Ileocolonic ulcer treated by endoscopic application of collagen-polyvinylpyrrolidone

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Ulceration is a complication that may occur after an ileocolonic anastomosis. Most of the etiologies remain speculative. The case of a 33-year-old woman with eosinophilic colitis is reported, in whom a colectomy with an ileocolonic anastomosis was performed. After four months, the patient presented with a stenosis in the ileocolonic anastomosis, necessitating surgical restoration. Four weeks later, the patient presented with rectal bleeding, and a colonoscopy showed an ulcer in the anastomosis. Collagen-polyvinylpyrrolidone was applied into and on the surface of the ulcer, and five days later the procedure was repeated. Follow-up endoscopies at seven days and three months showed complete healing of the ulcer and the patient remained without bleeding throughout a further four weeks of follow-up tests. It was concluded that this biological product could be an excellent treatment for these lesions.

Key Words: *Collagen-polyvinylpyrrolidone; Ileocolonic ulcer; Ulcer healing*

Few articles have been written that describe ulcers occurring at colonic anastomotic sites. The most common clinical manifestations include pain, diarrhea and iron deficiency anemia along with evidence of gross or occult gastrointestinal blood loss. The time interval between surgery and detection of an anastomotic ulcer ranges from 15 months to 28 years (1). In most patients, ulcer etiology remains speculative but may include small bowel Crohn's disease and ingestion of nonsteroidal anti-inflammatory drugs.

In these cases, the most common therapeutic approach is to discontinue all nonsteroidal anti-inflammatory drugs or treat the underlying inflammatory bowel disease. Surgery should be reserved for life-threatening bleeds or for anemia refractory to oral iron therapy (1,2).

While no effective local therapies for ileocolonic ulcers have yet been identified, we recently published a paper (3) that described the use of collagen-polyvinylpyrrolidone (collagen-PVP) for successful treatment of peptic ulcers. This relatively new biological agent, which is a mixture of native type I collagen and PVP, has been shown to improve the healing process. The present paper reports a patient suffering from an ileocolonic ulcer that was successfully treated with a

Un ulcère iléocolique traité par application endoscopique de collagène polyvinyle pyrrolidone

L'ulcération est une complication qui peut se produire après une anastomose iléocolique. La plupart des étiologies demeurent spéculatives. On présente le cas d'une femme de 33 ans atteinte de colite éosinophile dans le présent article, chez qui on a procédé à une colectomie avec anastomose iléocolique. Au bout de quatre mois, la patiente souffrait d'une sténose de l'anastomose iléocolique, exigeant une restauration chirurgicale. Quatre semaines plus tard, la patiente a consulté pour des saignements rectaux, et une coloscopie a révélé un ulcère de l'anastomose. On a appliqué du collagène polyvinyle pyrrolidone à la surface de l'ulcère et dans celui-ci et on a repris l'intervention cinq jours plus tard. Des endoscopies de suivi au bout de sept jours et de trois mois ont révélé une cicatrisation complète de l'ulcère, et la patiente n'a présenté aucun saignement pendant les quatre autres semaines de tests de suivi. On a conclu que ce produit biologique peut constituer un excellent traitement pour ces lésions.

collagen-PVP injection into the ulcer. Colonoscopy revealed improvement in the ulcer in just 12 days.

CASE PRESENTATION

A 33-year-old woman was admitted to the hospital suffering from liquid diarrhea with five to 10 bowel movements per day and diffuse abdominal pain. After laboratory work-up, biopsy of the colon revealed more than 60 eosinophils per high-power field, which led to a diagnosis of eosinophilic colitis.

After several treatments with steroids and other immunosuppressors, the patient did not show any improvement, as evidenced by worsening diarrhea. Consequently, in an attempt to stop the persistent diarrhea and in the absence of other treatment options, a colectomy with an ileocolonic anastomosis was performed. Four months later, the patient complained of pain and rectal tenesmus and a diagnosis of incomplete obstruction by stenosis in the area of the ileocolonic anastomosis was made. Balloon dilation was not considered as a treatment option because the stenosis was too significant for the endoscope to pass easily through the lesion. As a result, it was necessary to restore the ileocolonic anastomosis. However, one

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Figure 1 A and B Ulcer on the ileocolonic anastomosis. C and D Endoscopic appearance five days after a first application of collagen-polyvinylpyrrolidone. E and F Total healing three months after the second application of collagen-polyvinylpyrrolidone

month later, the patient presented with abdominal pain, tenesmus and rectal bleeding for a period of three days. A colonoscopy revealed an ulcer in the ileocolonic anastomosis 15 cm from the anal verge (Figures 1A and 1B). The decision was made to administer 3 mL of collagen-PVP diluted in 3 mL of distilled water using a varices injector (Wilson-Cook Medical model TDVI-23 [Cook Group Inc, USA]), with a 7-Fr catheter and a 23-gauge needle. The amount of solution was chosen empirically and was injected only in and around the lesion and sprayed over the surface of the ulcer. This decision was supported by previous reports of cases in which collagen-PVP treatment was successfully used (injecting intramuscularly and subcutaneously for patients with rheumatoid arthritis and scleroderma, and application to the surface of dermatological ulcers secondary to venous insufficiency [4-6], as well as in the case described in our previous publication [3]). The patient consented to the use of the biological compound for treatment. After five days, a significant improvement was observed (Figures 1C and 1D) and the same amount of collagen-PVP was once again injected. Endoscopies seven days and three months later showed the ulcer had completely healed (Figures 1E and 1F). Three months after the application of collagen-PVP, no bleeding and no side effects were observed.

DISCUSSION

We decided to use the collagen-PVP to treat the ileocolonic ulcer in our patient because this product had demonstrated its effectiveness in a previous case of a bleeding peptic ulcer in which the lesion showed significant healing 24 h after the application of collagen-PVP (3). This new biological product has been analyzed and has displayed many beneficial properties in improving the healing process in different studies (3,7).

As previously reported, collagen-PVP is a biological agent derived from gamma irradiation of a mixture of type I pepsinized porcine collagen and PVP. This biopolymer has proven to modulate chronic inflammatory processes and improve skin wound repair and bone fractures in rats. It also modulates collagen turnover by decreasing collagenolytic activity and tissue inhibitor of metalloproteinase-1 production and increasing the amount of type III collagen. This is possibly accomplished by downregulating proinflammatory cytokines and adhesion molecules such as intercellular adhesion molecule-1, vascular cell adhesion molecule-1, interleukin-1beta, tumour necrosis factor-alpha and platelet-derived growth factor (3,7-10). Intralesional injection of collagen-PVP once a week for one to three months into human hypertrophic scars or scleroderma lesions diminishes pruritus, pain, erythema, volume and inflammatory infiltrates (5,11). This product makes tissue architecture resemble normal skin and modifies the histological and biochemical pattern of fibrosis without changing the total collagen content (12). Subcutaneous or intramuscular administration of collagen-PVP to rheumatoid arthritis patients has proven to be a safe and well-tolerated drug for short-term treatments. It has induced a statistically significant improvement in basal versus three or six months of treatment in cases of morning stiffness, as assessed by the Ritchie Index, swollen joint count, Disease Activity Score, Visual Analogue Scale, Health Assessment Questionnaire-Disability Index and the American College of Rheumatology 20/50/70 scales (4,13). Collagen-PVP has also been used in plastic surgery, where it has been beneficial in the healing of ulcers due to venous insufficiency (6).

Based on the experience of the patient discussed in the present paper, collagen-PVP once again demonstrated its

efficacy for healing ulcer lesions, probably by means of the many processes that regulate collagen metabolism. Collagen-PVP also has the advantage of being a biological drug with minimal risks, given that no side effects have been found in healthy volunteers and patients treated for hypertrophic scars over long periods of time (14). This endoscopic ulcer treatment should be considered as an option in all cases that have not met with successful results using conventional treatments.

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