Closure of non-healing perianal Crohn's disease with surgery and vacuum-assisted closure (VAC) system

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Dear Editor,

Perianal involvement is a frequent incident in Crohn's disease. Perianal Crohn's disease may include complications ranging from fistula, ulcerations, skin tag, and inflammation to diffuse septic destructions and anal sphincter involvement (1). The frequency of anal complications of the disease is 43.7%-93%. In the case of colorectal involvement, perianal frequency increases further (2).

Perianal fistulas constitute the most frequent (23%-38%) and seriously morbid type of the perianal Crohn's disease. The basic aim of perianal Crohn's disease therapy is to cure the disease and to improve the quality of life of patients by combining medical and surgical methods (3).

Proctectomy surgery may be required when rectal involvement is apparent and when refractory remains despite the medical therapy and the application of limited surgical interventions. Proctectomy ratio in Crohn's disease is 12%-20%, and non-healing wound and perianal sepsis are the most important problems of the post-proctectomy period (1).

Vacuum-assisted closure (VAC) system provides a negative pressure to allow a rapid closure of complicated wounds. The negative pressure system provides a rapid wound closure by increasing infected material removal, local edema reduction, perfusion, fibroblast migration, cell mitosis, and proliferation (4).

In this case study, the healing of open and non-healing perianal wound, which is related to Crohn's disease, through proctectomy combined with VAC system is presented.

A 35-year-old female patient presented with colon-involved Crohn's disease for 10 years. She had undergone a seton surgery at the 3rd year of diagnosis when a recto-vaginal fistula developed; she had also undergone a loop ileostomy surgery at the 5th year because of the continuation of her complaints arising from bloody diarrhea, abdominal pain, increase in recto-vaginal efflux, and perineal discomfort. Even though she experienced a partial relief, she underwent a second colonoscopy after her ileostomy surgery. The patient developed colon perforation during the operation and underwent a total colectomy surgery. Following the surgery, fistular efflux increased, but fissures developed in the meantime. Despite changes in medical therapy, recto-vaginal efflux and fissure-related pain increased, and gradually growing wounds appeared in the perinea. The evaluation of the patient at her admission to our clinic 3 years after the appearance of the wound in her perinea (Figure 1) revealed diffuse cellulitis in skin comprising vagina, which extended up to both the gluteus muscles, leading to the posterior intergluteal sulcus deterioration plus serious subcutaneous tissue loss that destructed the internal and external sphincter muscles. The patient was administered an antibiotherapy to prepare for proctectomy surgery; owing to weight loss, she was administered enteral nutrition. By washing the perineal wound in 6 sessions of VAC (Negative Pressure Wound Therapy; Smith & Nephew, London, UK) system under anesthesia in the nutritional back-up period, the purulent efflux of the rectal stump was drained. After the proctectomy surgery, 14 additional sessions of VAC pro-

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Figure 1. Image on first reference
Perineal widespread cellulite and tissue loss, which causes the loss of external and internal sphincter muscles of vaginal posterior wall and rectum anterior wall

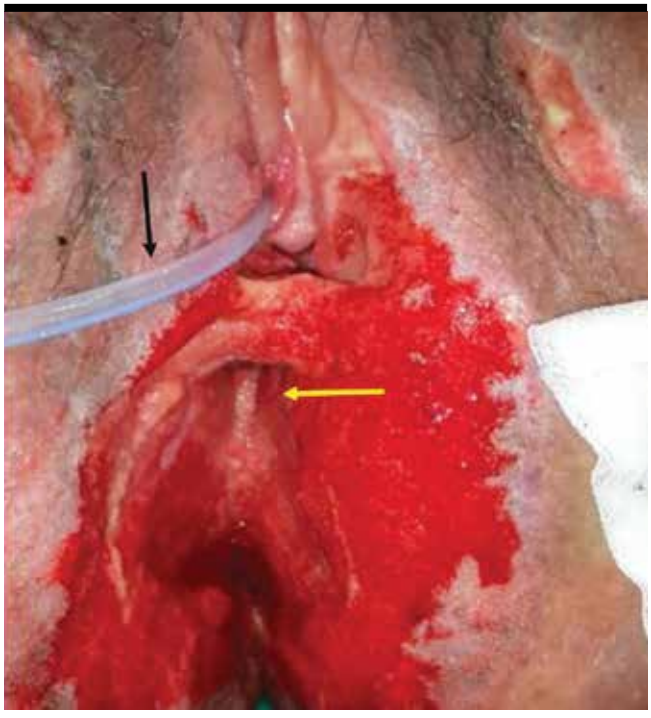

Figure 2. While VAC treatment continues after proctectomy, areas with extensive cellulite degeneration and tissue loss in the perineum are filled with granulation tissue
Black arrow indicates urine probe; yellow arrow indicates proctectomy area

Figure 3. Ten months after the treatment
Cellulite has completely disappeared in the perineal skin, and the wound edges are almost closed with the inner sutures (red arrow)
Yellow arrow indicates intergluteal sulcus; green arrow indicates vagina

cedure were conducted through proximizing the pelvic peritoneum sheets as close as possible without an application of muscle phlebs or omentoplasty. VAC administration was performed at -80 bar with a sponge form before proctectomy and at −120 bar with a foam form to further increase blood flow after proctectomy. VAC application procedure was renewed in every 2 or 3 days. Prior to the last period of VAC application procedures, the wound was partially approximated with suture (Figure 2). The patient's wound was almost totally healed in approximately 10 months of the follow-up period, which comprised 20 sessions of VAC procedure in total. Currently, the patient is under follow-up at our clinic (Figure 3).

The patient was informed of all the procedures to be performed. Informed consent was obtained for surgical treatment and VAC treatment. In addition, the patient's permission was obtained for the publication of all images and case presentation.

Being a very important situation in Crohn's disease, perianal involvement is particularly observed in colon-involved Crohn's disease. This situation has a considerable influence on the quality of life of patients; thus, there are numerous modalities for this, such as primary medical

approaches followed by surgical methods (2). In general, Chron's disease related to perianal wound appears secondary to surgery, non-response to medical therapy, inappropriate hygiene, and insufficient personal care, all of which are the consequences of perianal complications of the disease. In complications such as non-symptomatic fissure skin tag, a conservative approach is one of the most important factors. Appropriate drainage and antibiotic therapy are recommended in inflammation. In contrast, a spectrum of surgical approaches from fistulotomy to seton application and more complicated surgical protocols may be considered for fistulas that do not heal after medical treatment (5). Proctectomy may be appropriate in aggressive and resistant perianal rectal Crohn's disease if the conservative medical and surgical treatments are unsatisfactory. According to the literature, proctectomy ratio is 10%-20% (6). The rectus abdominus, gluteus maximus gracilis muscle phlebs, omentoplasty, and diversion methods may be indicated in a non-healing perianal wound and sinus formations, which comprise the most important problems arising after proctectomy (7-11).

Vacuum-assisted closure therapy has been used in the treatment of acute and chronic wounds for almost 20 years and is now widely used worldwide (12). VAC system improves local blood flow and oxygenation by removing the enzymatic wound fluid and reducing interstitial edema with the help of sub-atmospheric pressure from the extravascular field. As a result, it accelerates wound healing by increasing the accumulation of granulation tissue within the wound (13,14).

Therefore, VAC system is confident and efficient and can be easily and comfortably applied in nursing care practices; it decreases the need in changing the wound dressing and enables better measurement of the fluid lost from the wound.

The limitation of our study is that the follow-up period is short to know the patient's wound progress. Long-term results of wound healing can be assessed by negative pressure treatment by increasing the number of patients with non-healing perianal rectal Crohn's disease.

In conclusion, VAC system combined with proctectomy surgery may be used as an efficient method in increasing both the patient comfort and for ensuring the early closure of the wound for the treatment of patients with non-healing wounds as perianal complications of Crohn's disease, who are treated with medical therapy and partial surgery.

Informed Consent: Informed consent was obtained from the patient who participated in this study.

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