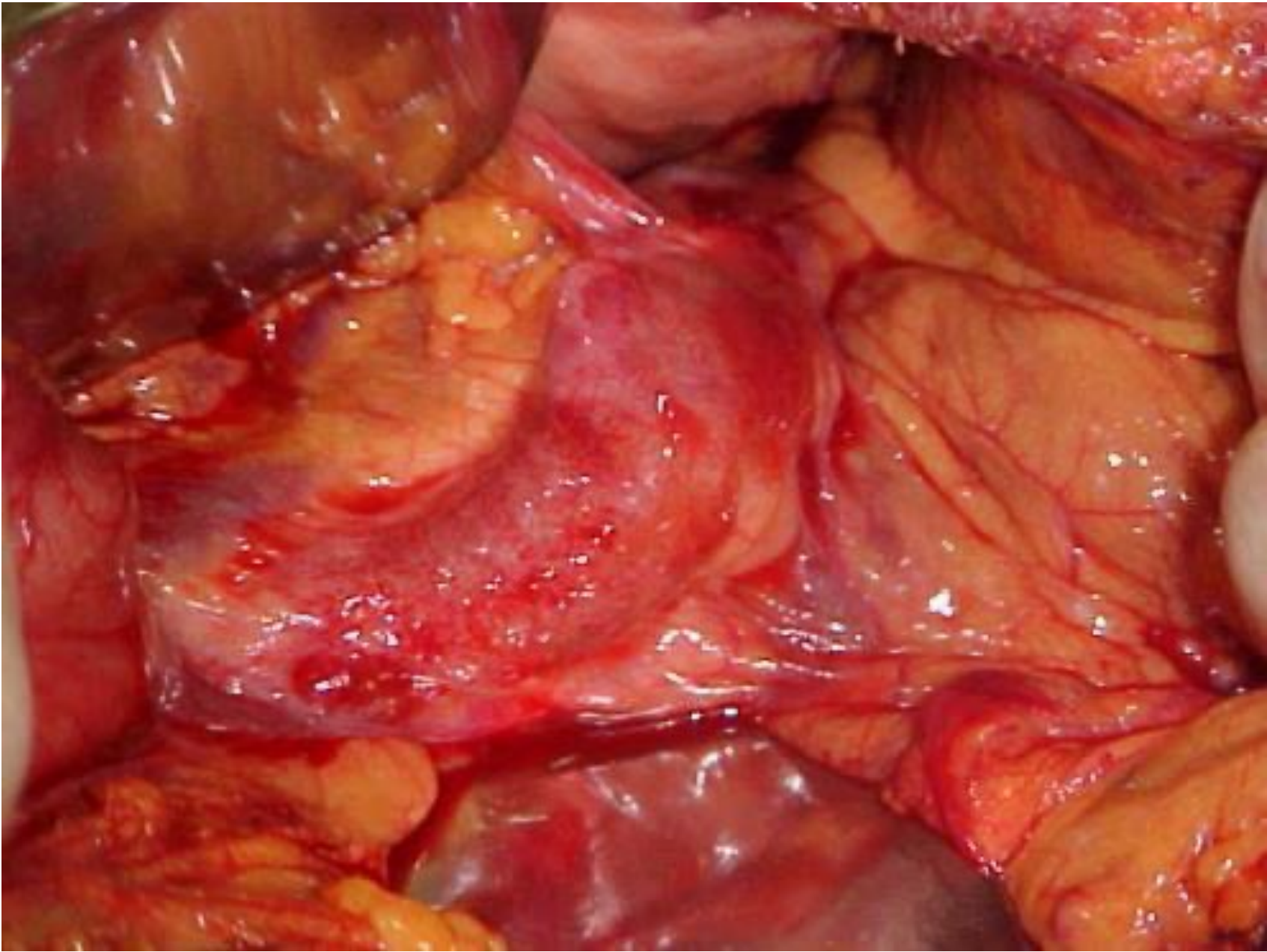
Puestow-Gillesby Pancreatojejunostomy

DUCTAL DRAINAGE PROCEDURES

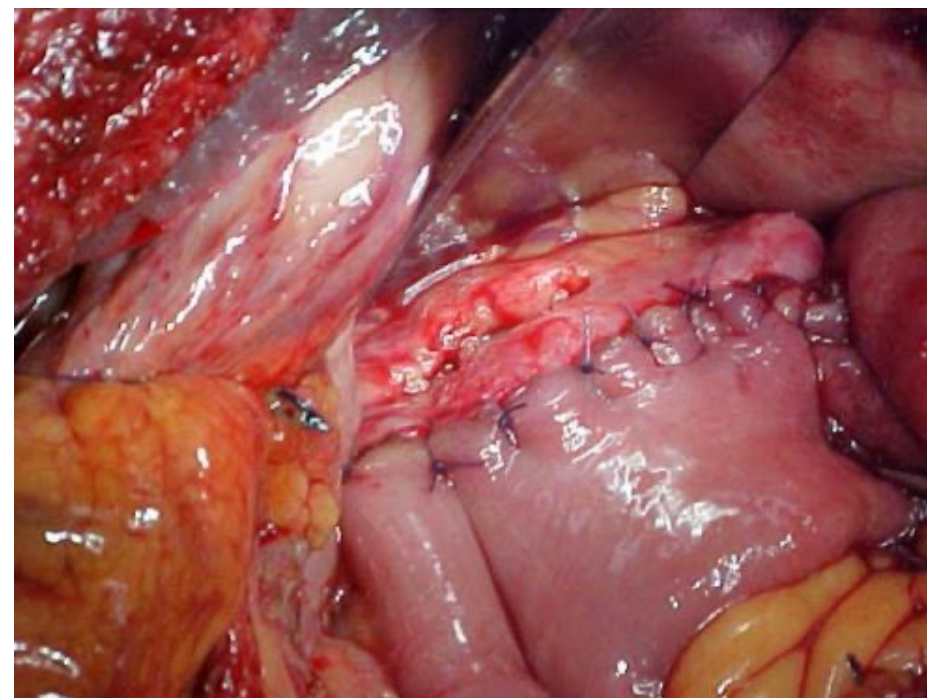
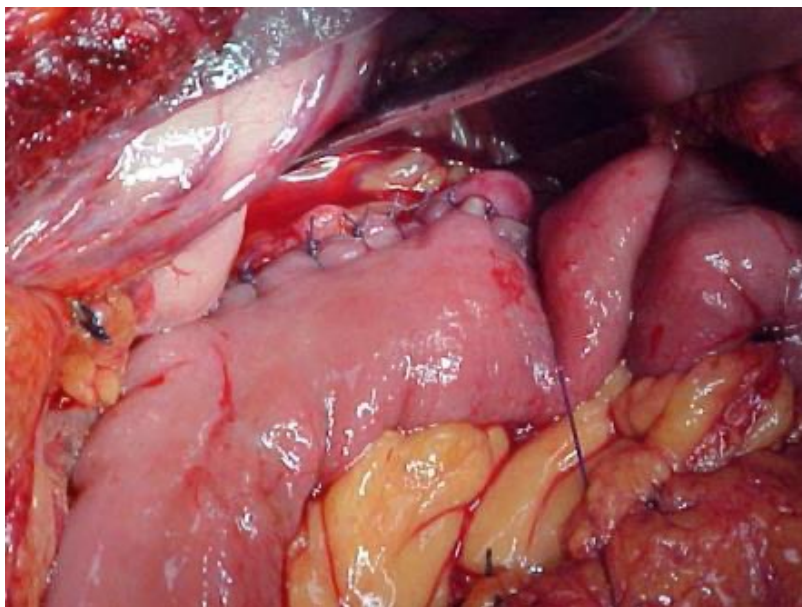
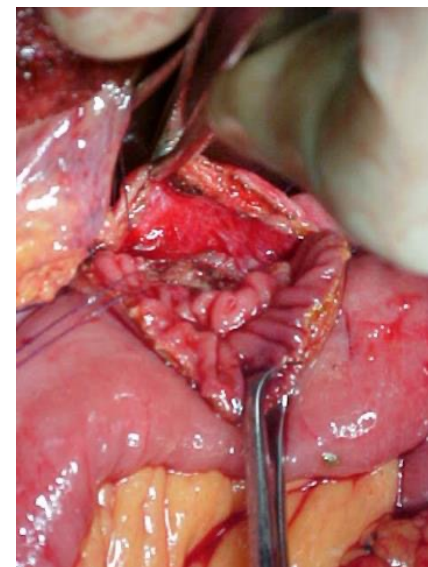
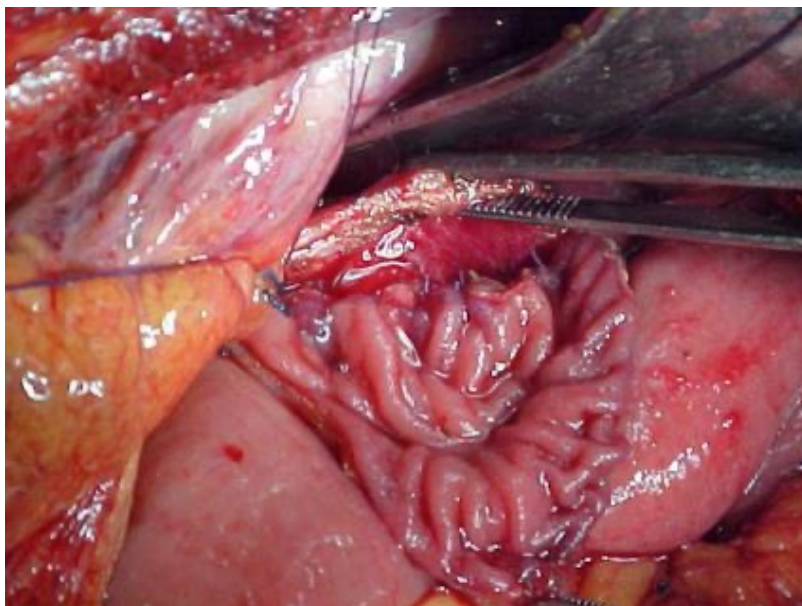


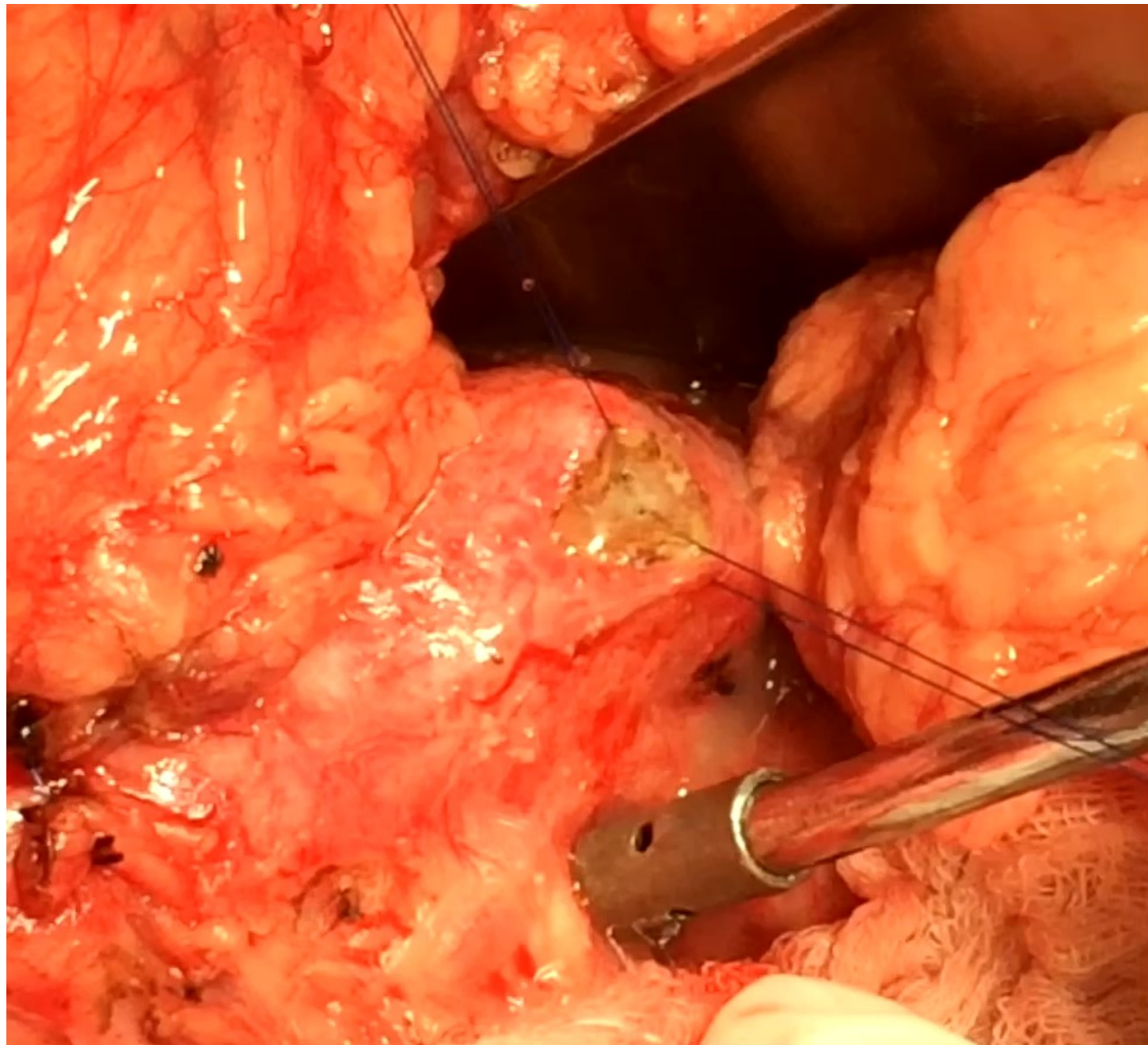
Partington-Rochelle Pancreatojejunostomy

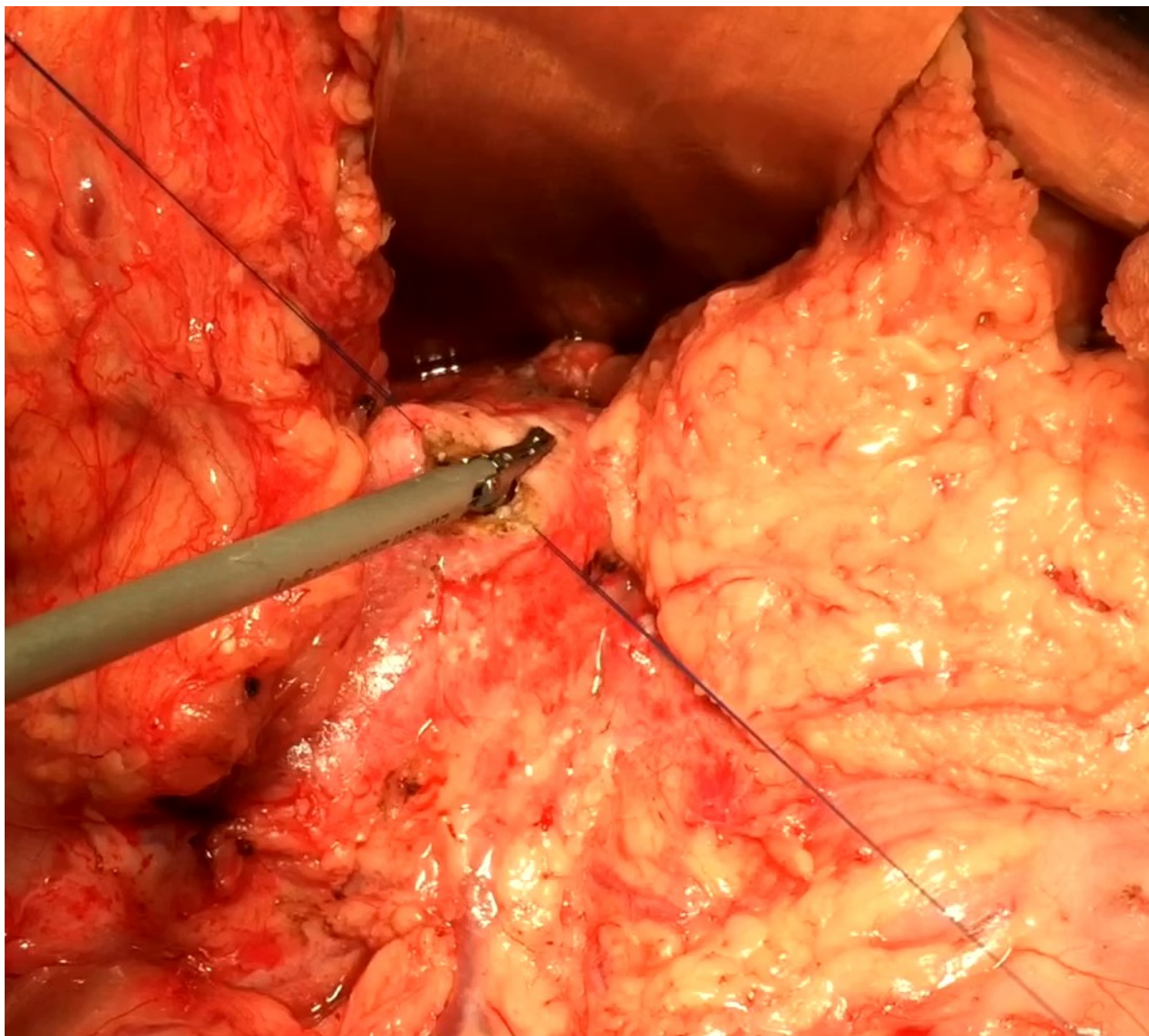
(Modified Puestow)

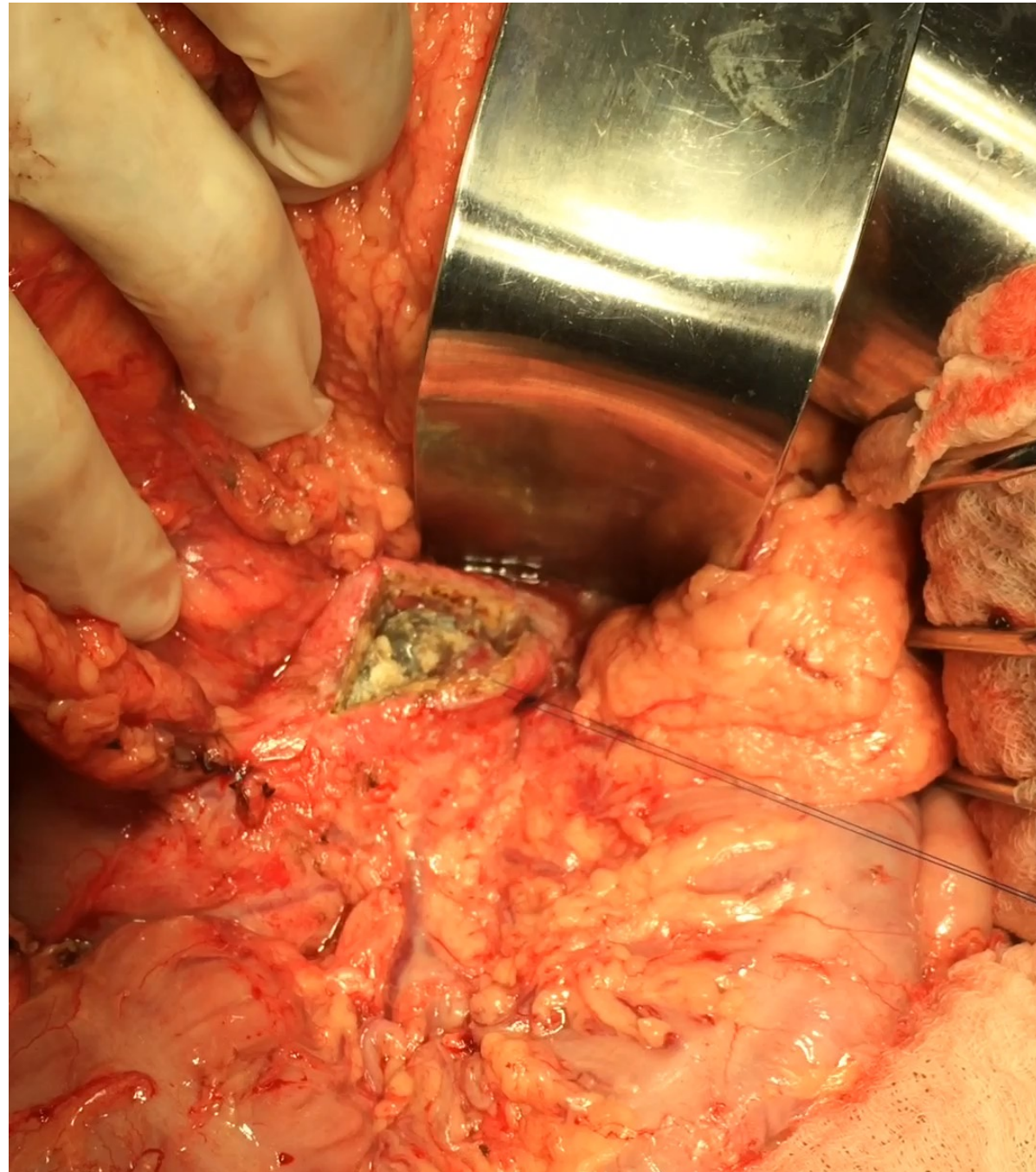


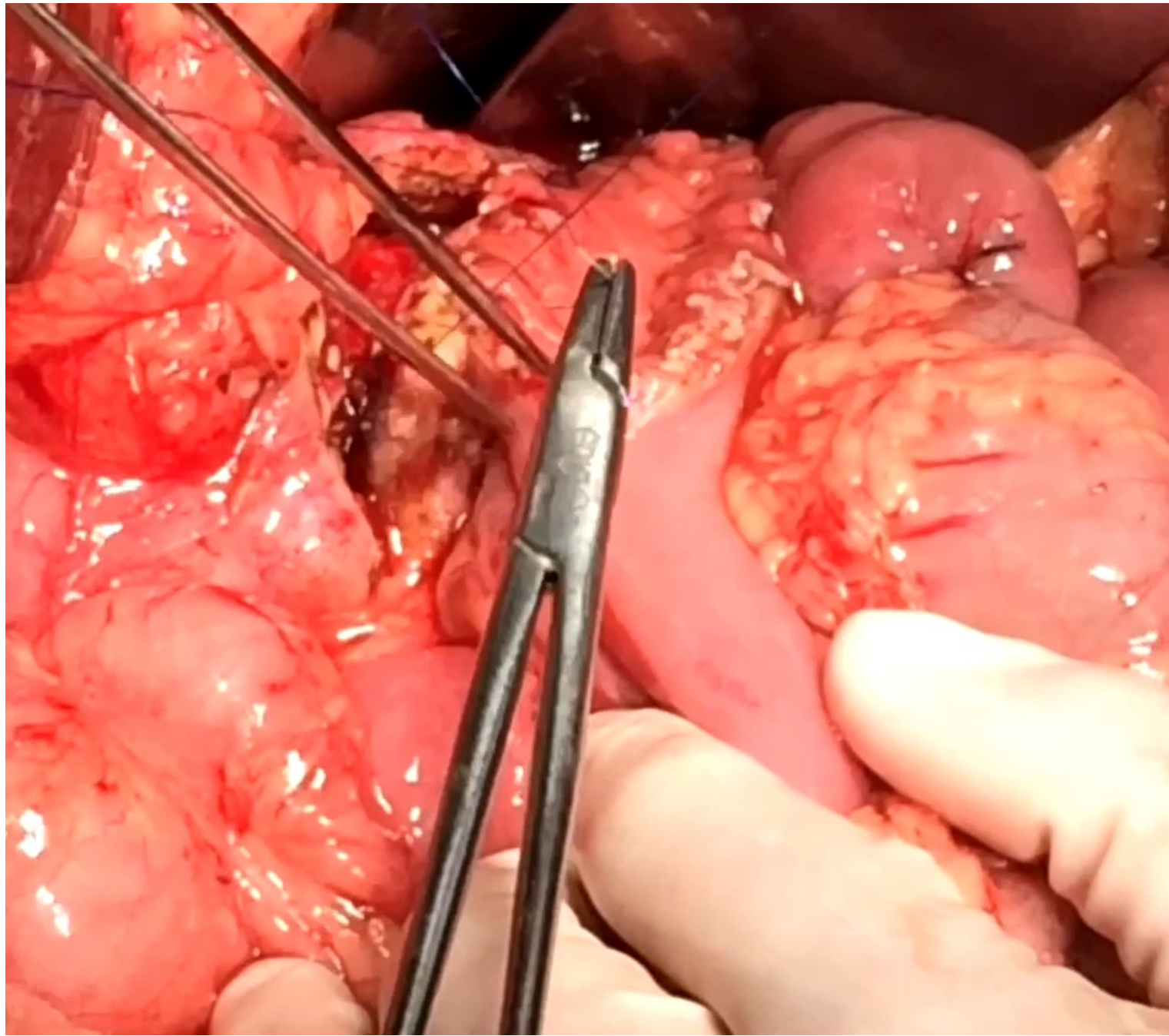












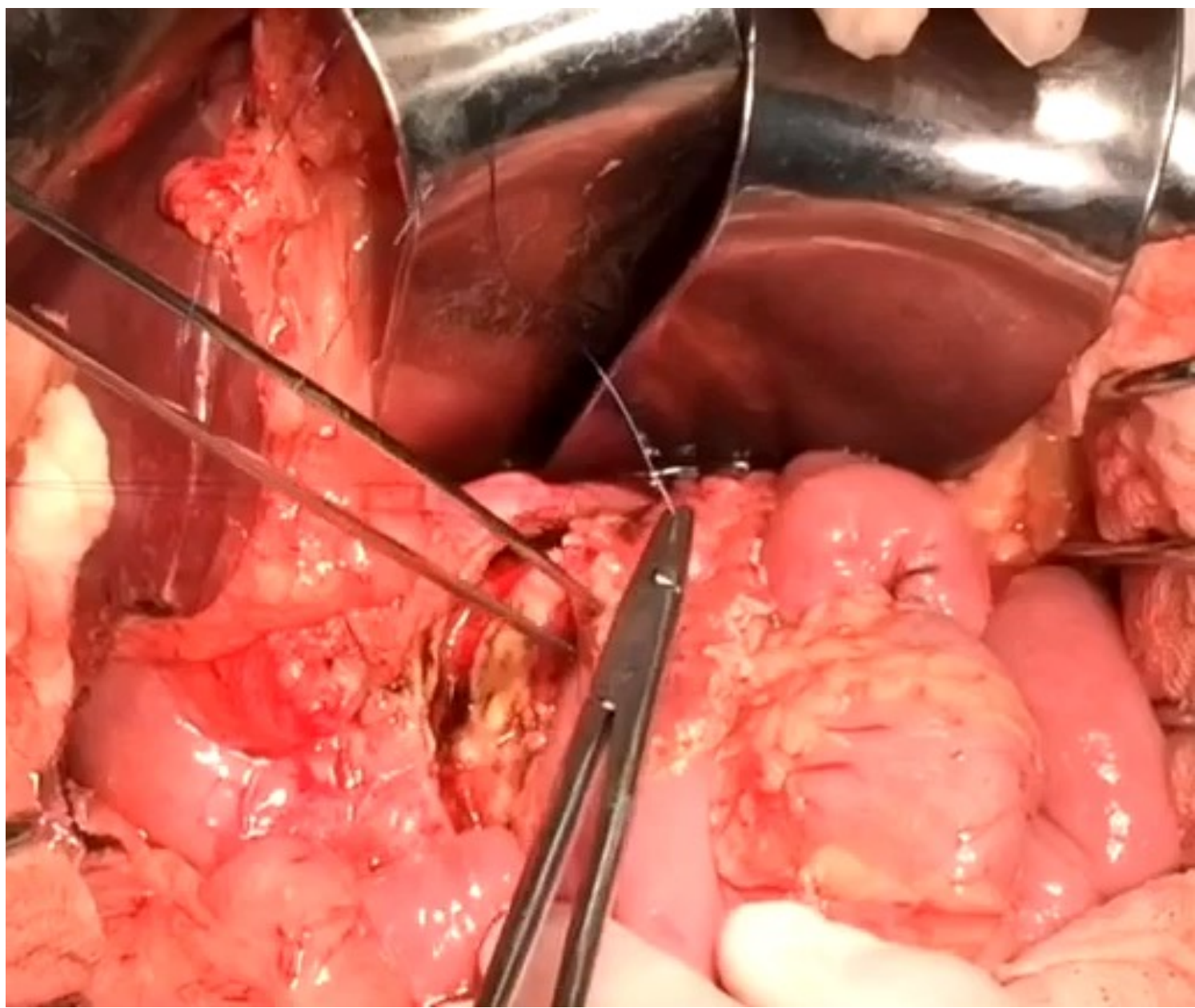


Table 1

Characteristics of the patients (Chronic calcified pancreatitis).

Characteristics	1	2	3*	4	5	6	7	8*	9	10	11	12
Age	70	61	49	58	67	55	61	52	48	53	65	60
Sex	M	M	M	F	M	M	M	M	M	M	M	M
Alcohol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Smoking	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
Abdominal pain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weight loss	No	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
Diabetes	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
Diarrhea	No	Yes	No	No	No	No	Yes	No	No	No	Yes	No
Duct diam (mm)	>8	>8	5–8	5–8	>8	5–8	>8	5–8	>8	>8	>8	>8
Atrophy	No	Yes	No	No	No	Yes	Yes	Yes	No	No	No	Yes
Main Location	B-T	B-T	B-T	B-T	B-T	HBT	HBT	HBT	HBT	B-T	H-B	H-B
Surgery	P-R	P-R	P-R	P-R	P-R	Frey	Frey	T-P	Frey	P-R	PD	PD
Op. Time (min)	200	210	220	190	200	210	260	360	230	170	350	380
Transfusion	No	No	No	No	No	No	No	No	No	No	No	Yes
UCI time (d)	2	1	1	1	1	1	2	3	1	1	3	3
Complications	Yes	No	No	No	No	No	No	Yes	No	No	Yes	Yes
LoS (d)	9	5	5	6	7	6	6	8	5	6	10	6
PO dysfunction	Yes	No	No	No	Yes	Yes	No	Yes	No	No	No	No

B-T: Body and tail; P-R; H-B: Head and body; HBT: Head, body and tail; Partington-Rochelle; T-P: Total pancreatectomy; PD: Pancreatoduodenectomy; Op: operative; ICU: Intensive Care Unit; diam: diameter; LoS: length of stay; d: day; mm: millimeter; m: minute; BMI: body mass index; PO: postoperative.

BODY AND TAIL

□ DRAINAGE AND RESECTION COMBINED

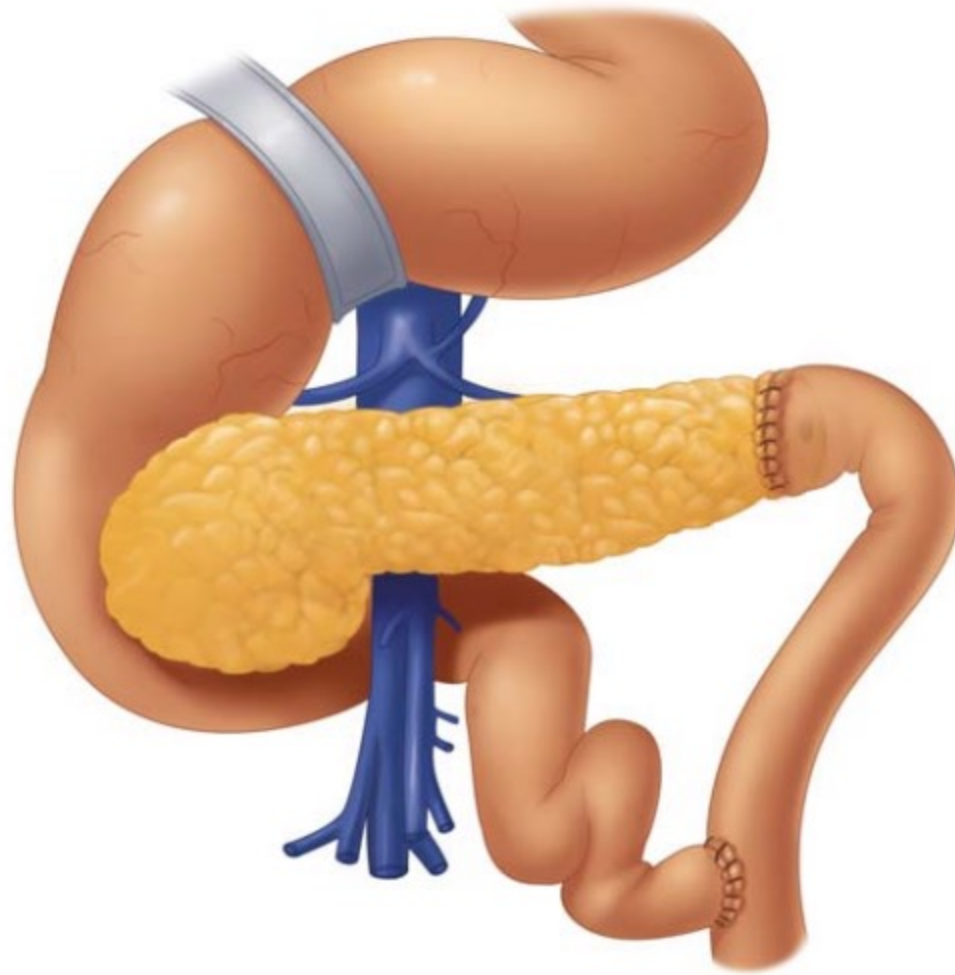
Duval pancreatojejunostomy

Beger pancreatojejunostomy

Frey pancreatojejunostomy

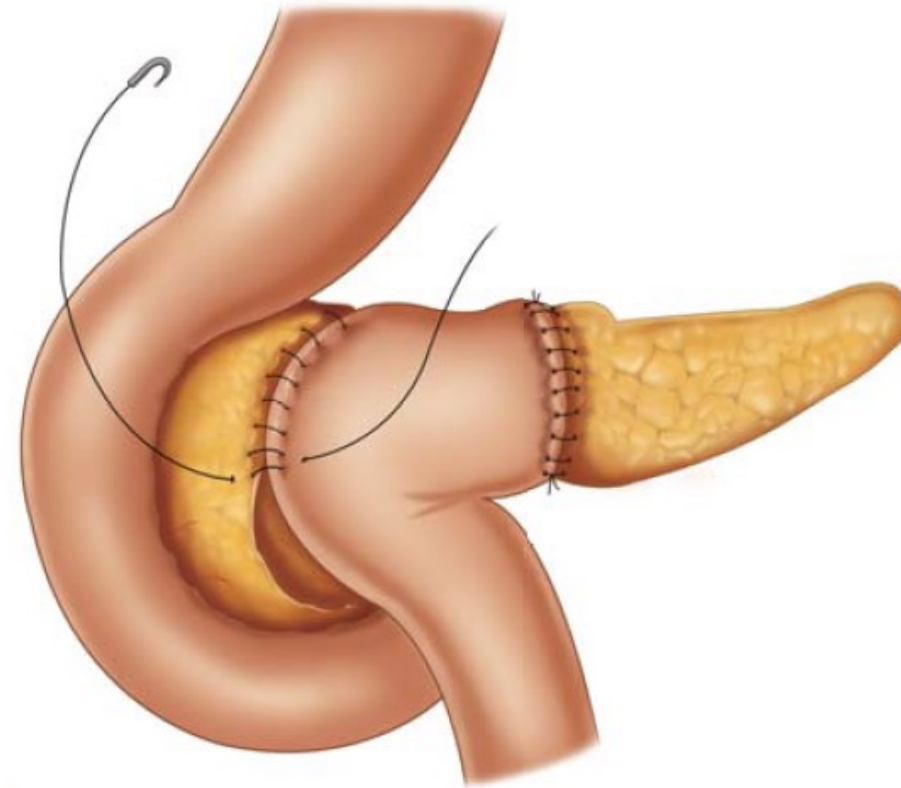
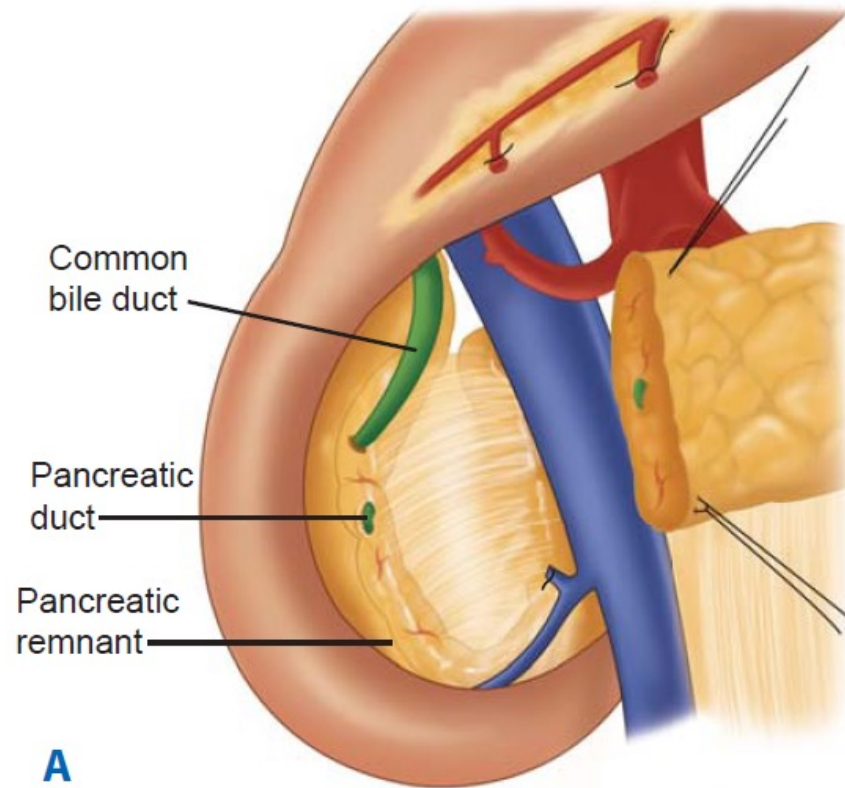
Pancreatoduodenectomy

DRAINAGE AND RESECTION COMBINED



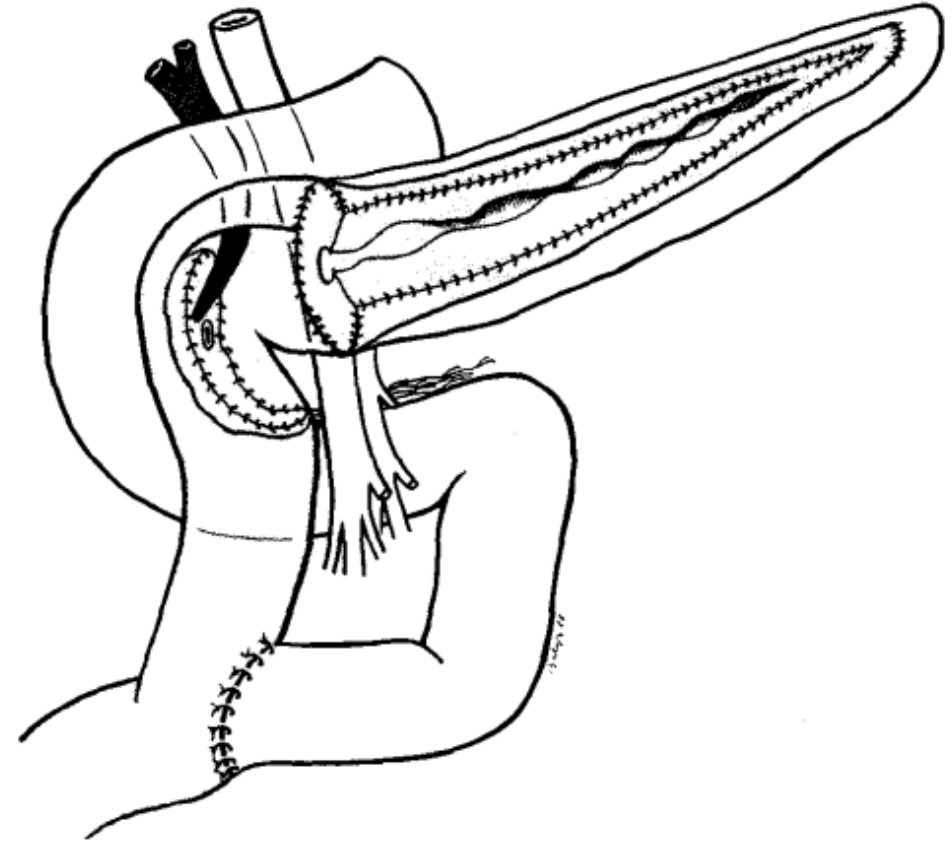
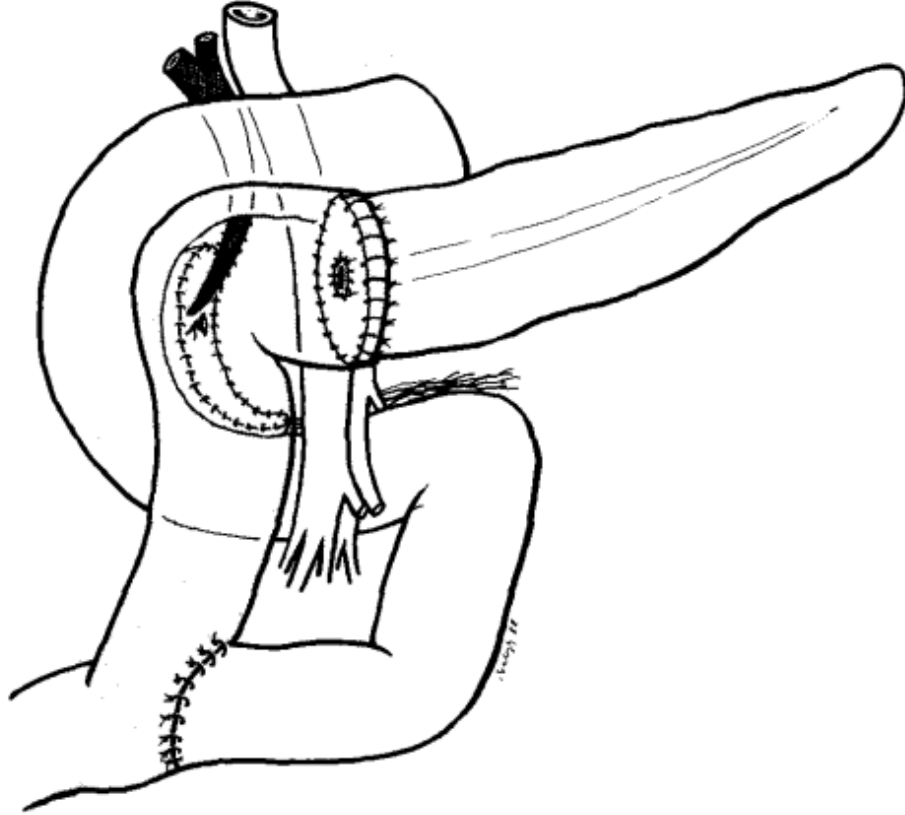
Duval's caudal pancreatojejunostomy

DRAINAGE AND RESECTION COMBINED



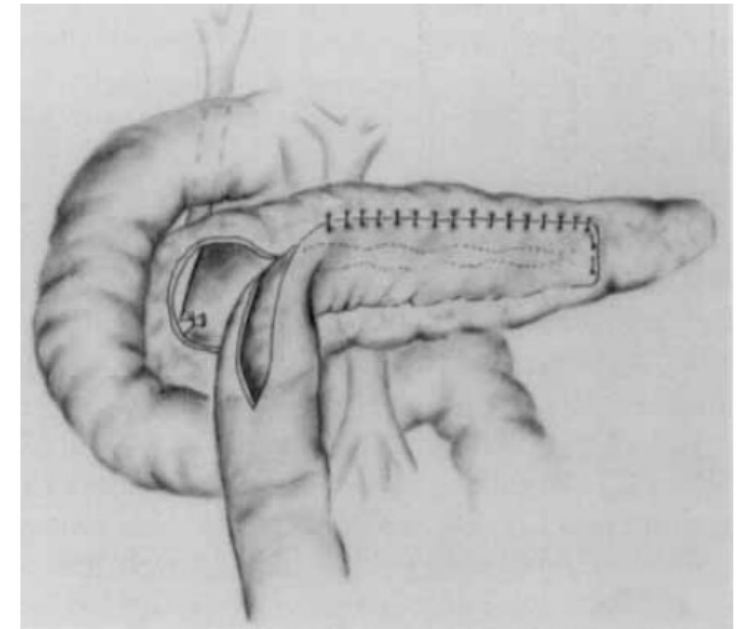
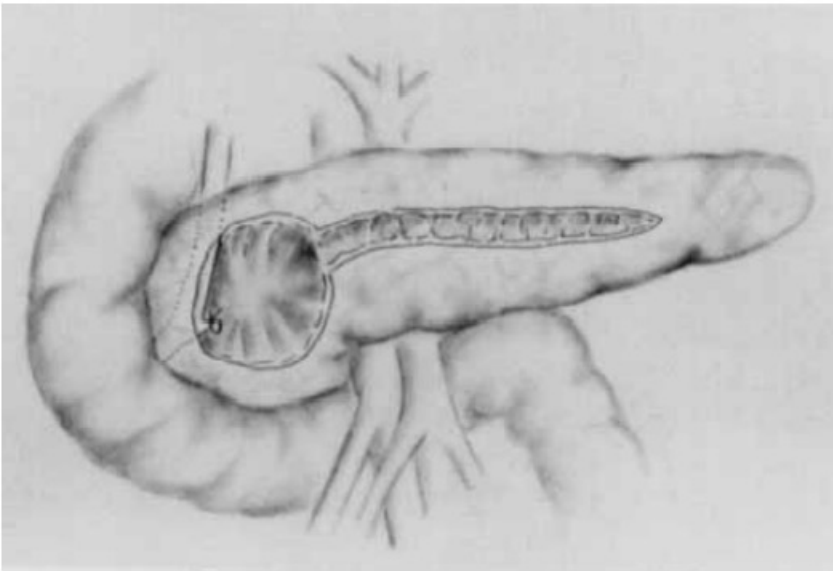
Beger Pancreatojejunostomy

Beger Pancreatojejunostomy

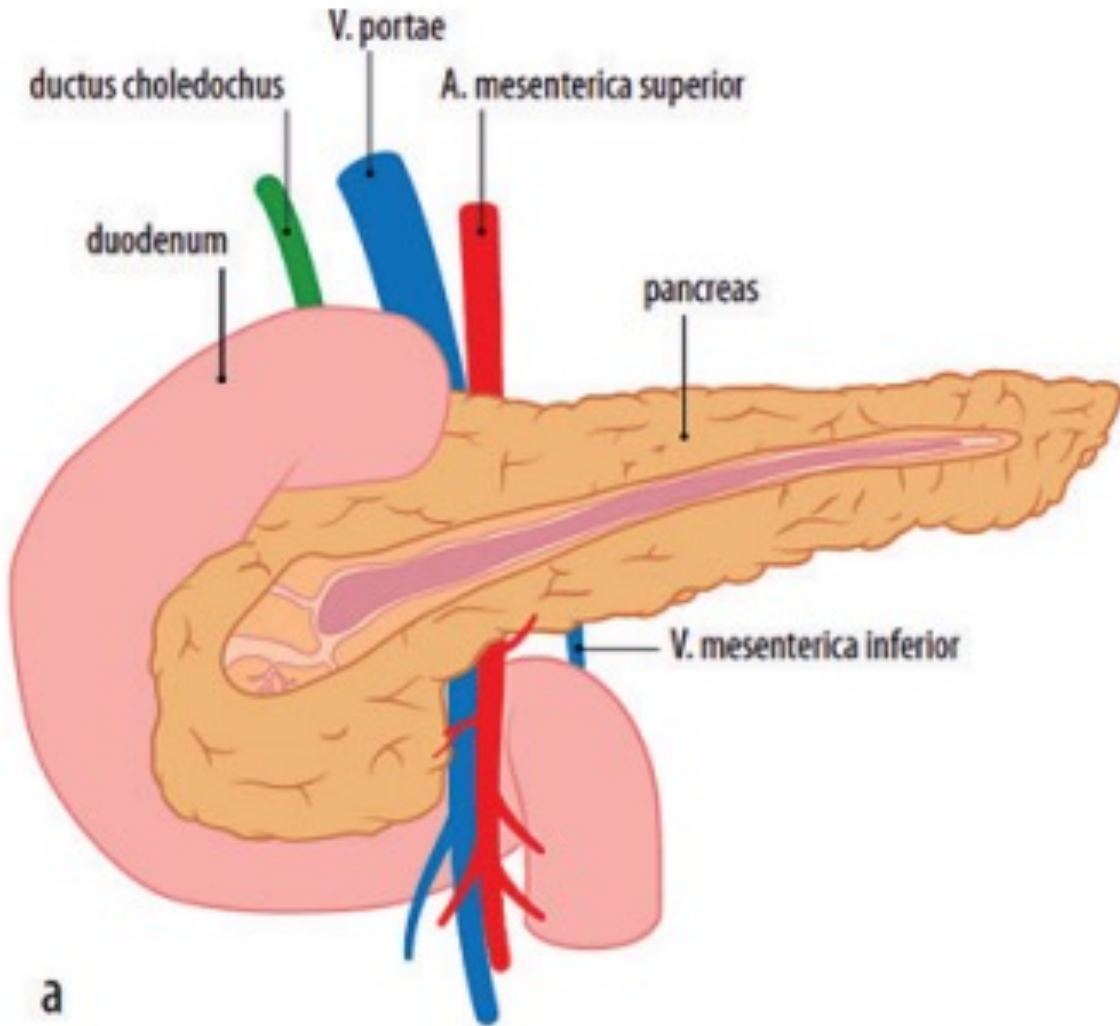


Description and Rationale of a New Operation for Chronic Pancreatitis

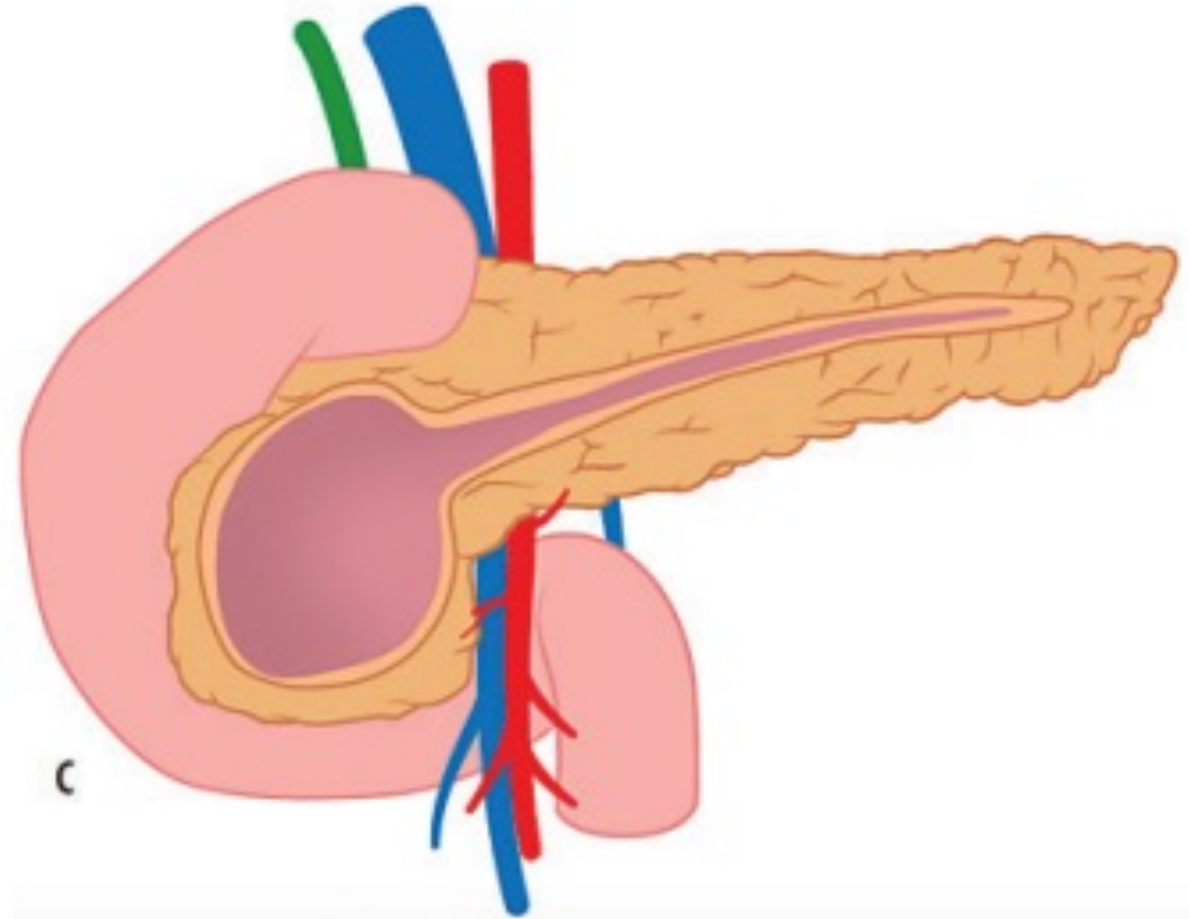
Charles F. Frey and G. Jeffrey Smith



CHRONIC PANCREATITIS

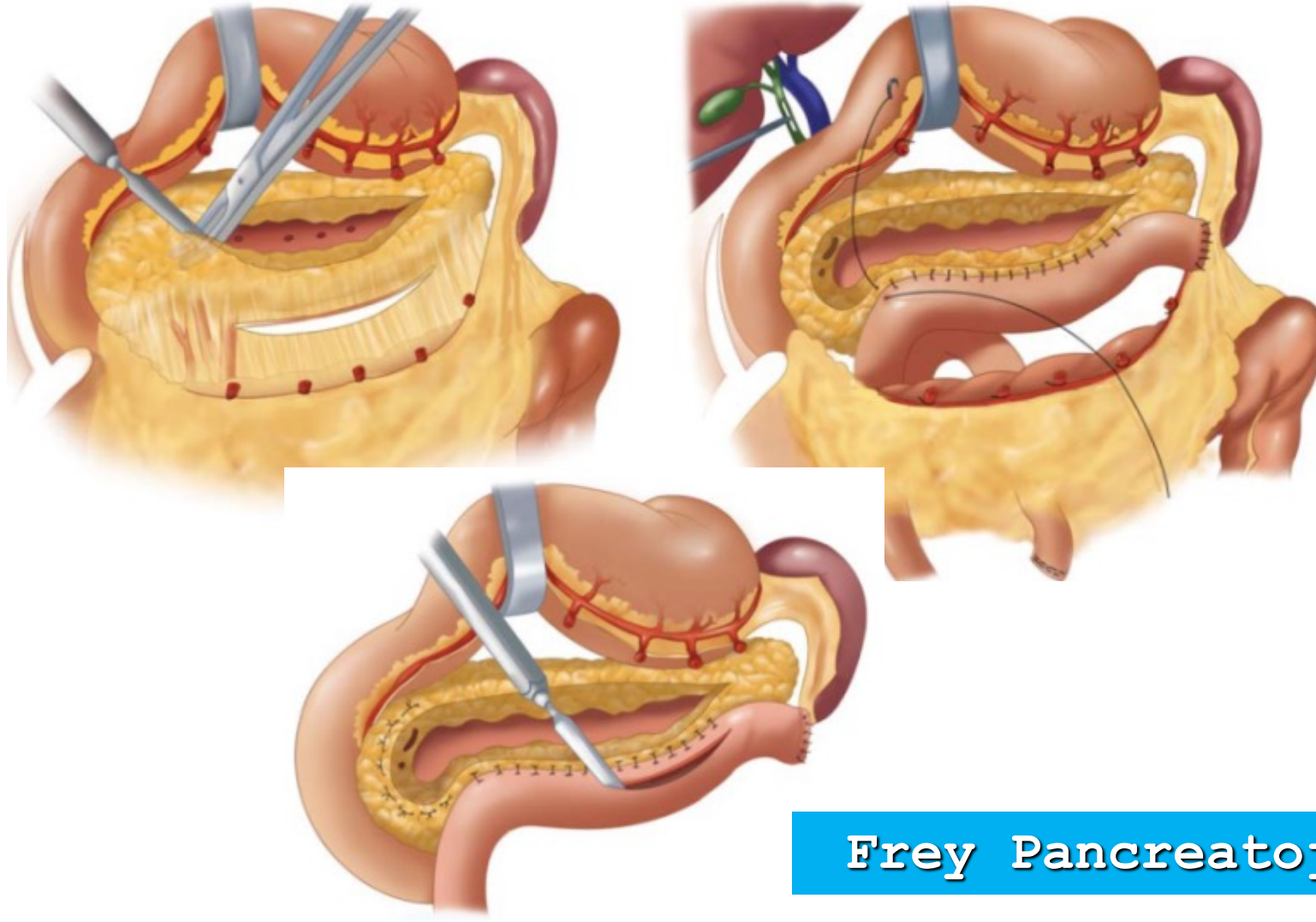


Partington-Rochelle
(Modified Puestow)



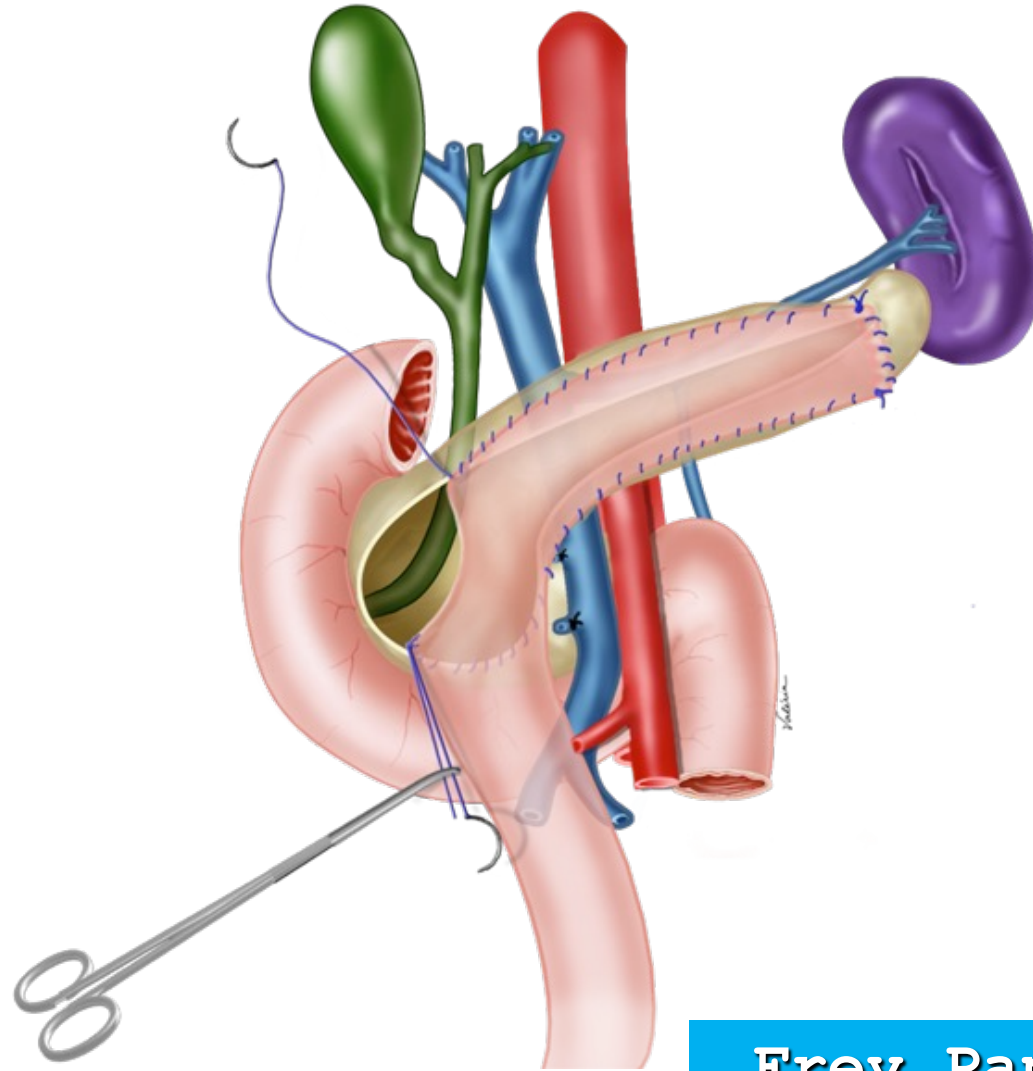
Frey Pancreatojejunostomy

DRAINAGE AND RESECTION COMBINED

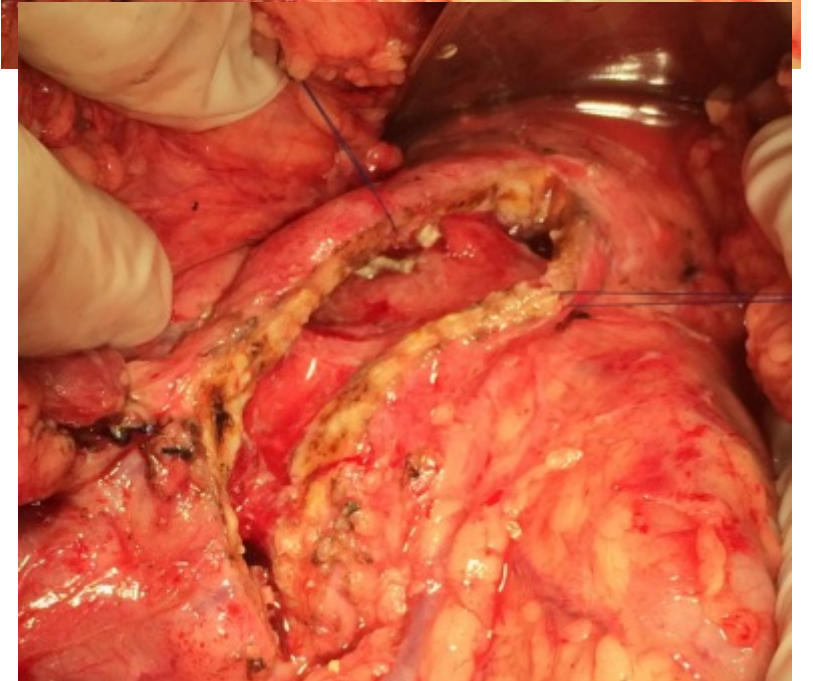
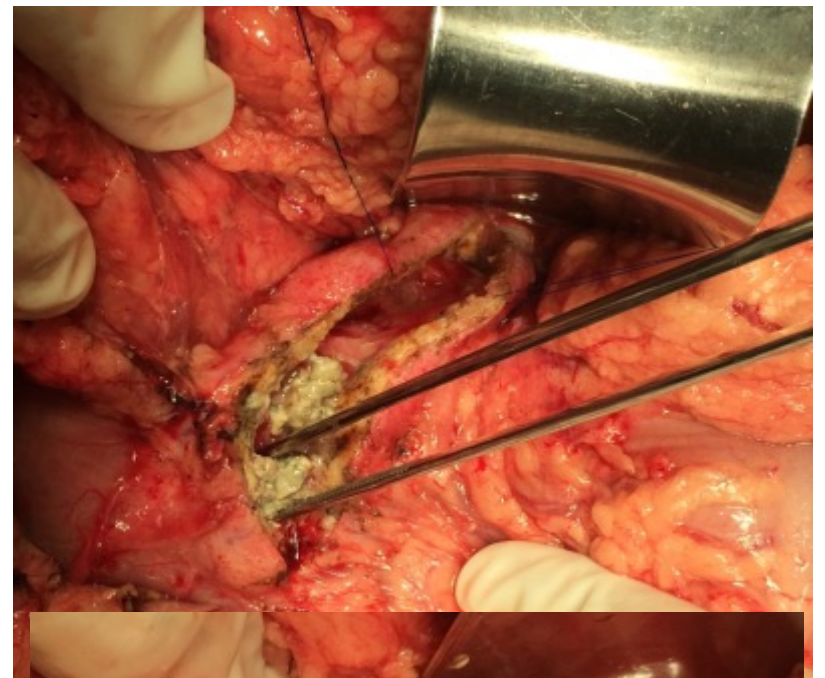
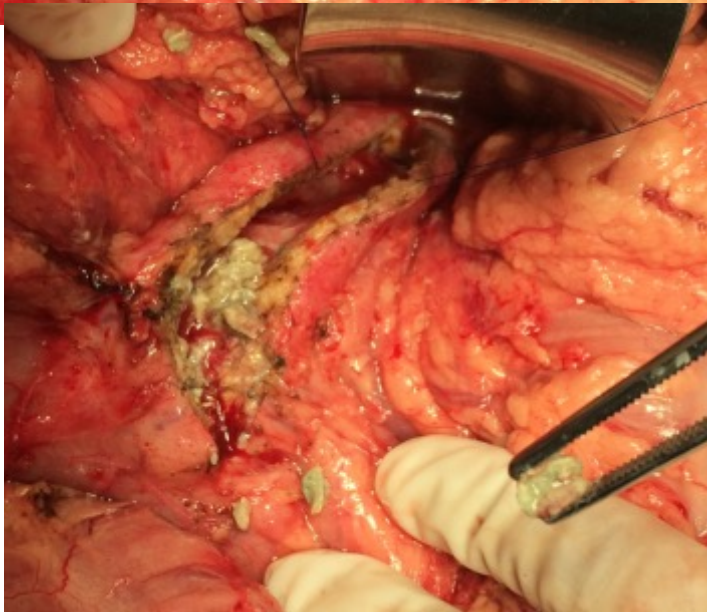
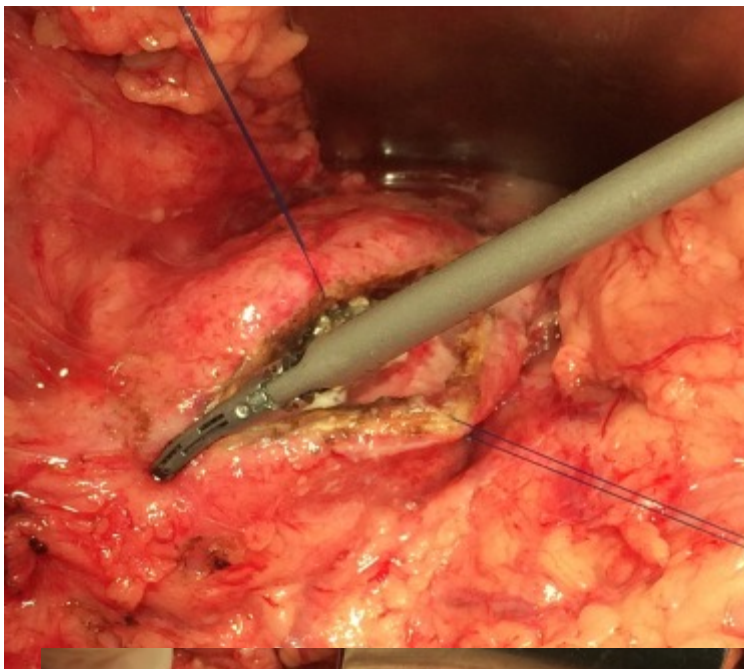


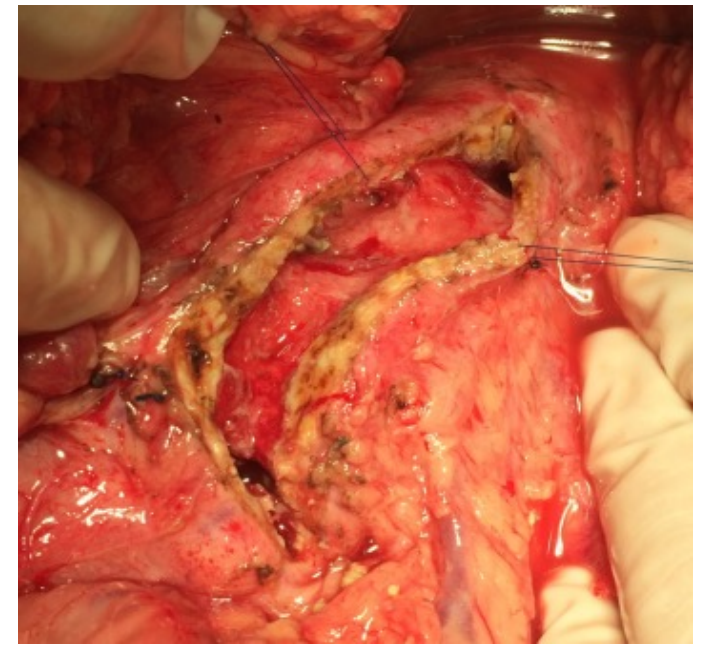
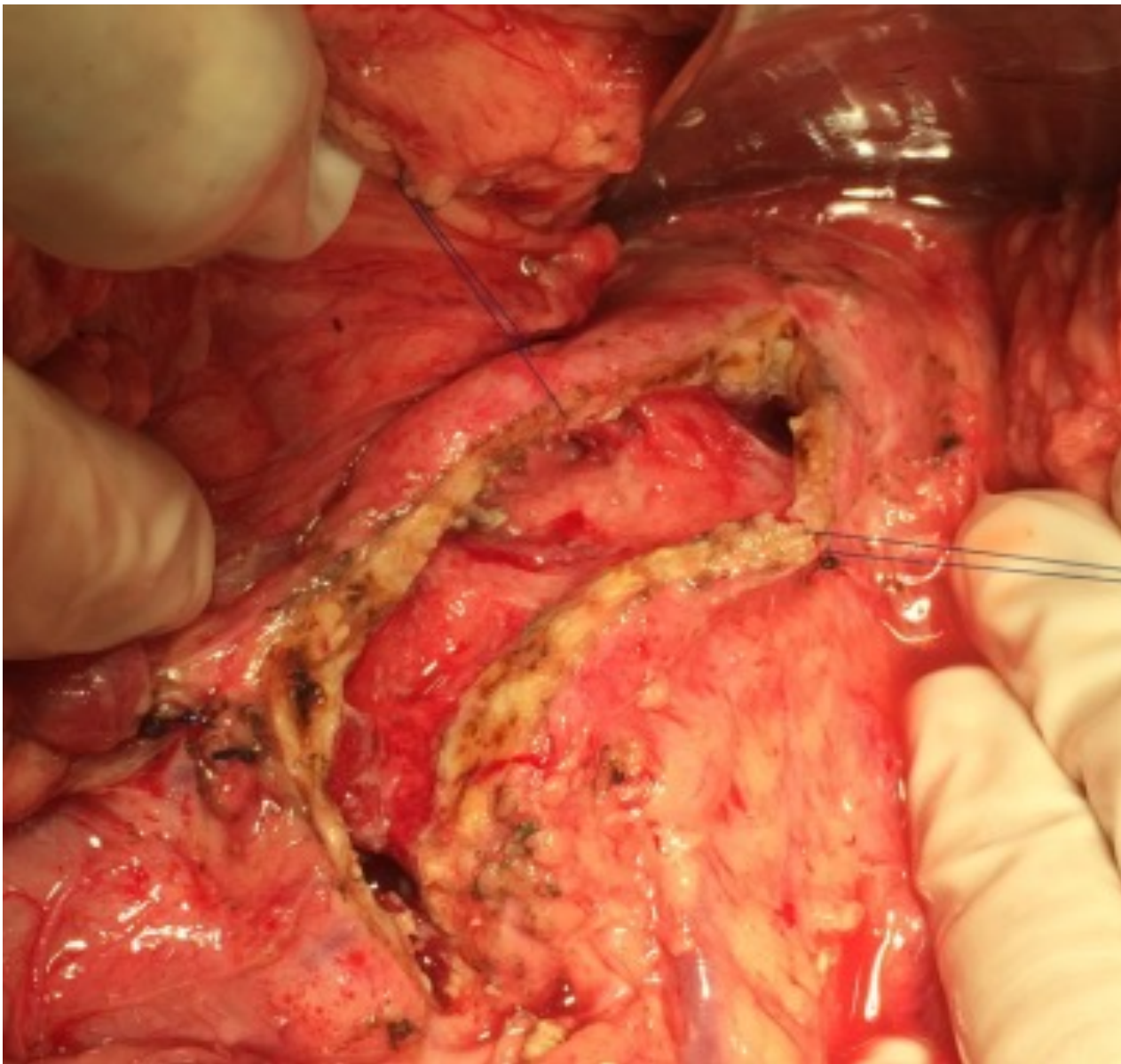
Frey Pancreatojejunostomy

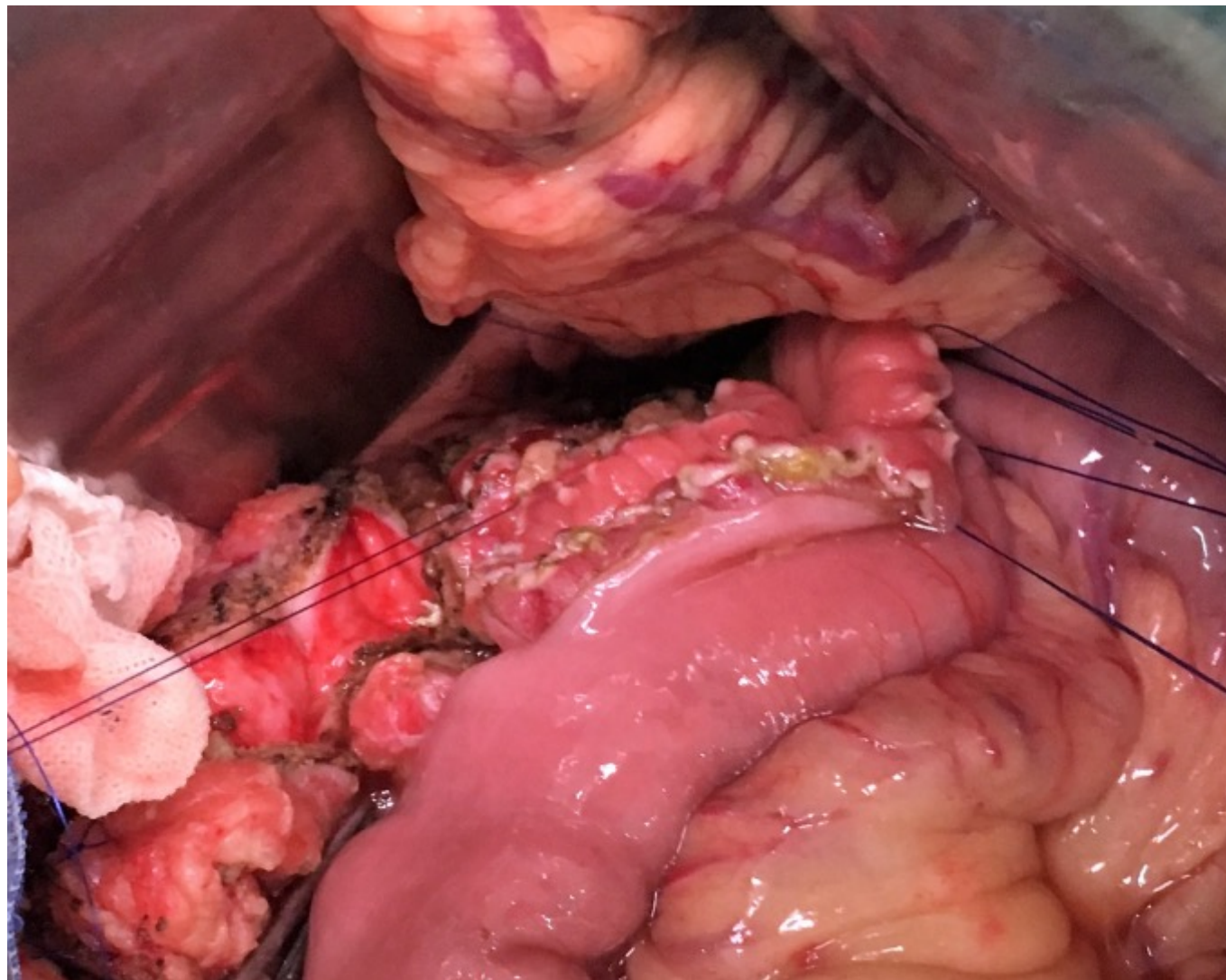
DRAINAGE AND RESECTION COMBINED

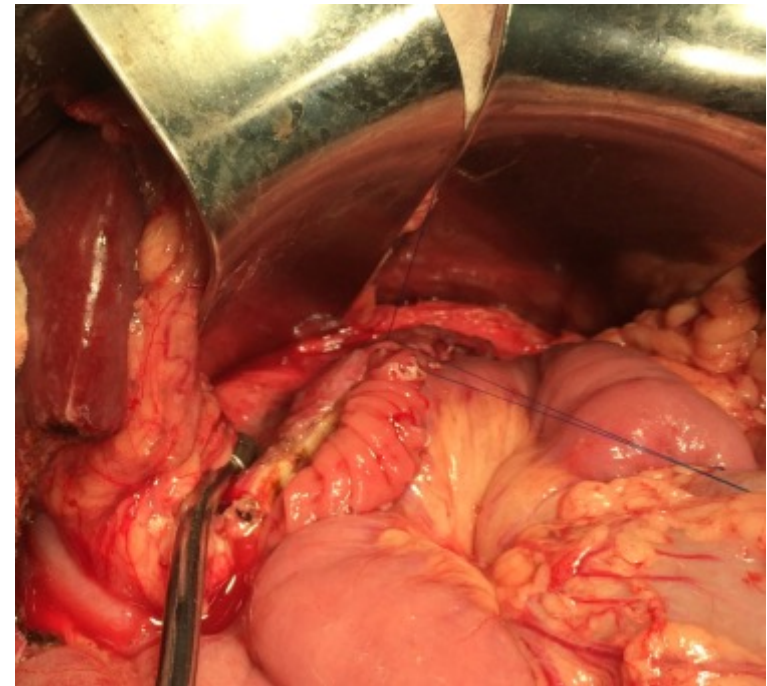
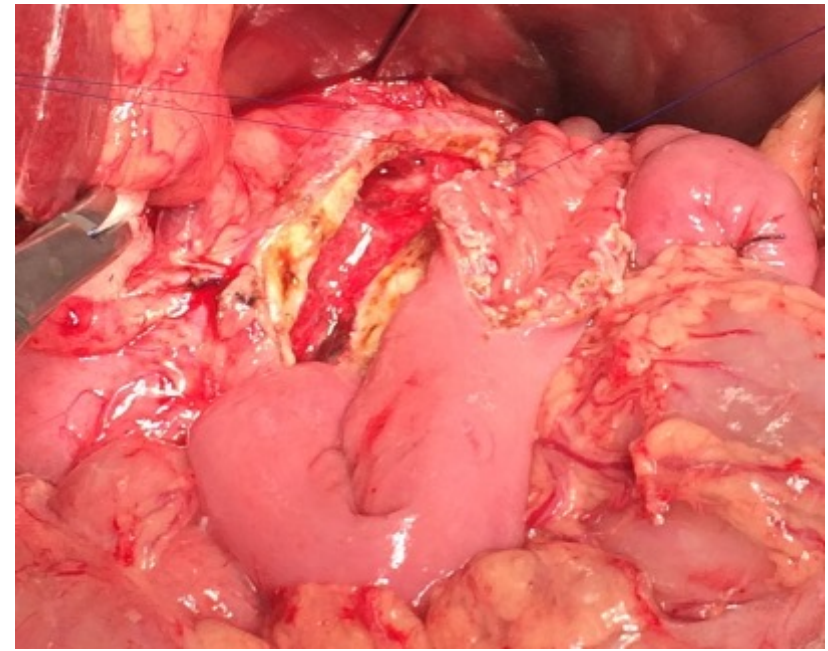
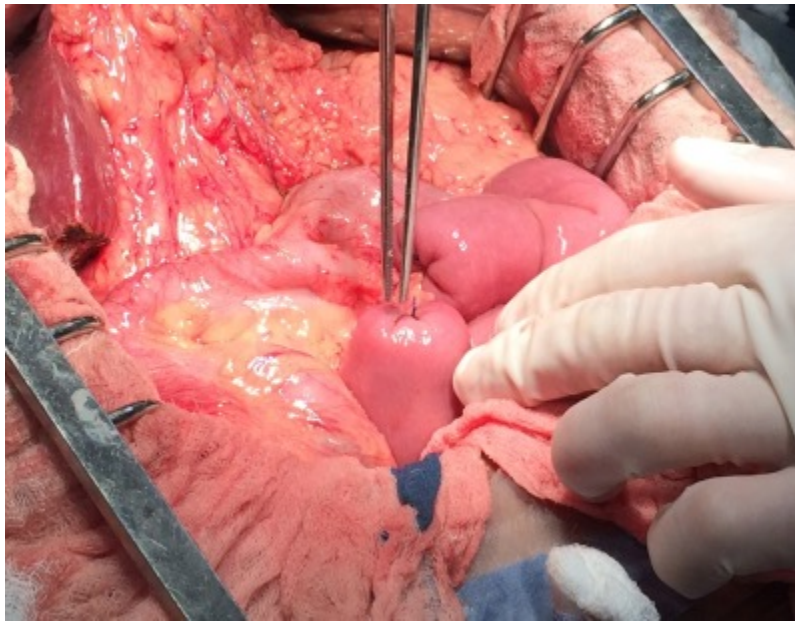


Frey Pancreatojejunostomy









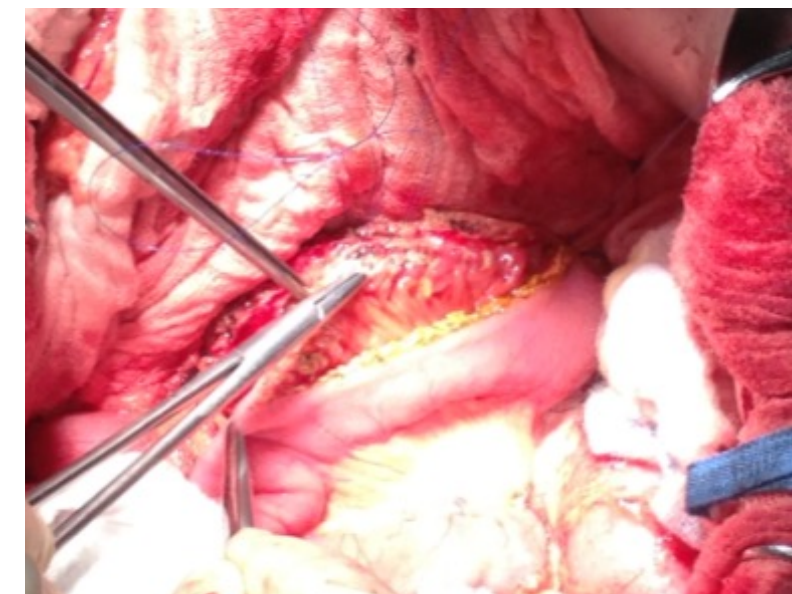
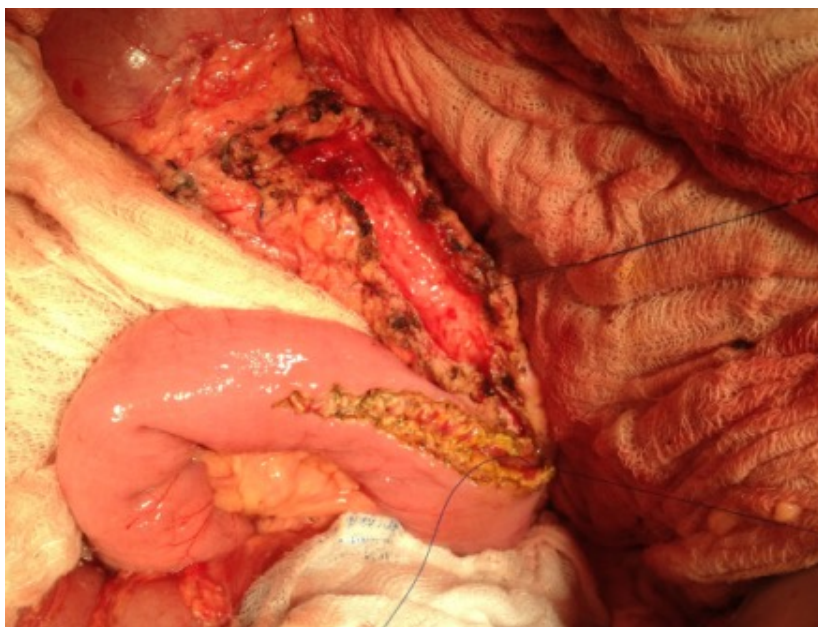


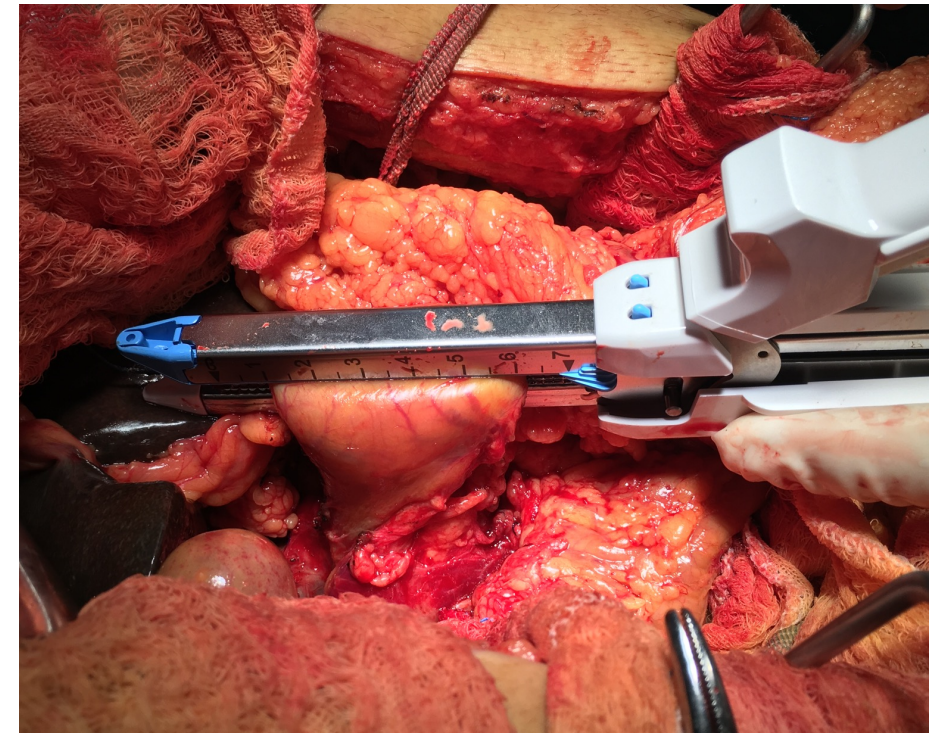
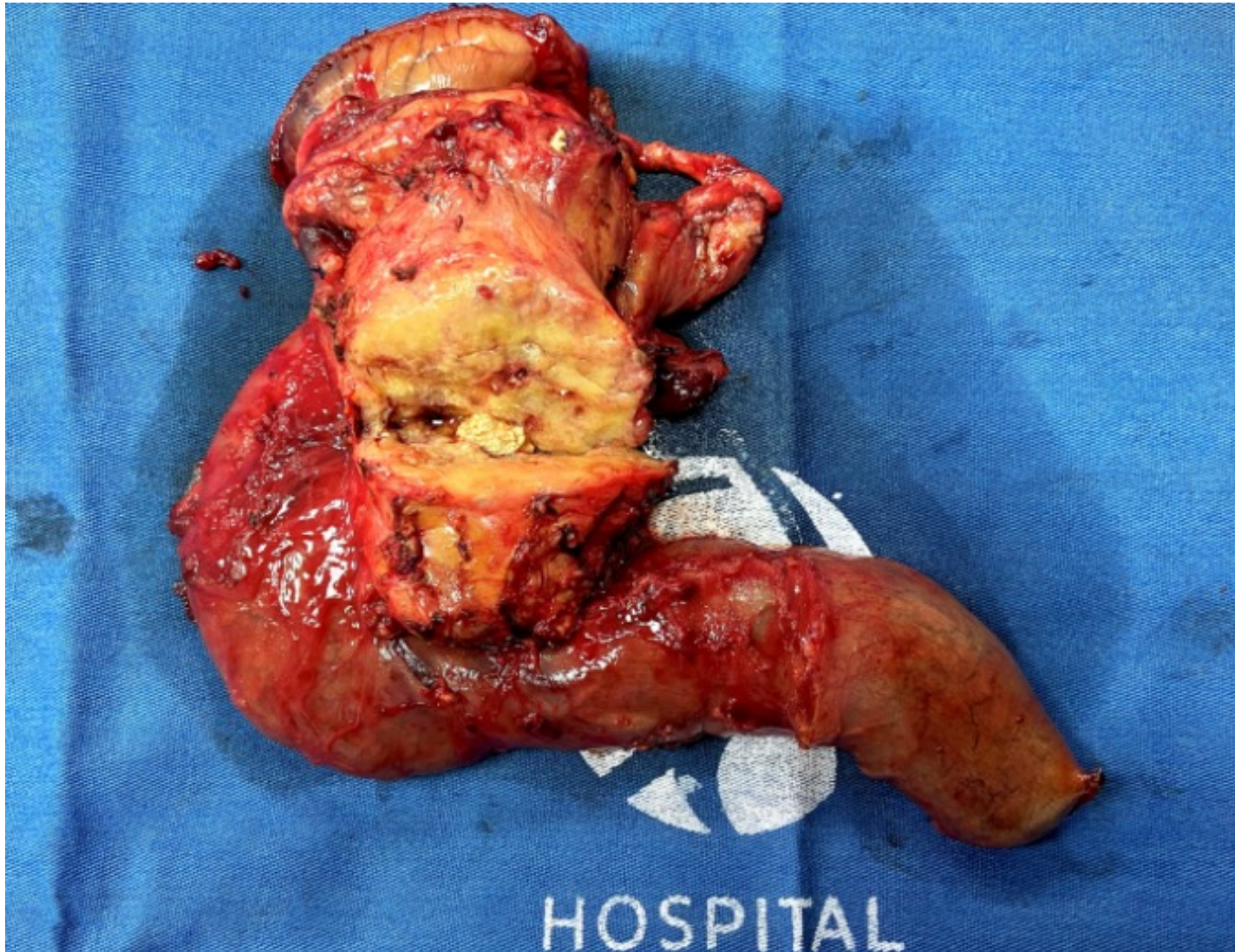
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Alcohol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Smoking	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
Abdominal pain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weight loss	No	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
Diabetes	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
Diarrhea	No	Yes	No	No	No	No	Yes	No	No	No	Yes	No
Duct diam (mm)	>8	>8	5–8	5–8	>8	5–8	>8	5–8	>8	>8	>8	>8
Atrophy	No	Yes	No	No	No	Yes	Yes	Yes	No	No	No	Yes
Main Location	B-T	B-T	B-T	B-T	B-T	HBT	HBT	HBT	HBT	B-T	H-B	H-B
Surgery	P-R	P-R	P-R	P-R	P-R	Frey	Frey	T-P	Frey	P-R	PD	PD
Op. Time (min)	200	210	220	190	200	210	260	360	230	170	350	380
Transfusion	No	No	No	No	No	No	No	No	No	No	No	Yes
UCI time (d)	2	1	1	1	1	1	2	3	1	1	3	3
Complications	Yes	No	No	No	No	No	No	Yes	No	No	Yes	Yes
LoS (d)	9	5	5	6	7	6	6	8	5	6	10	6
PO dysfunction	Yes	No	No	No	Yes	Yes	No	Yes	No	No	No	No

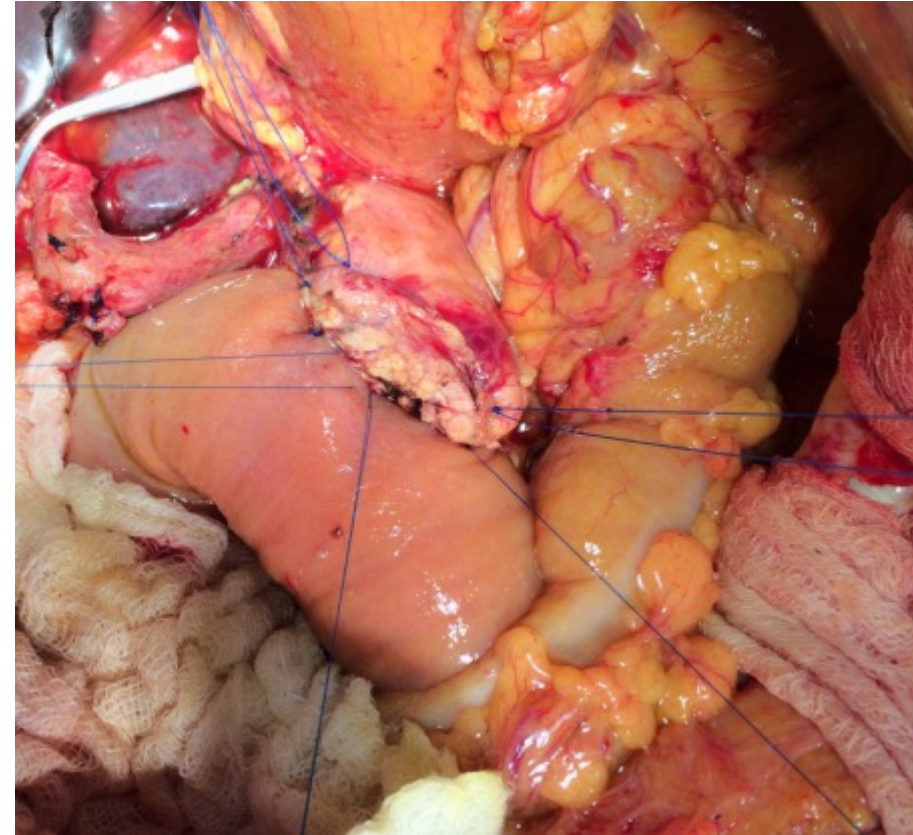
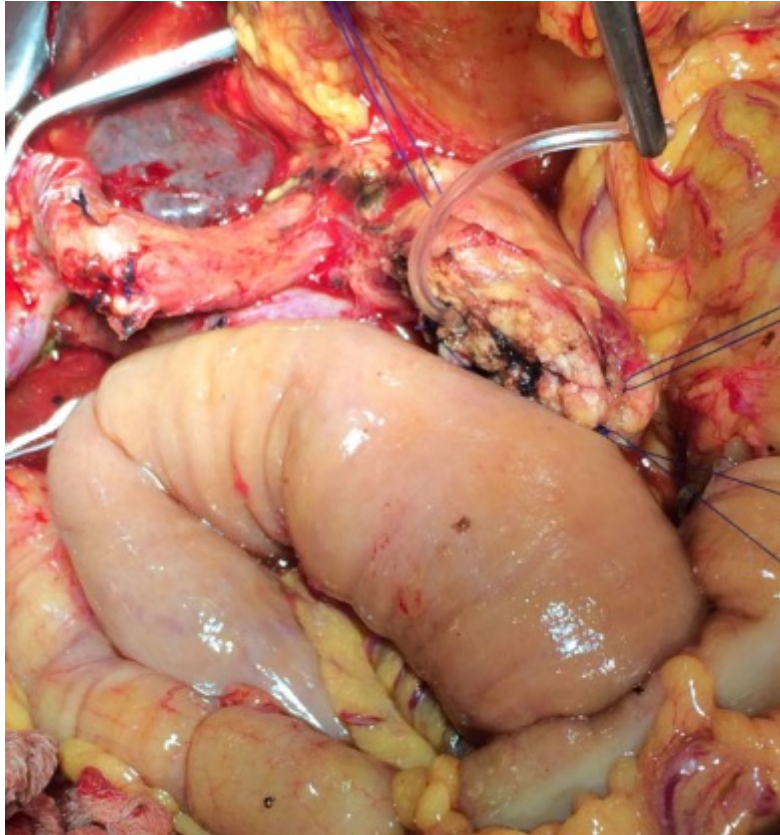
B-T: Body and tail; P-R; H-B: Head and body; HBT: Head, body and tail; Partington-Rochelle; T-P: Total pancreatectomy; PD: Pancreatoduodenectomy; Op: operative; ICU: Intensive Care Unit; diam: diameter; LoS: length of stay; d: day; mm: millimeter; m: minute; BMI: body mass index; PO: postoperative.

DRAINAGE AND RESECTION COMBINED



Pancreatoduodenectomy

Drainage and resection combined



Pancreatoduodenectomy

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Alcohol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Smoking	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
Abdominal pain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weight loss	No	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
Diabetes	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
Diarrhea	No	Yes	No	No	No	No	Yes	No	No	No	Yes	No
Duct diam (mm)	>8	>8	5–8	5–8	>8	5–8	>8	5–8	>8	>8	>8	>8
Atrophy	No	Yes	No	No	No	Yes	Yes	Yes	No	No	No	Yes
Main Location	B-T	B-T	B-T	B-T	B-T	HBT	HBT	HBT	HBT	B-T	H-B	H-B
Surgery	P-R	P-R	P-R	P-R	P-R	Frey	Frey	T-P	Frey	P-R	PD	PD
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Transfusion	No	No	No	No	No	No	No	No	No	No	No	Yes
UCI time (d)	2	1	1	1	1	1	2	3	1	1	3	3
Complications	Yes	No	No	No	No	No	No	Yes	No	No	Yes	Yes
LoS (d)	9	5	5	6	7	6	6	8	5	6	10	6
PO dysfunction	Yes	No	No	No	Yes	Yes	No	Yes	No	No	No	No

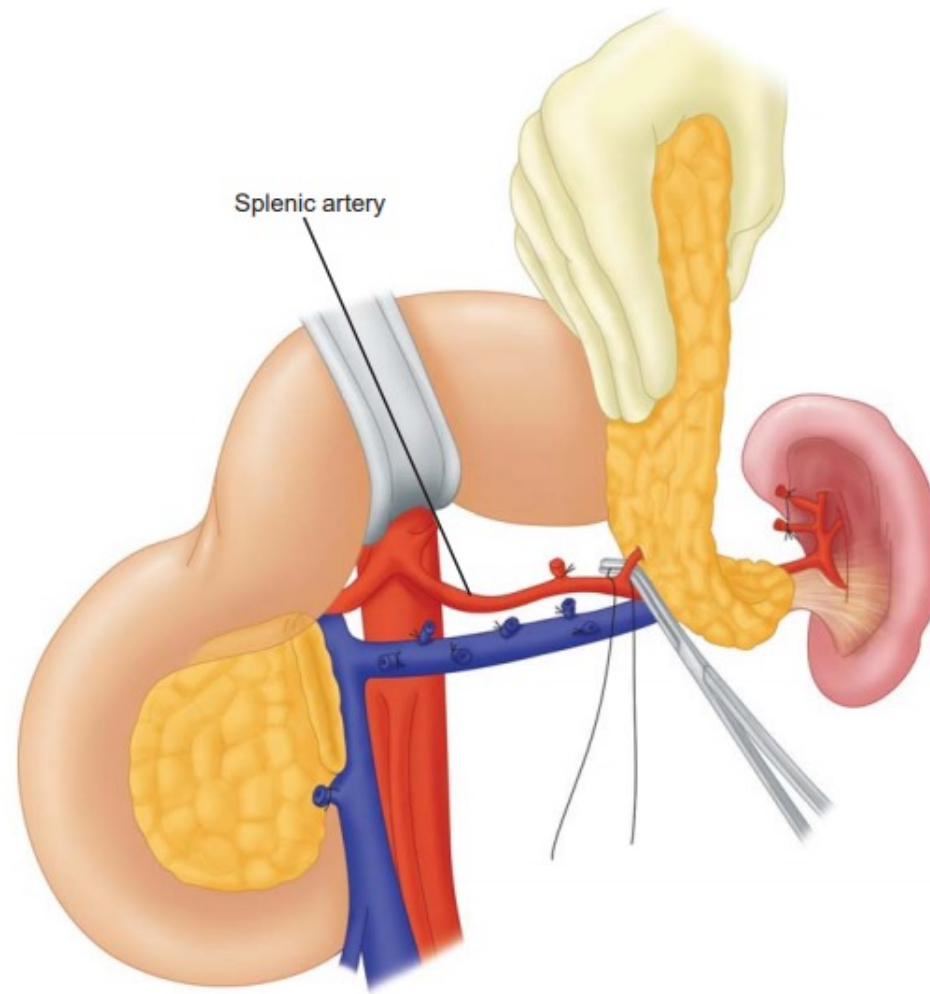
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❑ PURE RESECTION PROCEDURE

Distal pancreatectomy (Bell)

Total pancreatectomy

(and islet transplantation)



Distal pancreatectomy (Bell procedure)



Total pancreatectomy

PURE RESECTION PROCEDURE



Total pancreatectomy

PURE RESECTION PROCEDURE



Total pancreatectomy

Table 1

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Alcohol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Smoking	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	No
Abdominal pain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weight loss	No	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes
Diabetes	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
Diarrhea	No	Yes	No	No	No	No	Yes	No	No	No	Yes	No
Duct diam (mm)	>8	>8	5–8	5–8	>8	5–8	>8	5–8	>8	>8	>8	>8
Atrophy	No	Yes	No	No	No	Yes	Yes	Yes	No	No	No	Yes
Main Location	B-T	B-T	B-T	B-T	B-T	HBT	HBT	HBT	HBT	B-T	H-B	H-B
Surgery	P-R	P-R	P-R	P-R	P-R	Frey	Frey	T-P	Frey	P-R	PD	PD
Op. Time (min)	200	210	220	190	200	210	260	360	230	170	350	380
Transfusion	No	No	No	No	No	No	No	No	No	No	No	Yes
UCI time (d)	2	1	1	1	1	1	2	3	1	1	3	3
Complications	Yes	No	No	No	No	No	No	Yes	No	No	Yes	Yes
LoS (d)	9	5	5	6	7	6	6	8	5	6	10	6
PO dysfunction	Yes	No	No	No	Yes	Yes	No	Yes	No	No	No	No

B-T: Body and tail; P-R; H-B: Head and body; HBT: Head, body and tail; Partington-Rochelle; T-P: Total pancreatectomy; PD: Pancreatoduodenectomy; Op: operative; ICU: Intensive Care Unit; diam: diameter; LoS: length of stay; d: day; mm: millimeter; m: minute; BMI: body mass index; PO: postoperative.

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São Luís



Thanks !