

Use of EEA Sizer for the Selection of Rectal Transection Site in Low Pelvic Surgery

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1. Introduction

The pelvic colorectal anastomosis is the most critical aspect of colorectal surgery and can be technically challenging for many reasons. In the age of modern surgery, the anastomosis is typically performed using a circular stapling device complementing minimally invasive surgical techniques. These devices have greatly facilitated the creation of colorectal anastomosis, but the use of these devices is not without challenges. Some studies have found the incidence of technical errors with these devices to be around 19%, and leak at the colorectal anastomosis in approximately 2-8% of cases¹. The use of an EEA sizer intraoperatively can greatly aid in the identification of the optimal site of rectal transection for an ideally positioned double stapled EEA anastomosis.

2. Keywords: EEA sizer; Colorectal anastomosis; Circular stapler; EEA stapler; Rectal stricture

3. Operative Technique

3.1. First Case

54-year-old male with a history of a laparoscopic Hartman's pouch and end colostomy for perforated diverticulitis presented for elective laparoscopic hand assisted reversal. The rectum was mobilized posteriorly to enter the presacral space. Once adequate dissection was achieved the EEA sizer was inserted anally and advanced to the mid rectum until unexpected resistance was encountered in the upper rectum. An area of previously unidentified intraluminal narrowing was noted in the upper rectum secondary to a previous pelvic phlegmon (Figure 1). Based on this intraoperative finding, further presacral mobilization of the bowel was undertaken with the help of the sizers and the rectum was transected distal to the stenosed segment with the endoscopic GIA stapler

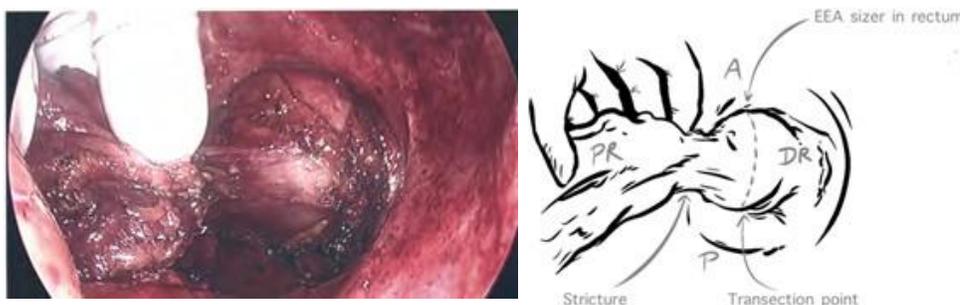


Figure 1: Stricture from prior phlegmon noted on EEA sizer insertion. A: anterior; P: posterior; PR: posterior rectum/colon; DR: distal rectum/colon

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3.2. Second Case

48-year-old female presented for elective laparoscopic sigmoidectomy for colon cancer. She had an extensively concave sacrum which made it difficult to advance the EEA sizer. This operative finding

necessitated further presacral dissection to allow for straightening of the rectum and tension free advancement of the EEA (Figure 2). Once adequate dissection was confirmed the rectum was transected and anastomosis performed.

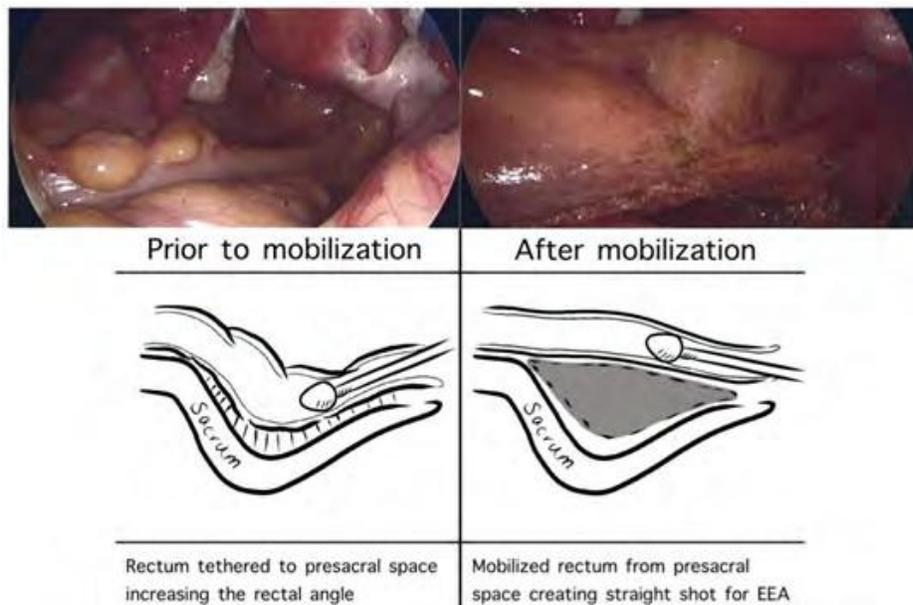


Figure 2: Presacral dissection of rectum using EEA sizer straightens the path.

4. Outcomes

In both cases the EEA stapler was advanced without difficulty creating a colorectal anastomosis. There were no intraoperative complications. Both patients were discharged on postoperative day two after an uneventful hospital course.

5. Conclusion

In the article published by Offodile and associates, the incidence of technical errors involving the EEA was 19%. Performing the colorectal anastomosis correctly during the first attempt is critical in avoiding a surgical misadventure. Paramount to this is the initial optimal selection of the rectal transection site. Re-resection of the rectal stump mandated by inability to perform an EEA anastomosis safely is technically demanding and may result in possible conversion from a laparoscopic to an open procedure. There are functional implications for resecting more rectum as this may lead to an increased incidence of low anterior rectal syndrome through loss of the rectal reservoir. In addition, re-resection of the rectum has financial repercussions secondary to increased operative time and stapler reloads.

Clinically, one of the most common findings related to an EEA malfunction is encountering resistance while advancing the stapler toward the rectal staple line. Two previously described techniques to decrease resistance for insertion of the EEA stapler are the injection of a lubricant and normal saline solution into rectum or an EEA plastic round-tip retractable dome shield, for example the

CSI31™, by SurgTech AG. Unfortunately, these two techniques do not address aberrant sacral anatomy or intraluminal rectal narrowing which are common findings in colorectal surgery, identification of these are critical prior to dividing the rectum in preparation for the anastomosis.

Exaggerated curvature of the sacrum can cause significant posterior fixation of the rectum and preclude the advancement of the stapler to the optimal site of anastomosis. The use of the sizer guides the surgeon in performing the necessary amount of presacral dissection to straighten the rectum and allow for anastomotic creation. Intraluminal narrowing from fibrosis from previous surgery or pelvic inflammatory process may render portions of the proximal rectum unsuitable for an anastomosis. Using the sizer to identify the area of luminal narrowing and selection of a transection site distal to this abnormality allows for safe execution of an EEA anastomosis.

The use of EEA sizers intraoperatively allows for early identification of rectal abnormalities that were not previously identified on preoperative imaging or endoscopic exam allowing for optimal site selection for division of the rectum. This aids in creation of the most ideal EEA anastomosis, reinforcing the adage “measure twice, cut once”.

6. Data Availability

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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