

Long Gastro-Jejunostomy. A rescue procedure for failed staple line after Gastric Sleeve in Duodenal Switch patient

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Abstract: Background. Vertical Gastrectomy (VG) is an integral part of Duodenal Switch (DS). Failure of the gastric staple-line in DS usually happens close to Esophagogastric Junction (EGJ) and involve the last few centimeters of staple-line, and is more common after revisional bariatric surgery. **Case report.** A 56 years-old super obese, BMI- 56, women with a history of two previous failed VBG gained all her weight back. She underwent open DS and methylene blue test and as well as Upper Gastrointestinal (UGI) on the third day after surgery study was done to rule out for leak. Her post surgical recovery was uneventful. On a seventh post operative day the patient irresponsibly ate red meat which led to severe uncontrollable vomiting. At Emergency UGI with a Gastrographin followed by CT scan rule out staples line disrupter. Methylene Blue has been given orally which was picked up by Jackson Pratt (JP) drain located along the sleeve. Esophago-gastro-duodenoscopy (EGD) performed next morning showed 4 to 5 cm separation of the staples line. Patient underwent exploratory laparotomy, closure of gastric perforation and drainage with two JP. Patient was recovering well till a week later when JP drains output became purulent. The patient had a re-laparotomy again and long 10 cm Gastro-jejunosomy on a Roux limb has been performed. This time recovery was uneventful and 12 days later patient went home. UGI and CT scan done before discharge were negative. Patient went home tolerating full liquid diet.

Keywords: Revisional bariatric surgery; gastric sleeve; staples line failure; long gastro-jejunosomy; duodenal switch

Introduction:

Vertical Gastrectomy (GV) is a restrictive component of Duodenal Switch (DS). During revision from other failed

bariatric procedures the stomach is often converted to a sleeve. This revision can be difficult because surgeon has to deal with a changed anatomy, multiple adhesions and compromised blood supply. Removal of bands and

meshes or reconnection of pouch with a previously excluded part of the stomach cause additional damage to the tissue, and a new staple-line very often has to be applied over the old ones compromising blood supply even more. All of these factors cause a significant tissue trauma making complications after revision bariatric surgery more common. Failure of the staple-line is the most dreadful complication. Small leaks can be treated conservatively but bigger ones usually required surgical closure.

Case report:

A 56 year old super morbidly obese woman, BMI-56, had been scheduled for DS operation after failures of two previous open Vertical Banded Gastroplasty (VBG). The first VBG has been performed in 1974 and was revised secondary to obstruction on the band level which caused excessive weight loss. Another VBG had been performed in 1982 but was completely unsuccessful with a minimal weight loss in the early phase and weight gained soon after. She had appendectomy in 1963, cholecystectomy in 1974, abdominoplasty and breast reduction in 1982 and hysterectomy in 1984. She had hypertension, sleep apnea, gastro esophageal reflux (GER), arthritis, lower back pain syndrome and depression.

Revision to DS was performed in February of 2008 by exploratory laparotomy, lysis of adhesions, a 250-60 DS and insertion of 2 JP drains. The Vertical Gastrectomy (VG) was done over 36 French Hurst dilator, and GI 100 cm long linear staplers with green reloads were used. Line of transection has been reinforced by inverting a staple-line Lambert-type with 2-0 silk. The Marles mesh had eroded completely and was identified inside the resected part of the stomach. Methylene blue has been injected to the sleeve, and there was no leak and the volume size of the stomach was approximately 80 ml.

After operation minimal drainage of bile from lacerated liver was seen in JP drain. Pathology of resected stomach showed "chronic gastritis with erosions and ulcerations and multiple adhesions".

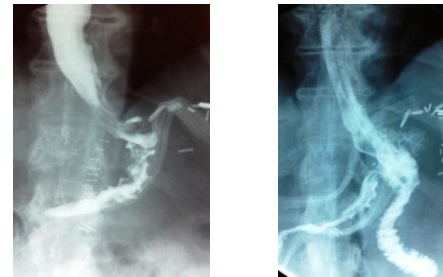


Fig. 1: DPO. No leak at the sleeve Fig.2: Sleeve and Diversion

On the second post day (2POD) the UGI (Fig.1) with Gastrographin under fluoroscopy did not show contrast extravasations nor stenosis or narrowing with a free flow of contrast to the small bowel.

The patient was discharged home on 4POD in good, stable condition; afebrile and tolerating clear liquid diet with a minimal bilious discharge from JP drain. She went home on Nexium, Zofran, Vicodin and very specific instructions about diet and activity.

She was very well informed about dietary and activity restrictions for another 6 weeks. On a 7POD the irresponsible patient ate red meat which led to severe uncontrollable vomiting. On the 8POD the patient called surgeons office and reported changing of JP drain drainage from straw-greenish to brown. She admitted that day before she ate steak and almost instantly started vomiting which were very forceful and lasted for some time. Otherwise she was still afebrile with no pain and tolerating diet well. She went to the hospital where UGI and CT scan with IV and oral contrast were done. Both of the tests were negative. But Methylene blue taken orally had been picked up by JP drain.

The UGD endoscopy performed next morning confirmed the diagnosis of leak by showing 4 to 5 cm separation of the staples line started at EGJ. She underwent an exploratory laparotomy and closure of defect with a 1-0 silk interrupted stitches. Blue test after procedure was negative, 2 JP drains were placed above and below repaired area. Wound was left open with a Wound-vac in place.

By the 7POD recovery was very satisfactory but the JP drainage became purulent. The UGD confirmed reopening of the previously closed area and additional 4 to 5 cm separation below. The situation has been presented to the patient and her family, and the options of conservative and surgical treatment explained. But the option of a long gastro-jejunostomy was chosen despite

the fact that this type of operation has not been performed before, especially in this specific and complicated situation. In these circumstances long gastro-jejunostomy appeared to be the most logical option.

Few days later patient underwent a planned operation. During an operation Roux limb has been made of the alimentary loop by transecting jejunum 50 cm below the Treitz ligament than placed in a retro colic fashion on the level of perforated stomach. After making a 10 cm longitudinal enterotomy on the anti-mesenteric border a side-to-side gastro-jejunostomy has been completed with an interrupted o silk sutures. Small bowel continuity was restored 50 cm below Treitz with Endo GIA stapler 60 blue reload. Methylene blue test didn't show dye extravasations and 2 JP drains were placed. Since then patient recovery was uneventful. UGI (Fig. 2) and CT scan performed on the 5POD did not show extravasations and EGD done on 11POD after the last surgery showed intact anastomosis. JP drains had been removed and patient was discharged home next day. 12 months after surgery she is BMI - 33 and she was free from all her medical problems.

Discussion:

VG is an integral part of DS and recently have gained popularity also as an isolated bariatric procedure. Staple-line failure causes leaks and is one of the most dreadful complications related to this operation. Leaks after sleeve are rare (0.5-3.5%) and more so with larger pouches (more than 120 ml). When size of the sleeve decreased the leaks rate increased what it may be related to resections very close to the EGJ.

These leaks are usually costly, with high morbidity and unfortunately if not successful can lead to patient death. This problem very often required a second surgery, multiple endoscopies, prolong parenteral or enteral nutrition, IV antibiotics and multiple additional procedures. Clips application, stents placement or Fibrin Glue injections are the most common not surgical methods to control a leak. Unfortunately sometimes none of these methods work and chronic gastric fistula will require definite surgical solution like for example a partial or total gastrectomy.

This VG technique cause excessive tension on tissue and possibly compromised blood supply to the cardias which manifest with a late leak. Leaks are more common in

revisions cases when additional elements like adhesions, thickened tissue, old staples and increased inflammation. Small leaks can be controlled conservatively by drainage, IV antibiotics and nutritional support. Stents and Fibrin glue are helpful in control of gastric fistula. Baltasar [1,2] thinks that a "high pressure chamber" with low compliance can lead to some extent and explains why closure of gastric fistula is so difficult especially when compare to very similar leaks after Roux-en-Y gastric bypasses gastric pouches. Emptying of the sleeve is much faster than normal stomach especially in the area of antrum if there are no obstructions.

Unfortunately surgical closure of gastric fistula is very rarely successful. Time to close fistula can vary from weeks to months but unfortunately sometimes despite all the efforts this task is impossible. In this situation Gastrectomy with esophago-jejunal anastomosis is necessary. Baltasar [1, 2] describes closure of small gastric fistula with gastro-jejunostomy by connecting surgically enlarged gastric opening to jejunum. In the case presented here the separation of the staples was 10 cm long and almost 1 cm wide making conservative treatment almost impossible. In our opinion a long gastro-jejunostomy if feasible was the best option in this situation. The stomach is then connected with a fresh and well vascularized small bowel, anastomosis was performed without tension and a "high pressure sleeve chamber" is been decompressed by a "low pressure small bowel loop". It is a rescue operation which saved this patient from Gastrectomy or prolonged and never certain conservative treatment.

Conclusion:

VG as part of DS or as an isolated, independent procedure, (especially revisions) can be complicated by leak and formation of gastric fistula. In this specific case the patient's lack of responsibility led to surgical disaster. A long gastro-jejunostomy not only saved patient stomach but saved this patient life. This procedure should be kept in the mind of any surgeons facing difficult decisions when dealing with a difficult to close or complicated gastric fistula.

Disclosures

The author has no commercial association that might be a conflict of interest in relation to this article.

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