

## C A S E R E P O R T

# A massive transrectal herniation of terminal ileal loops as a complication of a recent STARR procedure

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**Abstract.** This case report describes the complications of a recent STARR procedure (Stapled Trans-Anal Rectal Resection), in a female patient with a rectal prolapse. The protrusion of the rectum through the anus is a defining feature of the disorder known as rectal prolapse. Rectal prolapse therapy frequently involves the STARR procedure, a minimally invasive surgical approach. Post-operative problems, however, can occur and require extra treatments. This case report discusses the radiological results after a CT and the following treatments of a patient, who had severe complications after a STARR surgery. Less than 48 hours after surgery, the patient arrives in the Radiology Department, totally non-cooperative to do a CT, due to the worsening clinical condition into a complete shock status. The radiological findings revealed a significant trans-rectal herniation of the terminal ileal loops, which was also visible from the outside, so the patient underwent an urgent surgical intervention to reposition the loops and repair the prolapsed segment, to avoid severe consequences. After the procedure, the patient's symptoms decreased, and she was released after a long hospitalization with a favorable prognosis. To diagnose these complications and identify proper management methods that could prevent serious further consequences, up until the patient's death, radiological imaging, such as CT with contrast medium, and corrective surgery is essential. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** STARR complications, CT, diagnostic procedure, rectum herniation, protrusion terminal-ileal loops, emergency

## Introduction

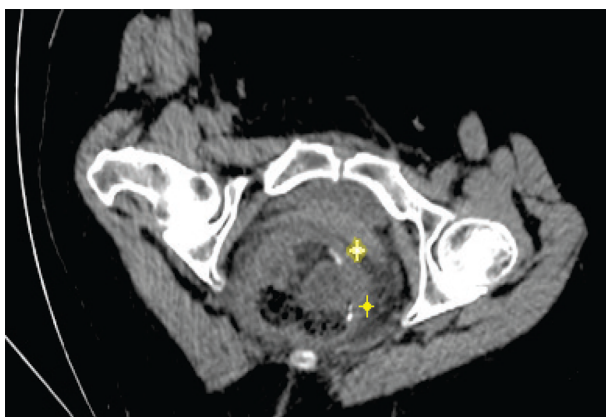
The protrusion of the rectum through the anus is a defining feature of the disorder known as rectal prolapse (1). Rectal prolapse therapy frequently involves the STARR procedure, a minimally invasive surgical approach (2). Post-operative problems, however, can occur and require extra treatments.

This case report describes the radiological results after a CT and the following treatments of a patient, who had severe complications after a STARR surgery, such as a perforation of the intraperitoneal rectum and a massive herniation of the ileal loops through the rectum (3-6).

## Case report

A 56-year-old female patient has a rectal prolapse (enteroceles), so she was operated on with the STARR technique (Figure 1).

Two days after surgery, the patient experienced severe abdominal pain, distension, and inability to pass stool or flatus. The patient became non-compliant and was transferred to the Radiology Department in the emergency to complete the diagnosis with a CT. A CT scan with contrast media revealed a large transrectal herniation of the terminal ileal loops. However, due to the patient's fragile health and the severe herniation of



**Figure 1.** An axial CT image of the hip showed some evident metallic clips (reference in yellow) that surround the rectum, after the STARR procedure.

the intestinal loops, it was challenging to position the patient on the CT bed and do a CT using the optimal axial axes (Figure 2).

The final ileal loops were herniating transrectally. The amount of rectocele and the severe bowel prolapse were more clearly seen in the second coronal CT image, with an oblique axis, below the two ischial spines (B: on the right).

The CT also reveals the presence of intra-abdominal free air, probably from the surgical clips, and a slight fluid effusion in the right parietocolic groove and around the perihepatic location.

Furthermore, the final ileal loops' trans-rectal herniation appears in the CT images: a massive herniation of the ileal loops into the rectum and an intra-peritoneal rectum perforation. But with no doubt, the huge prolapse that affects the patient is highlighted and made visible in the sagittal CT image by a herniation through the anus, located close to the pubococcygeal line.

An urgent surgical intervention was suggested because of the clinical presentation and radiological results from the CT. To avoid any other herniation-related consequences, a median laparotomy was performed, allowing the abdomen to be explored around from the xiphoid process of the sternum to the pubis. The terminal ileal loops were repositioned, and the prolapsed section was closed (Figure 3) (Figure 4).

After the procedure, the patient's symptoms decreased, and she was released after a long hospitalization with a favorable prognosis. Certainly, the patient received a positive prognosis after being followed up on, as evidenced by the CT pictures below, taken after surgery and again less than two weeks later.

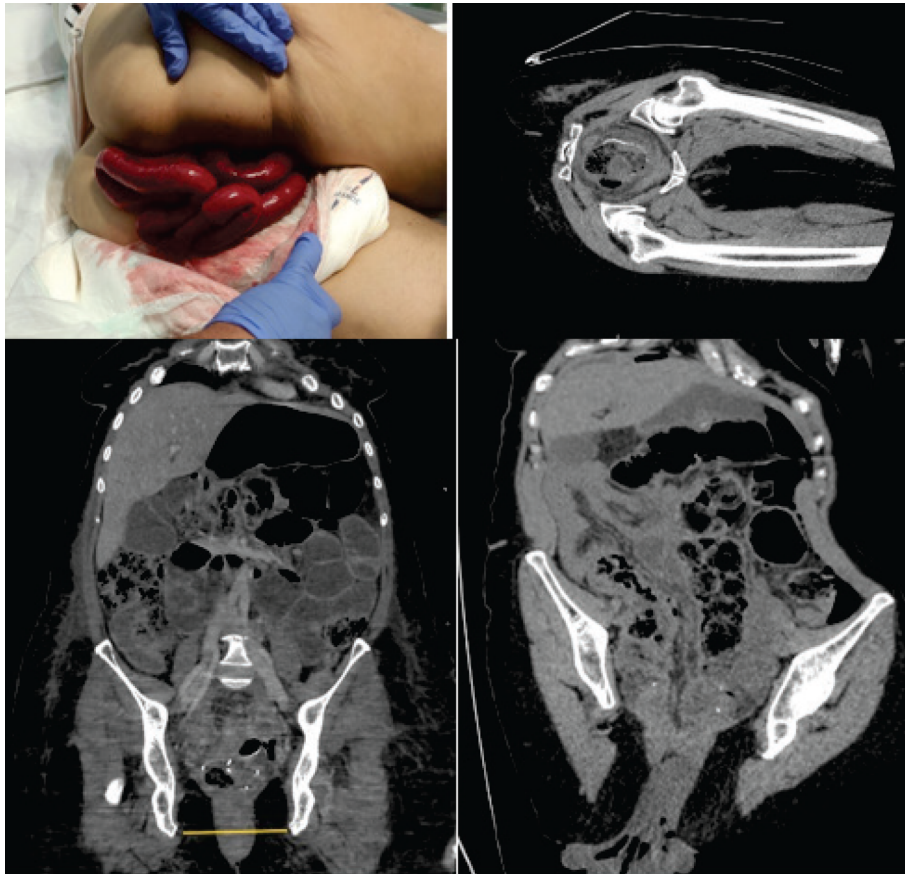
## Discussion

The rectal prolapse is a condition characterized by the protrusion of the rectum through the anus (1, 7, 8). The rectum is made up from sheets or layers that wrap around it and slide over each other.

The prolapse, which can be partial or complete in the rectal region, is created by the abnormal sliding of these layers. The rectal mucosal prolapse slips as the mucosa (first layer) in the rectum evacuates by sliding on the submucosa (second layer). The layers of the rectal wall can slip over one another, pushing the anal orifice in that direction, resulting in complete rectal prolapse. Three classifications can be made for complete rectal prolapse:

- pre-anal or recto-rectal prolapse: the prolapse's apex doesn't extend into the rectal canal;
- intra-anal or anus-rectal prolapse: the prolapse's apex engages the anal canal without protruding;
- external prolapse: the prolapse's apex protrudes from the anus.

The stapled trans-anal rectal resection (STARR) and posterior colporrhaphy (PC) are two of the most often used treatments for rectocele. Stapled Trans-anal Resection of the Rectum is abbreviated as "STARR" (9, 10). The surgical procedure known as STARR was developed to treat rectocele and rectal intussusception and those who suffer from these are probably the ones who will profit from this practice the most. Through the anus, the STARR procedure is a minimally invasive surgical treatment. In this case, the excess tissue in the rectum is removed with a surgical stapler to lessen the anatomical abnormality. Additionally, it doesn't leave any visible scars. STARR was found to be a safe approach with the best recovery rates after



**Figure 2.** A massive trans-rectal herniation of the terminal ileal loops, visible from the outside (A: on the left). An axial CT image (B: on the right), from above, showed the anal sinus and the beginning of the prolapse below. Rectal prolapse, evaluated below the joint of the two ischial spines (under the yellow line), was the first event to be seen on a coronal CT (A: on the left). In addition, there was a small amount of fluid effusion in the right parietocolic groove and perihepatic location, equally likely caused by the surgical clips.

repeated audits. In women, during STARR the vagina is checked to avoid mistakenly integrating the vaginal mucosa. Additional hemostatic sutures are typically applied to the staple edge to ensure a dry anastomotic line (11). Advantages of STARR include:

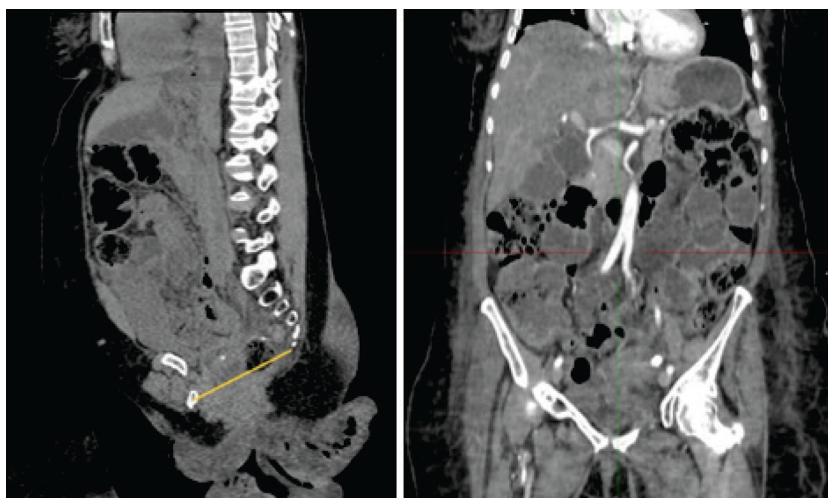
- A safe technique with a high rate of success
- A short follow-up period
- It doesn't involve an external incision.

Although STARR is considered a safe and effective technique, it may be followed by unusual and severe postoperative complications, such as bowel

obstruction and herniation can occur following a STARR procedure (2, 3).

The most common complications of surgical diastasis and intestinal leakage, are:

1. **Intestinal Obstruction:** Transrectal ileal loop herniation can result in intestinal obstruction, which can produce symptoms like nausea, vomiting, distention, and abdominal pain.
2. **Intestinal ischemia:** When the blood supply to the herniated loops, due to intestinal leakage, ischemia, and possibly intestinal necrosis result.



**Figure 3.** Two sagittal CT images clearly showed the massive enteroceles, under the pubococcygeal line (in yellow). Also, a coronal CT acquired after the procedure showed the results of earlier surgery, multiple and diffuse air-fluid levels, and the absence of prolapse below the pubic symphysis.

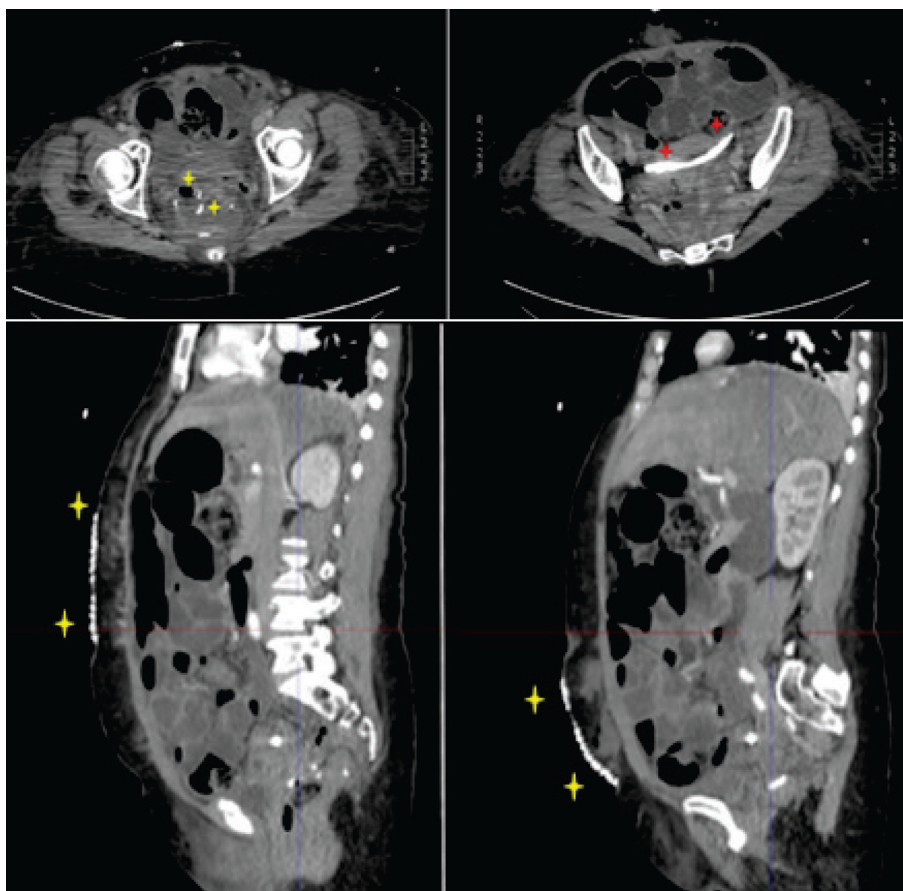
3. Peritonitis: By enabling germs to enter the peritoneal cavity and resulting in a serious peritoneal infection, loop herniation raises the risk of bowel rupture.
4. Fistulas: Because of intestinal herniation, fistulas may develop between the rectum and other anatomical structures like the bladder or vaginal wall.
5. Enterocele: in some rare cases.

In this case report, a female patient has an intra-peritoneal rectum perforation with a significant herniation of the ileal loops through the rectum, which included intra-abdominal free air, perihepatic effusion, and trans-rectal herniation, which required surgical correction in urgency (12). A rare but possibly further dangerous STARR procedure complication is the intra-abdominal free air; it can result from an iatrogenic surgical perforation or, as in our instance, from the surgical clips dehiscing (13). Loop dislocation, as said, can cause bowel obstruction and requires urgent surgery to reposition the loops and close the prolapsed portion. Prompt recognition of such complications is crucial, as they can lead to significant morbidity if not managed promptly.

The patient's serious clinical situation was taken into consideration when the choice to do urgent surgery with a laparotomy was made. The prolapsed part was also closed during the procedure, and the herniated ileal loops were repositioned. A median laparotomy is a surgical procedure that involves opening the abdomen from the pubis to the xiphoid process of the sternum to expose organs.

In an emergency, open abdominal surgery, also known as a laparotomy, may be necessary to remove an organ or treat a dangerous condition. Then, metal clamps are used to close the wound.

A "laparotomy" is the technical term for the abdominal wall incision that releases the peritoneal cavity. Laparotomy is also known as "peritonectomy" (an incision into the peritoneal cavity) and "celiotomy" (an abdominal incision). A high, red, and painful sagittal scar that forms after a laparotomy may take 6–8 weeks to heal. The scar might gradually disappear in some circumstances, but in others, it might not. In conclusion, this case report emphasizes how crucial it is to recognize and treat any potential problems that can occur after a STARR procedure for rectal prolapse (14).



**Figure 4.** An axial CT image acquired following surgery showed the bowel and rectum in the appropriate positions with new metallic clips (in yellow). The drainage tube (in red) was visible in the second image (B on the right). In the two sagittal CT images, there was the long scar result of the median laparotomy from the xiphoid process of the sternum (A, on the left) to the pubis (B, on the right); this scar is closed (in yellow) by many metallic clips. There was still the persistence of the multiple and diffuse air-fluid levels, maybe due to the surgery.

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**Authors Contribution:** The authors confirm their contribution to the paper as follows: study conception and design: MM author, GM author, GR author, GG author; data collection: MM author,

MF author; analysis and interpretation of results: AFB author, RC author; draft manuscript, preparation: MM author, GM author, FM author, GG author. All authors reviewed the results and approved the final version of the manuscript.

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