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# Management Of Ileal Conduit-rectal Fistula Post Anterior Pelvic Exenteration For Recurrent Ovarian Cancer Using Over-The-Scop-Clip (OTSC)

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## ORIGINAL

### Abstract

The fistulous complication that arises from ileal conduit creation is a rare complication. Conservative or less invasive approach often become initial approach taking account patient previous major abdominal or pelvis injury as surgical repair carry a high risk of morbidity. In view of the rarity of the case, there is no standardized guideline for the management of the ileal conduit fistula. Here we present a case of ileal conduit rectal fistula that successfully manage endoscopically using over-the-scope-clip (OTCS).

**Keywords :** Over-the-scope-clip (OTCS), ileal conduit rectal fistula.

## Introduction

Ileal conduit urinary diversion is an incontinence urinary diversion. There are many indications for ileal conduit formation which most common are after radical cystectomy due to bladder, colorectal or advanced gynecologic cancers. Other indications to perform ileal conduit includes overactive bladder or interstitial cystitis. Several risks and complications may arise from the creation of ileal conduit which includes renal insufficiency, electrolyte disturbances, stoma stenosis or prolapse, bowel obstruction, urinary tract infections, ureteral obstruction at the anastomosis, and urolithiasis. The formation of fistula as a complication of the ileal conduit is rare and as a result, there is no standard guideline or management defined in the literature. Therefore, we present a case of ileal conduit rectal fistula post anterior pelvic exenteration for recurrent ovarian cancer that managed endoscopically using over-the-scope-clip (OTSC).

## OPEN ACCESS

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## Case Summary

A 49 Thailand lady, Para 2+2, last childbirth 17 years ago, presented to a private center in 2013 with vaginal discharge and was diagnosed to have a bilateral ovarian cyst. She was then referred to the gynecology team for further management. Her CA 125 was 8 U/ml (normal). She underwent total abdominal hysterectomy bilateral salpingo-oophorectomy (TAHBSO) in 2013. Histopathologically showed bilateral high-grade serous adenocarcinomas of ovaries with tumor involvement of the right fallopian tube. CT Thorax, abdomen, and pelvis in 2013 showed no evidence of distant metastases. Subsequently, she underwent staging laparotomy, omentectomy, appendectomy, pelvic lymph node dissection, removal of bilateral ovarian tumour remnants which gave a final staging of stage 2C. She completed 6 cycles of chemotherapy (carboplatin/paclitaxel) in April 2014. She was disease-free for 3 years until the end of 2017 when she CA 125 was elevated

68.4 U/ml. CT Thorax, abdomen, and pelvis were done and revealed feature is suggestive of local recurrence of ovarian carcinoma with possible infiltration of the adjacent sigmoid colon. Anterior supra-levator exenteration, ileo-conduit with upper vaginectomy, right limited hemicolectomy with ileocolic anastomosis, and Hartmans procedure was performed. She recovered and discharge well after 7 days of admission and underwent another 2 cycles of carboplatin. 2 months after surgery, she notices a copious amount of urine smell per rectal discharge, with reduced urine output from an ileal conduit. Repeated Ct thorax, abdomen, and pelvis showed recto-ileal enterocutaneous fistula. Otherwise, there was no evidence of local recurrence. She was then referred to the surgical team for further management. Sigmoidoscopy was performed and conventional endoscopic through-the-scope (TTS) clip placement was applied (Figure 1). Subsequently, her symptom resolved until 2 weeks later she presented again with a similar complaint. Fluoroscopy was performed to delineate the fistula and over-the-scope-clip (OTCS) applied during the same setting (Figure 2). During subsequent follow-up, there was no more per rectal discharge, and her ileal conduit functioning back as usual.



**Figure 1**



**Figure 2**

## Discussion

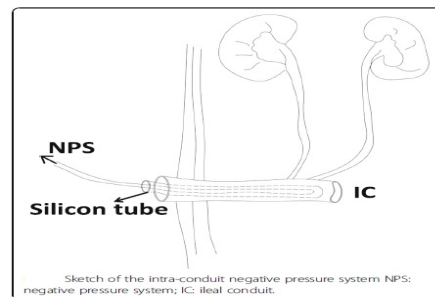
The fistulous formation is a rare complication as a result of radical cystectomy and most commonly involves ileal conduit and small bowel. It often originates from the proximal end of the conduit at the uretero-ileal anastomosis site (1; 2). The cumulative incidence of conduit-enteric, conduit-arterial, and conduit-genital fistulas is about 2.6% (3). As a result of its rarity, the treatment is challenging especially in those who had undergone multiple abdominal or pelvic surgery before the development of fistula (4).

There are many risk factors for the development of the fistula including underlying comorbid such as inflammatory (diverticulitis, Crohn's), iatrogenic (pelvic irradiation or surgery), malignant or traumatic (penetrating injury, stones) etiologies. On the other hand, the surgical technique may as well contribute to the formation of fistulae such as iatrogenic full-thickness bowel injury, damage to mesenteric arteries, and tight sutures causing ischemic necrosis. The intestinal epithelium is not optimally designed to hold urine and lacks mechanical properties of the urothelium and

detrusor muscle. Stoma stenosis or stricture can also result in back pressure which may force urine through a weakened conduit wall (2; 5).

When the clinical suspicion arises of fistulous formation, several investigations and imaging can be performed to confirm the diagnosis as well as to delineate the anatomical configuration of the fistula. A simple methylene blue injection through the fistula opening or via installation through the ileal conduit may help to identify the fistula (2). As in our case, methylene blue was instilled into the ileal conduit using the Foley catheter and by using flexible sigmoidoscopy the extravasation of the methylene blue was identified in the rectum. Other imaging modalities such as CT scan, loopography, or MR urography may further identify anatomical anomalies of the patient.

Management of the ileal conduit fistula must be individualized by taking into consideration of underlying comorbidities, history of previous abdominal surgery, and previous chemotherapy or radiotherapy. Inpatient with concurrent comorbid with a history of multiple abdominal surgeries, conservative management, or minimally invasive often become the best choice of treatment (6; 7; 8). With the evidence of urinary tract obstruction or hydronephrosis, retrograde stenting or percutaneous nephrostomy is a good option for urinary diversion. Intra-conduit negative pressure system has recently been introduced for the treatment of ileal conduit fistula (Figure 3). Although it is time-consuming (7–11 days) but it is an extremely simple, safe, and mini-invasive method (4).



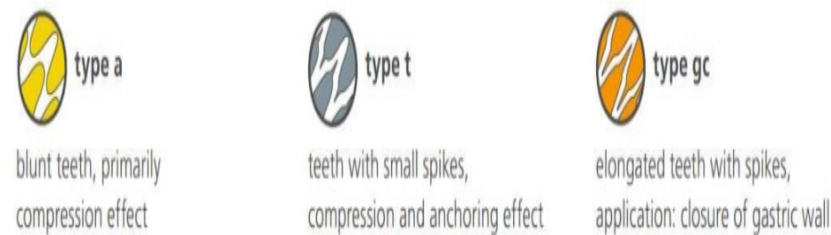
**Figure 3**

Other minimally invasive techniques such as fulguration with or without sclerosis of the tract may be used for this condition to disrupt the cellular membrane and promote tract scarring (9).

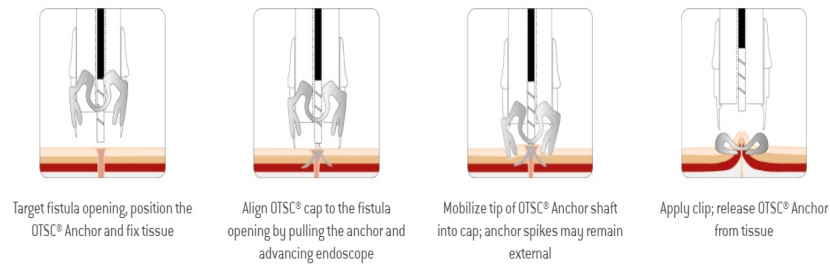
With the advancement of the endoscopic technique, over-the-scope-clip (OTSC) has been introduced as a treatment option for the fistula, gastrointestinal bleeding, and anastomosis leakage. It provides significantly more strength and larger tissue capture as compared to conventional through-the-scope clips (TTS) (10). The success rate of the procedure ranges from 70–99% depending on the underlying etiology, duration of fistula, and presence of concurrent infection or ischemia (11). The OTSC consists of a shape-memory nitinol alloy, which returns to its initial shape when it is released from the applicator, allowing for closure of the clip (12). There are three different varieties of the clip namely traumatic, atraumatic, and gastric closure clip suitable for different indications and tissue (Figure 4). After attaching the clip to the tip of the endoscope, the clip was then directed to come into close contact with the target lesion or fistula. Endoscopic suction, a twin grasper, or an alligator can be used to facilitate targeting of the lesion. Once the target has been confirmed, the clip is deployed by stretching a wire with a handwheel fixed on the working channel (Figure 5) (11). Immediate closure of fistula then confirmed by injecting methylene blue or contrast agent through the ileal conduit under fluoroscopic guidance. There is no published paper comparing the effectiveness of OTSC as compared to TTS as regards the management of fistula. However, it is proven that OTSC is more effective than standard endoscopic therapy for a patient with recurrent bleeding of peptic ulcer (13).

Even though OTSC is considered a relatively safe device, there are few reported complications including jejunal stenosis, positional deviation due to tissue fibrosis, obstruction of the esophago-gastric junction, fistula injury due to the forceps, micro-perforation of a hemorrhagic duodenal ulcer due to the OTSC claws and further maceration of the perforated site (14; 15; 16). However,

the incidence of the complication ranges from 0.59% to 1.79%. The failure rate of the OTSC in terms of fistula management is mainly determined by underlying inflammation, fibrosis, duration of fistula, and the device used to grasp the tissue. Surgical repair of the fistula is indicated when there is failure using a conservative or minimally invasive approach. The surgical approach must be on a case-by-case basis considering proper discussion and explanation as regards possible complications that were made with the patient before surgery.



**Figure 4.** Type of OTSC



**Figure 5.** Steps of OTSC application

## Conclusion

Fistula formation post ileal conduit creation is a rare complication. Therefore, standard management has not been described. In view of there being no formalized guideline, the management of ileal conduit fistula is mainly based on previous case reports or expert opinion. As in our case patient was successfully managed using OTSC in view surgical repair is not suitable due to the previous history of major abdominal surgery.

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