Özofagogastrik bileşke adenokarsinomlu hastalarda parsiyel gastrik koruyucu cerrahi sonrası sindirim yolu rekonstrüksiyon seçimi (Double-tract, Cheng'in GIRAFFE tekniği vb.)

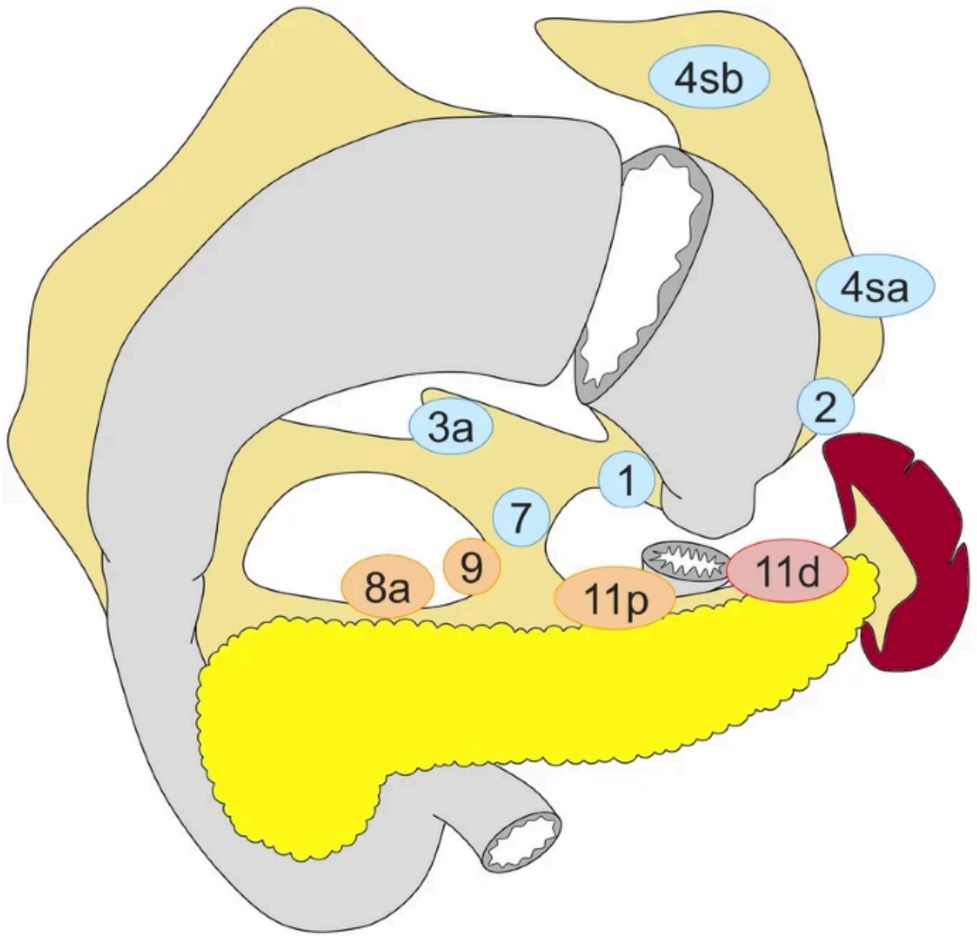
Ali Güner

MD, PhDc, BA, FACS, FTBS

KTÜ Genel Cerrahi ABD

X. Gastroenteroloji Cerrahisi Kongresi, 24 Kasım 2022

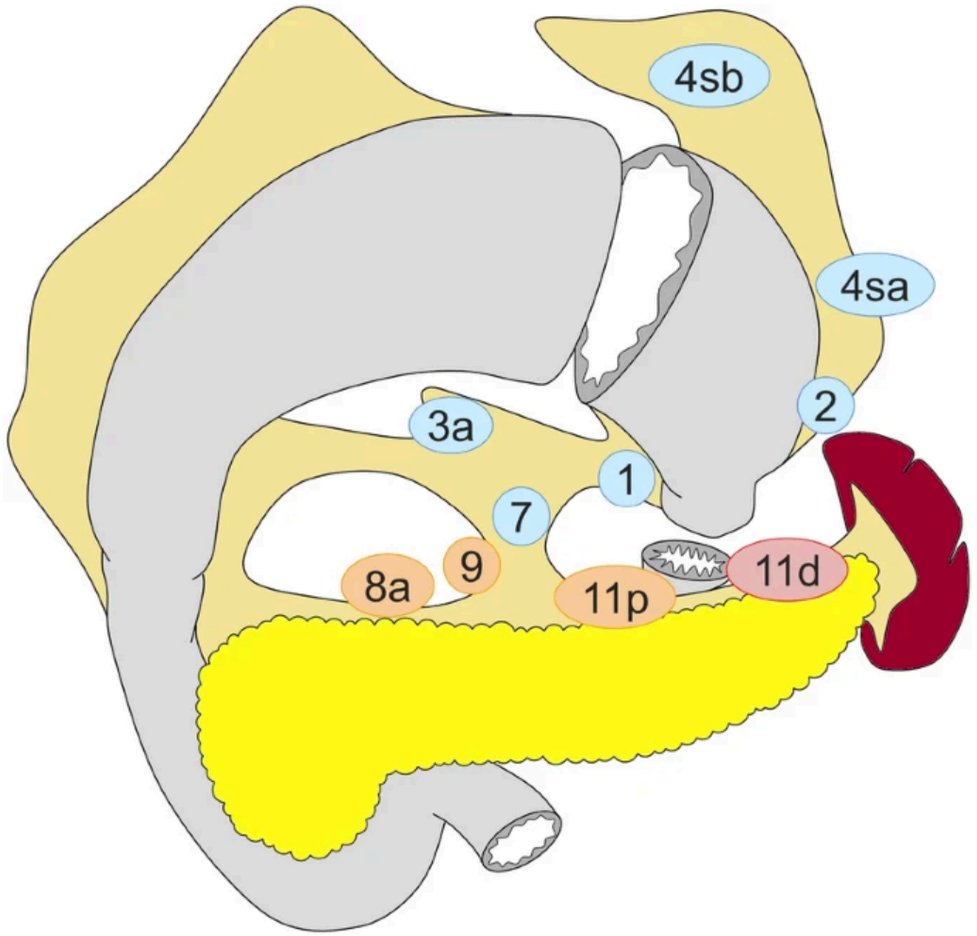
Herhangi bir biomedikal firma ile
çıkar çatışmam bulunmamaktadır.



Selection of gastrectomy The standard surgical procedure for clinically node-positive (cN+) or T2–T4a tumors is either total or distal gastrectomy. Distal gastrectomy is selected when a satisfactory proximal resection margin (see above) can be obtained. When obtaining a clean proximal resection margin is not possible, total gastrectomy is selected. Even in a case that a satisfactory proximal resection margin can be obtained, pancreatic invasion by tumor requiring pancreaticosplenectomy necessitates total gastrectomy regardless of the tumor location. Total gastrectomy with splenectomy should be considered for tumors that are located along the greater curvature. For adenocarcinoma of the esophagogastric junction, proximal gastrectomy is also considered (CQ14).

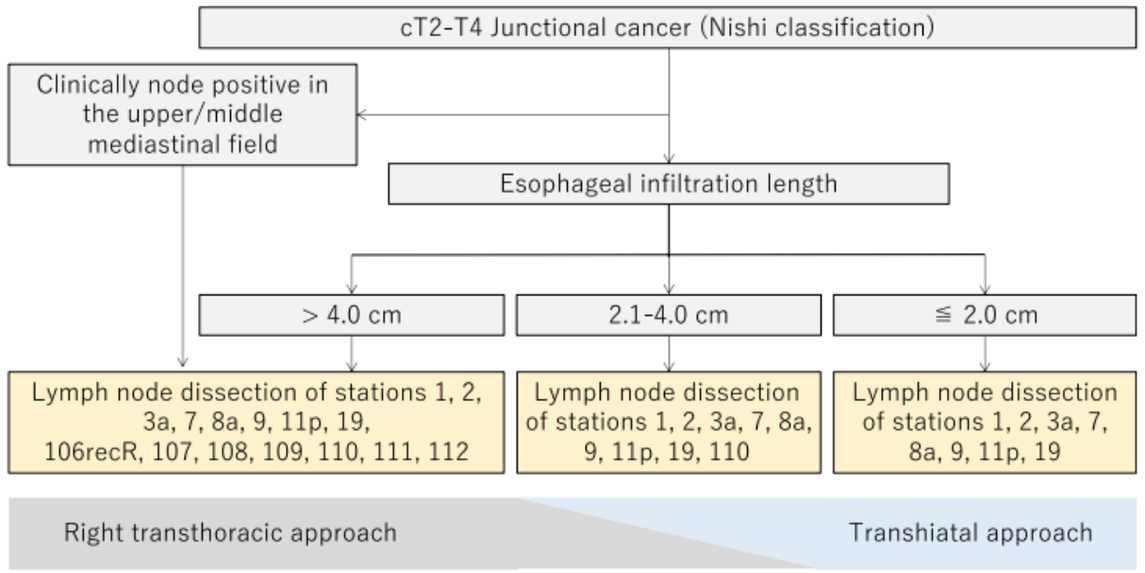
For cT1N0 tumors, the following types of gastric resection can be considered according to tumor location.

- Pylorus-preserving gastrectomy (PPG): for tumors in the middle portion of the stomach with the distal tumor border at least 4 cm proximal from the pylorus (CQ4).
- Proximal gastrectomy: for proximal tumors where more than half of the distal stomach can be preserved.



Esophagogastric junctional cancer

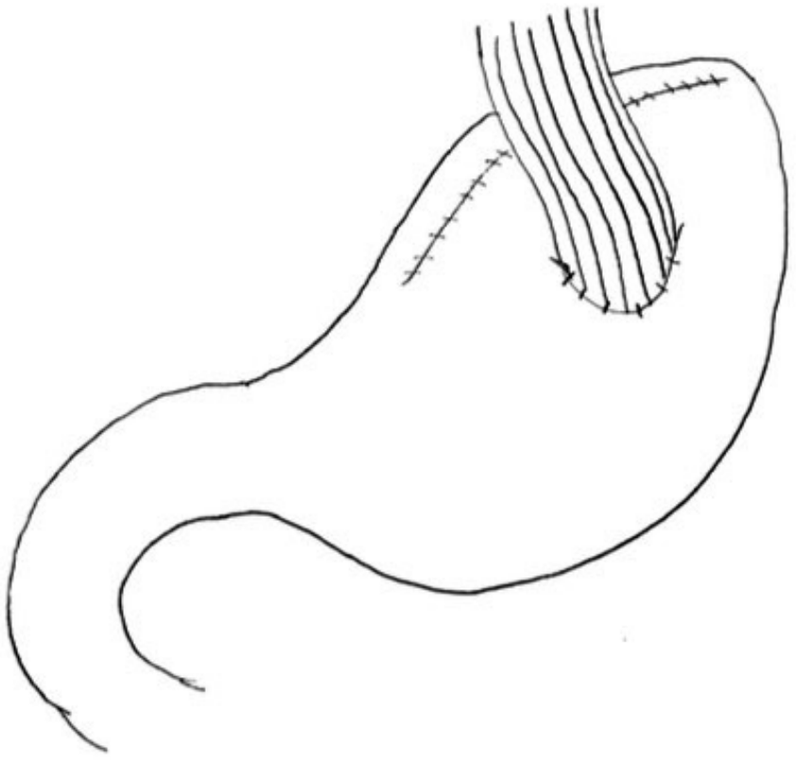
The current edition of the Japanese Gastric Cancer Treatment Guidelines defines the extent of lymphadenectomy according to the type of gastrectomy, regardless of tumor location. However, only for esophagogastric junctional cancer, either adenocarcinoma or squamous cell carcinoma, of which the center is located within 2 cm of the esophagogastric junction, there is no consensus on the type of resection and the extent of lymphadenectomy as a standard of care for this category. The Japanese Gastric Cancer Association

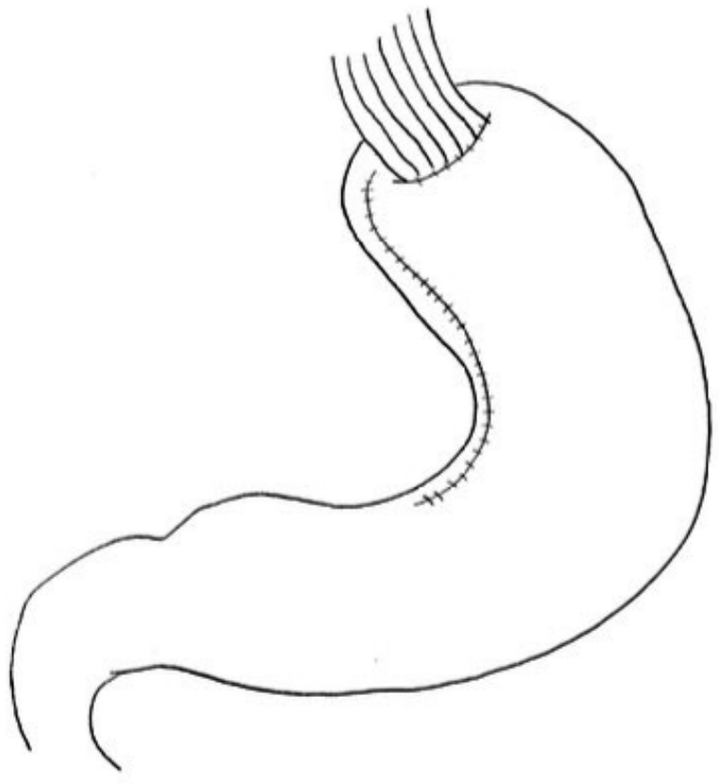


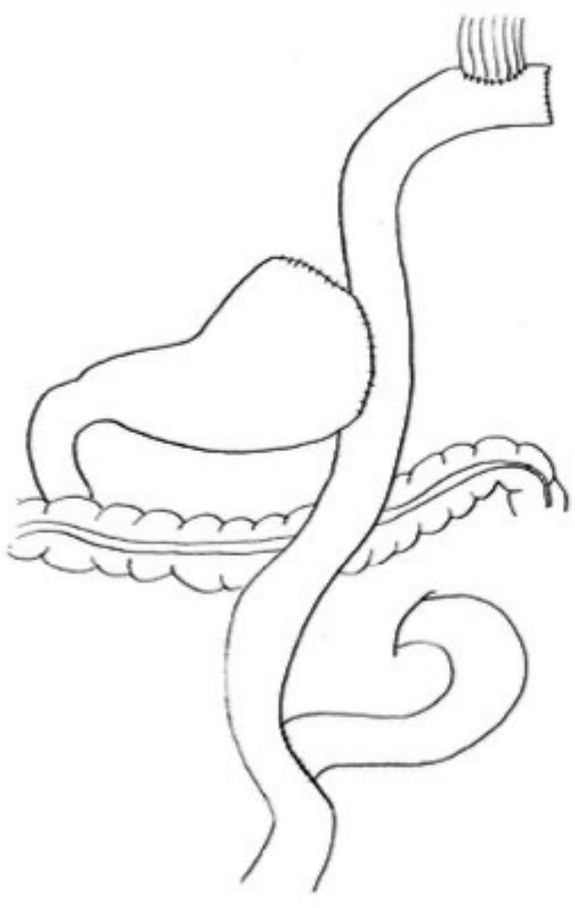
Extent of the resection of the esophagus and stomach

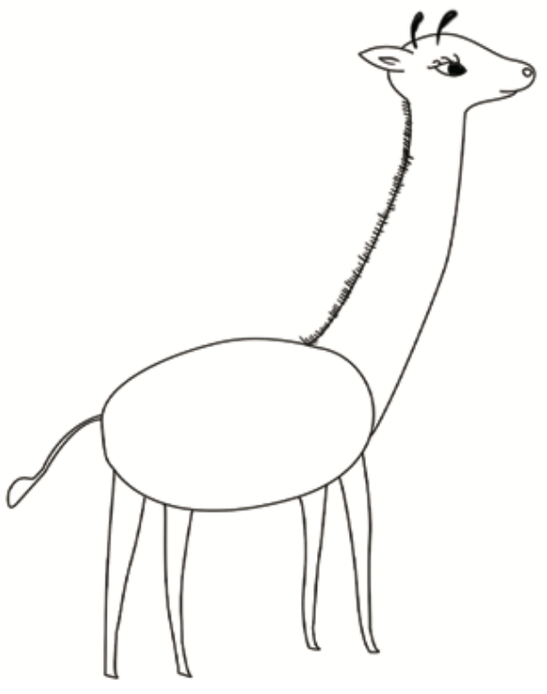
One of the following procedures is selected for esophagogastric junctional cancer: proximal gastrectomy with or without lower esophageal resection, total gastrectomy with or without lower esophageal resection, or esophageal resection and proximal gastrectomy (CQ14).

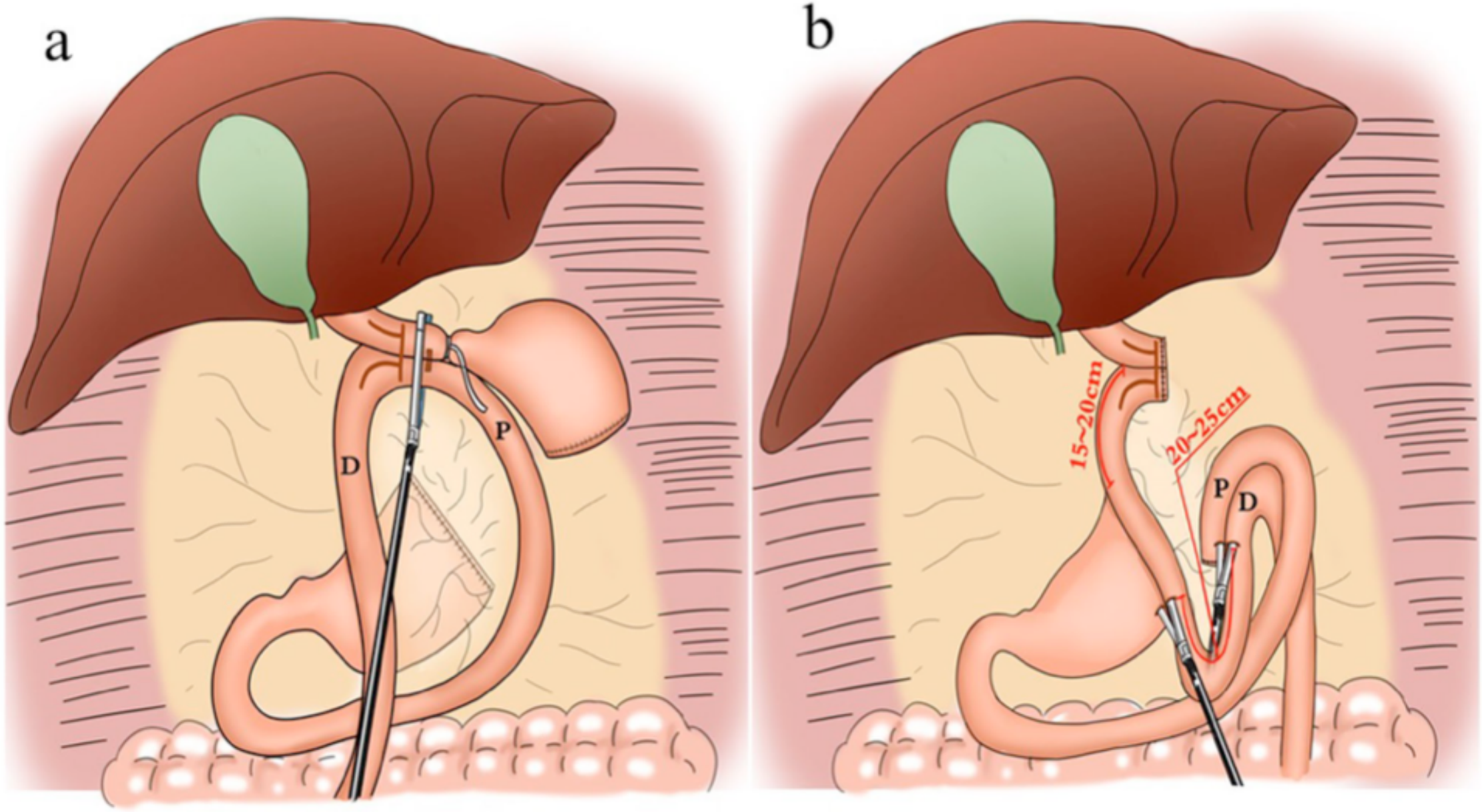
JGCA (6th). Gastric Cancer 2022



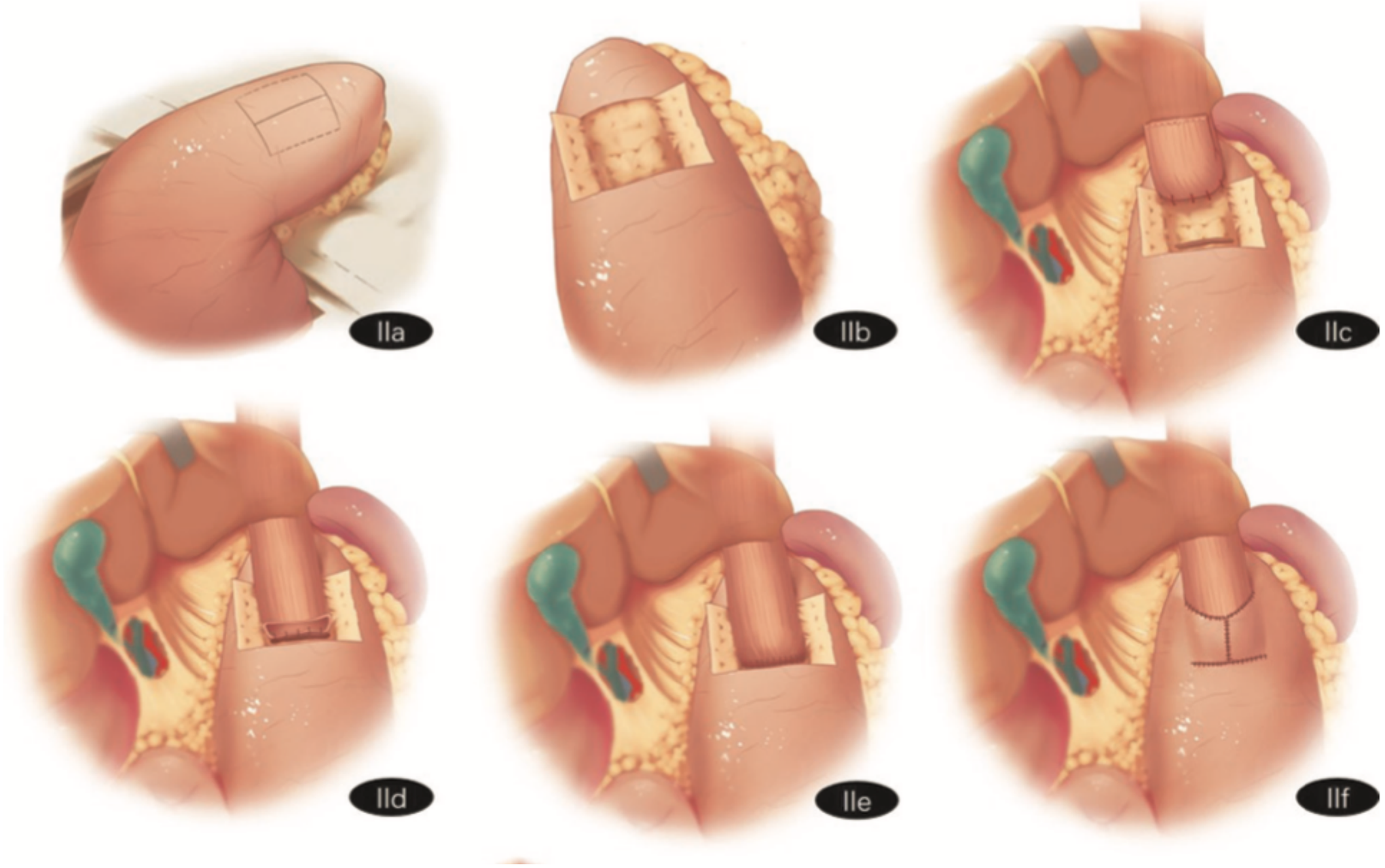




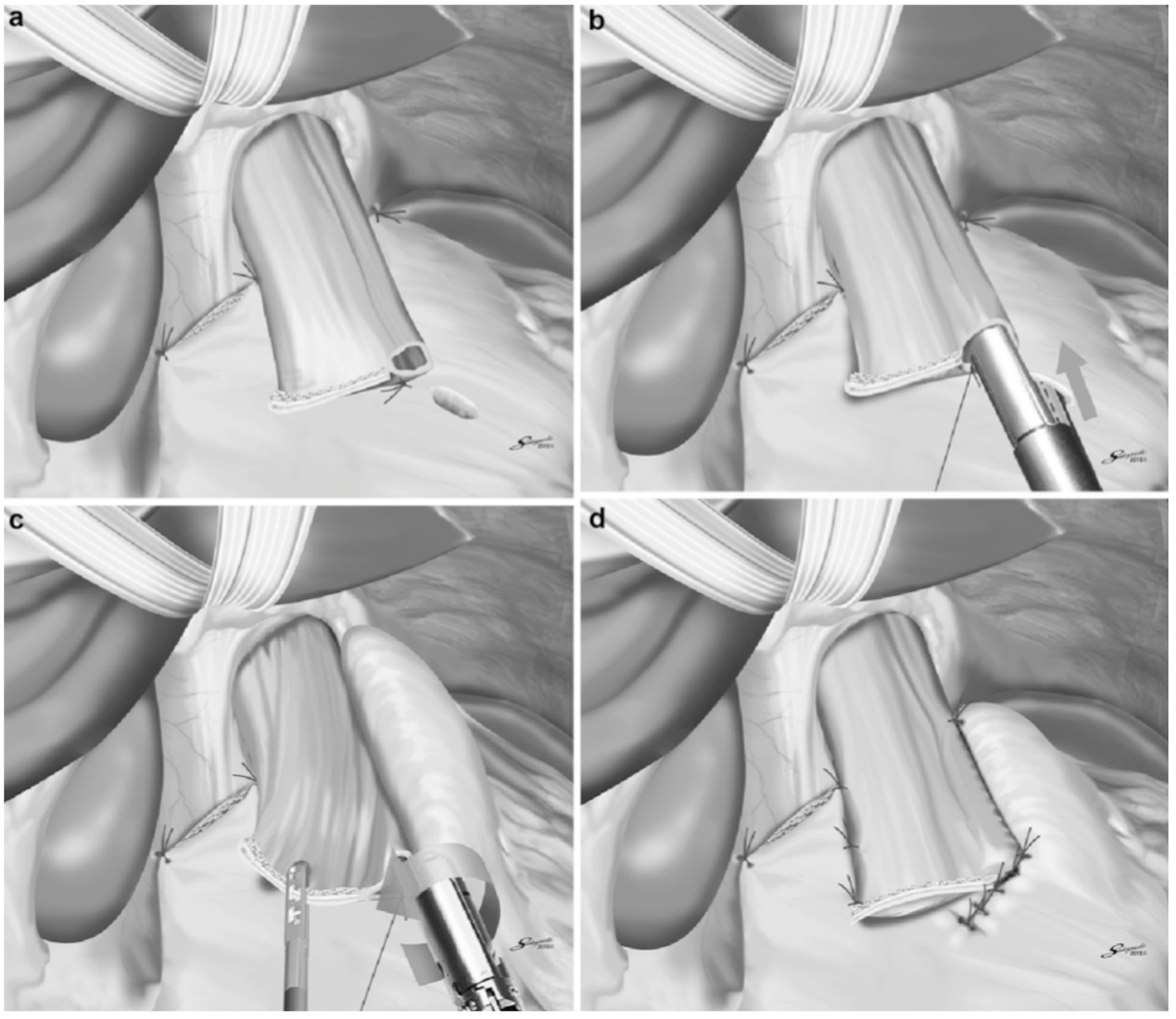




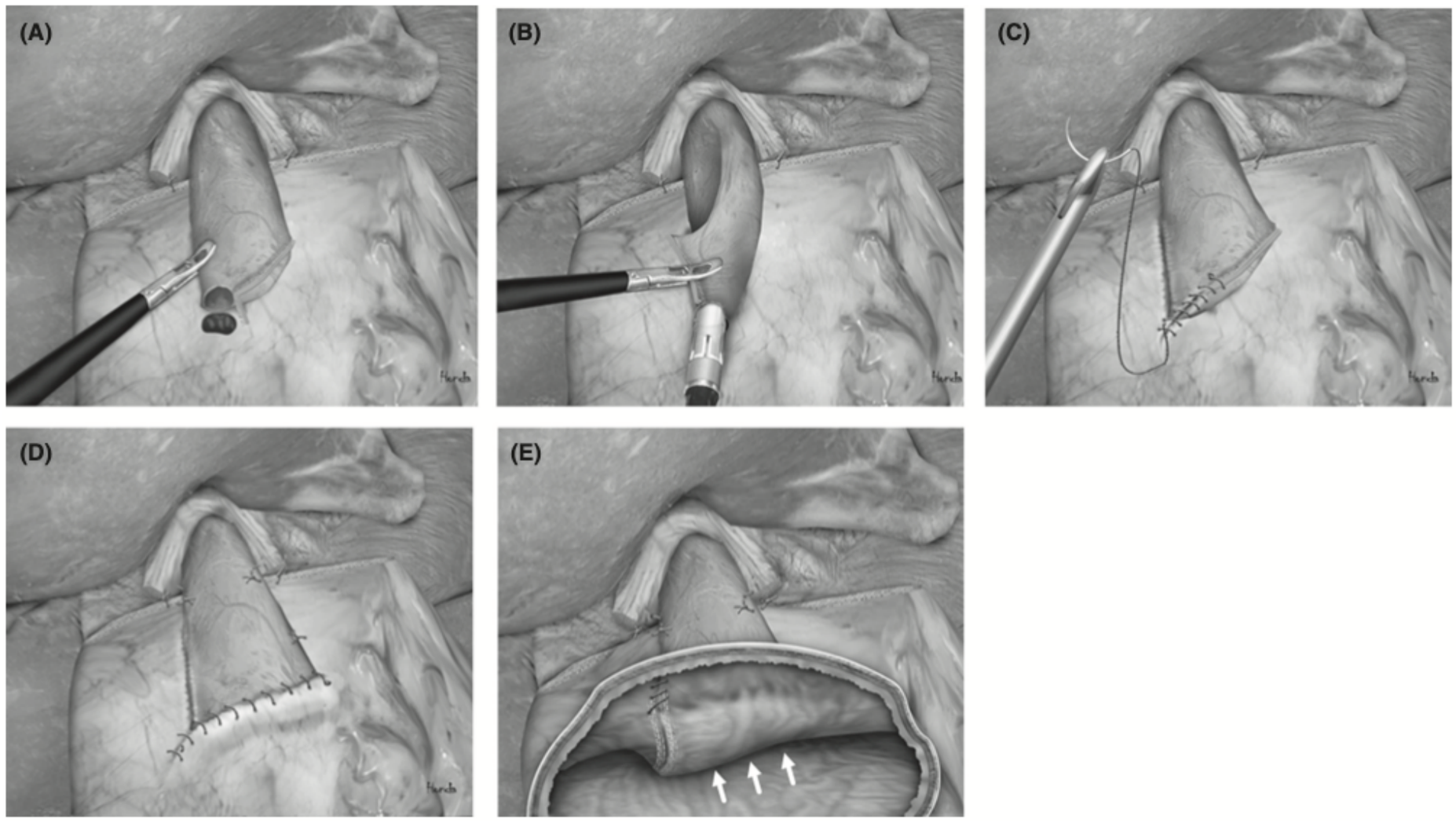
Pi-shaped + DTR



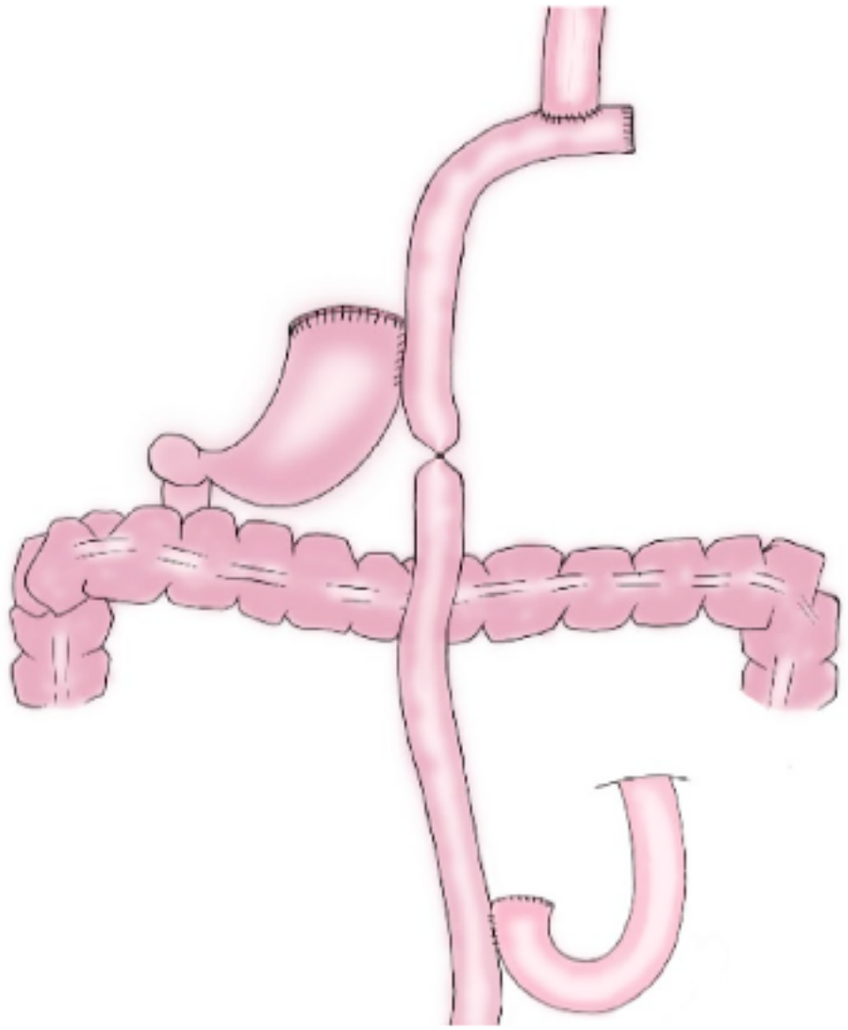
Double flap = Kamikawa



Side Overlap with Fundoplication by Yamashita (SOFY)



Modified Side Overlap with Fundoplication by Yamashita (SOFY)



Single-tract JI

Esophagogastrostomy

+ Piloroplasti/Myotomi

	Reflux esophagitis	Anastomotic stricture	Anastomotic leakage	Residual food
Isobe et al.	12/66 (18.2%)	2/66 (3.0%)	1/66 (1.5%)	–
Kazuhiro et al.	4/10 (40%)	2/10 (20%)	2/11 **(18.2%)**	–
Kondoh et al.	4/10 (40%)	4/10 **(40%)**	0/10 (0%)	–
Yasuda et al.	1/23 (4.3%)	0/25 (0%)	0/25 (0%)	–
Zhang et al.	9/62 (14.5%)	11/62 (7.1%)	5/62 (8.1%)	–
Tokunaga et al.	3/38 (8%)	–	–	–
Nakamura et al.	–	12/55 (21.8%)	0	12/55 **(21.8%)**
Masuzawa et al.	9/49 (18.4%)	2/49 (4.1%)	0	
Abutarani et al.	12/22 **(54.5%)**	6/22 (27.3%)	0	
Total	54/280 (19.3%)	39/299 (13.0%)	8/174 (4.6%)	12/55 (21.8%)

Esophagogastrostomy

+ Fundoplikasyon (Sakuramoto et al)

+ Dar conduit (Ronellenfitsch et al, Aihara et al)

+ Dar conduit + Pseudo-fornix (Hosogi et al)

+ Uncut anastomoz + pseudo-fornix (Okabe et al)

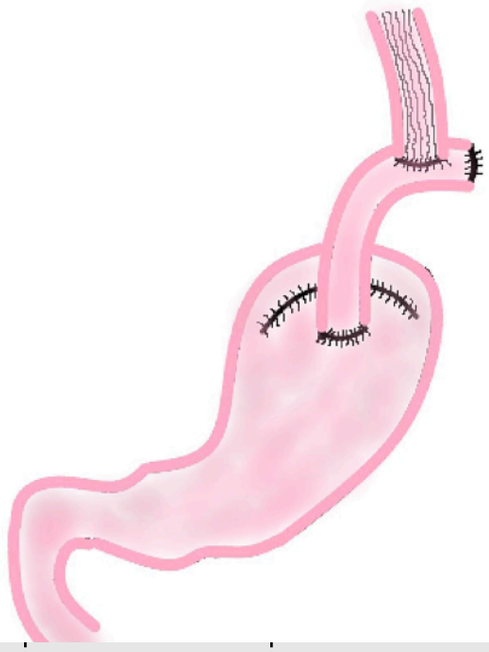
+ His açısı modifikasyonu (Yasuda et al)

+ Gastrojejunostomi (Chen et al)

Jejunal interposition

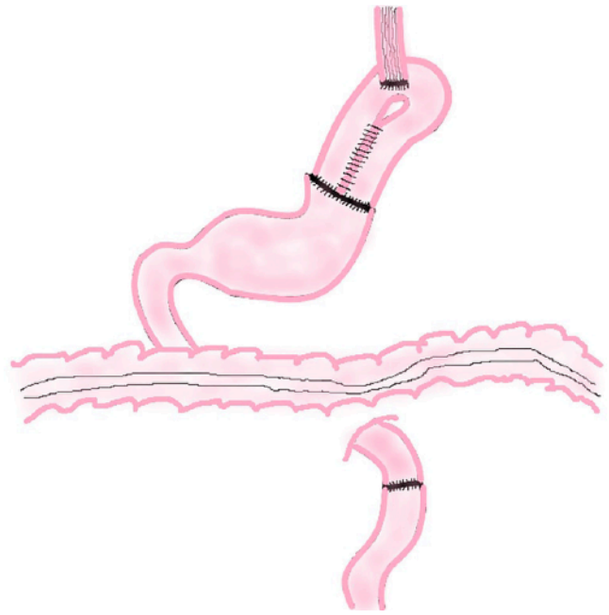
	Reflux esophagitis	Anastomotic stricture	Anastomotic leakage	Residual food
Wright et al.	2/30 (6.7%)	1/30 (3.3%)	3/30 (10%)	8/30 (26.7%)
Senmaru et al.	–	2/12 (16.7%)	1/12 (8.3%)	–
Kameyama et al.	3/10 (30.0%)	–	0/10 (0.0%)	3/10 (30.0%)
Isobe et al.	3/23 (13.0)	0/23 (0%)	3/23 (13.0)	–
Kazuhiro et al.	0/14 (0%)	9/14 (64.3%)	0/14 (0%)	–
Adachi et al.	0/16 (0%)	1/16 (6.3%)	0/16 (0%)	–
Yasuda et al.	1/23 (5%)	3/21 (14.3%)	2/21 (10%)	17/17 (100%)
Zhao et al.	2/31 (6.5%)	–	0/35 (0%)	–
Nomura et al.	1/15 (6.7%)	1/15 (3.3%)	0/15 (0%)	4/15 (26.7%)
Tokunaga et al.	3/45 (7%)	–	–	–
Masuzawa et al.	5/32 (15.6%)	1/32 (3.1%)	0	–
Total	42/304 (13.8%)	39/345 (11.3%)	15/369 (4.1%)	39/94 (41.5%)

Jejunal interposition



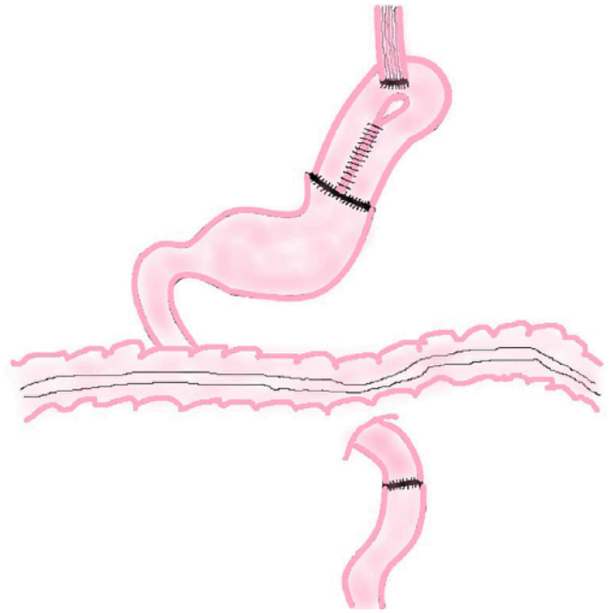
	Reflux esophagitis (%)	Anastomotic stricture (%)	Food residues (%)	Leakage (%)	Morbidity (%)	Change in body weight (%)	Reflux symptoms (%)
Yasuda	**EG: 59.1/4.5/22.7/4.5/9.1** **JI: 58.8/17.6/23.5/0/0**	Early complications: EG: 0 JI: 14.3 (p = 0.088) Late complications: EG: 21.7 JI: 10 (p = 0.298)	EG: 18.2 18/4/0/0/0 JI: 58.8 7/0/2/3/5 (Grades 0/1/2/3/4*) (p = 0.009)	**EG:0** **JI:9.5** **(p = 0.203)**	Early complications: EG: 16 JI: 28.6 (p = 0.251) Late complications EG: 21.7 JI: 25.0 (p = 0.801)	NA	EG: 4.3 JI: 5
Nakamura	**EG: 21.8** **JI: 0, JPI: 8.3** **(p = 0.0401)** **EG with a > 180° wrap: 3.6** **(Grades B/C*)** **(12 months)**	EG: 21.8 JI: 31.8 JPI: 8.3	EG: 21.8 JI: 31.8 JPI: 91.7 (Grade ≧ 2**)	**EG:0** **JI:4** **JPI:0**	EG: 3.1 JI: 20 JPI: 25	EG: 12.9 JI: 17.5 JPI: 19.7 (p < 0.05) (3 years)	NA
Masuzawa	NA	EG: 4.1 JI: 3.1	NA	EG:0 JI:0	Early complications: EG: 8.2 JI: 9.4	NS	Heartburn: EG: 18.4 JI: 15.6
Tokunaga	EG: 32.4 JI: 5 (p = 0.001)	NA	NA	NA	EG: 8 JI: 15	NA	NA

Jejunal pouch interposition



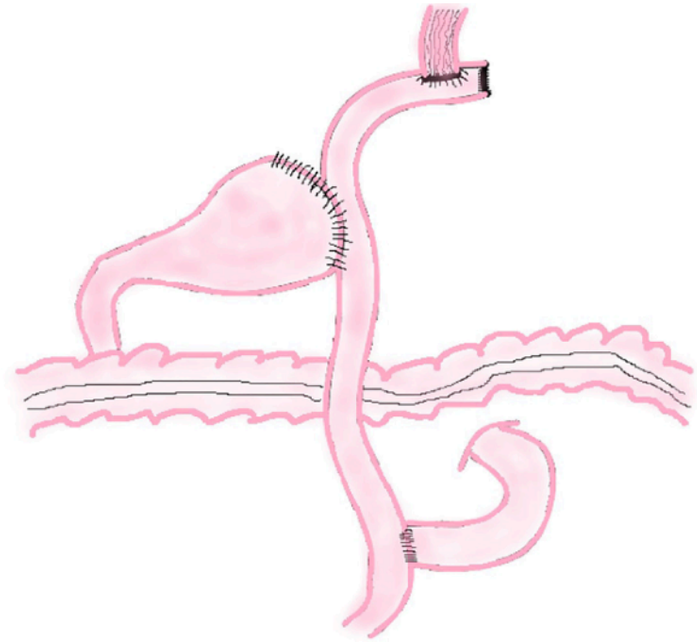
	Reflux esophagitis	Anastomotic stricture	Anastomotic leakage	Residual food
Senmaru et al.	–	1/12 (8.3%)	0 (0%)	–
Kameyama et al.	6/46 (13.0%)	–	9/46 (15.3%)	23/46 (50.0%)
Isobe et al.	2/12(16.7)	1/12 (8.3%)	1/12 (8.3%)	–
Nakamura et al.	–	1/12 (8.3%)	0	11/12 (91.7%)
Total	8/58 (13.8%)	3/36 (8.3%)	10/58 (17.2%)	34/58 (58.6%)

Jejunal pouch interposition



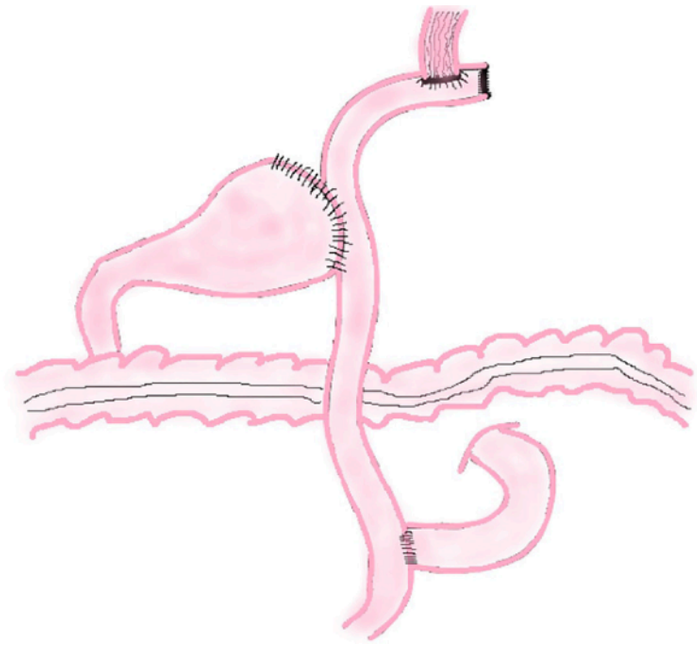
	Reflux esophagitis (%)	Anastomotic stricture (%)	Food residues (%)	Leakage (%)	Morbidity (%)	Change in body weight (%)	Reflux symptoms (%)
Nakamura	EG: 21.8 JI: 0, JPI: 8.3 ($p = 0.0401$) EG with $a > 180°$ wrap: 3.6 (Grades B/C*) (12 months)	EG: 21.8 JI: 31.8 JPI: 8.3	EG: 21.8 JI: 31.8 JPI: 91.7 (Grade ≧ 2**)	EG:0 JI:4 JPI:0	EG: 3.1 JI: 20 JPI: 25	EG: 12.9 JI: 17.5 JPI: 19.7 ($p < 0.05$) (3 years)	NA
Takagawa	JI: 15.8 JPI: 15.8 (24 months)	JI: 21.1 JPI: 10.5	JI: 10.5 JPI: 21.1	JI: 15.8 JPI: 5.3	Short-term JI: 31.6 JPI: 5.3 ($p = 0.036$)	JI: 80.0 JPI: 86.7 ($p = 0.095$) (24 months)	Heartburn JI: 5.3 JPI: 5.3 (24 months)

Double Tract Reconstruction



	Reflux esophagitis	Anastomotic stricture	Anastomotic leakage	Residual food
Ahn et al.	2/43 (4.65%)	2/43 (4.65%)	–	21/43 (48.9%)
Kim et al.	2/17 (11.8%)	0/17 (0%)	1/17 (5.9%)	–
Kamitaka et al.	2/10 (20%)	–	0/10 (0%)	–
Nomura et al.	1/15 (6.7%)	1/15 (3.3%)	0/15 (0%)	2/15 (13.3%)
Sugiyama et al.	–	0/10 (0%)	1/10 (10%)	–
Aburatani et al.	2/19 (10.5%)	0	0	–
Yang et al.	0	–	–	–
Tanaka et al.	2/10 (20%)	0	0	0
Hong et al.	0	0	0	–
Total	11/114 (9.6%)	3/85 (3.5%)	2/52 (3.9%)	23/58 (39.6%)

Double Tract Reconstruction



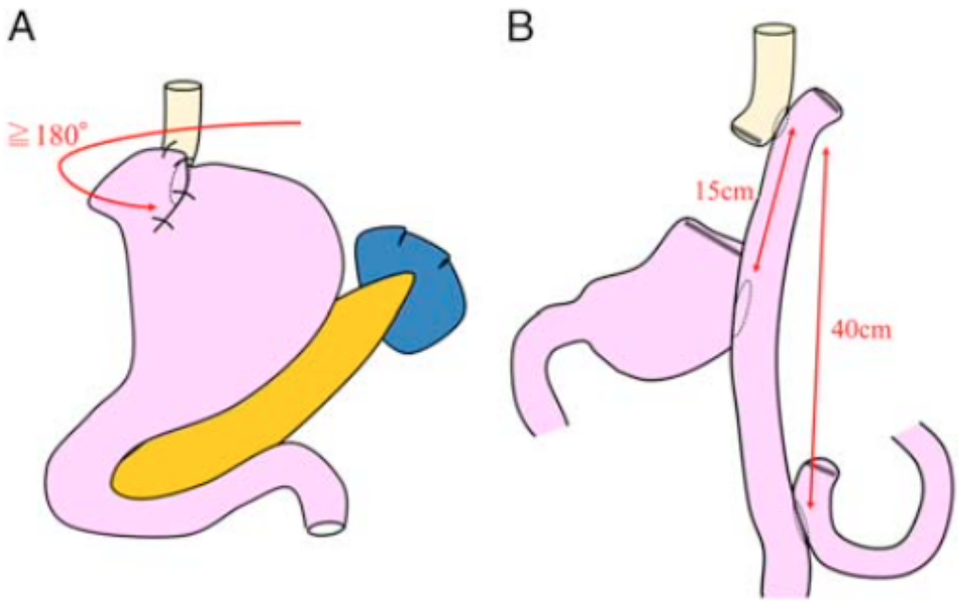
References	Reflux esophagitis (%)	Anastomotic stricture (%)	Food residues (%)	Leakage (%)	Morbidity (%)	Change in body weight (%)	Reflux symptoms (%)
Nomura	DT: 10 JI: 10	DT: 10 JI: 20	NA	NA	NA	DT: 87.1 JI: 91.2 ($p < 0.05$) (12 months)	Heartburn DT: 10 JI: 0
Sakuramoto	EG: 30 DT: 25 (12 months)	EG: 0 DT: 10	NA	EG: 7.7 (Grades II, III*) DT: 0	EG: 7.7 DT: 20	EG: 92.2 (93.2, 74.8–101.6) DT: 88.5 (88.2, 81.7–92.9) (12 months)	Heartburn EG: 15, DT: 12.5 Regurgitation EG: 5, DT: 0 (12 months)

Double Tract Reconstruction

Esophagogastrostomy With Fundoplication Versus Double-tract Reconstruction After Laparoscopic Proximal Gastrectomy for Gastric Cancer

	EG (n = 39)	DTR (n = 17)	*P*
Operation time, median (range), minutes	239 (131-484)	293 (192-465)	0.002
Blood loss, median (range), ml	22.5 (10-645)	40 (15-280)	0.101
Complication (C-D ≥ II)			0.441
Anastmotic leakage, n (%)	3 (7.6)	1 (5.8)	
Pneumoniae, n (%)	1 (2.5)	0	
Pneumothorax, n (%)	0	1 (7.1)	
Cerebral infarction, n (%)	0	1 (7.1)	
Stricture, n (%)	1 (2.5)	0	
Postoperative hospital stay, median (range), d	11 (8-85)	14 (9-31)	0.032

	EG (n = 38)	DTR (n = 14)	*P*
Body weight change at 6M, median (range), %	88.1 (77-103.4)	87.4 (77.8-94.4)	0.932
Body weight change at 12M, median (range), %	85.4 (71.9-103.4)	86.8 (80.9-98.9)	0.466
Extreme body weight loss at 12M*, n (%)	8 (21)	0	0.031
Hemoglobin, median (range)†, %	94.3 (82-131.2)	91.5 (84.5-120)	0.316
Total protein, median (range)†, %	96.8 (88.4-111.5)	98.4 (87.6-107.8)	0.587
Albumin, median (range)†, %	95.8 (78.5-140.7)	97.5 (85.7-105.7)	0.956

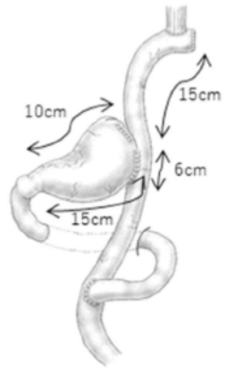


	EG (n = 39)	DTR (n = 17)	*P*
GERD (LA grade ≥ B), n (%)	8 (20.5)	1 (5.8)	0.106
Residual food (grade 3), n (%)	9 (23)	4 (23.5)	0.769
Reflux symptoms, n (%)	8 (20.5)	1 (5.8)	0.17
Usage of PPIs, n (%)	23 (58.9)	5 (29.4)	0.041

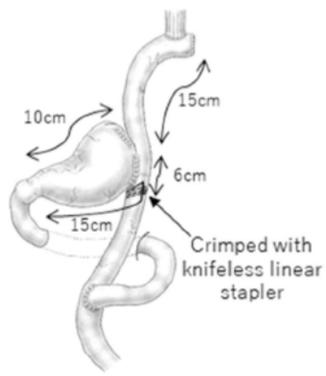
Double Tract Reconstruction

Functional evaluations comparing the double-tract method and the jejunal interposition method following laparoscopic proximal gastrectomy for gastric cancer: an investigation including laparoscopic total gastrectomy

Eiji Nomura[1] · Hajime Kayano[1] · Sang-Woong Lee[2] · Masaru Kawai[2] · Takashi Machida[1] · Soichiro Yamamoto[1] · Kazuhito Nabeshima[3] · Kenji Nakamura[3] · Masaya Mukai[1] · Kazuhisa Uchiyama[2]

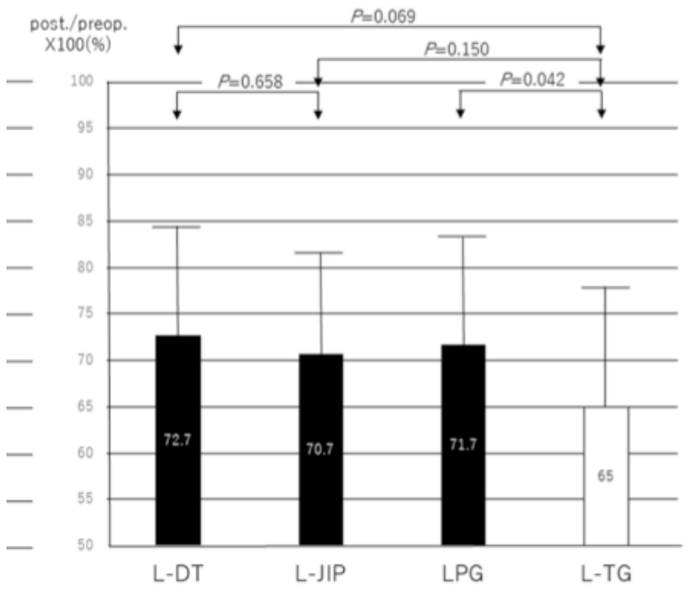


L-DT

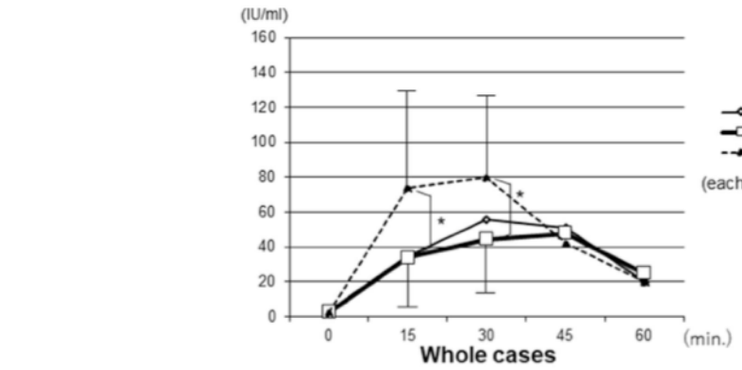


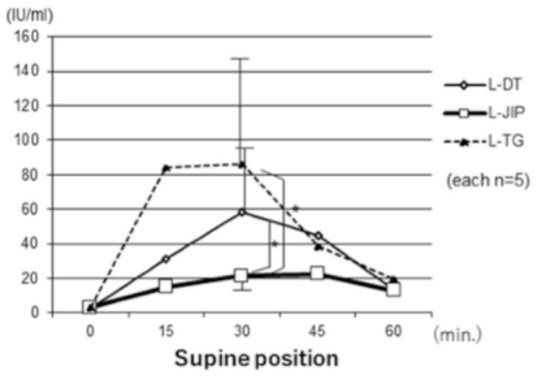
L-JIP

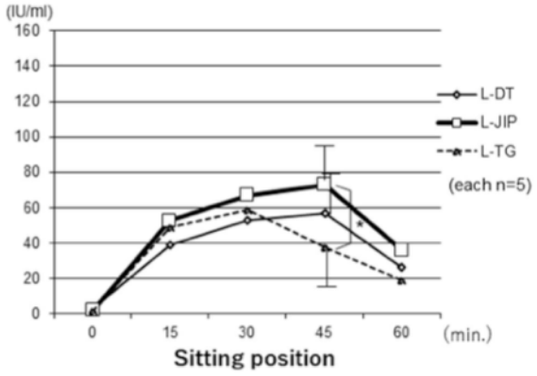
L-TG



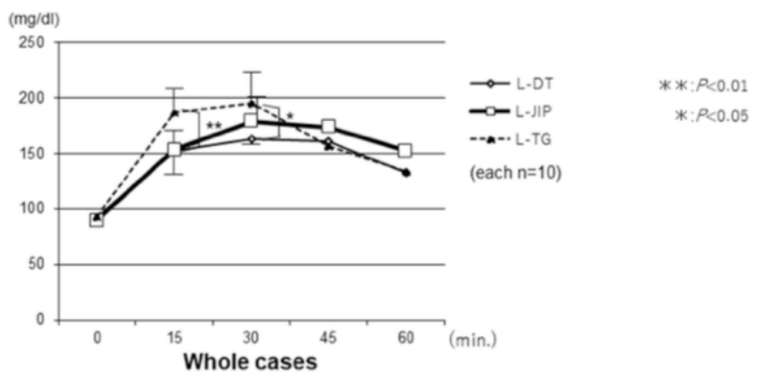
Meal intake

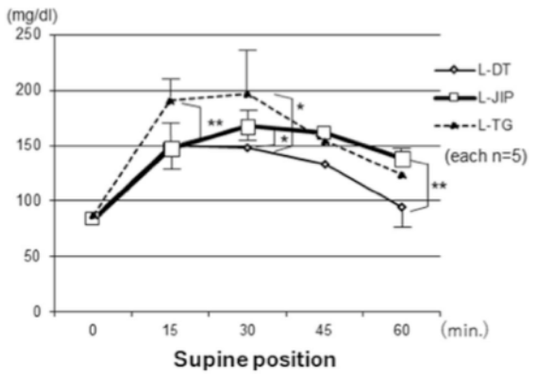


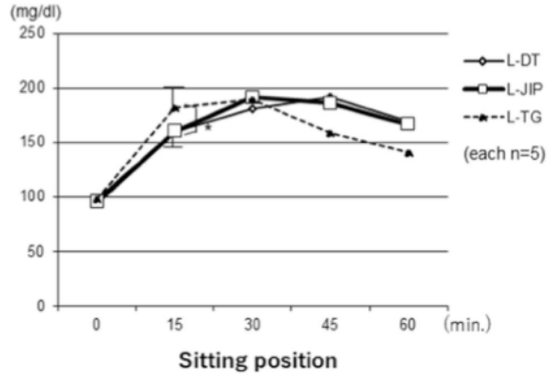




Insulin







Kan şekeri

Double Tract Reconstruction

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jgc Journal of Gastric Cancer

Original Article

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Short-Term Outcomes of Laparoscopic Proximal Gastrectomy With Double-Tract Reconstruction Versus Laparoscopic Total Gastrectomy for Upper Early Gastric Cancer: A KLASS 05 Randomized Clinical Trial

OPEN ACCESS

changes in Hb levels
quantity of vitamin B12 supplementation

	ITT group			PP group		
	LPG-DTR (n=68)	LTG (n=69)	P-value	LPG-DTR (n=63)	LTG (n=65)	P-value
Overall morbidity	16 (23.5)	12 (17.4)	0.373	15 (23.8)	10 (15.4)	0.229
Local complication	9 (13.2)	6 (11.6)	0.395	9 (14.3)	5 (7.7)	0.232
Wound infection	3 (4.4)	1 (1.4)	0.303	3 (4.8)	0	0.075
Intra-abdominal abscess	3 (4.4)	1 (1.4)	0.303	3 (4.8)	1 (1.5)	0.295
Intra-abdominal bleeding	0	1 (1.4)	0.319	0	1 (1.5)	0.323
Intraluminal bleeding	2 (2.9)	0	0.151	2 (3.2)	0	0.148
Intestinal obstruction	1 (1.5)	2 (2.9)	0.568	1 (1.6)	2 (3.1)	0.578
Paralytic ileus	0	1 (1.4)	0.319	0	1 (1.5)	0.323
Anastomosis stenosis	0	0	N/A	0	0	N/A
Anastomotic leakage	0	0	N/A	0	0	N/A
Pancreatic fistula	0	0	N/A	0	0	N/A
Systemic complication	4 (5.9)	5 (8.7)	0.747	3 (4.8)	4 (6.1)	0.729
Pulmonary	4 (5.9)	5 (8.7)	0.747	3 (4.8)	4 (6.1)	0.729
Others	3* (4.4)	1† (1.4)	0.303	3* (4.8)	1† (1.5)	0.302
Conversion to open surgery	1 (1.5)	1 (1.4)	0.983	0	0	N/A
C-D grade			0.405			0.179
I	5 (7.3)	3 (4.3)	0.453	4 (6.3)	3 (4.6)	0.666
II	8 (11.8)	6 (8.7)	0.553	8 (12.7)	5 (7.7)	0.349
III	3 (4.4)	1 (1.4)	0.303	3 (4.8)	0	0.075
IV	0	2 (2.9)	0.157	0	2 (3.1)	0.161
Reoperation	1‡ (1.5)	2§ (2.9)	0.568	1‡ (1.6)	1‖ (1.5)	0.982
Mortality	0	0		0	0	N/A

Double Tract Reconstruction

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Original Article

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Short-Term Outcomes of Laparoscopic Proximal Gastrectomy With Double-Tract Reconstruction Versus Laparoscopic Total Gastrectomy for Upper Early Gastric Cancer: A KLASS 05 Randomized Clinical Trial

	ITT group			PP group		
	LPG-DTR (n=68)	LTG (n=69)	P-value	LPG-DTR (n=63)	LTG (n=65)	P-value
First flatus (day)	3.5±1.1	3.7±1.2	0.326	3.5±1.1	3.7±1.0	0.476
First soft diet (day)	4.8±2.1	4.7±2.2	0.820	4.8±2.2	4.6±1.7	0.504
Hospital stay (day)	7.4±3.1	7.8±4.1	0.567	7.4±3.2	7.3±2.9	0.922
Body weight (kg)						
Preoperative	65.5±9.6	65.8±11.5	0.840	65.2±9.7	66.5±11.3	0.493
POD 2 weeks	61.8±9.1	61.5±11.1	0.873	61.6±9.21	62.1±10.9	0.759
Visick score						
Preoperative			0.749			0.576
I	49 (72.1)	52 (75.4)	0.660	44 (69.8)	49 (75.4)	0.482
II	7 (10.3)	8 (11.6)	0.807	7 (11.1)	8 (12.3)	0.833
Unknown	12 (17.6)	9 (13.0)	0.455	12 (19.0)	8 (12.3)	0.294
POD 2 weeks			0.793			0.700
I	48 (70.6)	50 (72.5)	0.915	44 (69.8)	48 (73.8)	0.717
II	9 (13.2)	9 (13.0)	0.973	8 (12.7)	9 (9.2)	0.848
III	1 (1.5)	0	0.312	1 (1.6)	0	0.308
Unknown	10 (14.7)	10 (14.5)	0.972	10 (15.9)	8 (12.3)	0.562
WBC (× 10^3)						
Preop	6.2±1.6	6.2±1.4	0.992	6.2±1.7	6.2±1.4	0.971
POD 2	10.5±3.4	10.5±2.3	0.976	10.4±3.5	10.5±2.3	0.914
POD 5	6.9±1.6	6.6±1.6	0.321	6.8±1.6	6.7±1.6	0.725
Hb (g/dL)						
Preoperative	14.1±1.2	14.2±1.4	0.827	14.1±1.2	14.3±1.3	0.583
POD 2	12.4±1.4	12.7±1.4	0.150	12.4±1.3	12.8±1.3	0.840
POD 5	12.0±1.3	12.2±1.3	0.563	12.0±1.3	12.3±1.2	0.272
Albumin (g/dL)						
Preoperative	4.5±0.5	4.4±0.5	0.265	4.6±0.6	4.5±0.5	0.315
POD 2	3.5±0.4	3.5±0.4	0.504	3.5±0.4	3.5±0.3	0.542
POD 5	3.4±0.4	3.4±0.3	0.325	3.4±0.4	3.4±0.3	0.344
CRP						
Preoperative	0.2±0.4	0.3±1.0	0.420	0.2±0.5	0.3±1.1	0.435
POD 2	12.2±11.7	12.9±14.7	0.759	12.0±11.9	13.3±15.2	0.591
POD 5	10.6±12.6	10.3±7.3	0.879	10.5±12.9	10.7±7.6	0.953

Double Tract Reconstruction

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Journal of Gastric Cancer

Original Article

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Short-Term Outcomes of Laparoscopic Proximal Gastrectomy With Double-Tract Reconstruction Versus Laparoscopic Total Gastrectomy for Upper Early Gastric Cancer: A KLASS 05 Randomized Clinical Trial

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	ITT			PP		
	PG (N=68)	TG (N=69)	p-value	PG (N=63)	TG (N=65)	p-value
Late complications	12 (17.6%)	7 (10.1%)	0.306	9 (14.3%)	7 (10.8%)	0.738
dumping syndrome	3 (4.4%)	2 (2.9%)	0.681	3 (4.8%)	2 (3.1%)	0.678
adhesive ileus	2 (2.9%)	2 (2.9%)	0.999	2 (3.2%)	2 (3.1%)	0.999
reflux esophagitis	2 (2.9%)	2 (2.9%)	0.999	1 (1.6%)	2 (3.1%)	0.999
anastomosis stricture	2 (2.9%)	0	0.245	2 (3.2%)	0	0.240
internal hernia	1 (1.5%)	0	0.496	0	0	0.999
others	3 (4.4%)	1 (1.4%)	0.366	2 (3.2%)	1 (1.5%)	0.616
Reoperation	2 (2.9%)[a]	1 (1.4%)[b]	0.619	0	1 (1.5%)	0.999
Recurrence	1 (1.5%)[c]	2 (2.9%)[d]	0.999	1 (1.6%)	2 (3.1%)	0.999
Death	1 (1.5%)	0	0.496	1 (1.6%)	0	0.999

[a] internal hernia, hiatal hernia
[b] omental biopsy

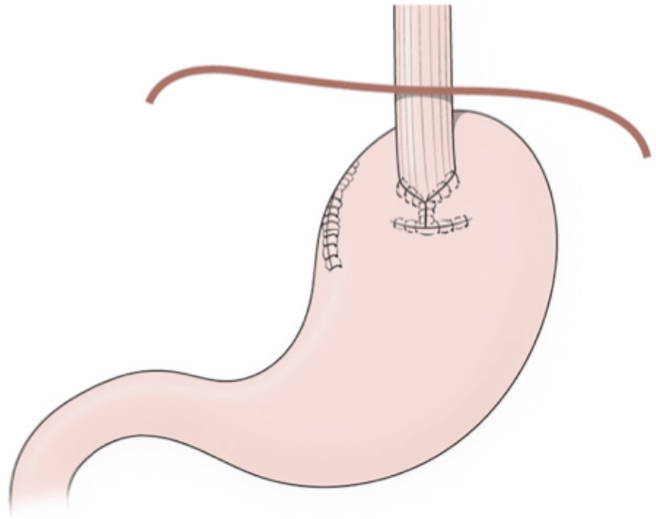
Hemoglobin changes

	ITT			PP		
	PG (N=68)	TG (N=69)	p-value	PG (N=63)	TG (N=65)	p-value
hemoglobin change[a], g/dL	0.8 ± 1.1	1.0 ± 1.2	0.305	0.8 ± 1.0	1.1 ± 1.1	0.073
% hemoglobin change	5.6 ± 7.4	6.9 ± 8.3	0.349	5.2 ± 6.8	7.5 ± 7.8	0.082
Anemia incidence	14 (21.2%)	21 (32.3%)	0.216	12 (19.7%)	21 (34.4%)	0.103

[a] preoperative minus postoperative 24 months

hemoglobin, g/dL	ITT			PP		
	PG (N=68)	TG (N=69)	p-value	PG (N=63)	TG (N=65)	p-value
Preoperative	14.1 ± 1.2	14.2 ± 1.4	0.827	14.1 ± 1.2	14.2 ± 1.4	0.772
Postoperative 3 months	13.3 ± 1.2	13.1 ± 1.2	0.529	13.3 ± 1.2	13.1 ± 1.3	0.466
Postoperative 6 months	13.0 ± 1.2	13.0 ± 1.3	0.701	13.0 ± 1.2	12.9 ± 1.3	0.651
Postoperative 9 months	13.2 ± 1.5	13.2 ± 1.2	0.903	13.2 ± 1.5	13.2 ± 1.3	0.974
Postoperative 12 months	13.1 ± 1.5	13.2 ± 1.4	0.901	13.2 ± 1.5	13.2 ± 1.4	0.687
Postoperative 18 months	13.2 ± 1.5	13.2 ± 1.3	0.839	13.2 ± 1.5	13.1 ± 1.3	0.559
Postoperative 24 months	13.3 ± 1.3	13.2 ± 1.3	0.703	13.4 ± 1.2	13.2 ± 1.3	0.382

Double Flap



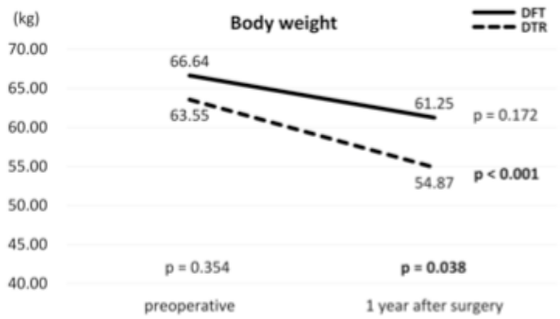
	Reflux esophagitis	Anastomotic stricture	Anastomotic leakage	Residual food
Kano et al.	3/51 (5.9%)	4/51 (8%)	0/51 (0%)	2/51 (3.9%)
Koruda et al.	46/464 (10.6%)	26/464 (5.5%)	7/464 (1.5%)	–
Omori et al.	0/32 (0%)	0/32 (0%)	0/32 (0%)	–
Saeki et al.	1/13 (7.7%)	–	1/13 (7.7%)	–
Total	50/560 (8.9%)	30/547 (5.5%)	8/560 (1.4%)	2/51 (3.9%)

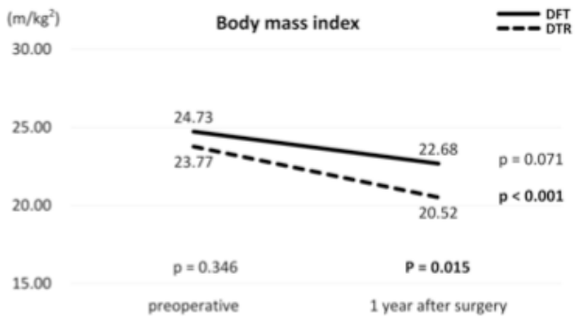
Double Flap

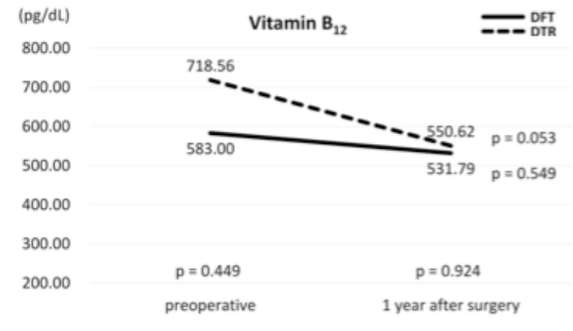
Double tract reconstruction versus double flap technique: short-term clinical outcomes after laparoscopic proximal gastrectomy for early gastric cancer

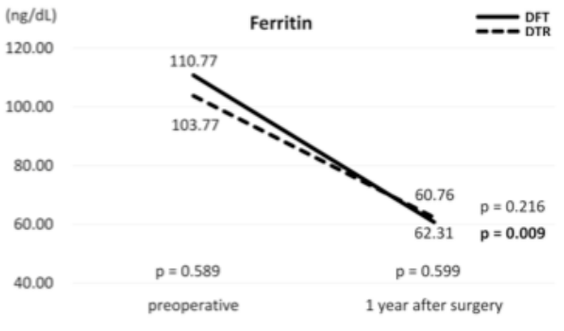
Byunghyuk Yu[1,2] · Ki Bum Park[3,4] · Ji Yeon Park[3,4] · Seung Soo Lee[4,5] · Oh Kyoung Kwon[3,4] · Ho Young Chung[4,5] · Yoon Jin Hwang[4,6]

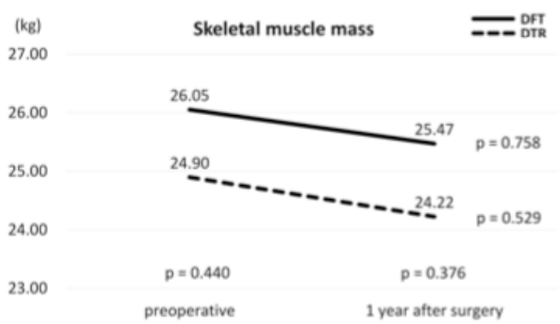
	DFT ($n=18$)		DTR ($n=51$)		p value
Reflux esophagitis					>0.999
No	18	(100.0)	48	(94.1)	
Grade A	0	(0.0)	1	(2.0)	
Grade B	0	(0.0)	2	(3.9)	
Anti-reflux medication					0.177
No	18	(100.0)	44	(86.3)	
Yes	0	(0.0)	7	(13.7)	
Vitamin B_{12} (mg)					0.938
0	15	(83.3)	36	(70.6)	
2	2	(11.1)	9	(17.6)	
4	1	(5.6)	4	(7.8)	
6	0	(0.0)	2	(3.9)	
Iron supplement (days)					0.242
0	16	(88.9)	47	(92.2)	
60	0	(0.0)	3	(5.9)	
90	1	(5.6)	1	(2.0)	
180	1	(5.6)	0	(0.0)	

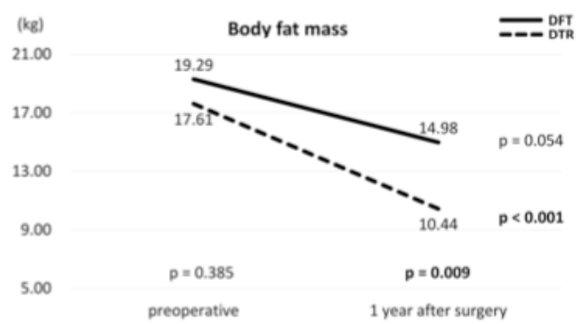


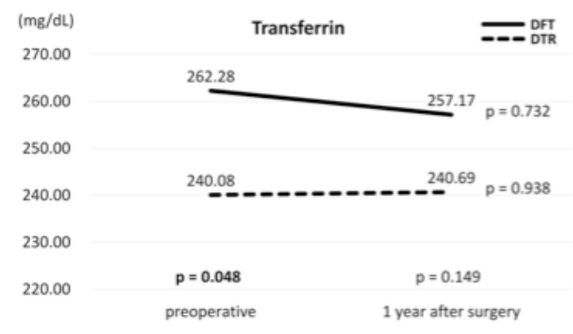


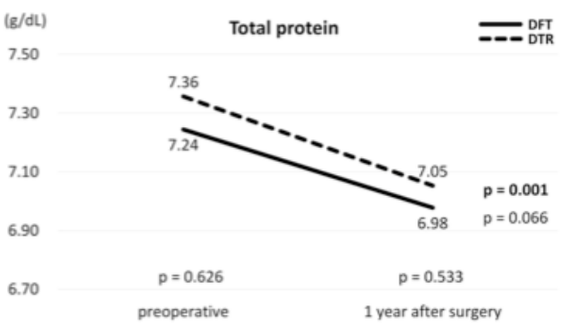


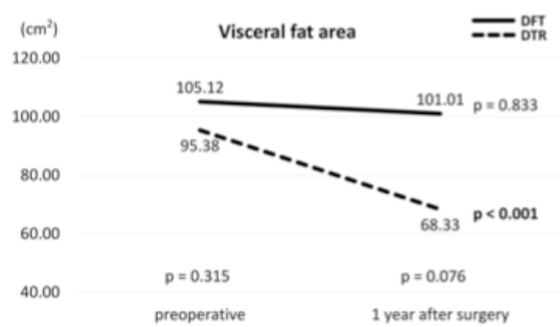


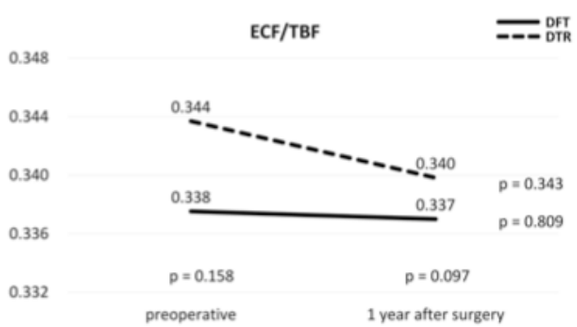


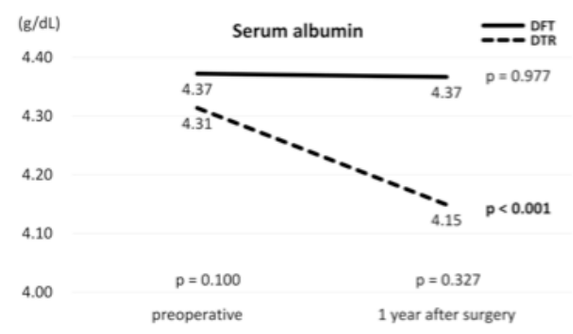












	Reflux esophagitis	Anastomotic stricture	Anastomotic leakage	Residual food
Esophagogastrostomy	54/280 (19.3%)	39/299 (13.0%)	8/174 (4.6%)	12/55 (21.8%)
Jejunal interposition	42/304 (13.8%)	39/345 (11.3%)	15/369 (4.1%)	39/94 (41.5%)
Jejunal pouch interposition	8/58 (13.8%)	3/36 (8.3%)	10/58 (17.2%)	34/58 (58.6%)
Double tract	11/114 (9.6%)	**3/85 (3.5%)**	2/52 (3.9%)	23/58 (39.6%)
Double flap	**50/560 (8.9%)**	30/547 (5.5%)	**8/560 (1.4%)**	**2/51 (3.9%)**

Langenbeck's Archives of Surgery (2022) 407:63–74
https://doi.org/10.1007/s00423-021-02378-4

SYSTEMATIC REVIEWS AND META-ANALYSES

Comparison of the prognosis of four different surgical strategies for proximal gastric cancer: a network meta-analysis

Ling Tan[1] · Meng-ni Ran[2] · Zi-lin Liu[1] · Ling-han Tang[1] · Zhou Ma[1] · Zhou He[1] · Zhou Xu[1] · Fang-han Li[1] · Jiang-wei Xiao[1]

Table 2 Probability of ranking from best to worst (1st–4th) for the outcomes of interest

Outcomes	Ranks			
	1st	**2nd**	**3rd**	**4th**
Time of operation	*PG-JI P = 0.80*	*TG-RY P = 0.47*	*PG-DTR P = 0.47*	***PG-EG P = 1.00***
Surgical bleeding	*PG-JI P = 0.37*	*TG-RY P = 0.41*	*PG-DTR P = 0.37*	***PG-EG P = 0.99***
Number of lymph nodes	***TG-RY P = 1.00***	*PG-EG P = 0.39*	*PG-DTR P = 0.37*	*PG-JI P = 0.44*
Anastomotic leakage	*PG-JI P = 0.47*	*PG-DTR P = 0.41*	*TG-RY P = 0.41*	*PG-EG P = 0.61*
Reflux esophagitis	***PG-EG P = 0.96***	*PG-JI P = 0.71*	*TG-RY P = 0.54*	*PG-DTR P = 0.56*
Anastomotic stenosis	***PG-EG P = 0.95***	***PG-JI P = 0.92***	***TG-RY P = 0.92***	***PG-DTR P = 0.94***
Weight change after 1 year	*TG-RY P = 0.81*	*PG-JI P = 0.40*	*PG-EG P = 0.38*	*PG-DTR P = 0.45*
Hemoglobin level after 1 year	*PG-DTR P = 0.85*	*PG-JI P = 0.48*	*PG-EG P = 0.51*	*TG-RY P = 0.84*
5-years OS	*PG-JI P = 0.87*	*TG-RY P = 0.75*	*PG-EG P = 0.69*	*PG-DTR P = 0.77*

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		DTR	EG	JI
Time of operation†	TG-RY	0.06 (−20.64 to 20.50)	**−43.07 (−66.83** to **−20.18)**	14.67 (−11.37 to 40.44)
	PG-DTR	-	**−43.16 (−72.46** to **−14.81)**	14.64 (−15.13 to 43.92)
	PG-EG	-	-	**57.83 (32.39** to **83.99)**
Surgical bleeding†	TG-RY	−6.47 (−77.11 to 62.71)	**−126.79 (−211.13** to **−53.30)**	−3.96 (−95.23 to 84.01)
	PG-DTR	-	**−120.25 (−217.44** to **−31.66)**	2.78 (−98.83 to 98.25)
	PG-EG	-	-	**122.47 (39.62** to **212.76)**
Number of lymph nodes†	TG-RY	**−9.87 (−13.99** to **−5.97)**	**−9.83 (−15.96** to **−3.94)**	**−10.64 (−15.54** to **−5.88)**
	PG-DTR	-	0.00 (−6.75 to 6.84)	−0.76 (−6.85 to 5.45)
	PG-EG	-	-	−0.81 (−8.13 to 6.39)
Anastomotic leakage*	TG-RY	1.29 (0.61 to 2.99)	0.68 (0.33 to 1.67)	1.27 (0.10 to 16.20)
	PG-DTR	-	0.51 (0.23 to 1.24)	0.99 (0.08 to 13.43)
	PG-EG	-	-	1.87 (0.16 to 22.79)
Reflux esophagitis *	TG-RY	0.86 (0.29 to 2.63)	**4.19 (1.89** to **9.70)**	1.67 (0.55 to 5.06)
	PG-DTR	-	**4.90 (1.58** to **15.47)**	1.94 (0.48 to 7.49)
	PG-EG	-	-	0.40 (0.13 to 1.14)
Anastomotic stenosis*	TG-RY	0.41 (0.12 to 1.22)	**4.44 (2.64** to **8.14)**	**2.39 (1.01** to **5.71)**
	PG-DTR	-	**10.81 (3.23** to **41.52)**	**5.51 (1.64** to **24.39)**
	PG-EG	-	-	0.55 (0.23 to 1.19)

Efficacy analysis of Cheng's GIRAFFE reconstruction after proximal gastrectomy for adenocarcinoma of esophagogastric junction

Zhiyuan Xu[1*], Can Hu[1,2*], Yanqiang Zhang[1], Ling Huang[1], Litao Yang[1], Jianfa Yu[1], Pengfei Yu[1], Jiahui Chen[1], Yian Du[1], Xiangdong Cheng[1]

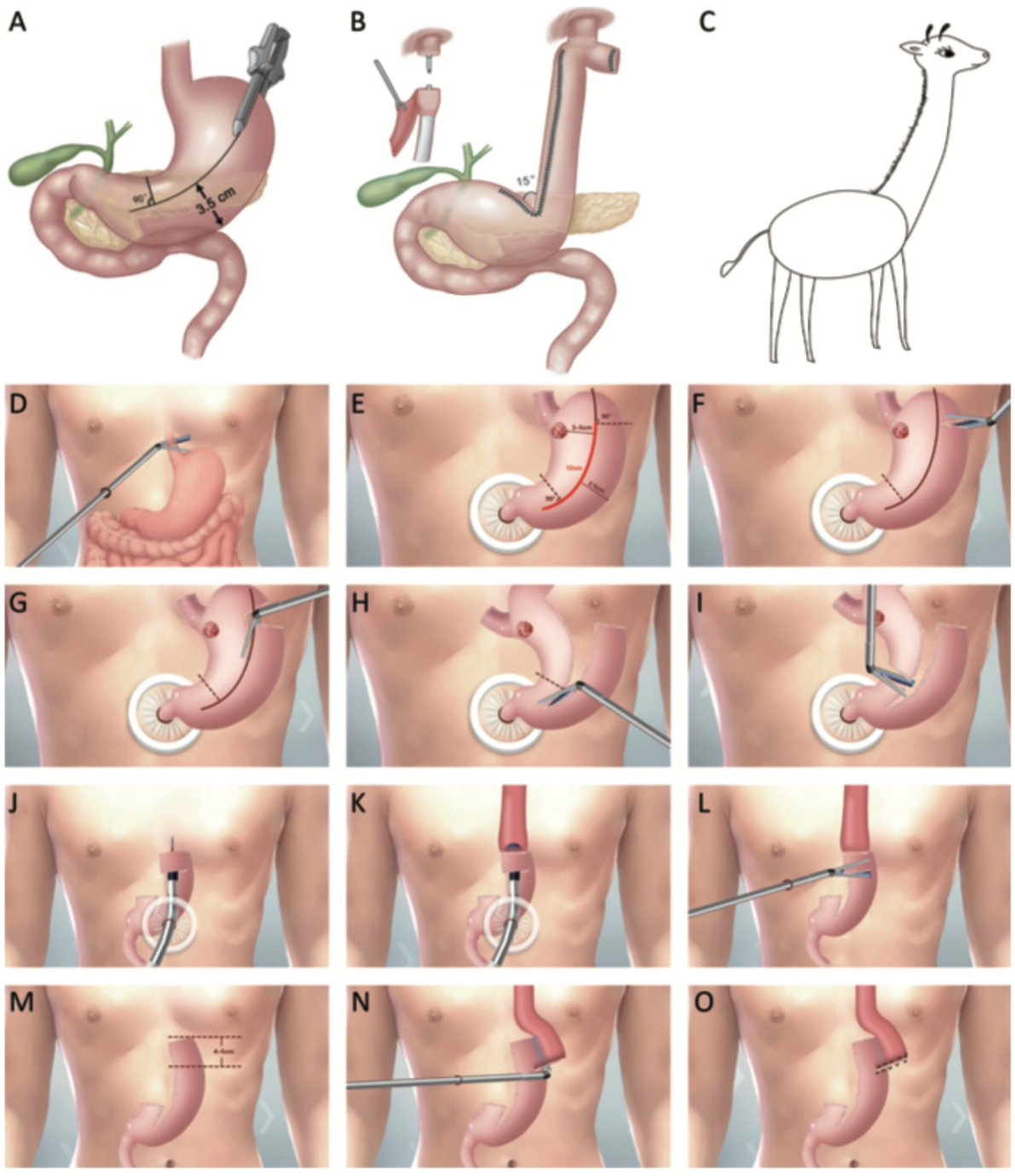

Table 2 Questionnaire RDQ scale

Parameters	Score* ($\bar{x}\pm s$)
1 month after the operation	4.4±3.0
2 months after the operation	3.6±2.7
3 months after the operation	3.4±2.6
6 months after the operation	2.2±2.5

*, the highest score is 40 points; ≥12 points means gastroesophageal reflux disease.

Table 3 24-h impedance-pH monitoring

Parameters	Values ($\bar{x}\pm s$)
Total number of acid-reflux events	12.6±7.8
Total number of non-acid-reflux events	19.6±9.7
Longest reflux time (s)	43.8±22.7
DeMeester score*	5.8±2.9

*, DeMeester score ≥14.72 points means acid exposure, gastroesophageal reflux diseases.

Table 4 Reflux esophagitis assessed by gastroscopy (N=74)

Parameters	n (%)
Reflux esophagitis	7 (9.46)
Grade N	3 (4.05)
Grade A	1 (1.35)
Grade B	3 (4.05)

Efficacy analysis of Cheng's GIRAFFE reconstruction after proximal gastrectomy for adenocarcinoma of esophagogastric junction

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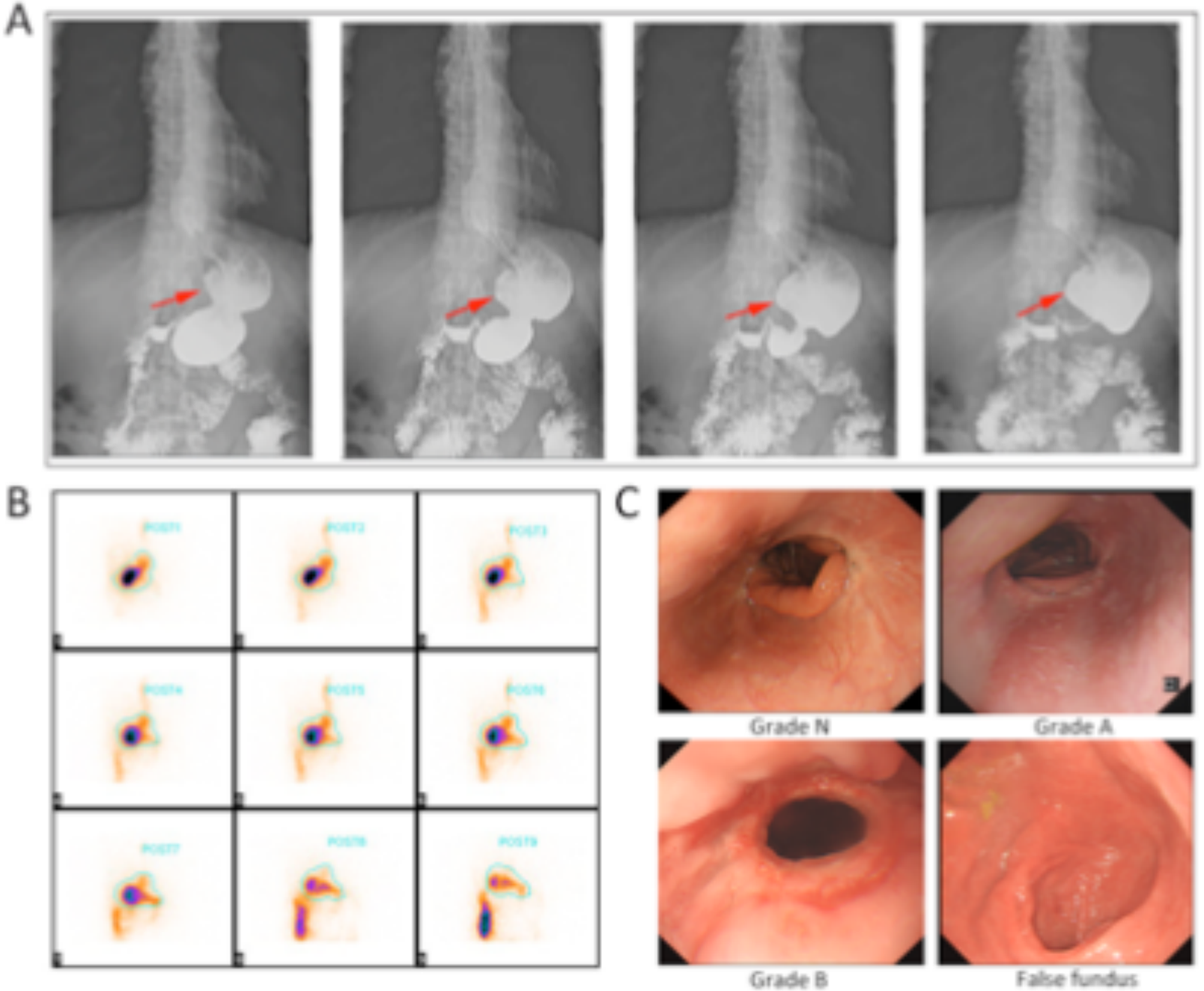
Table 5 Nuclide gastric emptying test

Parameters	Values ($\bar{x}\pm s$)	Normal values
Gastric half-emptying time (min)	67.0±21.5	–
1-h residual rate (%)	52.2±7.7	30–90
2-h residual rate (%)	36.4±5.1	10–60
3-h residual rate (%)	28.8±3.6	<30

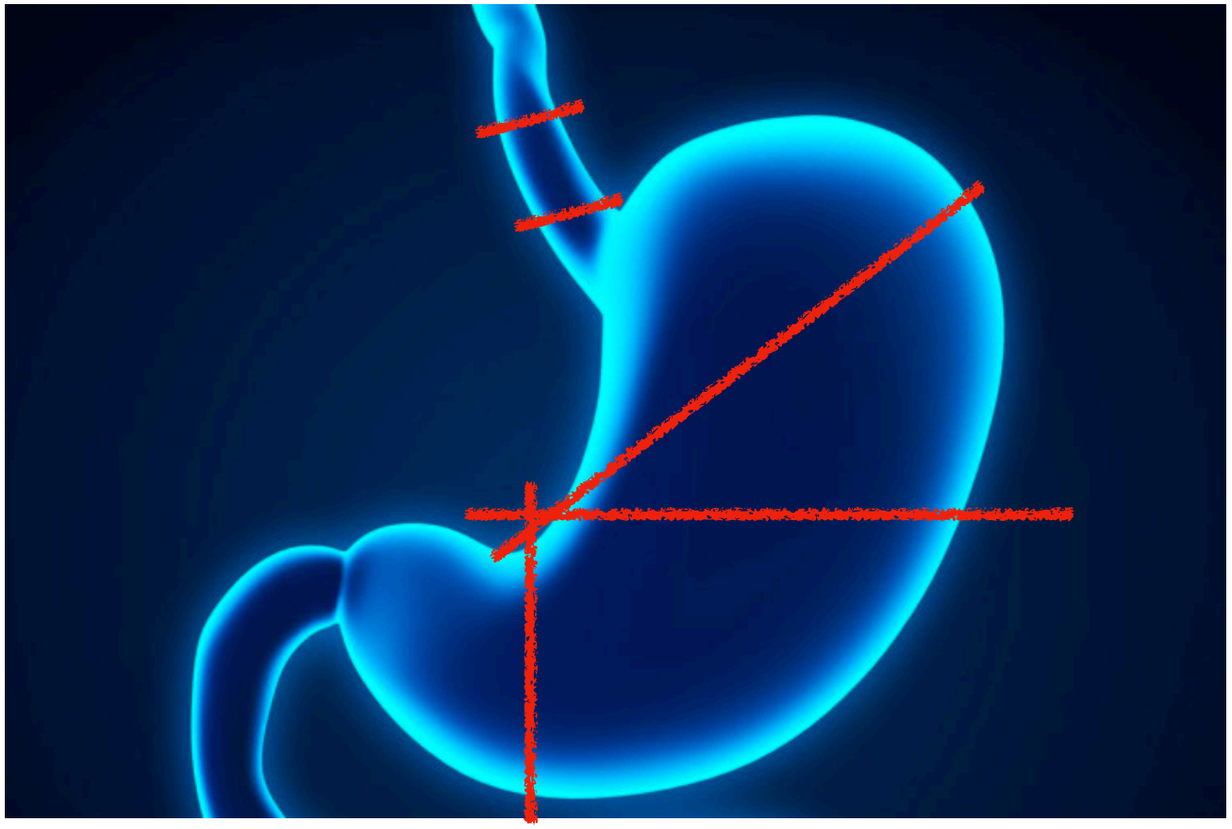
Delayed gastric emptying or gastric retention was defined as 90% retention at the 1-h scan, >60% at 2-h scan, and >10% at 4-h scan.



Özet:

- İyi anastomoz;
    - İyi bir depo/absorbsiyon
    - Düşük postop komplikasyon
    - İyi QoL
    - Sağkalım
    - Kolay uygulama

- Remnant mide volümü
- Özofagus transeksiyon seviyesi
- İnce barsak mezo uzunluğu
- Hasta antropometrisi



Resection type	Anastomosis	2004	2009	2014	2019
Distal gastrectomy	Billroth I	4,340 (55.3)	6,581 (63.4)	5,426 (51.0)	3,347 (33.6)
	Billroth II	3,285 (41.9)	3,437 (33.1)	3,869 (36.4)	4,477 (45.0)
	Roux-en-Y	175 (2.2)	332 (3.2)	933 (8.8)	2,038 (20.5)
	Loop	11 (0.1)	0 (0)	NA	NA
	Jejunal interposition	33 (0.4)	23 (0.2)	0 (0)	NA
	Uncut Roux-en-Y	NA	NA	404 (3.8)	90 (0.9)
	Others	3 (<0.1)	2 (<0.1)	3 (<0.1)	3 (<0.1)
Near total gastrectomy*	Billroth II	46 (67.6)	59 (56.2)	23 (21.5)	NA
	Roux-en-Y	22 (32.4)	39 (37.1)	81 (75.7)	NA
	Jejunal interposition	0 (0)	5 (4.8)	0 (0)	NA
	Uncut Roux-en-Y	NA	NA	3 (2.8)	NA
	Others	0 (0)	2 (1.9)	0 (0)	NA
Total gastrectomy	Roux-en-Y	2,407 (91.1)	3,308 (98.8)	3,418 (97.8)	2,874 (99.3)
	Loop	155 (5.9)	18 (0.5)	13 (0.4)	12 (0.4)
	Jejunal interposition	49 (1.9)	10 (0.3)	8 (0.2)	5 (0.2)
	Uncut Roux-en-Y	NA	NA	56 (1.6)	NA
	Others	[illegible]	[illegible]	[illegible]	[illegible]
Proximal gastrectomy	Esophagogastrostomy	NA	NA	50 (37.9)	66 (18.8)
	Double tract	NA	NA	82 (62.1)	286 (81.2)

Japonya