Treatment of Early Complications: RGB/OAGB

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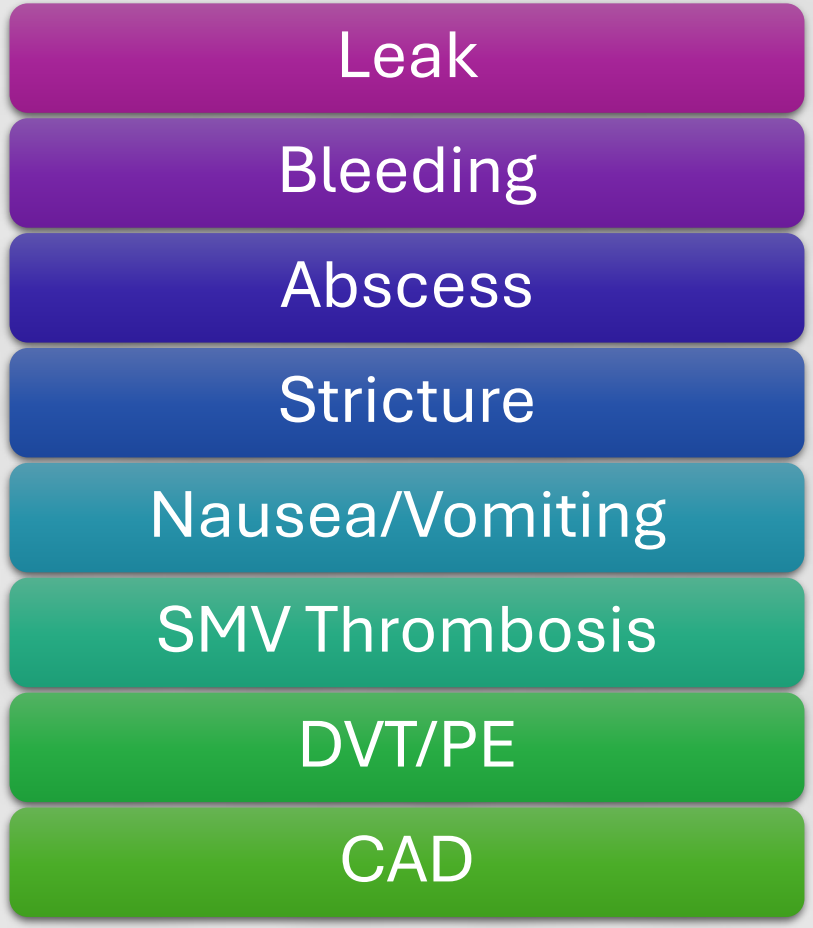
CONFLICT OF INTEREST DISCLOSURE

[ ] I have no potential conflict of interest to report

[X] I have the following potential conflict(s) of interest to report:

- Receipt of honoraria or consultation fees: Medtronic, Ethicon, WL Gore, Stryker, Novo Nordisk, Vivus

Types of Acute Complications



Incidence

- 2015- 2016, 243,747 patients had LRYGB or LSG
- Complications occurred in 5.48% of LRYGB patients and 2.28% of LSG patients and bleeding was most common
    - Ladak SOARD 2019

Incidence

- 71,694 bariatric surgery patients in NSQIP
- Leak in 441 (.6%) occurred 10 (5-15 days)
- DVT in 184 (.3%) occurred in 13 (7-20 days)
- PE in 134 (.2%) occurred in 11 (4-19 days)
    - Spaniolas SOARD 2016

Incidence

- Leak and PE developed after discharge in 275 (62.4%) and 96 (71.6%), respectively.
- Only 35 (26.1%) of the patients who developed PE had deep vein thrombosis.
    - Spaniolas SOARD 2016
- PE was cause of death in 3/5 patients
    - Higa, Obes Surg 2000

Incidence

- Review of 71 studies
- Less than 30-d anastomotic leak rate was 1.15%; myocardial infarction rate was 0.37%; pulmonary embolism rate was 1.17%
- Mortality rate after anastomotic leak, myocardial infarction and pulmonary embolism was 0.12%, 0.37% and 0.18%, respectively
    - Chang Obes Rev 2018

Identification

- Surgical Complications are usually leak or bleeding
- Medical complications are mainly thromboembolic or respiratory complications.
- Clinical signs can be atypical or insidious, often resulting in delayed management
- Respiratory signs can be predominant and lead erroneously to pulmonary or thromboembolic diseases.

- Montravers Anaesth Crit Care Pain Med 2015

Identification

- Upper GI series
- Upper Endoscopy
- CT Scan

Treatment

- Leak
  - Stable Patient
    - Stent
    - Drain
  - Unstable Patient
    - Explore
    - Drain
    - Suture if possible
    - Stent if feasible

› Surg Obes Relat Dis. 2017 Aug;13(8):1297-1305. doi: 10.1016/j.soard.2017.04.008. Epub 2017 Apr 8.

Management of acute intra-abdominal sepsis caused by leakage after one anastomosis gastric bypass

Nathan Beaupel [1], Matthieu Bruzzi [2], Thibault Voron [1], Haydar A Nasser [1], Richard Douard [1], Jean-Marc Chevallier [1]

- 17 patients
- The most frequent clinical sign was tachycardia (65%)
- Time between OAGB and leak diagnosis was 4 days
- Gastrojejunal anastomosis (GJA) leak was the most frequent source (41%)

› Surg Obes Relat Dis. 2017 Aug;13(8):1297-1305. doi: 10.1016/j.soard.2017.04.008. Epub 2017 Apr 8.

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Nathan Beaupel [1], Matthieu Bruzzi [2], Thibault Voron [1], Haydar A Nasser [1], Richard Douard [1], Jean-Marc Chevallier [1]

- Sixteen patients (94%) were managed surgically (laparotomy n = 11, laparoscopy n = 5) and one medically
- Six patients underwent an emergency conversion into Roux-en-Y gastric bypass (RYGB)

> Surg Laparosc Endosc Percutan Tech. 2023 Apr 1;33(2):162-170.
doi: 10.1097/SLE.0000000000001148.

Standardization of the One-anastomosis Gastric Bypass Procedure for Morbid Obesity: Technical Aspects and Early Outcomes

Nasser Sakran [1,2], Bassel Haj [1,2], Sjaak Pouwels [3,4], Jane N Buchwald [5], Salma Abo Foul [1], Chetan Parmar [6], Ali Awad [1], Jabra Arraf [1], Abdallah Omari [1], Mohamad Hamoud [1]

- 774 consecutive OAGB patients
- Early postoperative complications occurred in 16 cases (2.1%), including 2 leaks with an intra-abdominal abscess (0.3%), bleeding (n=3, 0.4%), acute kidney failure (n=1, 0.15%), urinary tract infection (n=2, 0.3%), and intensive care unit stay (n=4, 0.5%).

Surg Endosc. 2019 Jan;33(1):272-280. doi: 10.1007/s00464-018-6365-z. Epub 2018 Sep 19.

Postoperative bleeding after laparoscopic Roux en Y gastric bypass: predictors and consequences

Syed Nabeel Zafar [1], Kaylie Miller [2], Jessica Felton [1], Eric S Wise [1], Mark Kligman [3 4]

Affiliations expand

- Postoperative bleeding occurred in 652 (1.51%) patients
- 25.3% underwent a re-operation
- 14.9% had EGD for bleeding
- Postoperative bleeding was associated with a longer median postoperative length of stay (4 vs. 2 days), higher in-hospital mortality (1.23 vs. 0.04%), higher 30-day mortality (1.38 vs. 0.15%), discharge to an extended-care facility (3.88 vs. 0.6%), and higher rates of major complications

Treatment

- Bleeding
  - Stable Patient
    - Observe
    - Transfuse
    - Explore: 4 units in 24 hours as a guideline
  - Unstable Patient
    - Explore
    - IR embolization possibly (abdominal cocoon)

Scenario 1

- 60year old woman has an uncomplicated band to RGB. Post op day 1 she is slightly tachycardic with ambulation. Slight decrease of hgb from 12 preop to 10 POD1 am. Repeat is down to 8.
  - Received two units on POD1
  - No significant rise in hgb
  - Received two more units when repeat POD 2 went to 6.9.
  - Received one more unit POD3.
  - Stabilized and discharged POD 6

Scenario 1

- On follow up, POD 14, she had significant bruising of her abdominal wall
- She also recounts one episode of black stool and one episode of dark emesis in hospital
- Stable and rising hemoglobin post discharge

Scenario 2

- 48 year old female s/p band to rgb, has intermittent tachycardia to 120's POD 1-5 w associated shortness of breath. Ambulating, tolerating and passing PO trials for discharge. WBC elevated but then decreasing. POD 1 obtained chest PE protocol (neg for PE, small left effusion, postop changes LUQ).
- POD 5 had worsening SOB, tachycardia to 130's and an abdominal CT scan was ordered. CT scan shows luq fluid w some air suspicious for leak.
  - Laparoscopic exploration, washout, repair of pouch perforation, NGT, G tube in remnant and drainage
  - Tol diet, needed 6 weeks abx

> Surg Endosc. 2017 Jan;31(1):245-248. doi: 10.1007/s00464-016-4963-1. Epub 2016 May 13.

Value of routine polysomnography in bariatric surgery

Christel A L de Raaff [1], Annouk S Pierik [2], Usha K Coblijn [3], Nico de Vries [4 5 6], H Jaap Bonjer [3], Bart A van Wagensveld [2]

- A total of 1358 patients were included
- OSA was detected in 59.9 % (813) patients
- 29.8 % (405) patients were diagnosed with an AHI ≥15/h and 15.7 % (213) with severe OSA (AHI ≥30/h)
- Extreme AHI thresholds of ≥60 and ≥90/h were detected in 5.8 % (79) and 1.3 % (17 patients

J Anesth. 2014 Dec;28(6):891-7. doi: 10.1007/s00540-014-1848-0. Epub 2014 May 29.

Journal of anesthesia

STOP-Bang and the effect on patient outcome and length of hospital stay when patients are not using continuous positive airway pressure

Monika A Proczko [1], Pieter S Stepaniak, Marcel de Quelerij, Floor Haak van der Lely, J Frans Smulders, Lukasz Kaska, Mohammed A Soliman Hamad

- n = 693 patients
- Group A: 99 patients with OSA and used CPAP therapy before and after surgery
- Group B: 182 patients who had at least three STOP-Bang criteria but who were not diagnosed with OSA did not use CPAP
- Group C: the reference group, 412 patients who scored one to two items on the STOP-Bang.
- Group B patients had a significantly ($p < 0.001$) higher cumulative rate of pulmonary complications, worse oxygen saturation, respiratory rates, and increased length of stay in hospital
- There was also two cases of sudden death in Group B

- DPP-IV inhibitors and metformin are preferred after surgery
- Patients should be seen by a diabetologist within one month if on oral antidiabetic agents (71.8% of experts), 2 weeks if on injectable treatments (77.1% of experts), and immediately after surgery if on insulin pump (93.5% of experts)
- Long-term monitoring of HbA1c is necessary even if diabetes remission (100%)

› Br J Anaesth. 2019 Jul;123(1):27-36. doi: 10.1016/j.bja.2019.03.028. Epub 2019 May 3.

Perioperative diabetic ketoacidosis associated with sodium-glucose co-transporter-2 inhibitors: a systematic review

Venkatesan Thiruvenkatarajan [1], Emily Jane Meyer [2], Nagesh Nanjappa [3], Roelof M Van Wijk [3], David Jesudason [2]

- Perioperative diabetic ketoacidosis (DKA) with near-normal blood glucose concentrations, termed euglycaemic ketoacidosis (EDKA), is an adverse effect associated with sodium-glucose co-transporter-2 inhibitors (SGLT2i)
- Guidelines are still evolving concerning the perioperative management of patients on SGLT2i
- 42 reports of EDKA and five cases of hyperglycemic diabetic ketoacidosis (HDKA) were identified from 33 publications
- Canagliflozin (Invokana) was implicated in 26 cases

› Br J Anaesth. 2019 Jul;123(1):27-36. doi: 10.1016/j.bja.2019.03.028. Epub 2019 May 3.

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- Presentation time varied from a few hours up to 6 weeks after operation
- Precipitating factors may include diabetes medication changes, diet modifications, and intercurrent illnesses
- 13/42 cases (12 EDKA and one HDKA) had bariatric surgery (10 of them noted very-low-calorie diet regimes as a precipitating factor)
- No precise association between interruption of SGLT2i and the occurrence of DKA could be identified
- Seven patients required mechanical ventilation, and acute kidney injury was noted in five
- Five cases needed imaging to rule out anastomotic leak and pulmonary embolism, all of them had negative findings
- Outcome data were available in 32 cases and all recovered completely

› Surg Endosc. 2016 Jun;30(6):2231-8. doi: 10.1007/s00464-015-4483-4. Epub 2015 Oct 19.

Early hospital readmission after bariatric surgery

Mustafa W Aman [1], Miloslawa Stem [1], Michael A Schweitzer [1], Thomas H Magnuson [1], Anne O Lidor [2]

- The most common reason for readmission was **nausea/vomiting (12.95 %), followed by abdominal pain (11.75 %) and dehydration (10.54 %)**

Nausea/Vomiting

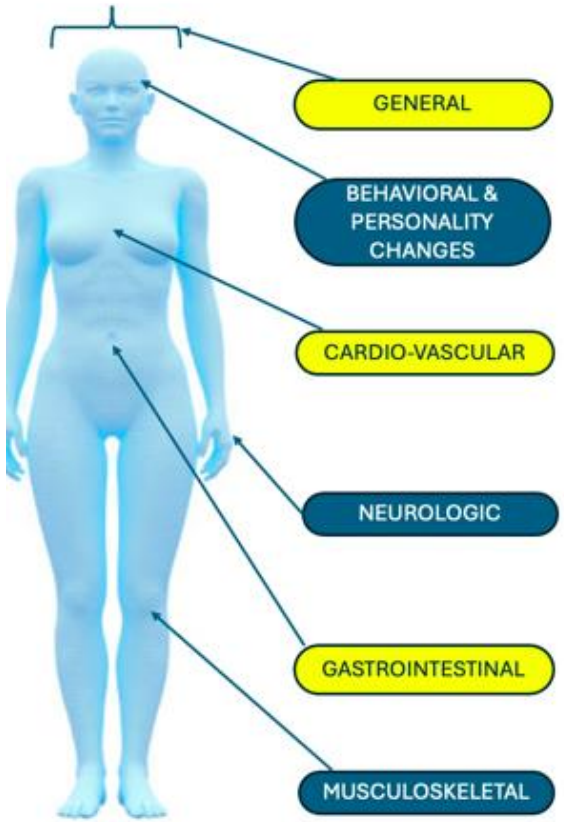
N/V and dehydration in 35% of readmissions

Thiamine Deficiency needs to be top of mind

SMV Thrombosis

- Abdominal pain as well
- Hypercoagulabe state in majority
- Mesenteric ischemia in 5-15%
- Mortality >20%

Wernickes/ Thiamine Deficiency



SIGNS	SYMPTOMS
Cold Excess weight loss	Hypothermia
Confabulation Hallucinations Apathy Executive dysfunction Mood instability Lack of Focus	Fatigue Lethargy Anger / Agitation Depression Psychosis
Hypotension Tachycardia Cardiomegaly Syncope	Edema Dyspnea
Memory issues Word finding Confusion Nystagmus Papilledema Oculomotor dysfunction	Diplopia Ptosis Decreased visual acuity Hearing loss Seizures Coma Paresthesia Numbness Tingling
Poor oral intake Constipation	Nausea Vomiting Anorexia Early satiety Abdominal pain
Ataxia Shuffling/wide gait Immobility Temporal wasting Trips / Falls	Muscle cramps Weakness / flaccidity Unsteady Paralysis

Postoperative Dietary Recs

- Variable
- Based on Individual/group Practice
- No data in literature about what is best
- Always give thiamine when patients come back w po intolerance.
- PO intolerance can be severe GERD.
  - PPI and H2 blocker

Presentation of portomesenteric thrombosis after one-anastomosis gastric bypass: Case report

Delaram Moosavi [1], Mahsa Taherzadeh [1], Somayeh Mokhber [1], Sajedeh Riazi [2], Abdolreza Pazouki [1]

- A 50-year-old menopausal female with a body mass index (BMI) of 38 was admitted with acute abdominal pain 10 days after one-anastomosis gastric bypass (OAGB). Her lab tests were normal, but in her abdominal CT scan with IV contrast, subacute complete intraluminal thrombosis with luminal expansion at the left branch of the portal vein and its segmental branches was seen

› Med Sci Monit. 2017 Apr 15;23:1819-1826. doi: 10.12659/msm.900769.

Monitoring of Hypercoagulability by Thromboelastography in Bariatric Surgery

Kristina Kupcinskiene [1], Darius Trepenaitis [1], Ruta Petereit [2], Juozas Kupcinskas [2], Rita Gudaityte [3], Almantas Maleckas [3], Andrius Macas [1]

- Fourteen patients (23.3%) out of 60 showed hypercoagulability prior to surgery on Thromboelastography (TEG)
- Fibrinogen levels were significantly higher in the Clot Strength G ≥11 group compared to the G <11 group, at 4.2 and 3.8 g/l, respectively (p=0.02).

Conclusions

Leak should be a high concern always

- Signs can be insidious

Endoscopic internal drainage of sleeves in stable or stabilized patients is preferable

Myocardial Infarction and Pulmonary embolus also of concern

Time is of the essence in treatment

Conclusions

- OSA or STOP-BANG evaluation is hepful in all patients
- Beware of SGLT2i medications and change in diet
- Readmissions for Nausea and Vomiting
  - Thiamine!
  - 500mg iv q8hr is max dose!