

Repair of Internal Rectal Prolapse with Outlet Obstruction Constipation via Robotic Resection Rectopexy and placement of Decellularized Dermal Allograft as a Pelvic Floor Hernia Repair

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Background

Rectal prolapse is a common condition in women as they age and is related to a series of muscle diastases and hernias of the pelvic floor that are difficult to identify and repair. The recurrence rate after repair, like other hernias of the abdominal cavity can be between 10-20%. The common physical exam findings will be perineal descent (pelvic laxity with a rocker bottom defect), decreased muscle tone with a rectal drainage of thin clear mucous. The decision to proceed transabdominally with a robotic approach versus transanally/perineal approach is typically made based on the patient's symptoms, exam findings, and comorbidities. This otherwise healthy patient who has had prior abdominal surgeries, symptomatic diverticulosis, and internal rectal prolapse would benefit most from a procedure that can remove abdominal adhesions, resect the area of diverticulosis, lift the rectum to a more normal position in the abdomen, and then reinforce the incompetency of the rectovaginal septum as well as reinforce the levator muscles to prevent future prolapse and outlet obstruction. Hernia repairs in other parts of the body are typically repaired with tension free mesh repairs which do dramatically decrease the rate of recurrence.

“The pelvic floor is not well suited for artificial mesh because the constant motion of the perineum allows for the erosion of artificial substances into the soft tissue. The use of decellularized allograft allows for a more thorough repair of a pelvic floor hernia without tension and without artificial materials.”

Clinical Presentation:

- 61-year-old female with significant surgical history of prior gastric bypass, hysterectomy, and bladder sling presented with complaints of severe outlet obstruction constipation and abdominal pain.
- On exam patient has mild perineal descent, with normal anal tone and a significant rectocele and incompetence of the rectovaginal septum.
- Defecography confirmed mild perineal descent without incontinence, normal widening of the anorectal gap but with incomplete emptying of the rectal bolus along with internal rectal prolapse and resultant effacement of the posterior vaginal wall.
- Colonoscopy confirmed diverticulosis and presents with both outlet obstruction, constipation and abdominal pain.

Procedure:

- Robotic resection rectopexy implantation of non-autologous tissue graft in the rectovaginal septum and along the levator muscle shelf

Intra-Operative Findings:

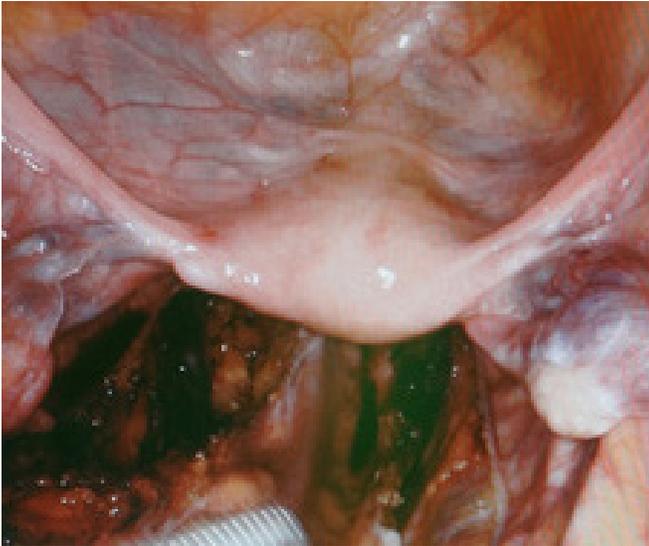


Fig 1. Lateral dissection to complete the mobilization of the rectum. The middle hemorrhoidal vessels are not divided. This dissection then swings anterior into the rectovaginal septum for at least 3 cm.

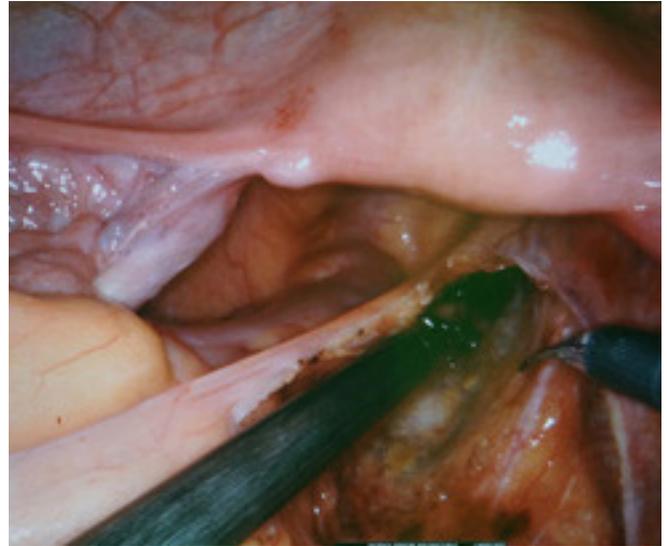


Fig 2. Medial approach to rectorectal dissection-carried superficial to the presacral fascia down to the anal canal posteriorly and posterolaterally.



Fig 3. A 7 x 10 cm sheet of non-autologous tissue graft is cut to create a 7 x 7 cm piece and a 3 x 7 cm long piece. The 7 x 7 cm sheet is then partially split at one end to allow for a wrap around the anal canal.

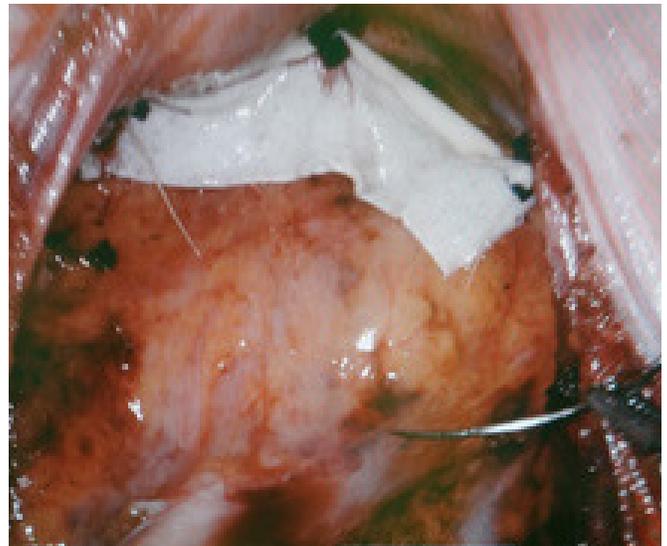


Fig 4. Once the rectum and vagina are separated, a 3 x 7 cm piece of non-autologous tissue graft is fixed in place with suture and LAPRA-TY® devices to reinforce the incompetent rectovaginal septum without tension.

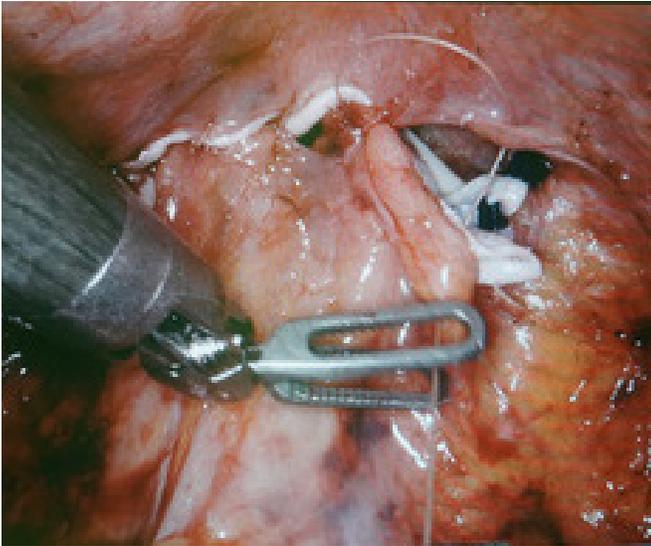


Fig 5. The graft is then reinforced and the depth of the cul de sac is improved.

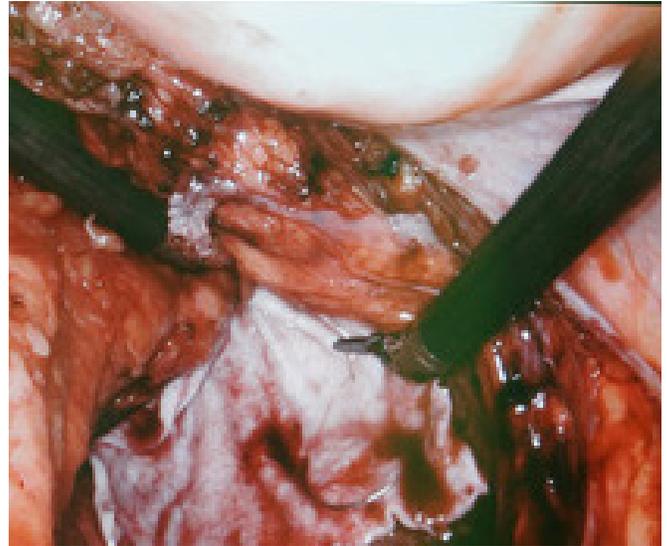


Fig 6. The 7 x 7 cm piece of graft is then placed in the presacral space to reinforce the levator shelf posteriorly and posterolaterally.

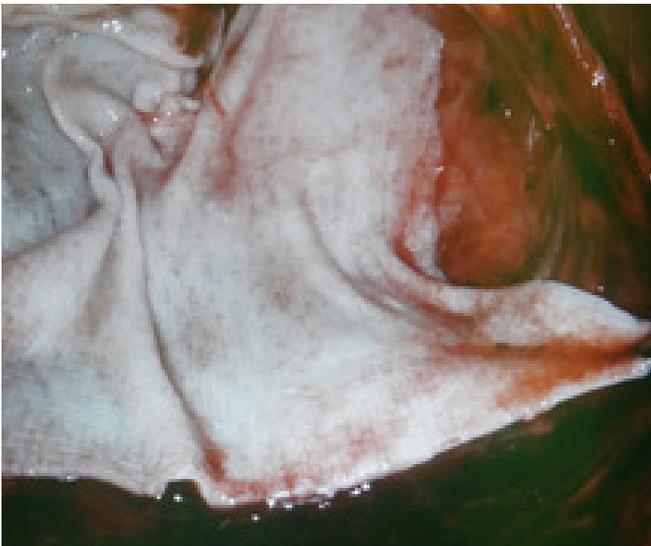


Fig 7. The graft is tacked on either side of the anal canal with suture and LAPRA-TY® device and then sutured to the back of the mesorectum and the presacral fascia as a suture rectopexy.

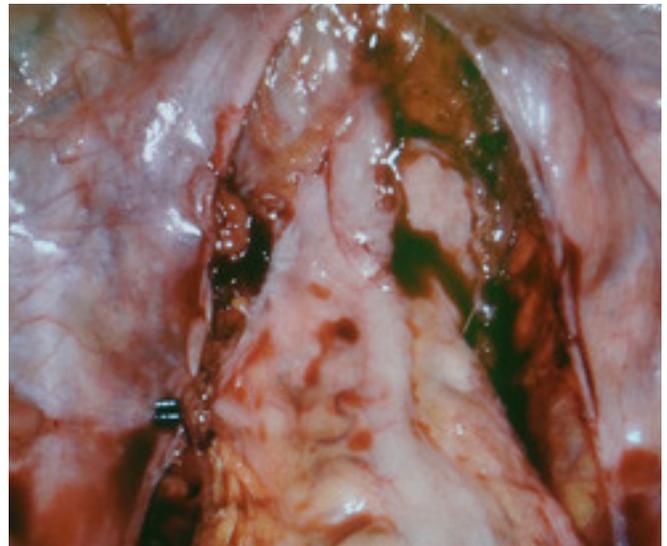


Fig 8. The graft is then reperitonealized.

Post-Operative Results:

Patient had an immediate relief of both her outlet obstruction constipation and abdominal pain related to the rectal prolapse, diverticulosis and intra-abdominal adhesions.

Discussion

Historically, rectal prolapse in a healthy patient that is full thickness and external to the anal opening is approached from an abdominal approach. This approach was not felt to be beneficial for the symptoms of outlet obstruction and therefore was not an approach advocated for internal rectal prolapse. Patients with outlet obstruction constipation with internal rectal prolapse were either offered a transanal stapled approach (STARR procedure) or no treatment at all. Several years ago, the STARR stapler was removed from the market leaving surgeons with few described options to repair this condition satisfactorily. A transanal approach is still possible with resection of the anterior and posterior rectal wall segments with resultant hand sewn anastomosis, however, like the STARR procedure, this does not address the abdominal components of many patients' complaints. With this in mind, I have pursued and developed a robotic surgical approach that has had >95% patient satisfaction with very few complications including a zero anastomotic leak rate and zero mortality rate.

A traditional resection rectopexy involves the dissection along the presacral fascia to the level of the anal canal posteriorly, but descriptions of the original procedure advocated against dissection laterally or anteriorly in the rectovaginal septum for fear of removing nervous innervation to this area which may worsen outlet obstruction constipation. My observation of the patient's anatomy during defecography, however, would suggest that rectal prolapse begins with an anterior rectal wall herniation into the vagina, followed by upper intussusception then partial prolapse of the anterior rectal wall. With years of straining, the posterior levator shelf begins to thin, creating perineal descent, diastasis of muscle fibers and herniation of the posterior rectal wall that then allows for the prolapse of both anterior and posterior rectal wall which leads to a full thickness rectal prolapse beyond the anal canal. By the time this series of events occurs, the patient has lost most of their muscular tone in the pelvis and often has developed prolapse of the other pelvic organs and then incontinence of both urine and stool. These patients will present decades into this process and the very difficult to manage constipated patient with incontinence. The goal of capturing these patients early in their struggles is to improve their quality of life while preventing an irreversible anatomic and neurologic deficit.

DermaPure® Decellularized Dermal Allograft	Size of Allograft
030400HD	DermaPure 3 cm x 4 cm
040600HD	DermaPure 4 cm x 6 cm
071000HD	DermaPure 7 cm x 10 cm
071000HDN	DermaPure Non-Oriented Dermis 7 cm x 10 cm