Duodenojejunostomy versus Distal Gastrectomy and Roux-en-Y Gastrojejunostomy in Management of Superior Mesenteric Artery Syndrome: Retrospective Cohort Study

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Introduction: Superior mesenteric artery (SMA) syndrome is a rare gastrointestinal disorder characterized by compression of the third part of the duodenum between the abdominal aorta and SMA.

Aim of work: To compare outcomes of duodenojejunostomy (Open/laparoscopic) versus distal gastrectomy with Roux-en-Y gastrojejunostomy (Open/laparoscopic) in managing SMA syndrome, focusing on symptoms relief and surgical complications.

Patients and methods: A retrospective cohort study with data analysis from 22 SMA syndrome patients admitted to Ain Shams University Hospital's Upper GIT Unit from January 2021 to December 2024.

Results: This study compared postoperative outcomes between duodenojejunostomy (Group A) and distal gastrectomy with Roux-en-Y gastrojejunostomy (Group B). Duodenojejunostomy resulted in shorter surgery durations and hospital stays. Although reintervention rates were similar, vomiting and readmission rates were higher in Group A. Group B demonstrated favorable long-term outcomes, with lower complication rates and reduced readmissions.

Conclusion: Both surgical approaches effectively managed SMA syndrome symptoms. Duodenojejunostomy offered shorter surgery and hospitalization times, while distal gastrectomy with Roux-en-Y gastrojejunostomy reduced postoperative vomiting and complications, suggesting potential long-term benefits.

Key words: Duodenojejunostomy, distal gastrectomy, Roux-en-Y gastrojejunostomy, superior mesenteric.

Introduction

Superior mesenteric artery (SMA) syndrome is a rare gastrointestinal disorder characterized by compression of the third duodenal portion between the abdominal aorta and SMA. Also known as chronic duodenal ileus, Wilkie syndrome, arterio-mesenteric duodenal compression syndrome, and cast syndrome,[1] its prevalence remains unknown, but incidence estimates range from 0.1% to 0.3%.

SMA syndrome predominantly affects individuals between 10 to 39 years old, with a female-to-male ratio of 3:2.[2] No ethnic predisposition exists, although familial cases have been reported.

The syndrome occurs due to the loss of the intervening mesenteric fat pad, narrowing the aortomesenteric angle (<25 degrees) and decreasing the distance between vessels to <10 mm, causing duodenal compression.[3]

Risk factors include significant weight loss due to hypermetabolism, dietary conditions, cachexia, surgical correction of scoliosis, congenital anomalies, and abdominal pathologies.[4]

Diagnosis is challenging due to vague symptoms, which typically include epigastric pain, nausea, vomiting, abdominal distension, weight loss, and postprandial pain alleviated by prone or left lateral decubitus positions.[5]

Initial management is conservative, followed by surgical intervention for refractory cases. Various surgical options exist, including duodenojejunostomy and distal gastrectomy with Roux-en-Y gastrojejunostomy.[6]

Aim of work

To compare outcomes of duodenojejunostomy (Open/laparoscopic) versus distal gastrectomy with Roux-en-Y gastrojejunostomy (Open/laparoscopic) in managing SMA syndrome, focusing on symptom relief and surgical complications.

Patients and methods

Study Design: A retrospective cohort study of 22 patients with Superior Mesenteric Artery (SMA) syndrome admitted to Ain Shams University Hospital's Upper GIT Unit between January 2021 and December 2024.

Inclusion criteria: Age 15-50, any gender, confirmed superior mesenteric artery syndrome diagnosis by symptoms and investigations. (As CT angiography & upper GI endoscopy), underwent either duodenojejunostomy or distal gastrectomy with Roux-en-Y gastrojejunostomy (Either open or laparoscopic), and the patient completed 6 months of post-operative follow-up.

Exclusion criteria: Females who became pregnant within the follow-up period, patients who missed

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the 6-month required follow-up period, patients with end-stage comorbidities, diseases, and patients with psychological disorders confirmed by psychological counselling.

Ethical considerations: This study was done after approval of the Research Ethics Committee of the Department of General Surgery, Faculty of Medicine, Ain Shams University. All data was collected confidentially. The study was based on the investigator's self-funding. Informed written consent was taken from the patients. All patients' data was confidential with secret codes and a private file for each patient. All data given was used for the current medical research only.

Patients were assigned to two groups: Group A, "duodenojejunostomy": 12 cases who underwent duodenojejunostomy (Either open or laparoscopic). Group B "distal gastrectomy and Roux-en-Y gastrojejunostomy": 10 cases who underwent distal gastrectomy and Roux-en-Y gastrojejunostomy (Either open or laparoscopic).

Pre-operative preparation: Taking full history of the patient, clinical examination, confirmation of diagnosis by investigations as CT abdomen and pelvic with oral and IV contrast, upper GI endoscopy, and blood tests. Fasting for at least 8-12 hours preoperative.

Surgical Procedure

Duodenojejunostomy (Group A): The Patient was positioned in the French split-leg position. The surgeon stood between the patient's legs and the cameraman to the right of the patient. The Veres needle was used to establish pneumoperitoneum. An infra-umbilical 10 mm camera port was inserted, followed by 12 mm and 5 mm ports under vision to the left and right subcostal regions, respectively, to achieve adequate triangulation. The Procedure started with retracting the greater omentum and transverse mesocolon cephalad to gain access to the 3-rd. part of the duodenum.) The latter can be identified with the right side of the SMA pulsation. Mobilization of the third and second part of the duodenum was started by division of the overlying visceral peritoneum using a harmonic scalpel. After the duodenum was freely mobilized, a suitable segment of the jejunum of about 30 cm from the duodenojejunal junction was identified for anastomosis. The Standard anastomosis was an intracorporeal stapled side-to-side duodenojejunal anastomosis to the proximal third part of the duodenum. Two stay sutures were placed at the intended sites using 2/0 PDS **(Fig. 1).** Enterotomies to both limbs were done using a harmonic scalpel. A 60 mm Endo GIA echelon stapler was introduced via the 12 mm port, and accurate opposition of bowel loops was checked before stapling **(Fig. 2).** Hemostasis was checked. Common enterotomy was closed using a single layer of continuous 2/0 PDS suture. A non-suction drain was placed near the anastomosis. The sheath was closed using 2/0PDS for the 10 mm and 12 mm ports.

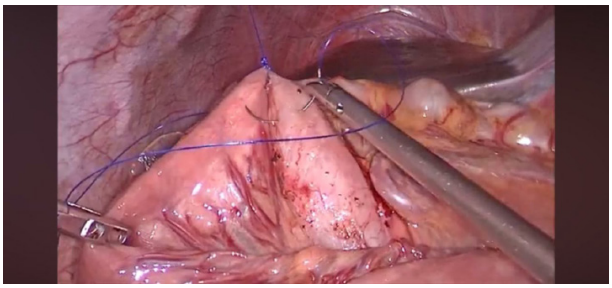

Fig 1: Stay suture used to approximate the jejunum and duodenum before anastomosis.

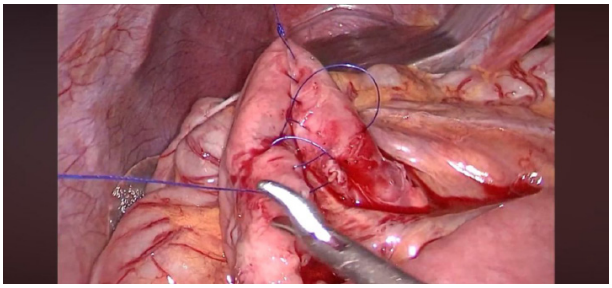

Fig 2: Closure of the stapler rent and the second reinforcement layer seromuscular taken.

Laparoscopic Distal Gastrectomy with Roux-en-Y Gastrojejunostomy (DG-RYGJ) (Group B): The patient was positioned supine with a slight head-up tilt. General anesthesia was induced, and the patient was placed in the French split-leg position to facilitate optimal exposure. The Verres needle was used for pneumoperitoneum, and a 10 mm infra-umbilical port was inserted for the camera. Additional 12 mm and 5 mm ports were placed in the left and right subcostal regions to facilitate triangulation and instrument handling.

After pneumoperitoneum was established, a 10 mm camera port was placed through the infraumbilical site. Two additional ports, 12 mm (Left subcostal) and 5 mm (Right subcostal), were placed under direct vision for triangulation. Gastric mobilization was performed by dividing the greater omentum and left gastric artery using a harmonic scalpel. The distal stomach (Including the pyloric antrum) was resected, approximately 3–5 cm proximal to the pylorus. The pylorus was dissected carefully. The gastric remnant was retracted laterally. The proximal jejunum was identified approximately 30–40 cm distal to the duodenojejunal junction. The jejunum was mobilized, and a segment was isolated to create the gastrojejunostomy **(Fig. 3).**

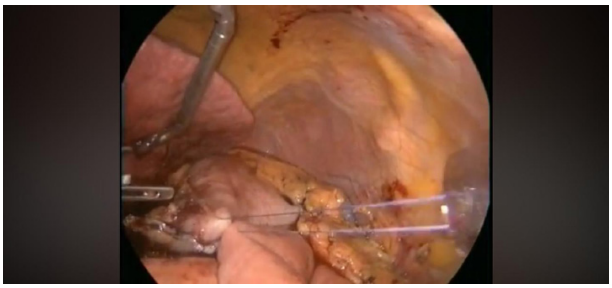

Fig 3: Stay suture between the stomach and the jejunum to be used for traction during stapling.

The free jejunal end was brought up to the gastric remnant to create a gastrojejunostomy. A side-to-side anastomosis was created between the jejunum and the stomach using a stapler or hand-sewn technique. The Roux limb was then anastomosed to the distal jejunum to form the Roux-en-Y configuration **(Fig. 4).** The anastomosis was checked for leaks using an air test or saline solution. The enterotomy was closed using single-layer continuous sutures with 2/0 PDS. Anastomosis checked for being tension-free and water-tight, with closure of mesenteric window with PDS 2/0.

Fig 4: Gastrojejunal anastomosis stapling.

A feeding jejunostomy tube was placed if the patient was anticipated to have delayed gastric emptying or if nutritional support was needed postoperatively. A Nelaton tube drain was placed near the anastomoses to monitor for potential complications. The trocar sites were closed using 2/0 PDS for the 10 mm and 12 mm ports, and the skin was closed with absorbable sutures or staples.

Post Operative care & follow-up: The patient was closely monitored in the recovery room, with attention to fluid balance and nutritional status. A nasogastric tube was typically retained for 24-48 hours to facilitate gastric decompression. The patient started oral fluid intake after confirming that there were no signs of leakage or obstruction. Nutritional support, including enteral feeding, was provided as needed. Progressing to a standard diet as tolerated. The removal of any surgical drains was contingent upon the establishment of a full diet, ensuring the patient's gastrointestinal function had returned to an acceptable level.

During the 6-month follow-up, Improvement in symptoms such as vomiting and gastroesophageal reflux was assessed utilizing validated symptom scoring systems to quantify improvements.

Nutritional status: Weight regain was documented at regular intervals postoperatively, using baseline preoperative weights as a reference point to evaluate the effectiveness of the intervention on nutritional restoration. New Symptom Development: The emergence of any new symptoms, including dysphagia and biliary reflux, was closely monitored through patient-reported outcomes and clinical evaluations. Readmission Rates: We analyzed the frequency and causes of hospital readmissions within the six-month postoperative period, providing insight into the long-term efficacy and safety of the surgical procedure.

Primary outcome: Symptom remission (Relief of vomiting and weight regain) and recurrence of symptoms. (Vomiting, abdominal pain, reflux).

Secondary outcomes: surgical complications and readmission for any cause.

Data collection: Preoperative data: Patient baseline demographics including age, sex, body mass index (BMI), duration of symptoms, medical comorbidities, and previous surgical interventions were documented, gastric scintigraphy to exclude gastric motility disorders and radiological investigations were done to confirm Diagnosis: Using arterial phase reconstruction, CT scan criteria for diagnosis includes aortomesenteric angle <25°. The Contrast meal of patients with borderline aortomesenteric angles was revised to support the diagnosis of SMAS. Upper gastrointestinal endoscopy findings were reported for all patients to exclude other pathologies. Operative data: it included surgical approach, adjunct procedures, estimated blood loss, intraoperative complications, and duration of surgery. Intraoperative Complications: Duodenojejunostomy (DJ): vascular injury to the superior mesenteric artery or vein, blood loss. Distal Gastrectomy Roux-en-Y Gastrojejunostomy (DG-RYGJ): Bleeding, injury to the bile duct, or common hepatic artery. Postoperative data: A detailed collection of perioperative data was undertaken, which included the following key parameters: Inpatient Length of Stay, Surgical Complications (Such as anastomotic leaks, bowel obstructions, and infections) were documented. Instances necessitating surgical re-interventions were monitored. Surgical outcome: Weight gain, symptoms improvement using the validated score, Emergence of any new symptoms, including dysphagia and biliary reflux, and Readmission Rates were documented.

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 23.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean ± standard deviation (SD) and ranges when the data exhibited a normal distribution. Conversely, non-normally distributed variables were presented as median with interquartile range (IQR). Qualitative variables were reported as absolute numbers and percentages. The normality of the data was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. An independent samples t-test was utilized to compare the means between the two groups. The Chi-square test was employed to compare qualitative data across groups. The confidence interval was set at 95%, and the margin of error was established at 5%. Consequently, the p-values were interpreted as follows: A p-value less than 0.05 was deemed significant, a p-value less than 0.01 was classified as highly significant, and a p-value greater than 0.05 was considered insignificant.

Results

Demographic characteristics and comorbidities among patients undergoing Duodenojejunostomy and those undergoing Distal gastrectomy, Roux-en-Y Gastrojejunostomy were shown in **(Table 1).** The mean ages of participants in the two groups were comparable, with values of 25.7±4.84 years for the Duodenojejunostomy group and 27.0±4.26 years for the DG RY GJ group (p=0.635), indicating no statistically significant difference in age. The gender distribution did not demonstrate significant variation, with males comprising 33.3% of the Duodenojejunostomy group and 20.0% of the DG RY GJ group (p=0.489). Furthermore, comorbidities such as hypertension and diabetes mellitus were not significantly different between the groups, with p-values of 0.212 and 0.899, respectively.

The mean preoperative aortomesenteric angle for the Duodenojejunostomy group is 13.54±2.67, which is slightly lower than that observed in the DG RY GJ group (14.1±3.04). However, the calculated p-value of 0.771 suggests that this difference is not statistically significant **(Table 2).**

The intraoperative outcomes of patients undergoing Duodenojejunostomy and those undergoing DG RY GJ were compared **(Table 3).** The duration of surgery for the Duodenojejunostomy procedures was significantly shorter, averaging 111.6±26.4 minutes compared to the Gastrojejunostomy group's mean of 203.4±33.6 minutes (p<0.001), indicating a highly significant difference. Both surgical approaches (Open vs. laparoscopic) showed no significant differences in their distribution between the groups (p=0.867). Additionally, the mean blood loss recorded for both procedures did not differ significantly (p=0.651).

The postoperative outcomes among patients who underwent Duodenojejunostomy versus Gastrojejunostomy were compared **(Table 4).** The average duration of hospital stay was significantly shorter for the Duodenojejunostomy group, at 5.75±1.87 days, compared to 8.70±1.82 days for the Gastrojejunostomy group (P<0.001), suggesting a swifter recovery for patients undergoing Duodenojejunostomy.

Regarding re-intervention rates, the Duodenojejunostomy group (n=12) experienced 2 reinterventions (16.7%). Attributed to a suboptimal general condition necessitating a loop gastrojejunostomy three months postoperatively, and persistent vomiting managed by Roux-en-Y gastrojejunostomy after two months. The DG RY GJ group (n=10) also reported 2 reinterventions (20%), predominantly due to complications from duodenal stump blowout, which required laparoscopic intervention for drainage or the placement of a percutaneous pigtail catheter. However, statistical analysis indicated no significant difference in re-intervention rates between the two groups (p=0.798).

A comparative analysis of 6-month follow-up outcomes for patients who underwent Duodenojejunostomy versus those who had Distal gastrectomy with Roux-en-Y gastrojejunostomy DG-RYGJ was summarized in **(Table 5).** The DG-RYGJ group exhibited a significantly higher proportion of patients regaining weight (70%) compared to the Duodenojejunostomy group (25%), with a p-value of 0.048, indicating statistical significance.

Moreover, the mean weight regain was considerably greater in the DG RY GJ group (4.89±2.64) when compared to the Duodenojejunostomy group (2.0±1.0), with a p-value of 0.041, demonstrating a significant difference.

In contrast, both the incidence of vomiting and readmission rates were notably higher in the Duodenojejunostomy group, with respective p-values of 0.045, highlighting these outcomes as statistically significant. Conversely, reflux GERD, dysphagia, and biliary reflux showed no significant differences between the two groups, with p-values of 0.429, 0.135, and 0.429, respectively.

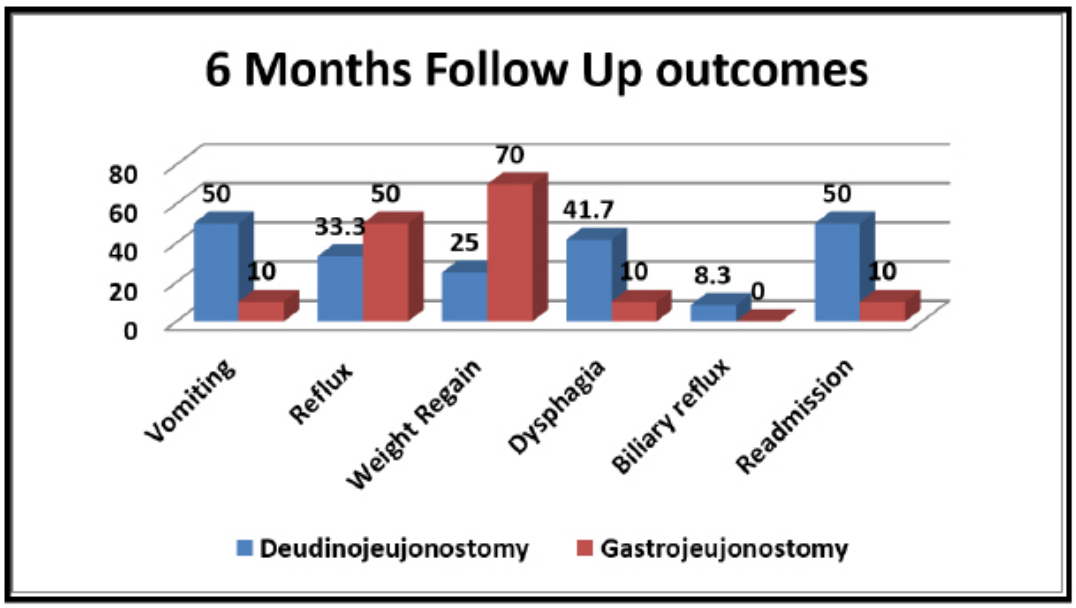

Fig 5: Six-month follow-up outcomes between duodenojejunostomy and gastrojejunostomy.

Table 1: Comparative analysis of patients' demographics and comorbidities in duodenojejunostomy and distal gastrectomy with Roux-en-Y gastrojejunostomy (DG RY GJ) groups

		Duodenojejunostomy (n=12)		DG RY GJ (n=10)		Test value	P-value	Sig.
		N	%	N	%			
Age	Mean±SD	25.7 ± 4.84		27.0±4.26		0.635•	0.535	NS
	Range	18 – 33		19 – 34				
Sex	Male	4	33.3	2	20.0	0.489†	0.484	NS
	Female	8	66.7	8	80.0			
Comorbidities	None	9	75.0	8	80.0	0.212†	0.899	NS
	Hypertension	2	16.7	1	10.0			
	Diabetes Miletus	1	8.3	1	10.0			

Table 2: Comparative analysis of patients' preoperative aortomesenteric angle between duodenojejunostomy and fistal gastrectomy with Roux-en-Y gastrojejunostomy groups

		Duodenojejunostomy (n=12)		DG RY GJ (n=10)		Test value	P-value	Sig.
		N	%	N	%			
Aortomesenteric angle	Mean±SD	13.54±2.67		14.1±3.04		0.284•	0.771	NS
	Range	10–20		10.5–19				

Using: • Independent t-test to compare means.

Table 3: Comparative analysis of patients' intraoperative outcomes between duodenojejunostomy and distal gastrectomy with Roux-en-Y gastrojejunostomy groups

		Duodenojejunostomy (n=12)		DG RY GJ (n=10)		Test value	P-value	Sig.
		N	%	N	%			
Duration of Surgery	Mean±SD	111.6±26.4		203.4±33.6		7.235•	<0.001	HS
	Range	80.4–180		127.8–240				
Approach	Open	4	33.3	3	30.0	0.028†	0.867	NS
	Laparoscopic	8	66.7	7	70.0			
Blood Loss	Mean±SD	241.5±130.5		267.5±152.5		0.354	0.651	NS
	Range	100–400		100–500				

Using: • Independent t test to compare means, †: X2= Chi = Chi-Square test.

Table 4: Comparative analysis of patients' postoperative outcomes between duodenojejunostomy and distal gastrectomy with Roux-en-Y gastrojejunostomy groups

		Duodenojejunostomy (n=12)		DG RY GJ (n=10)		Test value	P-value	Sig.
		N	%	N	%			
Hospital stay (Day)	Mean±SD	5.75±1.87		8.70±1.82		5.377•	<0.001	HS
	Range	4–8		5–12				
Re-intervention	Yes	2	16.7	2	20.0	0.041†	0.840	NS
	No	10	83.3	8	80.0			

Using: • Independent t test to compare means, †: X2= Chi = Chi-Square test.

Table 5: Comparative analysis of patients' 6-month follow-up outcomes between duodenojejunostomy and distal gastrectomy with Roux-en-Y gastrojejunostomy groups

		Duodenojejunostomy (n=12)		DG RY GJ (n=10)		Test value	P-value	Sig.
		N	%	N	%			
Weight regain		3	25.0	7	70.0	3.942 †	0.048*	S
Weight regain	Mean±SD	2.0±1.0		4.89±2.64		2.678•	0.041	S
	Range	1–3		1–7				
Reflux GERD		4	33.3	5	50.0	0.627 †	0.429	NS
Reflux GERD	Mean±SD	10.75±2.98		11.0±3.91		0.461•	0.648	NS
	Range	7–14		6–15				
Vomiting		6	50.0	1	10.0	4.023 †	0.045	S
Dysphagia		5	41.7	1	10.0	2.487 †	0.135	NS
Biliary reflux		1	8.3	0	0	0.627 †	0.429	NS
Readmission		6	50.0	1	10.0	4.023 †	0.045	S

Using: • Independent t-test to compare means, †: X2= Chi = Chi-Square test.

Discussion

Superior mesenteric artery syndrome (SMAS) is a rare clinical entity, accounting for approximately 0.0024%–0.3% of the population. It results from compression of the third portion of the duodenum between the superior mesenteric artery (SMA) and the aorta and is also known as Wilkie's syndrome, "cast syndrome," aortomesenteric duodenal compression, or chronic duodenal ileus.[5,7] The pathogenesis of SMAS may involve congenital anomalies, such as intestinal malrotation, a high insertion of the ligament of Treitz, or a low origin of the SMA. Acquired causes include significant weight loss (E.g., post-bariatric surgery), psychiatric conditions (Anorexia nervosa, bulimia), abdominal surgeries (Proctocolectomy), and spinal procedures (E.g., scoliosis correction).[8] Initial management of SMAS is typically conservative, focusing on nutritional optimization through tube feeding distal to the obstruction site. Weight restoration can potentially correct the acute aortomesenteric angle. However, when conservative treatment fails, surgical intervention becomes necessary. Surgical options include mobilization of the duodenum (Strong's procedure) or bypass procedures such as duodenojejunostomy or gastrojejunostomy.[9] Since the first laparoscopic duodenojejunostomy reported by Gersin and Heniford in 1998,[10] this approach has become the most performed procedure for SMAS.

Recently, distal gastrectomy with Roux-en-Y gastrojejunostomy (DGRYGJ) has been increasingly utilized, aiming for better postoperative quality of life by reducing alkaline reflux and gastritis despite its technical complexity.[11,12] Due to the limited literature comparing these surgical options, this study aimed to evaluate postoperative outcomes in SMAS patients undergoing duodenojejunostomy versus DGRYGJ.

This retrospective cohort study enrolled patients into two groups: Group A underwent duodenojejunostomy (Open or laparoscopic), and Group B underwent distal gastrectomy with Roux-en-Y gastrojejunostomy (Open or laparoscopic). Demographic data showed no significant differences in sex or age distribution between the groups. In Group A, 33.3% were male and 66.7% female, with a mean age of 26.7 ± 4.5 years; in Group B, 40% were male and 53.3% female, with a mean age of 27.0 ± 4.3 years.

Our results demonstrated that both operative time and hospital stay were significantly lower in the duodenojejunostomy group compared to the

DGRYGJ group. Specifically, the mean operative time was 111.6±26.4 minutes for duodenojejunostomy versus 203.4±33.6 minutes for DGRYGJ ($p<0.001$). Similarly, the mean hospital stay was 2.5±4.7 days in the duodenojejunostomy group versus 4.7±0.8 days in the DGRYGJ group. These findings align with,[13] who reported a mean hospital stay of 4 days following laparoscopic duodenojejunostomy, and,[14] who reported a median hospital stay of 1–2 days. In contrast,[11] reported a longer hospital stay (6.6 ± 2.2 days) following DGRYGJ, supporting our findings.

Regarding surgical complications, the duodenojejunostomy group exhibited a 16.7% reintervention rate, primarily due to persistent vomiting and poor general condition, necessitating subsequent gastrojejunostomy procedures. In the DGRYGJ group, the reintervention rate was 20%, attributed to duodenal stump leaks requiring surgical drainage or pigtail catheter placement. Statistical analysis showed no significant difference in reintervention rates between groups ($p=0.798$). These findings are comparable to,[12] who noted reintervention following laparoscopic duodenojejunostomy, although,[13] reported no reoperations among 50 patients undergoing laparoscopic DGRYGJ, potentially reflecting variations in sample size and surgical expertise.

At six-month follow-up, Gastroesophageal reflux disease (GERD), dysphagia, and biliary reflux were evaluated using the GERD-Q questionnaire No significant differences were observed between the two groups. Although not statistically significant, dysphagia appeared more common in the duodenojejunostomy group, suggesting that with a larger sample size, significant differences might emerge. These results are consistent with, who reported persistent mild symptoms, including vomiting and dysphagia, following both surgical approaches. Similarly,[15] indicated incomplete tolerability of oral intake post-duodenojejunostomy, while Barkhatov et al. (2018),[14] observed significant improvements in appetite and vomiting after duodenojejunostomy. Rabie et al. (2015),[16] reported abdominal pain and vomiting as prevalent symptoms preoperatively in SMA patients, with resolution following surgery. However, Díez del Val et al. (2014)[17] cautioned that gastrojejunostomy might cause bile reflux and anastomotic ulcers, emphasizing the need for careful postoperative surveillance. On the other hand, Ramirez et al. (2018)[18] found that adding a Roux-en-Y limb minimized bile reflux following gastrojejunostomy, enhancing surgical outcomes.

Postoperative weight gain was another critical parameter. In our study, a significantly higher proportion of patients regained weight following DGRYGJ (70%) compared to duodenojejunostomy (25%). Additionally, the mean weight gain was greater in the DGRYGJ group (4.89±2.64 kg) than in the duodenojejunostomy group (2.0±1.0 kg). This finding is supported by Ramirez et al. (2018),[18] who reported substantial weight gain after gastrojejunostomy with Roux-en-Y reconstruction. Similarly, Sabry et al. (2022)[19] observed a median BMI increase of 2 kg/m² at a median 16-month follow-up after laparoscopic duodenojejunostomy, and Barkhatov et al. (2018)[14] documented a postoperative median weight gain of 5 kg following the same procedure.

Overall, quality of life markedly improved in both groups. Barkhatov et al. (2018)[14] reported enhanced early convalescence, return to work, and cosmetic outcomes after laparoscopic duodenojejunostomy. Kirby et al. (2017)[20] and Munene et al. (2010)[21] similarly highlighted that duodenojejunostomy is the commonly accepted surgical management of the SMA syndrome. However, in the present study, vomiting and readmission rates were significantly higher in the duodenojejunostomy group ($p=0.045$). This suggests that although duodenojejunostomy offers shorter operative times and hospital stays, DGRYGJ may be associated with superior long-term postoperative outcomes, including reduced complications and readmission rates.

Conclusion

Both Duodenojejunostomy and distal gastrectomy with Roux-en-Y gastrojejunostomy (DGRYGJ) are effective surgical options for managing Superior Mesenteric Artery Syndrome (SMAS). However, our study reveals that duodenojejunostomy has advantages in terms of shorter surgery duration and hospital stay. DGRYGJ offers superior postoperative outcomes, including reduced bile reflux, decreased symptoms like vomiting and abdominal pain, Increased weight gain, Improved management of delayed gastric emptying (gastroparesis), alleviating postprandial vomiting and abdominal pain

Roux-en-Y gastrojejunostomy is a viable alternative to duodenojejunostomy for SMAS management. Larger studies with expanded sample sizes are still needed to further confirm these findings and establish optimal surgical guidelines for SMAS treatment.

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