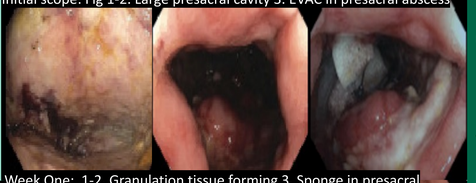
Endoluminal Vacuum Therapy for Colorectal Anastomotic Dehiscence:

A Simplified Atlas for a Complex Problem



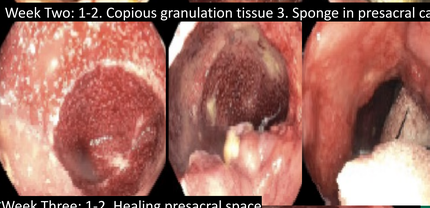
Initial scope: Fig 1-2. Large presacral cavity 3. EVAC in presacral abscess



Week One: 1-2. Granulation tissue forming 3. Sponge in presacral



Week Two: 1-2. Copious granulation tissue 3. Sponge in presacral cavity



Week Three: 1-2. Healing presacral space

Purpose: Colorectal anastomotic dehiscence plagues colorectal surgeons given the significant morbidity and mortality associated with this postoperative complication. Incidence of colorectal leaks or dehiscence is reported as high as 10-20% with an associated mortality up to 5-10%. Negative pressure vacuum therapy, or endoluminal vacuum therapy (EVAC), is quickly revolutionizing the management of anastomotic dehiscence in both foregut and hindgut surgery [1-4]. Compared with traditional treatment options, improved luminal healing and shorter time to stoma reversal has been reported in the literature using EVAC [5-7]. We will discuss the management of a colorectal anastomotic dehiscence (six centimeters from the anal verge) and a large presacral abscess to demonstrate the longitudinal clinical progression using EVAC in a patient following low anterior resection for severe infiltrating endometriosis.

Methods: After proximal diversion, we managed a large (6x4x9cm) presacral abscess cavity with EVAC. An endoluminal vacuum device was created using readily available supplies with the goal of collapsing the cavity and creating a mucosal seal for rectal healing. A white foam sponge was secured to the end of suction tubing with nylon suture, endoscopically placed into the presacral cavity, and connected to continuous negative pressure (75mmHg) using a portable wound vacuum. The patient underwent six weeks of endoluminal vacuum therapy with sponge changes occurring biweekly. At each exchange, the progression of granulation tissue and mucosal healing was inspected, the cavity measured, and the size of the sponge adjusted according to the collapsing space. Treatment was managed as an outpatient. Sponge changes were performed without difficulty by surgical staff including residents of all levels of training.

Results: After six weeks of therapy, the large presacral cavity was healed. The progressive findings, both intraluminal and radiologic, were chronologically recorded to create an atlas of expected healing. The patient did not require reoperation following EVAC treatment of the colorectal anastomotic dehiscence. Her ileostomy was successfully reversed following completion of EVAC therapy.

Conclusion: Endoluminal vacuum therapy is transforming the management of esophageal and colorectal anastomotic leaks given the high rates of successful healing. Despite severe infiltrating endometriosis of the rectum, our patient was able to heal a low colorectal dehiscence and presacral abscess cavity in just six weeks. Management of even the most complex cases of anastomotic dehiscence with EVAC has demonstrated very promising results. Colorectal surgeons should be aware of this alternative treatment modality.



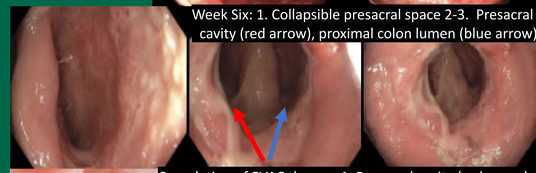
Fig 1: Large undrained presacral abscess (6x4x9cm) 2: EVAC in place 3. No contrast extravasation, healed rectum & presacral space



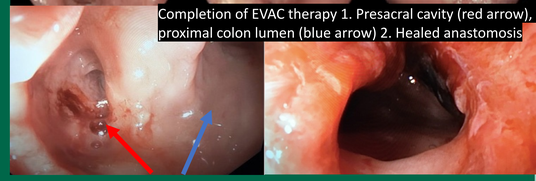
Week Four: 1-3. Healthy granulation tissue after endoluminal vacuum therapy



Week Five: 1-2. Decreased size of presacral cavity



Week Six: 1. Collapsible presacral space 2-3. Presacral cavity (red arrow), proximal colon lumen (blue arrow)



Completion of EVAC therapy 1. Presacral cavity (red arrow), proximal colon lumen (blue arrow) 2. Healed anastomosis

Resources:

1. Aras A, Celik S, Kiziltan R, Yilmaz O, Kotan C. Successful Treatment of a Large Pelvic Abscess Using Intraluminal VAC: A Case Report. J Clin Diagn Res. 2016;10(4):PD19-20. doi: 10.7860/JCDR/2016/18485.7659.
2. Katz E, White I, Shpitz B, Ghinea R, Avital S. Different approaches for Endo-SPONGE((R)) insertion to treat rectal anastomotic leaks. Tech Coloproctol. 2018;22(3):231-3. doi: 10.1007/s10151-018-1764-7.
3. Pournaras DJ, Hardwick RH, Safranek PM, Sujendran V, Bennett J, Macaulay GD, et al. Endoluminal Vacuum Therapy (E-Vac): A Treatment Option in Oesophagogastric Surgery. World J Surg. 2018;42(8):2507-11. doi: 10.1007/s00268-018-4463-7.
4. Rottoli M, Di Simone MP, Vallicelli C, Vittori L, Liguori G, Boschi L, et al. Endoluminal vacuum-assisted therapy as treatment for anastomotic leak after ileal pouch-anal anastomosis: a pilot study. Tech Coloproctol. 2018;22(3):223-9. doi: 10.1007/s10151-018-1762-9.
5. Scott RB, Ritter LA, Shada AL, Feldman SH, Kleiner DE. Endoluminal Vacuum Therapy for Ivor Lewis Anastomotic Leaks: A Pilot Study in a Swine Model. Clin Transl Sci. 2017;10(1):35-41. doi: 10.1111/cts.12427
6. Shalaby M, Emile S, Elfeki H, Sakr A, Wexner SD, Sileri P. Systematic review of endoluminal vacuum-assisted therapy as salvage treatment for rectal anastomotic leakage. BJS Open. 2019;3(2):153-60. doi: 10.1002/bjs5.50124.
7. Strangio G, Zullo A, Ferrara EC, Anderloni A, Carlino A, Jovani M, et al. Endo-sponge therapy for management of anastomotic leakages after colorectal surgery: A case series and review of literature. Dig Liver Dis. 2015;47(6):465-9. doi: 10.1016/j.dld.2015.02.007.

UNIVERSITY of SOUTH FLORIDA

Michaelia S. Sunderland MD, Anthony Dakwar MD, Adam Wilensky MD, Jaime E. Sanchez MD