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Considerations for the Obese Stoma Patient

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Description

Obesity presents a significant challenge to fecal ostomy surgery. This summary discusses a few specific problems related to ostomy surgery and stoma management in obese patients.

Scope of the obesity problem

The global obesity epidemic is getting worse. The 2022 obesity prevalence maps show all states in the United States of America now have at least 20% obesity (defined as Body Mass Index >30 kg/m^2), while several states have over 40% [1]. Colorectal diseases such as diverticulitis, inflammatory bowel disease, and colorectal cancer are linked to obesity [2-4]. Given these pathologies are often the indications for intestinal stoma creation, many gastrointestinal surgeons will face the challenge of ostomy surgery and stoma management in obese patients.

Obesity-specific considerations for ostomy surgery and stoma care

Preoperative Stoma Site Marking (PSSM) and education by a properly trained provider are paramount to decreasing stoma complications [5,6]. A Wound, Ostomy, and Continence Care (WOCN) certified nurse is often tasked with PSSM; however, it is prudent for all care providers, particularly those who perform emergent ostomy surgery, to become familiar with stoma site marking and education [7]. A joint position statement reviews the fundamental concepts of PSSM and is a vital resource for teams less familiar with the topic [8]. Obesity creates distinct problems for stoma site marking.

Despite the dogmatic notion that trans-rectus (al) abdominus passage of the ostomy conduit prevents parastomal hernia and potentially other stoma-related complications, a recent Cochrane review does not show superiority of the technique [9]. The 'ostomy triangle' is an anatomic triangle bounded by the anterior superior iliac spine, the pubic tubercle, and the umbilicus. The Rectus Abdominus (RA) muscle should reside within this triangle; thus, the triangle serves as a guide for PSSM. Obesity, a significant risk factor for diastasis recti abdominis, may laterally displace the RA muscle within the triangle and alter accurate stoma site marking. The degree of alteration may not be visible or palpable in obese patients and using anatomic landmarks as the sole guide to stoma site marking can lead to poor stoma outcomes [10]. Ultrasound has been used extensively in studies evaluating diastasis recti [11-13]. Future research evaluating its use for preoperative stoma site marking may show a risk reduction for postoperative stoma-related complications.

Excessive skin folds and a low-riding abdominal pannus violate many fundamental stoma site marking principles. The upper abdomen is usually less fraught with these inadequacies, partly because the stoma is placed in the patient's line of sight. An umbilicus below the level of the anterior superior iliac spine (from a redundant pannus) should illicit caution during stoma site marking, especially if considering the 'ostomy triangle' as the stoma site. When in doubt, opt for a more cranial stoma location, as a common pitfall for PSSM is marking the stoma too caudad [14].

An old concept for bariatric surgery gaining traction in other surgical specialties is preoperative weight loss to improve intraoperative and postoperative outcomes. Bariatric surgeons have long implemented preoperative weight loss to decrease liver size in hopes of better operative exposure to the gastric fundus [15]. Expansion of this concept to non-bariatric procedures seems prudent. The CARE randomized trial will assess the feasibility of preoperative weight loss for patients awaiting surgery for colorectal cancer [16]. A subsequent definitive trial might prove helpful, *via* sub-group analysis, for evaluating risk reduction associated with weight loss for obese patients undergoing stoma creation. Unfortunately, many patients receive a stoma in the urgent/emergent setting, making preoperative site marking more unlikely and excluding intentional preoperative weight loss. This area of research is quite promising and has great potential to change the standard of preoperative care for obese stoma patients.

The basic tenets of intestinal ostomy surgery include selecting and mobilizing a portion of the intestine from its congenital attachments, passing the end or loop of the intestine through the abdominal wall at the marked location, and maturing a tension-free protruding stoma to the dermal layer of the abdominal skin. Achieving even these basic tenets can be problematic in obese patients. Obesity is known to cause poor operative visualization and difficult exposure often adding significant morbidity *via* increased operative time and a higher likelihood of conversion from a minimally invasive approach to open [17]. Visceral obesity inside the peritoneal cavity presents with shortened and thickened mesentery with an overly fattened omentum and epiploic colonic appendages. The omentum is more challenging to mobilize and tends to tear easily, requiring gentle handling to avoid a frustratingly slow but persistent bleed. Abnormally abundant epiploic fat needs resection to allow passage through the abdominal wall. The mesenteric changes frequently require several mobilization techniques for a tension-free reach through the abdominal wall. These techniques might include complete mobilization of the small intestine to its mesenteric base at the duodenum, complete mobilization of the splenic flexure (not just releasing the lateral peritoneal attachments), division of the inferior mesenteric vein close the caudal edge of the pancreas,

creation of mesenteric 'windows' and even dividing additional, named, mesenteric vessels. Division of additional mesenteric vascular supply places the stoma at risk for ischemia. While the ileum has robust vascular arcades, the commonly created left-sided end-colostomy for perforated diverticulitis usually relies heavily on the more tenuous marginal artery for perfusion as ligation of the inferior mesenteric artery and/or the left colic artery is often needed to obtain adequate reach through the abdominal wall. Indeed, there are cases where most, if not all, of these lengthening maneuvers will be required for stoma formation. Passage of the ostomy through the abdominal wall also warrants discussion. The trephine made through the abdominal wall fascia should be kept to the smallest appropriate size as the nature of the trephine, as in hernias, is to increase in size over time, especially if weight gain continues after surgery. A larger fascial trephine also likely places the patient at risk of parastomal hernia in a population already at high risk for hernia formation [18]. The author starts with a two-finger-width trephine and enlarges the trephine enough to allow passage of an index finger between the ostomy and fascial edge. Delivering the conduit through the thick abdominal wall may need to be performed with a staged approach by creating a subcutaneous space above (superficial) the abdominal wall fascia. The conduit would secondarily, be delivered through the subcutaneous fat [19]. Delivery of the stoma by pushing the conduit through the abdominal wall instead of pulling cannot be overemphasized [20].

Obese patients are three times more likely to experience postoperative stoma complications [21,22]. Peristomal skin complications, stoma retraction, and parastomal hernia are frequently reported obesity-related stoma complications [21,23]. Providers should inform obese patients about their significantly higher risk for stoma complications.

Conclusion

As obesity rates continue to rise, healthcare teams are more likely to encounter obese patients undergoing ostomy surgery. Obesity is strongly linked with complications in fecal ostomy surgery. Adaptations in preoperative stoma site marking, intraoperative maneuvers and post-operative stoma management are often needed. A better understanding of obesity-related challenges in ostomy surgery will allow for optimal outcomes. More effort and research should focus on preoperative weight loss prior to stoma surgery.

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