Update

ASMBS guideline on the prevention and detection of gastrointestinal leak after gastric bypass including the role of imaging and surgical exploration

The ASMBS Clinical Issues Committee

Received January 31, 2009; accepted February 4, 2009

Abstract

The following position statement is issued by the American Society for Metabolic and Bariatric Surgery in response to numerous inquiries made to the Society by patients, physicians, society members, hospitals, health insurance payors, the media, and others, regarding the complication of gastrointestinal leak after gastrointestinal bariatric procedures. In this statement, available data regarding leak are summarized and suggestions made regarding reasonable approaches to the prevention and postoperative detection based on current knowledge, expert opinion, and published peer-reviewed scientific evidence available at this time. The intent of issuing such a statement is to provide objective information about the complication of leak. The statement is not intended as, and should not be construed as, stating or establishing a local, regional, or national standard of care. The statement will be revised in the future as additional evidence becomes available. (Surg Obes Relat Dis 2009;5:293–296.) © 2009 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Gastrointestinal leak after gastric bypass is a known complication with a reported incidence of 1–5% in large case series of open and laparoscopic gastric bypass [1–10]. A leak can result in clinically important morbidity and mortality. Once signs and symptoms develop, prompt diagnosis and treatment of a leak can minimize the inflammatory and septic sequelae, although evidence also suggests that the immunoreactivity of the host determines the endogenous inflammatory responsiveness to a greater extent than the timing of treatment [11].

The purpose of this position statement is to provide an evidence-based guideline regarding the prevention and detection of gastrointestinal (GI) leak after gastric bypass. The use of imaging techniques and surgical re-exploration in the context of routine postoperative surveillance and suspected postoperative gastrointestinal leak is reviewed.

Prevention of GI leak

The vast majority of GI leaks likely occur in the absence of a technical error that could have been recognized at the initial procedure. Supporting this conclusion is the observation that leaks are reported to occur at some level of frequency in all reported large series of gastric bypass. Numerous intraoperative techniques have been suggested to decrease the incidence of leak, including, but not limited to, oversewing staple lines, using agents that reinforce the staple lines [12,13], using fibrin glue or other tissue sealants [14–16], and so forth. No high-quality clinical evidence exists to suggest that such interventions have been able to eliminate or substantially decrease the incidence of leaks as a complication of gastric bypass. Intraoperative leak assessment using endoscopy and/or distension of the anastomosis with dye, air, or other gas might be useful to detect leaks that can be repaired during the procedure, but these techniques have not been shown to decrease the risk of leak after surgery. Although some surgeons have advocated routine placement of drains in proximity to the gastrojejunal anastomosis to better diagnose and/or control leakage from this site during the postoperative period [17,18], others have
hypothesized that drains in proximity to an anastomosis are unnecessary [19] and might increase the risk of a leak developing, particularly if left in place for more than a few days [20]. In summary, no high level evidence is available to support any of the above practices for the prevention or amelioration of GI leak after gastric bypass.

Postoperative leak detection

Radiologic imaging

A hospital in which bariatric procedures are performed should have the capability for imaging by plain film, fluoroscopy, and computed tomography (CT). The size and weight capacities of current CT, fluoroscopy, and magnetic resonance imaging (MRI) scanners will accommodate most bariatric surgery patients. The weight limitations for CT and MRI scanners are provided by the manufacturer and range from 135 to 200 kg (300–450 lb) [21]. Of significance, a hospital’s warranty agreement for the repair of expensive CT, fluoroscopy, and MRI equipment could be voided if the equipment is damaged by patients who weigh more than the manufacturers’ guidelines allow. Although CT machines that can accommodate patients of ≤350 kg body weight (800 lb) are commercially available, they are very expensive and therefore have not been purchased by most hospitals and should not be viewed as a necessity for quality patient care, at least at this time. Although surgeons performing bariatric surgery should be aware of the weight limitations of the radiology equipment in their facility, a subset of patients are expected to exceed the body weight limitations of certain specialized imaging equipment, such as the CT or MRI machine.

Withholding surgical treatment for obesity from the greatest body weight subgroup of patients might not be sound clinical judgment, because many series have reported acceptably low-risk treatment of super-super-obese patients [22–26]. The decision to proceed with bariatric surgery should be a clinical judgment made by the surgeon according to the patient risk factors for treatment weighed against the risks of failing to provide successful weight reduction treatment to an individual patient. The capabilities of the facility, the capabilities of nearby facilities, and the patient’s wishes should all be included in the surgeon’s decision-making process regarding the acceptance of a patient for surgery. A patient should not be rejected for surgical treatment solely because the patient exceeds the weight standards or gantry limitations of the hospital’s CT or MRI equipment.

Routine postoperative radiologic assessment for leak

Routine postoperative upper GI contrast studies are performed by many surgeons to detect leaks, but evidence is growing to support selective, rather than routine, contrast studies after gastric bypass [27–29]. On the basis of the current evidence, the decision to perform routine versus selective upper GI contrast studies should be left to the discretion of the surgeon using their experience, factors related to the system of care in place, and other characteristics of the patient and the population being treated.

Radiologic evaluation versus exploration for suspected leak

Upper GI contrast examination is used by many surgeons to evaluate the gastrojejunostomy in patients with suspected leak after gastric bypass. Numerous factors can influence the accuracy of such testing, including patient-related factors (e.g., the ability to stand, balance, move about, and swallow and size of the patient) and factors related to the system of care in place (e.g., experience of the radiologist with bariatric patients and procedures, capabilities of the facility). The sensitivity of upper GI contrast examination has varied among reports from 22% to 75% [2,29,30].

CT of the abdomen after gastric bypass can detect leaks, abscesses, and bowel obstruction. In addition, CT of the lung has become a mainstay of evaluation for pulmonary embolism [31,32]. Inherent limitations exist for CT imaging in the obese patient, and patient weight has a profound effect on the magnitude of enhancement by the intravenous contrast material in both the vascular system and the parenchymal organs, such as the liver [33]. Additionally, patient positioning and the inability to ingest adequate oral contrast are important limitations in this population. The experience of the radiologist in interpreting postoperative gastric bypass anatomy also plays an important role. These limitations could lead to false-negative results, and CT has not consistently demonstrated a high level of sensitivity in detecting early postoperative leaks in this patient population. When upper GI studies and CT are combined, up to one third of patients will have both studies interpreted as normal, despite the presence of a leak [2].

Laparoscopic or open re-exploration is an appropriate diagnostic option, regardless of the feasibility of obtaining a postoperative imaging test, when gastrointestinal leak is suspected. Re-exploration is characterized by greater sensitivity, specificity, and accuracy than any other postoperative test to assess for leak and should be considered the definitive assessment for the possibility of leak. Although invasive, several studies have demonstrated that re-exploration is a safe intervention compared with the consequences of peritonitis, excessive inflammatory response, sepsis, organ failure, and mortality that can develop when the diagnosis and treatment of a leak are delayed [2,34,35]. Thus, re-exploration should be considered in patients with a suspected leak, and it is important to note that reliance on false-negative results from imaging studies could delay operative intervention, particularly when a leak is present at sites other than the gastrojejunostomy (e.g., the gastric remnant or jejunoojejunostomy) [36].
Conclusion

Gastrointestinal leak after gastric bypass surgery is an infrequent complication but one that can be expected to occur at some point in every bariatric surgeon’s experience. Early detection and treatment of a gastrointestinal leak after gastric bypass could play a role in reducing morbidity and mortality. Upper GI contrast studies can be used routinely or selectively to detect leaks. CT might be useful to detect postoperative leaks in some patients, but important limitations exist in its accuracy, in part because of issues inherent to the bariatric patient population that could make CT imaging impractical or impossible. Surgical re-exploration is an acceptable strategy to diagnose and treat patients who are highly suspected of having a postoperative leak after gastric bypass. Surgical re-exploration that reveals no explanation for a postoperative patient’s worrisome clinical findings or deterioration after gastric bypass should be considered an appropriate and indicated intervention and not a complication.

Gastrointestinal leak position statement and standard of care

This Position Statement is not intended to provide inflexible rules or requirements of practice and is not intended, nor should it be used, to state or establish a local, regional, or national legal standard of care. Ultimately, there are various appropriate treatment modalities for each patient, and surgeons must use their judgment in selecting from among the different feasible treatment options.

The American Society for Metabolic and Bariatric Surgery cautions against the use of this Position Statement in litigation in which the clinical decisions of a physician are called into question. The ultimate judgment regarding the appropriateness of any specific procedure or course of action must be made by the physician in light of all the circumstances presented. Thus, an approach that differs from the Position Statement, standing alone, does not necessarily imply that the approach was below the standard of care. To the contrary, a conscientious physician may responsibly adopt a course of action different from that set forth in the Position Statement when, in the reasonable judgment of the physician, such a course of action is indicated by the condition of the patient, the limitations of available resources, or advances in knowledge or technology. All that should be expected is that the physician will follow a reasonable course of action on the basis of current knowledge, available resources, and the needs of the patient to deliver effective and safe medical care. The sole purpose of this Position Statement is to assist practitioners in achieving this objective.

Disclosures

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

References


