



## Trans-anal Revision of Rectal Anastomotic Stricture

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### Abstract

Rectal post-operative anastomotic strictures are a difficult problem which may cause obstructive symptoms or prevent re-establishment of intestinal continuity. Current management includes endoscopic and surgical dilatations or laparotomy with revision of anastomosis. We present a novel technique of refashioning the anastomosis transanally with the use of a circular stapler.

**Keywords:** Colorectal anastomotic stricture; Revision; Transanal

### Introduction

Benign anastomotic strictures after colorectal surgery are a recognized complication. The mainstays of treatment include endoscopic balloon dilatation, stents, surgical dilatation and formal revision of anastomosis. Each of these interventions has pros and cons. The non-surgical methods have a re-stenosis rate and associated perforation risk. Surgical revision necessitates the risks inherent with a laparotomy. We present a novel operative technique of revising an anastomotic stricture. This is performed trans-anally and endoscopically without the need for laparotomy, providing a wide patent revised lumen using a circular stapler.

### Case Presentation

An 82-year-old gentleman was diagnosed and treated for rectal cancer at another institution for which he underwent a laparoscopic anterior resection. His co-morbidities included coronary artery disease requiring percutaneous coronary intervention 8 years ago, perforated gangrenous appendix requiring open appendectomy 2 years ago, paroxysmal atrial fibrillation, hypertension and dyslipidemia. Post-operatively on day 3, he had an anastomotic leak requiring an exploratory laparotomy. His anastomosis was taken down and revised to an end-to-side stapled colorectal anastomosis and a diverting loop ileostomy created. He recovered from this but later on developed a tight anastomotic stricture. An attempt made at dilatation of the stricture 7 months later in the operating theatre with Hegar dilators was abandoned as the lumen was too small even to fit the smallest caliber dilator. He presented to us as he was keen to have his intestinal continuity re-established.

We investigated him by flexible sigmoidoscopy which showed an anastomotic stricture 7 cm from the anal verge. He was taken to theatre and a trans-anal dilatation of anastomosis was performed. After retracting the anus, a pair of Maryland laparoscopic graspers was used to dilate up the pinhole. This was followed with Hegar dilators to dilate up the anastomosis to 20 mm. Unfortunately flexible sigmoidoscopy after 2 weeks showed that there was already some degree of re-stenosis. Due to this re-occurring after such a short period, a more permanent solution for his problem was sought. His co-morbidities made a formal laparotomy and resection of anastomosis risky. Hence a trans-anal endoscopic revision of anastomosis was performed 3 weeks after the first operation.

### Technique

Guided by the computer tomography (CT) scout film, a 5 cm vertical incision was made in the upper midline of the abdomen and the transverse colon identified. Endoscopy was then performed with a gastroscope inserted trans-anally past the stricture until reaching the identified segment of transverse colon. A colotomy was performed and biopsy forceps passed through the oesophago-gastro-duodenoscopy (OGD) scope was used to grasp a silk suture secured onto an EEA (end-to-end anastomosis) stapler anvil which was then passed into the colon. The anvil was brought down by withdrawing the scope to the anastomotic stricture under vision (Figure 1). The stem of the anvil was brought through the stricture and then docked to a size 25 EEA OrVil™ gun (Figure 2). Endoscopy was then performed via the colostomy site distally to check the proximal view of the anvil. Staple anastomosis was performed (Figure 3). Colotomy was closed with interrupted 3-0 PDS suture.

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**Received Date:** 17 Oct 2016

**Accepted Date:** 07 Dec 2016

**Published Date:** 12 Dec 2016

#### Citation:

Wang W, Foo FJ, Ng CY. Trans-anal Revision of Rectal Anastomotic Stricture. *Clin Surg*. 2016; 1: 1245.

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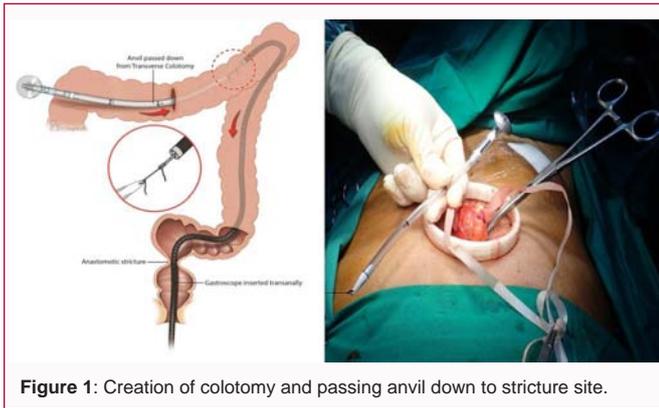


Figure 1: Creation of colotomy and passing anvil down to stricture site.

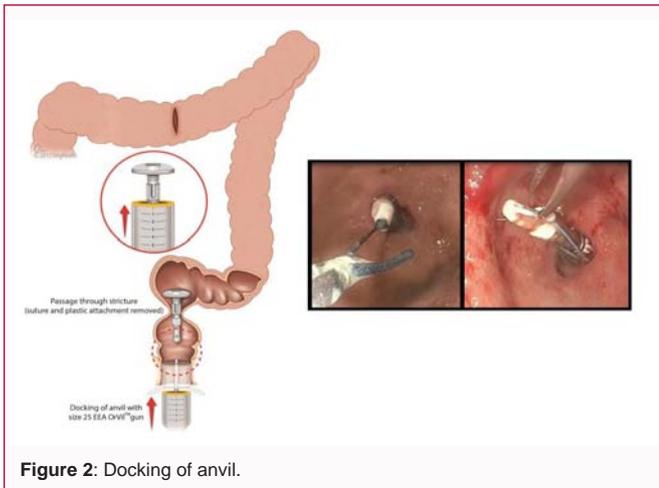


Figure 2: Docking of anvil.

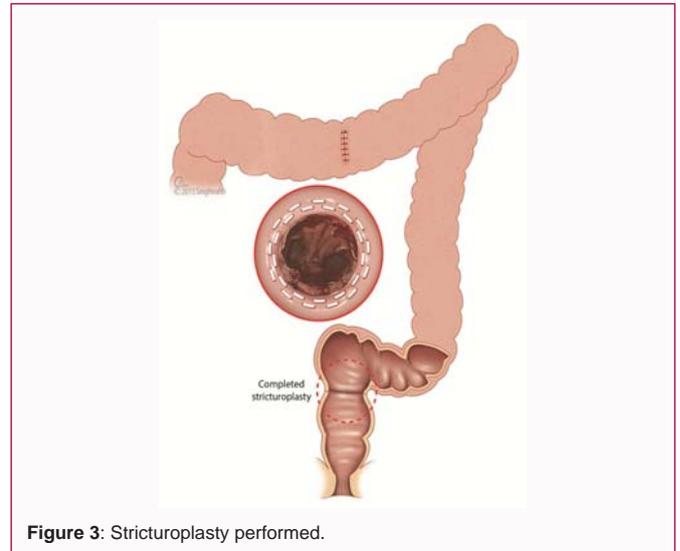


Figure 3: Strictureoplasty performed.



Figure 4: Pre- and post-op barium enema.

**Results**

The patient was discharged well after 4 days. Water soluble contrast enema study performed after 1 month showed a widely patent lumen with no recurrence of the anastomotic stricture (Figure 4). The patient then underwent successful closure of ileostomy.

**Discussion**

This is a novel method in the management of post-op anastomotic strictures. A literature search shows that this method has not been attempted before and this adds to the current management options available in the treatment of anastomotic strictures. The rate of anastomotic strictures has been reported to range from 3 to 30% [1]. This wide range is probably a result of varying definitions of what constitutes an anastomotic stricture. Strictures occur most commonly in the rectum and sigmoid. Pre-operative risk factors included obesity and presence of an abscess. The formation of "incomplete donuts", post-operative anastomotic leak, pelvic infection, and radiotherapy are also risk factors for stricture formation [1]. Treatment options vary depending on the site of the stricture. Direct digital dilatation may be undertaken if the site of the stricture is low. For strictures which are higher up, treatment usually involves endoscopic dilatation with various devices such as Hegar dilator, bougienage, or pneumatic balloons. Failure rate has been reported to be at 2.4% with endoscopic dilatation, with more than 50% of patients requiring multiple sessions [2]. Complications such as re-stenosis, perforation and abscess formation have developed post-dilatation in up to 18% of patients [3].

Stenting may be considered. However, in patients who have anastomotic strictures, the risk of stent migration could be up to 63%,

and a recurrence rate of 53% [4] in addition to risks of perforation and excessive bleeding.

Should the above methods fail, surgical management traditionally requires resection of the stenosis and construction of a new anastomosis [5] but carries with it the risks of intra- and post-op morbidity which can be as high as 26% [6]. The method which we have introduced does not require repeated treatments. We envisage that there will be a lower risk of stricture recurrence as a new widely patent anastomosis is recreated. It also excludes the need for a laparotomy. There are also no concerns about stent migration or blockage. However, some potential limitations are recognized. One of these would be the requirement of a colotomy which could potentially be a source of leak. Other options which remain to be explored would be passing the anvil through the distal limb of a loop ileostomy or colostomy if present, or using a TEO scope to incise a slit in the stricture, allowing insertion of the anvil transanally.

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