Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2, 975-983
2025
Publisher: Learning Gate
DOI: 10.55214/25768484.v9i2.4637

SASI as procedure of choice and revisional bariatric surgery

Gede Eka Rusdi Antara[1*], Tjokorda Istri Anom Saturti[2]
[1]Digestive Division, Department of Surgery, Prof. I.G.N.G Ngoerah General Hospital/Faculty of Medicine, Udayana University, Indonesia; dr_rusdi@yahoo.com (G.E.R.A.).
[2]Department of Internal Medicine, Prof. I.G.N.G Ngoerah General Hospital/Faculty of Medicine, Udayana University, Indonesia; saturti@unud.ac.id (T.I.A.S).

Abstract: Obesity is a global health challenge, contributing to numerous comorbidities such as type 2 diabetes, cardiovascular diseases, and several types of cancer. While lifestyle changes, pharmacotherapy, and bariatric surgery are common treatments, bariatric surgery presents risks, including the need for revision surgeries due to complications or inadequate weight loss. One promising option for revisional bariatric surgery is the Single Anastomosis Sleeve Ileal (SASI) procedure, which has been gaining attention for its potential to offer significant weight loss with fewer complications compared to traditional revisional surgeries. The aim of this study was to evaluate the effectiveness of the SASI procedure as a potential alternative to other bariatric procedures, particularly for patients with a BMI in the range of 30-40 who have not had success with other weight-loss surgeries. This literature review synthesizes recent studies on the SASI procedure, comparing it to conventional bariatric surgeries. It highlights the procedure's effectiveness in promoting weight loss, improving comorbidities, and maintaining relatively low complication rates. However, its role in revisional surgeries is still underexplored, showing limited success compared to its primary application. The review emphasizes the need for further research to assess the long-term outcomes of the SASI procedure, particularly regarding its ability to resolve complications, sustain weight loss, and manage postoperative issues like nutritional deficiencies. Overall, the SASI procedure shows promising potential as an alternative to traditional bariatric surgery, offering effective weight loss and safety outcomes.

Keywords: *Bariatric surgery, Obesity, Single anastomosis sleeve ileal bypass, Weight Loss.*

1. Introduction

Obesity is a significant global health issue, defined by the World Health Organisation (WHO) as the excessive accumulation of body fat, which increases the risk of various health complications. A person is classified as obese if their body mass index (BMI) exceeds 30 kg/m^2. Obesity impacts nearly every organ system in the body and is a major risk factor for several comorbid conditions, including type 2 diabetes mellitus, hypertension, dyslipidaemia, cardiovascular diseases, and various types of cancer. These conditions contribute to the growing burden on healthcare systems and result in increased mortality rates [1, 2].

The prevalence of obesity has been steadily rising, with data from 2015 indicating that more than 600 million adults and 100 million children worldwide are affected by obesity – a figure that has more than doubled since 1980. In high-income countries such as the United States and several European nations, the prevalence of obesity has plateaued or even started to decline since the early 2000s. However, in lower-middle-income countries such as China, obesity rates have surged from 2.15% to 13.99% over the past few decades [3]. In Indonesia, the prevalence of obesity has reached 23.1%, with a continuing upward trend each year [4].

History: Received: 6 December 2024; Revised: 23 January 2025; Accepted: 23 January 2025; Published: 7 February 2025
* Correspondence: dr_rusdi@yahoo.com

Currently, the primary treatment options for obesity include lifestyle changes, pharmacotherapy, and bariatric surgery. While lifestyle modifications and pharmacological interventions can be effective for some, they are often insufficient for patients with severe obesity (BMI ≥ 35 kg/m²). In these cases, bariatric surgery offers a more reliable solution, producing significant weight loss, improving comorbidities, and reducing the risk of long-term mortality [5].

Bariatric surgery was first introduced over 50 years ago. Since then, advancements in surgical techniques, particularly the development of laparoscopic methods, have made these procedures safer and more effective. As a result, the number of bariatric surgeries performed annually in the United States has increased twenty-fold, driven by technological progress and the rising prevalence of obesity [6]. However, bariatric surgery is not without risks. The perioperative mortality rate for bariatric surgery is approximately 0.3%, and the incidence of complications in the first 30-180 days after surgery ranges from 4%-25%, depending on the type of procedure, duration of follow-up, and patient characteristics. One of the most common risks is the need for revisional bariatric surgery, often required due to complications or insufficient weight loss. For example, 35% of patients who have undergone adjustable gastric banding required revision surgery due to complications such as proximal enlargement, port and tubing issues, and erosion. Similarly, a study of Roux-en-Y gastric bypass (RYGB) patients found that 22% needed a revision procedure [5-7].

Given the risks associated with revisional surgery, several alternative approaches are being developed to address these complications. One promising option is the SASI procedure, which has gained attention for its potential to provide significant weight loss with fewer complications compared to other revisional procedures. This review will explore the role of the SASI procedure as a viable alternative to revisional bariatric surgery.

2. Methods

This study is a literature review that includes recent studies on SASI procedures that have been published in PubMed and Google Scholar in the last 10 years. We used the keywords "SASI procedure" and "SASI bypass" in the literature search. We used secondary data from previous studies in this literature review and all relevant data related to SASI procedure as an alternative to bariatric surgery were included in this literature review. SASI procedure is defined as a procedure involving sleeve gastrectomy with anastomosis of the intestinal loop with the stomach. Bariatric surgery is a therapeutic surgery for obese patients with several methods such as gastric banding, Roux-en-Y gastric bypass, sleeve gastrectomy, and biliopancreatic diversion. Patients are considered obese if they have a body mass index ≥30 kg/m2. The potential of SASI as a procedure of choice and revisional bariatric surgery is analyzed in this literature review study.

2.1. Bariatric Surgery in Obese Patients

Bariatric surgery is an established and effective treatment for severely obese patients, offering significant benefits in weight reduction, quality of life improvement, and extended survival. Since its introduction over 50 years ago, bariatric surgery has continued to evolve with advancements in surgical techniques, particularly the development of laparoscopic methods, making these procedures safer and more effective. There are several recognised bariatric procedures, with RYGB being the first performed, followed by sleeve gastrectomy (SG), which is now the most commonly performed procedure worldwide, including in the United States. Over time, other procedures such as Adjustable Gastric Banding (AGB), introduced in 2001, have declined in popularity due to the growing preference for sleeve gastrectomy. The least frequently performed procedure is biliopancreatic diversion with duodenal switch (BPD-DS), which accounts for less than 1% of all bariatric surgeries [8].

Despite the growing number of bariatric procedures, they remain relatively underutilised, with fewer than 1% of severely obese patients undergoing surgery. Among the various procedures, RYGB remains the most common (45%), followed by SG (37%). According to the American Society for Metabolic and Bariatric Surgery (ASMBS), bariatric surgeries in the United States increased from 158,000 in 2011 to

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2: 975-983, 2025
DOI: 10.55214/25768484.v9i2.4637

193,000 in 2014, reflecting a steady rise in demand. During this period, the proportion of RYGB and AGB laparoscopic procedures decreased, while laparoscopic sleeve gastrectomy (LSG) surged to 51.7%, and the rate of revisional bariatric surgeries also increased from 6% to 11. 5% [9].

Bariatric surgery is currently the only treatment option that consistently provides significant weight loss and improvements in comorbid conditions, such as type 2 diabetes, hypertension, and obstructive sleep apnoea, making it a critical intervention for severely obese patients. According to the 1991 NIH consensus, bariatric surgery is indicated for patients with a BMI of ≥ 35 kg/m², or those with a BMI of ≥ 30 kg/m² who have obesity-related comorbidities. Prior to surgery, patients undergo comprehensive medical, surgical, psychiatric, and nutritional evaluations, and the procedures are performed by bariatric surgeons with specialised training [10, 11].

Since 2013, LSG has emerged as the most commonly performed bariatric procedure in the United States, owing to its relative simplicity compared to RYGB and BPD-DS, and its more favourable weight loss outcomes than AGB. LSG is also associated with fewer complications, such as internal herniation or marginal ulceration, commonly seen with RYGB. Additionally, LSG does not cause the malabsorption of essential nutrients like calcium, iron, and vitamins, which are critical, especially for women in their reproductive years. However, while LSG has proven effective, the more complex BPD-DS remains a strong option for patients who require superior weight loss and better control of type 2 diabetes, though its risk of long-term nutritional complications and the complexity of the procedure make it less preferred [12-14].

While bariatric surgery has demonstrated a high success rate and a low mortality rate, it is not without risks. Studies, including a meta-analysis by Chang et al., indicate that bariatric surgery is associated with complications such as nausea, vomiting, small bowel obstructions, anastomosis stricture, and gastro-gastric fistula, with complication rates ranging from 10-17% and a 7% risk of reoperation [14]. These risks must be carefully considered when planning the surgery, and potential complications must be monitored closely, particularly in revisional procedures.

Non-operative management of these complications often involves pharmacological interventions, such as the use of antibiotics for infections, pain management for postoperative discomfort, and antiemetics for nausea. Nutritional support is essential to prevent long-term deficiencies, with regular monitoring of key vitamins and minerals. In cases where complications cannot be resolved non-surgically, patients may require revision surgery or repair of internal hernias, particularly in patients experiencing anastomotic leaks or strictures.

Despite the effectiveness of bariatric surgery in achieving long-term weight loss, it is associated with both acute and long-term complications. Acute complications commonly include infection, bleeding, and nausea/vomiting, which occur within the first 30-180 days after surgery. Long-term complications may include nutritional deficiencies, such as deficiencies in calcium, iron, and vitamin B12, especially in procedures that cause malabsorption. These complications necessitate lifelong monitoring, dietary adjustments, and possible supplementation. Surgical complications, such as internal hernias in gastric bypass patients or port and tubing issues in gastric banding patients, can lead to reoperation rates of up to 7% [15].

2.2. Single Anastomosis Sleeve Ileal (SASI) Bypass Surgery

2.2.1. Definition, Indication, and Contraindication

The Single Anastomosis Sleeve Ileal or SASI bypass is a bariatric procedure that combines the benefits of both restrictive and malabsorptive surgeries, while reducing the risk of nutrient deficiencies by maintaining passage through the entire alimentary tract. The SASI procedure integrates the advantages of restriction with preserved food transit through the gastrointestinal tract (Figure 1). By utilizing the rapid transit of undigested food to the ileum, it stimulates the release of anorexigenic intestinal hormones, which contribute to satiety [16].

The SASI procedure is designed to help individuals who are obese or severely obese address their weight-related issues. Like other bariatric surgeries, SASI-S is suitable for (1) Patients with a BMI greater

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2: 975-983, 2025
DOI: 10.55214/25768484.v9i2.4637

than 40; (2) Patients with a BMI between 35 and 40 who have obesity-related health conditions, such as high blood pressure, sleep apnoea, type 2 diabetes, impaired glucose tolerance, hyperlipidaemia, or heart disease; (3) Patients with a BMI greater than 30 who suffer from an obesity-related illness. However, the latest Delphi consensus does not recommend the SASI procedure as a revisional surgery for gastroesophageal reflux disease (GERD) symptoms after a previous sleeve gastrectomy [17].

2.2.2. Surgical Approach

Before surgery, each patient received anticoagulation and antibiotic prophylaxis according to the current bariatric surgical guidelines. General anaesthesia was administered, and the patient was positioned in a French setup in an anti-Trendelenburg position. A Veress needle was used to establish pneumoperitoneum at a pressure of 14 mm Hg, and a 36 French nasogastric tube was inserted into the stomach. The first step of the procedure involved revascularising the greater curvature of the stomach using a vessel-sealing device. A linear cutting stapler was then employed to transect the stomach over the orogastric tube, starting 3–6 cm from the pylorus and extending towards the cardia (Figure 1). Once the gastric pouch was created, the duodenojejunal junction was identified, and the length of the small intestine was measured [17].

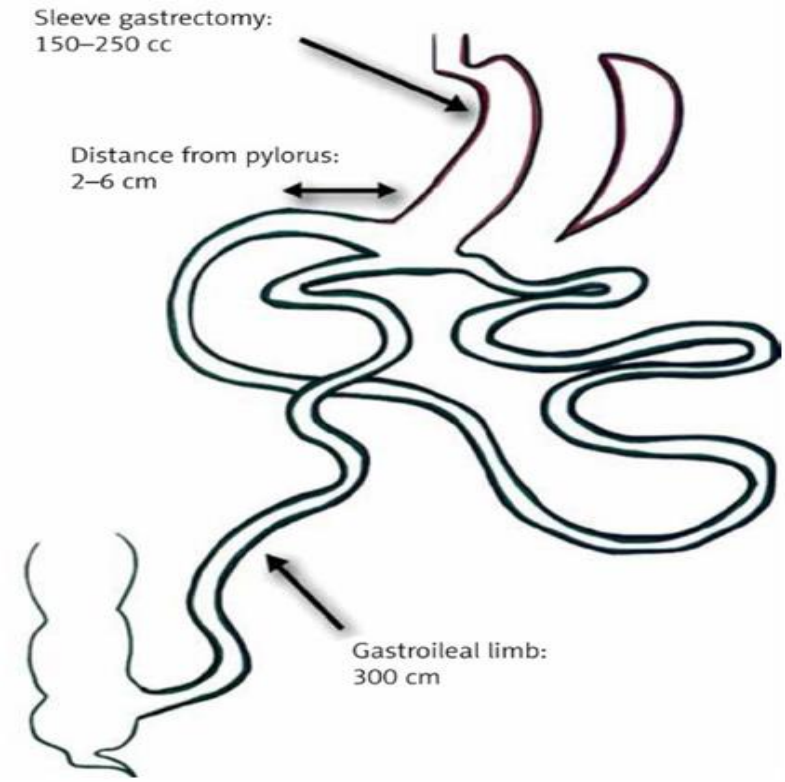

Figure 1.
SASI bypass scheme [15].

After completing the restrictive phase of the procedure, the operator performed the ileal bypass. The ileocecal region was located, and a 300 cm ileal loop was measured proximally. Once the pylorus and ileal loop were positioned correctly, a linear stapler was used to create a side-to-side ileal sleeve anastomosis, positioned 6 cm proximal to the pylorus (Figure 2). The stapler defect was closed with a V-lock suture (Figure 3), and the tightness of the anastomosis was assessed using a methylene blue test. The transected stomach was removed via one of the trocars, and a drain was placed adjacent to the anastomosis (Figure

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2: 975-983, 2025
DOI: 10.55214/25768484.v9i2.4637

3). The anastomosis was adjusted to a size between 2.5 and 3 cm in diameter, and the anterior wall of the gastroenterostomy was closed using continuous sutures [18].

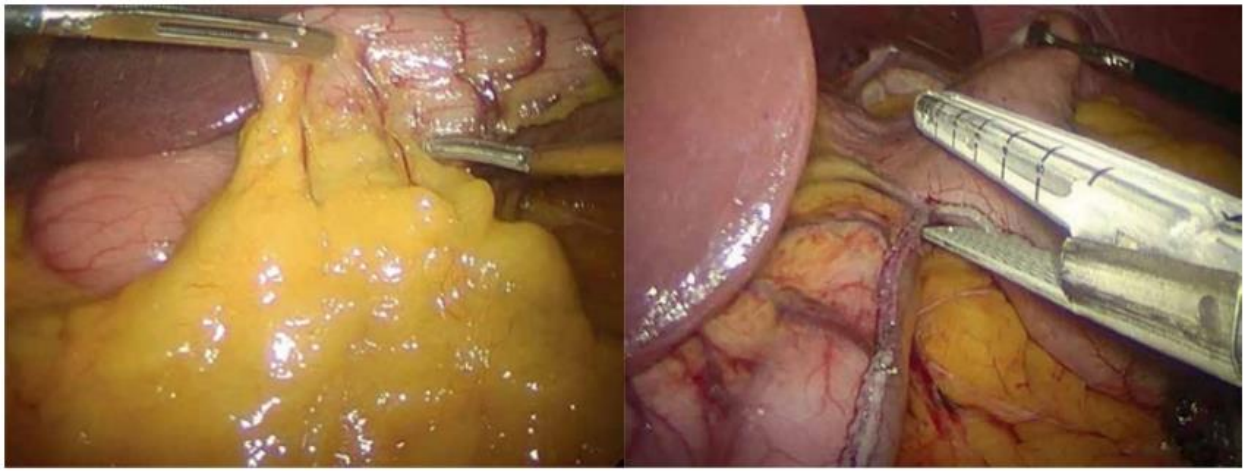

Figure 2.
(Left side) devascularization of the greater curvature, (Right side) Calibration of the gastric sleeve [15].

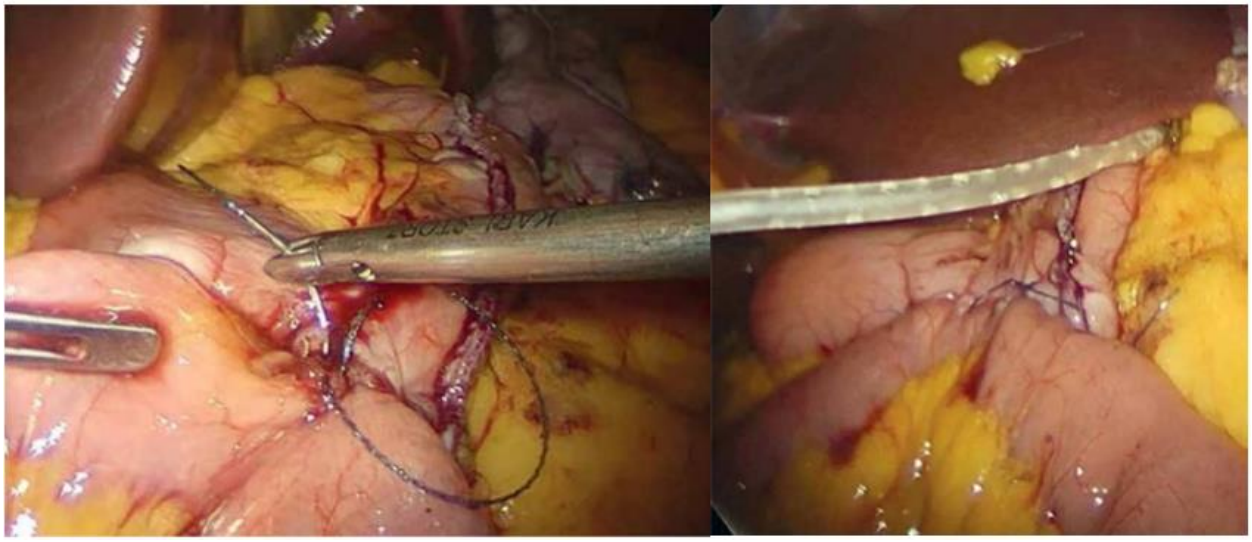

Figure 3.
Suturing of the stapler defect and placing the drain [15].

2.2.3. Safety and Efficacy of the SASI Procedure

The SASI procedure, a relatively new technique, demonstrates significant weight loss outcomes among various bariatric procedures. This aligns with previous studies that highlight the unique anatomical approach of SASI, which combines elements of sleeve gastrectomy and gastric bypass. In a study by Emile et al., SASI resulted in not only substantial weight loss but also significant metabolic improvements, particularly for patients with type 2 diabetes. The procedure showed a higher rate of diabetes remission compared to sleeve gastrectomy (95.8% vs. 70%). Additionally, reductions in body weight and BMI 12 months after the SASI procedure were significantly greater than those observed with sleeve gastrectomy. These findings further support the growing evidence suggesting SASI's efficacy in both bariatric and metabolic outcomes [19].

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2: 975-983, 2025
DOI: 10.55214/25768484.v9i2.4637

In a study by Naeni et al., BMI decreased from 43.70 ± 5.81 kg/m² to 30.05 ± 4.11 kg/m² after one year [18]. Furthermore, the reductions in body weight and BMI 12 months post-SASI were significantly greater than those observed with sleeve gastrectomy. A multicentre study involving 605 patients, concluded that the SASI bypass is an efficient and safe procedure for obese patients, particularly those with type 2 diabetes. The study demonstrated that the percentage of excess weight loss (EWL) was significantly higher at 75% in the sixth month and 90% in the first-year post-operation. This study confirmed that SASI bypass is an effective bariatric and metabolic surgery, achieving satisfactory weight loss and improvements in comorbidities, including type 2 diabetes, hypertension, sleep apnoea, and GERD, with a low complication rate [20].

In comparison, RYGB results in more moderate weight loss. Patients typically experience an EWL of 70% at one year and 75% at two years, which is consistent with broader research on the procedure. Despite its relatively lower weight loss outcomes compared to SASI, RYGB remains a well-established and highly effective procedure, particularly for patients with severe obesity or significant metabolic conditions such as type 2 diabetes. It continues to show proven benefits in long-term weight management and metabolic improvements [21].

The study by Kermansaravi et al. showed that the mean BMI decreased from 44.2 ± 4.3 to 35.5 ± 4.5 one year after SASI [22]. Additionally, the study by Aghajani, involving 366 obese patients, demonstrated that the intraoperative, short-term, and long-term complication rates of the SASI procedure were 0%, 2.5%, and 4.6%, respectively. After 4 years, the mean percentage of EWL was 93.3%, and the total weight loss (TWL) was 41.2%. The remission rates of comorbidities were 93% for type 2 diabetes mellitus, 73% for hypertension, 83% for hyperlipidaemia, 79% for sleep apnoea, and 25% for GERD. These results demonstrate the long-term efficacy of the SASI procedure, with substantial improvements in comorbid conditions and minimal complication rates [21].

2.3. SASI Procedure as Revisional Bariatric Surgery

Bariatric surgery is not always successful, with the most common reasons being inadequate weight loss and weight recidivism. A systematic review has reported that bariatric surgeries are considered unsuccessful when the EWL is less than 50%, with or without a BMI exceeding 35 kg/m², 18 months after surgery. However, this threshold remains inconsistent across different studies, with 5%-61% of patients requesting revisional surgery. While many studies discuss the challenges of revisional bariatric surgeries, there is a lack of research directly comparing newer techniques, such as SASI bypass, with traditional procedures in the context of revisional surgeries. This literature review addresses this gap, offering new insights into SASI's efficacy as a revisional procedure and comparing it with established bariatric surgeries [7, 23].

Revisional procedures are more complex than primary surgeries due to altered anatomy from previous interventions. As a result, these procedures carry a higher risk. The morbidity rates for revisional surgery can be as high as 41%, compared to 15% for primary procedures. These surgeries often present more significant challenges, such as bleeding, desertion, and suture failure, and may take up to twice as long as the original procedure in terms of both operating time and hospital stay. Therefore, it is essential to carefully weigh the benefits of a second intervention against the associated risks, while also maximising efforts to reduce complications and improve the remission of comorbidities. The most technically straightforward revisional procedure is the re-sleeve, where a new vertical gastrectomy is performed on the existing sleeve. This approach is less demanding but may result in less favourable outcomes, with potentially severe complications such as fistula [24].

This review synthesises findings from recent studies comparing SASI with traditional bariatric surgeries, focusing on the gaps in the literature, particularly around SASI's role in revisional bariatric surgery. The previous study compared the SASI procedure as a primary versus revisional surgery. The study divided participants into two groups: one that underwent the SASI procedure as a primary bariatric surgery and the other as a revisional surgery. This research evaluated several outcomes, including length of stay, operating time, weight regain, and follow-up duration. The primary group had a longer average

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2: 975-983, 2025
DOI: 10.55214/25768484.v9i2.4637

follow-up time (26.9 ± 6.1 months) compared to the revisional group (17.1 ± 13.5 months). Operating times were slightly longer in the primary group (84.0 ± 25.5 minutes) compared to the revisional group (81.3 ± 28.3 minutes), though the difference was not significant. The study also found that the primary SASI procedure did not result in weight regain, whereas the revisional SASI procedure saw a slight increase in body weight [15].

The study evaluated BMI at multiple intervals (6, 12, 24, and 36 months). In the primary group, BMI decreased from 29.9 ± 4.4 kg/m² at 6 months to 22.9 ± 1.3 kg/m² at 36 months. In contrast, the revisional group showed less significant decreases in BMI, with values of 31.5 ± 6.2 kg/m² at 6 months, 30.4 ± 5.1 kg/m² at 12 months, and 31.9 ± 5.7 kg/m² at 24 months. The TWL in the primary group was 25.2%, 37.8%, 44.6%, and 43.9% at 6, 12, 24, and 36 months, respectively. The EWL in the revisional group was lower, at 59.5%, 59.0%, and 56.9% at 6, 12, and 24 months. The primary group consistently showed better results, with significant differences at each time point ($p = 0.002$, $p < 0.001$, and $p = 0.008$). Interestingly, comorbidities in the revisional group did not worsen, whereas in the primary group, GERD worsened by 40%. The primary group also saw partial remission of hypertension (11.1%) and diabetes (7.7%) over the follow-up period. These findings provide new insights into how the SASI procedure compares with traditional bariatric procedures, offering better weight loss outcomes, though with potential limitations for revisional surgeries [15].

Despite the lower weight loss outcomes in the revisional group, the SASI procedure still showed effective outcomes in terms of comorbidity resolution and overall weight loss. However, the evidence for SASI as a revisional surgery remains limited, and further research is needed to better understand its long-term impact in this context.

2.4. Complications and Long-Term Monitoring

Revisional bariatric surgery, including the SASI procedure, carries a higher risk of complications due to the altered anatomy from previous surgeries. Risks such as internal hernias, bleeding, and anastomotic leaks are more prevalent in revisional procedures, with bleeding rates reaching as high as 15%. Long-term complications, particularly nutritional deficiencies in key nutrients such as vitamin B12, iron, calcium, and vitamin D, are also more severe in revisional surgeries compared to primary bariatric procedures. Lifelong supplementation and regular serum level monitoring are critical to prevent these deficiencies and ensure optimal health. Furthermore, GERD may worsen in some patients, requiring close monitoring and, in severe cases, surgical revision [7, 25].

In the long term, patients who undergo the SASI procedure must be carefully managed to address complications such as nutritional deficiencies and GERD. Although the procedure offers substantial weight loss and metabolic improvements, diligent follow-up care is essential for detecting and managing emerging complications. Regular check-ups allow healthcare providers to adjust treatment plans, monitor the patient's nutritional status, and intervene promptly if necessary. With proactive care and management, the risks of long-term complications can be minimized, ensuring the continued success of the procedure and the overall well-being of the patient [16, 26].

2.5. Implications for Future Research

Further research is required to assess the long-term effectiveness of the SASI procedure, including its role in addressing complications over time and its suitability as a revisional option for patients who have previously undergone other bariatric procedures. This research should go beyond weight loss outcomes to include adverse event management, the impact of complication rates on long-term success, and the patient-reported outcomes that reflect quality of life after SASI. Moreover, exploring areas such as long-term nutritional monitoring and cost-effectiveness in clinical settings could provide new insights into the procedure's viability as a primary or revisional bariatric surgery.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2: 975-983, 2025
DOI: 10.55214/25768484.v9i2.4637

3. Conclusions

The SASI procedure shows promising potential as an alternative to conventional bariatric surgery, with effective weight loss and safety outcomes. However, its role as a revisional surgery is limited, particularly in sustaining long-term weight loss. Postoperative care, including early detection of complications and nutritional monitoring, is crucial for optimizing results. Further research is needed to evaluate long-term effectiveness, complication management, and quality of life outcomes.

Funding:
This study received no specific financial support.

Conflict of Interest:
The author stated there is no conflict of interest.

Authors' Contributions:
All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Transparency:
The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Acknowledgments:
We would like to thank all the participants who were willing to support this study.

References

[1] B. Busebee, W. Ghusn, L. Cifuentes, and A. Acosta, "Obesity: A review of pathophysiology and classification," in *Mayo Clinic Proceedings. https://doi.org/10.1016/j.mayocp.2023.05.026.*, 2023: Elsevier.

[2] E. Gjermeni *et al.*, "Obesity–an update on the basic pathophysiology and review of recent therapeutic advances," *Biomolecules*, vol. 11, no. 10, p. 1426, 2021. https://doi.org/10.3390/biom11101426

[3] X. Lin and H. Li, "Obesity: epidemiology, pathophysiology, and therapeutics," *Frontiers in Endocrinology*, vol. 12, p. 706978, 2021. https://doi.org/10.3389/fendo.2021.706978

[4] D. S. Harbuwono, L. A. Pramono, E. Yunir, and I. Subekti, "Obesity and central obesity in Indonesia: Evidence from a national health survey," *Medical Journal of Indonesia*, vol. 27, no. 2, pp. 114-20, 2018. https://doi.org/10.13181/mji.v27i2.1512

[5] D. E. Arterburn and A. P. Courcoulas, "Bariatric surgery for obesity and metabolic conditions in adults," *Bmj*, vol. 349, pp. g3961–g3961, 2014. https://doi.org/10.1136/bmj.g3961

[6] S. F. Noria and T. Grantcharov, "Biological effects of bariatric surgery on obesity-related comorbidities," *Canadian Journal of Surgery*, vol. 56, no. 1, p. 47, 2013. https://doi.org/10.1503/cjs.036111

[7] N. J. Switzer, S. Karmali, R. S. Gill, and V. Sherman, "Revisional bariatric surgery," *Surgical Clinics*, vol. 96, no. 4, pp. 827-842, 2016. https://doi.org/10.1016/j.suc.2016.03.004

[8] N. T. Nguyen and J. E. Varela, "Bariatric surgery for obesity and metabolic disorders: state of the art," *Nature Reviews Gastroenterology & Hepatology*, vol. 14, no. 3, pp. 160-169, 2017. https://doi.org/10.1038/nrgastro.2016.170.

[9] D. Eisenberg *et al.*, *2022 American society of metabolic and bariatric surgery (ASMBS) and international federation for the surgery of obesity and metabolic disorders (IFSO) indications for metabolic and bariatric surgery*. Springer. https://doi.org/10.1016/j.soard.2022.08.013, 2023.

[10] C. Le Roux, "Techniques, assessment, and effectiveness of bariatric surgery in combating obesity," *Open Access Surgery*, pp. 123-136, 2010. https://doi.org/10.2147/OAS.S7195

[11] S. Ragavan *et al.*, "Weight loss following bariatric surgery in people with or without metabolic syndrome: A 5-year observational comparative study," *Journal of Clinical Medicine*, vol. 13, no. 1, p. 256, 2024. https://doi.org/10.3390/jcm13010256
[12] S. Karmali *et al.*, "Bariatric Surgery: A Primer," *Canadian Family Physician*, vol. 56, no. 9, pp. 873-879, 2010.
[13] M. Gulinac *et al.*, "Long-term effectiveness, outcomes and complications of bariatric surgery," *World journal of clinical cases*, vol. 11, no. 19, p. 4504, 2023. https://doi.org/10.12998/wjcc.v11.i19.4504
[14] S.-H. Chang, C. R. Stoll, J. Song, J. E. Varela, C. J. Eagon, and G. A. Colditz, "The effectiveness and risks of bariatric surgery: an updated systematic review and meta-analysis, 2003-2012," *JAMA surgery*, vol. 149, no. 3, pp. 275-287, 2014. https://doi.org/10.1001/jamasurg.2013.3654
[15] N. Dowgiałło-Gornowicz, K. Waczyński, K. Waczyńska, and P. Lech, "Single anastomosis sleeve ileal (SASI) bypass as a primary and revisional procedure: A single-centre experience," *Videosurgery and Other Miniinvasive Techniques*, vol. 18, no. 3, pp. 510-515, 2023. https://doi.org/10.5114/wiitm.2023.128021
[16] S. H. Emile, T. Mahdy, C. Schou, M. Kramer, and S. Shikora, "Systematic review of the outcome of single-anastomosis sleeve ileal (SASI) bypass in treatment of morbid obesity with proportion meta-analysis of improvement in diabetes mellitus," *International Journal of Surgery*, vol. 92, p. 106024, 2021. https://doi.org/10.1016/j.ijsu.2021.106024
[17] W. Tarnowski *et al.*, "Single anastomosis sleeve ileal bypass (SASI): A single-center initial report," *Videosurgery and Other Miniinvasive Techniques*, vol. 17, no. 2, pp. 365-371, 2022. https://doi.org/10.5114/wiitm.2022.114943
[18] S. M. M. Naeini, M. M. Toghraee, and N. M. Alamdari, "Safety and efficacy of single anastomosis sleeve ileal (SASI) bypass surgery on obese patients with type II diabetes mellitus during a one-year follow-up period: A single center cohort study," *Archives of Iranian Medicine*, vol. 26, no. 7, p. 365, 2023. https://doi.org/10.34172/aim.2023.55
[19] S. H. Emile, A. Madyan, T. Mahdy, A. Elshobaky, H. G. Elbanna, and M. A. Abdel-Razik, "Single anastomosis sleeve ileal (SASI) bypass versus sleeve gastrectomy: a case-matched multicenter study," *Surgical Endoscopy*, vol. 35, pp. 652-660, 2021. https://doi.org/10.1007/s00464-020-07430-w
[20] T. Mahdy and C. Schou, "Efficacy of single anastomosis sleeve ileal (SASI) bypass for type-2 diabetic morbid obese patients: gastric bipartition, a novel metabolic surgery procedure: A retrospective cohort study," *International Journal of Surgery*, vol. 34, pp. 28-34, 2016. https://doi.org/10.1016/j.ijsu.2016.08.018
[21] E. Aghajani, C. Schou, H. Gislason, and B. J. Nergaard, "Mid-term outcomes after single anastomosis sleeve ileal (SASI) bypass in treatment of morbid obesity," *Surgical Endoscopy*, vol. 37, no. 8, pp. 6220-6227, 2023. https://doi.org/10.1007/s00464-023-10112-y
[22] M. Kermansaravi, A. Kabir, and A. Pazouki, "1-Year follow-up of single anastomosis sleeve ileal (SASI) bypass in morbid obese patients: efficacy and concerns," *Obesity Surgery*, vol. 30, pp. 4286-4292, 2020. https://doi.org/10.1007/s11695-020-04781-0
[23] C. A. Z. Chew and A. Shabbir, "Revisional bariatric surgery: Focus on quality of life," *Journal of Obesity & Metabolic Syndrome*, vol. 26, no. 2, p. 97, 2017.
[24] H. Sorto and R. Vilallonga, "SADI-S vs OAGB as revision surgery after sleeve gastrectomy," *Systematic Review*, 2023. https://doi.org/10.53435/funj.00890
[25] V. Taweerutchana, M.-C. Hsin, P.-C. Chang, C.-M. Tai, and C.-K. Huang, "Surgical results of laparoscopic loop duodenojejunal bypass with sleeve gastrectomy (LDJB-SG) in obese asians (BMI = 27.5 kg/m2) with type 2 diabetes mellitus (T2DM): A new promising bariatric and metabolic surgery," *Siriraj Medical Journal*, vol. 70, no. 2, pp. 103-113, 2018. https://doi.org/10.14456/smj.2018.18
[26] N. Srisuworanan *et al.*, "Surgical outcomes of bariatric surgery in siriraj hospital for the first 100 morbidly obese patients treated," *Siriraj Medical Journal*, vol. 74, no. 11, pp. 769-777, 2022. https://doi.org/10.33192/Smj.2022.91

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 9, No. 2: 975-983, 2025
DOI: 10.55214/25768484.v9i2.4637