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A Novel Technique: Reversed Anastomosis of One Anastomosis Gastric Bypass (OAGB) As a New Technique to Manage Incidentally Found Intestinal Mal-Rotation in Bypass Surgeries

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Abstract: Context: One of the very rare congenital anomalies, is Midgut Malrotation (MM), which is almost always discovered incidentally (during radiology or intraoperative). The frequency of anomaly is usually rare (0.025%) as confirmed by bariatric. Technical adjustments and an alternate surgical approach are needed during correction of MM due to anatomical variations of the laparoscopic gastric bypass and technical understanding during the operation. Objective: The aim of this study was to improvise a new technique in a patient candidate for bariatric surgery with intestinal mal-rotation. Methodology: This study was a cohort retrospective study conducted on five patients with mid-gut malrotation out of 6000 patients who underwent different bariatric surgeries. All patients underwent "one anastomosis gastric bypass" (OAGB), in a standardized modified technique, which was used for all patients with malrotation, where mirroring of the original technique was used. Results: except for one patient (with superadded co-morbidities), all our patients had hospital stay as normal subjects, with no postoperative complications, by using this technique. Conclusion: MM is uncommon congenital abnormality, and it is not a contradict to a surgery for weight loss, but require sophisticated skills of surgeon and a broad knowledge of the anatomic changes to treat any unanticipated perioperative results.
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Keywords: Novel Technique; Anastomosis; One Anastomosis Gastric Bypass (OAGB); Technique; Manage; Intestinal Mal-Rotation; Bypass Surgeries

1. Introduction:

Midgut Malrotation that may be by the way discovered at time of bariatric operation is a rare congenital abnormality [1]. The etiology of midgut malrotation (MM) returned to the early developmental stage and abnormal rotation of the midgut [2]. This naturally leads to that the small bowel not-rotated, where the small bowel situated in right side and the colon on the left side of the patient's abdomen [3].

Due to differences in the anatomy of gut, it gives rise to a exceptional scale of clinical signs of MM, in neonates represented in acute symptoms, while in adults are asymptomatic and continue along the life and not observed during the daily life but accidently can be discovered during performing diagnostic abdominal radiography or during abdominal surgery [2].

Abnormal rotation of midgut can be present in different kinds [4]. At six weeks of prenatal stage, the normal rotation of midgut are stopped after 90o of rotation; the proximal small bowel is located on the right side and colon on the left side of abdomen in this case it is called type I malrotation. Whereas, in type II, the malrotation happens at age 6-10 weeks of age and affect adversely on the normal rotation of duodenum. The condition is exaggerated in Type III of midgut malrotation, which generally occurred after 10 weeks of life, where the duodenum only completes 90^{o} of additional rotation. Ladd's bands which composed of fibrous bands humped over the 2nd part of the duodenum adhering the cecum to the right upper quadrant [5].

The anatomic anomalies in most patients are found during the neonatal stage or during the 1st year of life complaining from bowel obstruction, like abdominal pain, bilious vomiting, and distention, as a result of obstruction from midgut volvulus or Ladd's bands [6,7].

During adult life, diagnosis of intestinal malrotation is tremendously unusual, because in most cases are without symptoms, or occasionally can be discovered by chance at autopsy or during surgical operation [8].

During the bariatric surgery, it is observed that the MM anomaly is uncommon and represent only 0.025% of the cases and in all patients type I intestinal malrotation was predominate and discovered only during during the procedure of diagnosis or surgery.

Therefore, coformation of the laparoscopic gastric bypass anatomy and technical orientation can differ and would need an alternate operative methods needing technical adjustments [3].

Aim:

The aim of this study is to improvise a new technique in a patient candidate for bariatric surgery with intestinal mal-rotation.

2. Patients and methods:

The current study was a cohort retrospective study carried on five subjects with mid-gut malrotation out of 6000 patients who underwent different bariatric surgeries. Three patients were males with ages 35, 45and 48 years and two females with ages of 43 and 58 from El- Demerdash university hospital and other private hospitals starting from the date march 2016 till August 2019.

Ethical construction:

Ethical permission for study was obtained from the patients which were fully informed about all the study procedures and their consents were acquired.

Follow up was completed on the 5 cases for the first 24 hours for bleeding and leakage.

Procedure:

All patients underwent "one anastomosis gastric bypass"(OAGB), in a standardized modified technique, which was used for all patients with malrotation.

After positioning of the patient, preparation and toweling, introduction of five trocars to the abdomen was done.

Upon introduction of the laparoscope into the abdominal cavity for one anastomosis gastric bypass (OAGB), we find all the colon crowded in the left side of the abdomen, while the small intestine is crowded in the right side of the abdomen. Also, one of the hallmarks of the malrotation of the intestine is that the duodenum is not retroperitoneal and is found superficial in the right hypochondrium. (**Figure 1**)

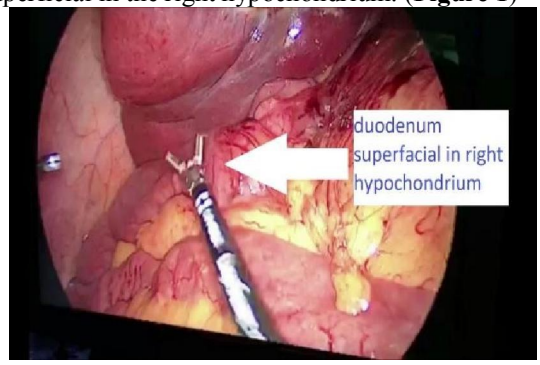


Figure 1

We start by formation of the gastric pouch (**Figure 2**).

Figure 2

Then we try to identify the duodeno-jejunal (DJ) junction, which cannot be found in its usual place (left hypochondrium), so we search for the DJ in the right hypochondrium which is easy because the duodenum is superficial. After we find the DJ we calculate about 2 meters, and we proceed in making the gastro−jejunostomy from right to left (and not as usual from left to right), so a reversed anastomosis of OAGB is formed to respect the anatomical aberration, and to follow the anatomy in the case of malrotation. **(Figure 3)**

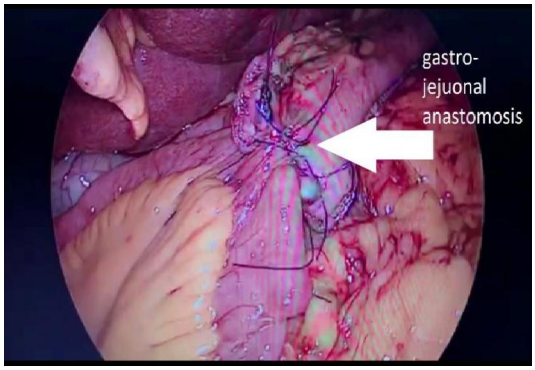


Figure 3

Notes related to individual cases

Case no 2: had endometriosis and underwent previous appendectomy. **(Figure 4)**

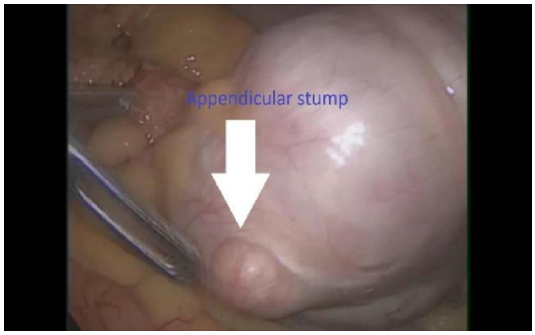


Figure 4

Due to presence of endometriosis, massive adhesions were present so extensive adhesiolysis was done**. (Figure 5)**

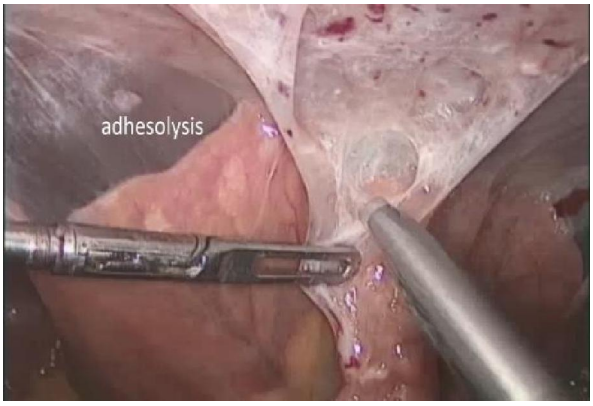
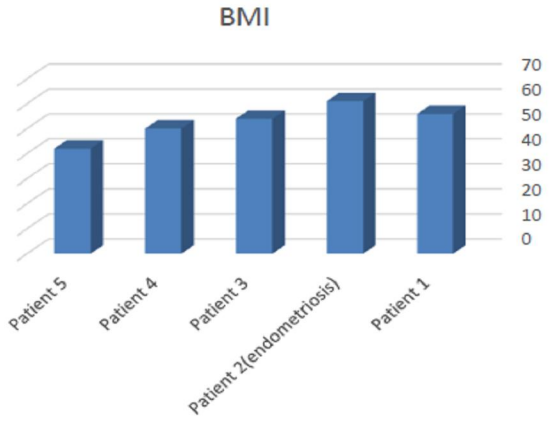


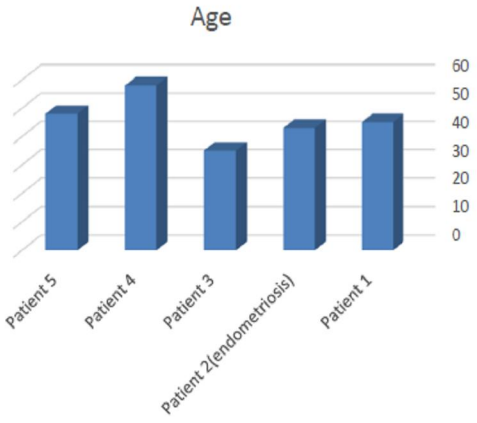
Figure 5

3. Results:

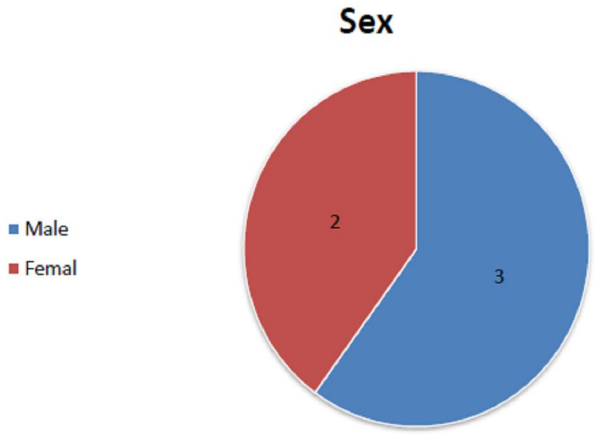
Preoperative

	Mean	Range
BMI	52.6 k.g/m2	42-61 k.g/m2
Age	45.8	35-58



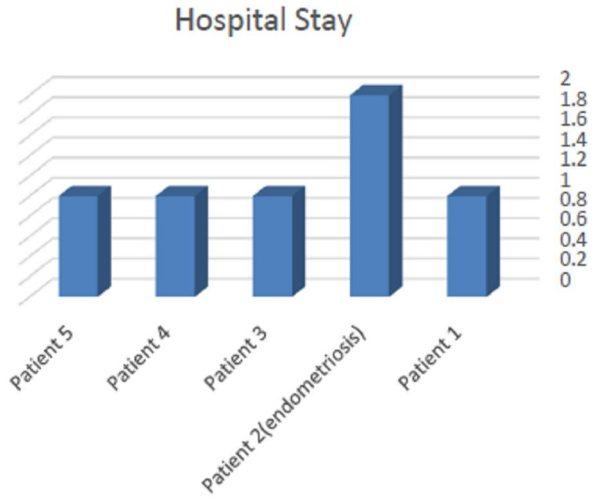


Sex	Male	Female
Numbers	3	2
Percentage	60%	40%



Postoperative outcome:

	Mean	Range
Hospital stay	1.2 day	1-2 days
Bleeding	None	None
Leakage	None	None



	BMI (kg/m2)	Age (years)	Hospital Stay (days)	Sex
Patient 1	56	45	1	M
Patient 2(endometriosis)	61	43	2	F
Patient 3	54	35	1	M
Patient 4	50	58	1	F
Patient 5	42	48	1	M
Mean	52.6	45.8	1.2	

4. Discussion

Our research revealed that the incidence in our patients was 0.0833 (5/6000), this agrees with ***Eduardo et al.*** [3] who found that in bariatric surgery the anomaly of MM is rare occurring in 0.00025.

In our study MM is more common in females than in males (2 females and 3 males), with the mean age being 45.8 years (ranging from 35 to 58 years). This in accordance with ***Eduardo et al.*** [3], who found all of their patients were male, aging range from 37 to 52 years, and disagrees with ***Zubaidah* et al.** [9] who found that the majority of gut malrotation patients were females with median age 34 years.

In our patients it ranged from42 to 61 kg/m^2, wth the mean BMI being52.6 kg/m^2. This is in accordance with ***Zubaidah et al.*** [9] who found that median preoperative BMI was 51 kg/m^2, while ***Eduardo et al.*** [3] found that the BMI mean was 35 kg/m^2.

Our patients were discharged within 24 hours except 1 female patient who was discharged after 48 hours because she had endometritis. This disagrees with ***Eduardo et al.*** **[3]** who demonstrated that his patients were discharged within 72 hours after the procedure, and also disagrees with ***Zubaidah et al.*** **[9]** whose their patients' hospital stay was 4 days.

In this study no patients exhibited post-operative bleeding, bowel obstruction or leakage. Although a different procedure was used, this agrees with ***Eduardo et al.*** **[3]** who revealed that no leakage, bowel obstruction or bleeding were identified in post-operative period. And also this disagrees with ***Gibbs et al.*** **[10]** who demonstrated that one case of small bowel obstruction, that occurred one week post-operatively due to internal hernia, that required laparoscopic exploration. Also In normal subjects who undertake gastric bypass, the frequency of bowel obstruction due to internal hernia ranges from 3.1%to 16%. [11] There are a predictive sites for occurring of internal hernia, One of the common possible places is the Peterson's space, where there are a defect amid the small bowel loops implicated in the bypass and the transverse meso-colon. The second probable place of inducing internal hernia is the mesenteric fault at the location of jejuno- jejunostomy. In this study an internal hernia were not recorded among patients following OAGB bypass in MM patients, as we don't cause any defects that allow for internal hernia.

Conclusion:

Laparoscopic bariatric surgery can be performed successfully in malrotation patients. In such condition, some crucial changes are required in the surgical original technique concerning the malrotation of midgut patients. Surgeons must examine thoroughly the abdominal anatomical structures before initiation of to start the stomach division**.**

Malrotation midgut is a uncommon congenital anomaly occurred during the gestational stage in many types (I-III), and not considered an obstacle for performing weight loss surgery in case of the surgeons are skillful, knowing well the anatomic structures of the abdomen which enable him to overcome any unexpected perioperative results. This malformation in the gut not usually discovered during routine examination of patient but incidentally during the surgery, In the same time bariatric surgery can be performed in safety in MM patients with excellent outcomes. On the other hand, perfect result of patients complaining from MM can merely be gotten in a large numbers of trials.

References:

1. Gary Ko, Andrew Smith and Scott Cassie et al. Incidentally discovered intestinal nonrotation at time of bariatric surgery: Which operation to perform? / Surgery for Obesity and Related Diseases 15 (2019) 424–430.
2. Re-do Roux-en-Y Gastric Bypass in a Patient with Known Midgut Malrotation, Karim MA et al. JSLS (2013)17:463–467.
3. Eduardo Arevalo Vidal1, Francisco Abarca Rendon Et Al Intestinal Malrotation In Patients Undergoing Bariatric Surgery Abcd Arq Bras Cir Dig 2016;29(Supl.1):24-26.
4. Berrocal T, Gayá F, de Pablo L. Embriologic, clinical, and radiological aspects of intestinal malrotation. Radiologia 2005; 47:237-52.
5. Strouse PJ. Disorders of intestinal rotation and fixation ["Malrotation"]. Peadiatr Radiol. 2004; 34(11):837–851.
6. Penco JMM, Murillo C, Hernandez N, et al. Anomalies of intestinal rotation and fixation:

consequences of late diagnosis beyond two years of age. Pediatr Surg Int. 2007; 23:723–30.
7. Pickhardt PJ, Bhalla S. Intestinal malrotation in adolescents and adults: spectrum of clinical and imaging features. AJR 2002; 179:1429-35.
8. Palepu RP, Harmon CM, Goldberg SP, Clements RH. Intestinal Malrotation discovered at the time of laparoscopic Roux-en-Y Gastric Bypass. J Gastrointest Surg. 2007; 11:898–902.
9. Zubaidah Nor Hanipah; Raul J Rosenthal The Outcomes Of Bariatric Patients With Gut Malrotation ASMBS E-Poster Abstracts / Surgery for Obesity and Related Diseases 14 (2018) S99–S196.
10. Gibbs KE, Forrester GJ, Vemulapalli P, et al. Intestinal malrotation in a patient undergoing laparoscopic gastric bypass. Obes Surg. 2005; 15:703–706.
11. Mazziotti MV, Strasberg SM, Langer JC, et al. Intestinalrotationabn or malities without volvulus: the role of laparoscopy. J Am Coll Surg. 1997; 185:172–76.

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