

TITLE PAGE

TITLE : Three Point Stapled Fixation Technique to Manage Ileostomy Spout Retraction
SHORT TITLE : Three Point Stapled Fixation Technique

AUTHORS:

DR Corina Behrenbruch : MBBS, FRACS

Affiliation : St Vincent's Hospital, Melbourne

Mr Gareth Carr: MBBS, FRACS

Affiliation: St Vincent's Hospital Melbourne

Mr Michael Johnston: MBBS, FRACS

Affiliation: St Vincent's Hospital Melbourne

Mr Rodney Woods : MBBS, FRACS

Affiliation: St Vincent's Hospital Melbourne

1 Figure

Corresponding Author: Dr Corina Behrenbruch ,
cori.behrenbruch@gmail.com, phone number 0418557253, Level 10, Cluster
2, The University of Melbourne, Victorian Comprehensive Cancer Centre,
305 Grattan St Melbourne 3000

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Three Point Stapled Fixation Technique to Manage Ileostomy Spout Retraction Behrenbruch C, Carr G, Johnston M, Woods R

The Brook ileostomy technique in 1952 came with significant functional improvements compared to the pre-Brook era, however other problems such as prolapse, retraction, parastomal hernias and stomal retraction emerged. The incidence of stomal retraction (both ileostomy and colostomy) ranges from 1.0-24%^{1,2}. Retraction with or without stenosis may occur in obese patients with a short mesentery or tension on the bowel or they may be due to sliding serosal surfaces of the everted stoma^{1,2}. The result is difficulty fitting a stomal appliance with leakage and skin excoriation, causing significant patient morbidity. Management of stomal retraction includes conservative measures such as improved contact of stomal appliances (e.g. with a convex faceplate and tight belt) as well as operative intervention including both local or more extensive revision requiring laparotomy and even re-siting of the stoma. Fixation can be achieved with intra-abdominal or external suture fixation with or without the use of mesh.

The stapled fixation technique is a local procedure to repair stomal retraction in patients where the retraction is due to sliding serosal surfaces. This technique is not suitable for patients where the stoma cannot be delivered with tissue forceps. In 1969 Koch described the formation of a continent intra-abdominal reservoir. A significant complication of this procedure was nipple valve slippage that often required revisional surgery. One modification to improve continence of

the nipple valve mechanism was suturing the two adjacent loops of terminal ileum together to prevent sliding of serosal surfaces³. Ecker et al described stabilization of conventional Brooke ileostomies with a stapler technique to prevent stomal complications⁴. This technique has also been extrapolated to the repair of stomal retraction as reported in a small number of series mostly from the 1990s and more recently by Skaerlund and colleagues in 2008, either with a GIA^R or TA^R linear stapler^{5,6}. Skaerlund reported success in 41.9% of a cohort of 43 patients treated with one or more stapling procedures for stomal retraction⁵. Importantly the stapled technique can be performed without a general anaesthetic which may be beneficial in the comorbid patient. It can be repeated should retraction recur. Adverse effects from the stapled technique most commonly reported include minor bleeding and oedema that settle with conservative management. There are rare reports of acute stomal retraction, small bowel obstruction and strictures. Sepsis has been reported in patients on steroids peri-operatively^{5,6}. Here we describe our “Three Point Stapled Fixation Technique” using a non-cutting linear stapler for management of patients with non-fixed ileostomy spout retraction.

Patients are placed in the supine position under general anaesthesia. Intravenous antibiotics are administered prior to incision and compression stockings applied. The ileostomy is first delivered with Babcock forceps to ensure that the stoma is not fixed with a length of approximately 3-4cm. An orthopaedic bone cutter is then used to remove the pin attached to the linear stapler (Covidien DST SeriesTM, TATM 45mm, 4.8mm staple height). The ileostomy is

stabilized with two Babcock forceps by the assistant surgeon. The stoma is palpated to assess for any asymmetry suggesting the presence of mesentery and therefore blood vessels within the sliding surfaces. If found consider this position as 12 o'clock. The stapler is then inserted in the 6 o'clock position and fired (**Figure 1**). Two further firings of the stapler are performed in the 10 o'clock and 2 o'clock positions resulting in staple lines that trisect the ileostomy evenly into 3 parts. The result is an ileostomy fixed in the everted position approximately 3-4cm above the skin. Finally, a gloved finger is inserted into the stomal lumen to ensure lumen size is adequate to prevent stenosis. Post operatively there is no restriction of oral intake and all patients receive routine thromboembolic prophylaxis.

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Figure 1_Short Print Version.jpg