



Management of Gastric Leak after Sleeve Gastrectomy

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Abstract: We present an unusual case of gastric leak who had sleeve gastrectomy 16 days ago for morbid obesity. 39 years old female with no co-morbid discharged on 2nd post-operative day from hospital. On 16th post-operative day, she presented with history of fever. A small leak at esophagogastric junction was seen on CT scan and managed by gastric stenting. Interestingly, after two weeks, she passed the stent through rectum before planned removal.

Keywords: Sleeve gastrectomy, morbid obesity, gastric stenting.

INTRODUCTION:

In the history of bariatric surgery of first quarter of 21st century, Sleeve gastrectomy (SG) is most popular bariatric operations (Stefura, T. *et al.*, 2020). Also, it is one of the most frequently areas under consideration in the field of weight reduction surgery. Most of the bariatric surgeons believe that SG is an ideal procedure in the treatment of morbidly obese patients. As far as comorbidities related to obesity like type 2 diabetes mellitus, dyslipidaemia and hypertension are concerned, SG is proved to be a reasonably good procedure in achieving desired results as well as to achieve satisfactory loss of excess body weight (Van Rutte, P. W. J. *et al.*, 2014). One option in the treatment of morbidly obese patient is a two stage approach. SG is done as step one or initial procedure, but SG is also implemented as primary or single bariatric operation (Diamantis, T. *et al.*, 2014; & Jędrzejewski, E. *et al.*, 2018). In addition, compared to laparoscopic single anastomosis mini gastric bypass (MGB) or laparoscopic Roux-en-Y gastric bypass (Gounder, S. T. *et al.*, 2016; & Gounder, S. T. *et al.*, 2017) (LRYGB), SG tends to be more cost-effective choice of treatment. SG has attracted remarkable interest in the area of obesity surgery over the last few years. This technique does not require intestinal bypass or gastro intestinal anastomosis. It is considered less technically complex than gastric bypass laparoscopic Roux-en-Y (LRYGB). SG also prevents the implantation of an artificial device such as an adjustable gastric banding technique (LAGB) around the stomach where the inflatable silicone device is positioned around the top portion of stomach to minimize the food intake.

CAST HISTORY:

We present an unusual case management of gastric leak who had laparoscopic sleeve gastrectomy for morbid obesity. 39 years old Mrs. XYZ, multipara discharge on 2nd post-op day from hospital. She remained alright for 15 days till she presented in outpatient department with history of spike of fever and mild pain on left side of abdomen. There was mild tachycardia of 96 per minute, temperature 99 and blood pressure within normal range.

Routine tests showed raised TLC count to 17000. Patient was admitted and water soluble oral contrast CT Scan was arranged on the same day. A small leak at esophago-gastric junction is seen. There was minimal collection present in left hypochondrium. Intravenous broad spectrum antibiotics started and she kept nil per oral with IV fluids. Multidisciplinary approach applied and case discussed with radiologist and endoscopist. Team decided to do an aspiration of collection under ultrasound guidance followed by stenting to prevent further leak. On second day. When ultrasound scan was done for aspiration of collection, radiologist+ decided not to intervene as collection decrease to minimal within 24 hours with broad spectrum antibiotics. Coated stent was placed by senior endoscopist who himself is a bariatric surgeon. Oral diet started within 24 hours. Patient was kept in hospital for next three days till TLC count comes back to normal. Most interesting part of this case report is 3 weeks after discharge, re endoscopy was done and endoscopist was surprised to see no stent present in the stomach. Later on patient told that she passed black coloured tube with faeces but she never informed this to family or to the team of doctors. Although she was explained many time that endoscopy was planned to remove the stent that was placed initially.

DISCUSSION:

After SG, number of complications can occur in the post-operative period like any other surgical procedure. DVT followed by pulmonary emboli, haemorrhage, chest infections, abscess, relaparoscopy for retained piece of drain, anatomic leakage, wound infections, incisional hernia, gastroesophageal reflux disease (GERD), and rhabdomyolysis are some common complications. Also, bloating, flushing, diarrhoea and light-headedness can occur one hour after eating and may be due to dumping syndrome. As far as deficiency of nutrients and vitamins are concerned, vitamin B12, vitamin D and calcium are more common than others.

Out of all of the above mentioned complications, leak from staple line following LSG remain the most important and can be life threatening (Gagner, M., & Kemmeter, P. 2020). 10 years ago, chances of leak were 7% as documented in literature. With the passage of time, bariatric surgeons understand more the physiology, anatomy and preoperative preparation, more advanced stapling devices and experience in this relatively new field, leak rate drop down to 1.5%. There are 3 types of leaks usually encountered after SG. First is early which occurs within 1-3 days. Intermediate category occurs between 4 to 7 days and late occurs after 8th post-op day.

In the last few years, several techniques have been practiced, few are re enforcement of staple-line by intracorporeal suturing, stitching omentum with staple line and many more. On the other hand, staple line buttressing is considered the safest technique by vast majority of experienced surgeons. (75%), (International Consensus Conference 2011) (Rosenthal, R. J., & Panel, I. S. G. E. 2012). Contrary to this, another published study indicated that increased leak rates may actually be correlated with reinforcement of the staple rows. Using reinforcement technique, the average leak rate was 2.1 percent, with the lowest rate in absorbable permeable membrane reinforced staple line of 1.09 percent (Metabolic and Bariatric Surgery Accreditation Quality Improvement Program data base). Dissection with protection of healthy tissue by decreasing thermal damage, minimal tissue trauma, avoiding of narrowing near the incisura angularis, avoiding of stapling along the esophagus and selection of acceptable staple height are improvements in surgical technique.

The Michigan Bariatric Collaborative Group has previously indicated that more skilled and higher volume surgeons use intrusion. In addition, several articles have been published in the last 5 years showing that lower leak rates are seen in patients with SG where surgeons improve the suture staple line. Author himself do not use any strategy to strengthen or reinforce staple line. Nonetheless, recent randomised research comparing the use of a running suture with invagination

to no reinforcement showed a decrease in leakage rates for the suturing process, although this came at a higher operating time cost. In addition, there is evidence that at a 6 months post-surgery, staple line buttressing with APM can potentially be more cost-effective. As the two reinforcements with the lowest leak rates were the APM and suture, this distinction warrants further analysis.

The gastric tissue in the antrum is thicker. To begin stapling and cutting during SG, it is recommended that tall staples be used at antrum as compare to the cardia where the stomach thickness is relatively small or less. If we use tall staples here, there is a chance of incomplete staple line closure result in loose cut margins of gastric resection with too high staple load. With most leaks occurring near the gastroesophageal junction on the proximal staple line, the thinner wall may be at high risk of injury due to uneven staple compression or insufficient tissue approximating compression.

Other very important element is blood supply of gastroesophageal junction. Extra dissection in this area can eliminate or reduce blood supply at proximal end of stomach. Probably ischemia is the single most important factor making this area ischemic and prone to leak in addition to the experience of surgeon in this relatively new field (Varban, O. A. *et al.*, 2017).

REFERENCES:

1. Basharic, F. A., OlyaeManesh, A., Raei, B., Goudarzi, R., Zozani, M. A., & Ezzatabadi, M. R. (2017). Cost-effectiveness of laparoscopic sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass in two hospitals of Tehran city in 2014. *Med J Islam Repub Iran*. 2017;31,124-9.
2. Diamantis, T., Apostolou, K. G., Alexandrou, A., Griniatsos, J., Felekouras, E., & Tsigris, C. (2014). Review of long-term weight loss results after laparoscopic sleeve gastrectomy. *Surgery for Obesity and Related Diseases*, 10(1), 177-183.
3. Gagner, M., & Kemmeter, P. (2020). Comparison of laparoscopic sleeve gastrectomy leak rates in five staple-line reinforcement options: a systematic review. *Surgical endoscopy*, 34(1), 396-407.
4. Gounder, S. T., Wijayanayaka, D. R., Murphy, R., Armstrong, D., Cutfield, R., Kim, D. D., ... & Booth, M. W. (2016). Costs of bariatric surgery in a randomised control trial (RCT) comparing Roux en Y gastric bypass vs sleeve gastrectomy in morbidly obese diabetic patients. *NZ Med J*, 129(1443), 43-52.
5. Jędrzejewski, E., Liszka, M., Maciejewski, M., Kowalewski, P. K., Waleński, M., Pańnik, K., & Janik, M. R. (2018). Age is not associated with increased surgical complications in patients after laparoscopic sleeve gastrectomy. *Videosurgery and Other Miniinvasive Techniques*, 13(1), 82.

6. Rosenthal, R. J., & Panel, I. S. G. E. (2012). International Sleeve Gastrectomy Expert Panel Consensus Statement: best practice guidelines based on experience of > 12,000 cases. *Surgery for Obesity and Related Diseases*, 8(1), 8-19.
7. Stefura, T., Kacprzyk, A., Droś, J., Chłopaś, K., Wysocki, M., Rzepa, A., ... & Major, P. (2020). The hundred most frequently cited studies on sleeve gastrectomy. *Videosurgery and Other Miniinvasive Techniques*, 15(2), 249–267
8. Van Rutte, P. W. J., Smulders, J. F., De Zoete, J. P., & Nienhuijs, S. W. (2014). Outcome of sleeve gastrectomy as a primary bariatric procedure. *British Journal of Surgery*, 101(6), 661-668.
9. Varban, O. A., Sheetz, K. H., Cassidy, R. B., Stricklen, A., Carlin, A. M., Dimick, J. B., & Finks, J. F. (2017). Evaluating the effect of operative technique on leaks after laparoscopic sleeve gastrectomy: a case-control study. *Surgery for Obesity and Related Diseases*, 13(4), 560-567.