BLEEDING AFTER SLEEVE GASTRECTOMY

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Abstract:

Postsurgical complications after sleeve gastrectomy can be divided into early and delayed. Haemorrhage is considered to be one of the most common early complications after sleeve gastrectomy [1]. Incidence of hemorrhage post LSG has been reported in 1.1–8.7% of cases [5]. Sleeve gastrectomy is still relatively new and a thorough literature review does not produce any meaningful reviews on hemorrhage. It seems that hemorrhage is actually quite rare and may reflect the fact that most surgeons performing this procedure and publishing on it are already very experienced with gastric bypass surgery and are well past the learning curve for bleeding prevention. The authors present their experience of the common site of bleeding during LSG and the ways to limit them.

Introduction:

Postsurgical complications after sleeve gastrectomy can be divided into early and delayed. Haemorrhage is considered to be one of the most common early complications after sleeve gastrectomy [1]. Incidence of hemorrhage post LSG has been reported in 1.1–8.7% of cases [5].

Possible causes include lengthy staple line and the change in intra-gastric pressure. Another important risk factor for increased postoperative bleeding is preoperative low molecular weight heparins used for prevention of venous thromboembolism [2-4]. Chronic bleeding in LSG however is very uncommon and related to ulcers that may develop within the remnant stomach.

Postoperative bleeding can be classified based on bleeding site into intra-luminal bleeding (ILB) into the gastrointestinal tract or intra-abdominal bleeding (IAB) into the abdominal cavity [6-8].

Intraluminal bleeding from the staple line usually presents with an upper gastrointestinal bleed as hematemesis or later on melena stools, in addition to tachycardia and hypotension. Management of intraluminal bleeding was conservative [9].

Intra-abdominal hemorrhage presents in the abdominal cavity and early indication of intra-abdominal bleeding will be through the abdominal drain [10]. Intra-abdominal bleeding usually presents with a serial drop in serum hemoglobin levels and/or signs of tachycardia or hypotension.

Common sources for intra-abdominal bleeding include the gastric staple line, spleen, liver or abdominal wall at the sites of trocar entry [11,9]. An increased risk of hematoma developing and abscess formation is found as a result. Early bleeding through drains or NG tube is called a sentinel bleed and it usually can occur within hours of surgery [12-15].

Sleeve gastrectomy is still relatively new and a thorough literature review does not produce any meaningful reviews on hemorrhage. It seems that hemorrhage is actually quite rare and may reflect the fact that most surgeons performing this procedure and publishing on it are already very experienced with gastric bypass surgery and are well past the learning curve for bleeding prevention.

We present our experience of the common site of bleeding during LSG and the ways to limit them.

Materials and Methods:

This is a retrospective analysis of 276 morbidly obese patients who were collected from centre for digestive and liver disease, Department of surgical and gastroenterology, minimal access and bariatric surgery New Delhi, India. The patients underwent laparoscopic sleeve gastrectomy (LSG) in the period between June 2007 till February 2012. An aggregate of 03 patients out of the 276 presented by post LSG bleeding. After pre operative optimisation patient were taken for surgery.

Table -1 : Demographics of the 276 LSG patients (mean ± SD)

Age	36±12.3 years
preoperative weight	122±26Kg
preoperative BMI	45.31±9.23Kg/m2
Male to Female ratio	1:4

Technique:

Standard technique of Ren et al with some modification was followed. Division of gastrocolic momentum with harmonic scalpel starting 4 cm from pylorus. Longitudinal resection of stomach on the greater curvature done with endo GI staplers (Green/Golden depending on part of stomach) over 28F bougie . Check for blood pressure after resection and relook for bleed from stapled line. Specimen extracted through 12mm port without any protection. 12mm port site closed in layers.

Results:

Significant bleeding requiring blood transfusion occurred in 3/276 patients(1.08%). In one patient bleeding was from splenic capsular tear and a splenectomy was done, whereas in another source was not identified however blood was seen coming from the splenic bed so splenectomy was done .Patient died on second postoperative day due to ARDS. Another patient with uneventful procedure, had posted tachycardia, fall in haematocrit, with a USG evidence of small collection responded to blood transfusion alone.

Discussion:

Post-operative bleeding is certainly the most common and early complication. Usually it occurs during the first or second postoperative day. It was found that the most common and major early complication is certainly the post-operative bleeding, which can occur in up to 16% of patients, with reported average of 3.6% [16]. We found that our early intervention has decreased the hospital stay, decreased the risk of infection, decreased risk of blood transfusion, and speeded up the patient recovery and normal lifestyle comeback.

In our study the incidence of post- operative bleeding was 1.08% while it was found that the incidence of hemorrhage post-LSG has been reported in 1.1-8.7% of cases [6]. The updated position statement from the American Society of Metabolic and Bariatric Surgery reports hemorrhage in 28 of 2367 patients (1.2%), but does not specify the nature of hemorrhage. This same data set was updated by Brethaser et al [2] and included 2570 patients in 36 studies revealing a hemorrhage rate of 1.6% in high-risk patients and 1.0% in patients undergoing the sleeve gastrectomy as a primary procedure. The First and Second International Consensus Conference on Sleeve Gastrectomy reported hemorrhage rates of 1.4% and 1.0%, respectively. These were self-reported polls and no additional details were provided presumably because of the low incidence of hemorrhage.

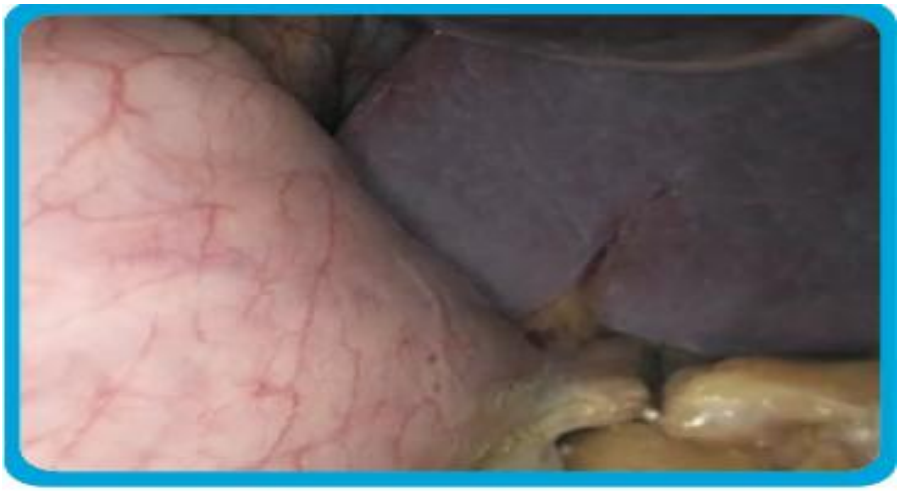
Securing Staple Line Bleed with Endoclip

In our study the most common site for bleeding was from spleenic injury. In our study mortality rate due to acute bleeding was 0.36% where as other studies it is 0.08%

In our study the choice of staple thickness vary with location on the stomach. In general, green staples are preferred over blue because the wire gauge is greater (green diameter 0.0094 mm and blue diameter 0.0088 mm) and the closed staple thickness is greater (green 2.0 mm and blue 1.5 mm). The thickest regions on the stomach tend to be the antrum and the cardia, and these are generally the locations of staple line dehiscence. The midfundus tends to be thinner and it may be reasonable to use blue cartridges in this location with the hope of reducing staple line hemorrhage.

Gastric Surface Vessel Bleed

It is possible for the staple line to appear dry after the bougie removal and then start bleeding in the recovery room during an episode of hypertension. As it may be impossible to control blood pressure on every patient, it is reasonable to try to reduce the incidence of early postoperative bleeding by either elevating bloop pressure intraoperatively upto 150 systolic and note for any bleeding alone stapled line, this will most likely reduce staple line bleeding complications significantly.[17]



Securing Short Gastric Vessel

Conclusion:

Following consideration can be taken into account to decrease post operative morbidity and mortality due to bleeding in laparoscopic sleeve gastrectomy.

1. Exclude any predisposing cause of bleeding.
2. Thorough knowledge of anatomy and important landmarks.
3. Deliberare and meticulous dissection with good video quality
4. Simple method of clipping and suturing just the bleeding points.
5. Stapler clamping time 1 minute
6. No per op air insufflation test.

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