

Case Report: Treatment for Rectovaginal Fistula in Crohn's Disease Using Fractionate CO₂ Vaginal Laser with Anti-TNF Therapy

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Abstract

Background: Rectovaginal fistulas (RVFs) are defined as any connection between the anorectum and the vagina. They can have several causes, being Crohn's disease, the second leading cause of RVFs, responsible for ~10% of the RVFs. Despite the advances in surgical and clinical treatment, there is no consensus regarding the best line of treatment.

Objective: To report another therapeutic option, we describe the case of a patient with Crohn's disease and RVF refractory to anti-tumor necrosis factor (TNF) therapy, submitted to intravaginal CO₂ fractional laser treatment.

Materials and methods: Three laser sessions with monthly interval and analysis by clinical examination, sexual evaluation questionnaire, and magnetic resonance of the pelvis were performed.

Results: We obtained an important improvement of the symptoms and of the dimension of the fistulous path.

Conclusions: We believe this method to be a complementary, promising, and safe therapeutic alternative for the management of vaginal fistula. Future studies using this therapeutic strategy are needed to confirm the efficacy of this method in this clinical setting.

Keywords: laser CO₂, rectovaginal fistula, intravaginal treatment, Crohn's disease

Introduction

FISTULAS CAN BE defined as an abnormal form of communication between two epithelial surfaces. Among them, the rectovaginal fistulas (RVFs) emerge as one of the worst forms of fistula, leading to more severe symptoms and consequences for the patient's quality of life. Defined as the path that connects the anal or rectal canal to the vagina,¹ the RVFs can have causes such as vaginal trauma, Crohn's disease, previous radiation, infection, local surgeries, and cancer.^{2–4}

Typically, the patient with RVF complains of output of feces, flatus, or mucopurulent discharge with foul odor by the vagina. These symptoms are recurrent and often difficult to control and may be misdiagnosed as fecal incontinence.¹

Other common complaints are dyspareunia, perineal pain, and recurrent vaginal infections.¹

Numerous procedures are used for treatment, but both surgical and nonsurgical techniques result in a low success rate and a high rate of complications.^{5,6} However, the fractionated CO₂ laser described by Salvatore et al.⁷ may rise as a new therapeutic option, due to its capacity to activate mesenchymal cells, collagen, and local growth factors, stimulating the growth of the local epithelium to close the fistulous path and/or improve the quality of the vaginal epithelium, improving patient comfort and quality of life.

This report describes the case of a patient with Crohn's disease and RVF, refractory to anti-tumor necrosis factor (TNF) therapy, who underwent three sessions of fractional intravaginal CO₂ laser, associated with the maintenance of anti-TNF therapy,

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FIG. 1. Photo showing fistulous orifice in the posterior vaginal wall.

evolving with partial closure of the fistula, resulting in a significant improvement in patient's quality of life and gynecological symptoms.

Materials and Methods

A 40-year-old female patient was diagnosed with RVF due to Crohn's disease for 7 years. The fistula, which emerged as one of the first symptoms of the disease, led to the diagnosis. This case report was authorized through the Informed Consent Form, number 3123437, by the National Commission for Research Ethics (Brazil).

The patient reported symptoms of continuous vaginal burning, dyspareunia, and vaginal bleeding during intercourse. During the previous 5 years, she had used periodic infusions of infliximab (5 mg/kg at 6/6 weeks), an anti-TNF

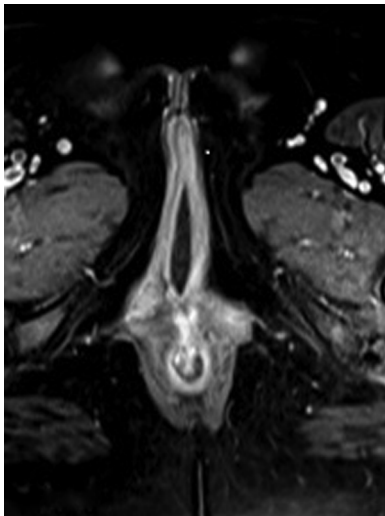


FIG. 2. MRI of the pelvis performed with venous administration of the gadolinium-based contrast agent showing a simple linear fistulous path between the anterior wall (12 h) of the anal canal and the posterior wall of the vagina associated with intense enhancement due to the presence of active inflammatory tissue. MRI, magnetic resonance imaging.

agent, which resulted in a mild improvement of vaginal burning. Other therapeutic resources were not reported.

The examination confirmed the presence of an RVF in the lower third of the vagina, evidenced by the presence of a circular orifice of 0.5 cm in the posterior wall with elimination of foul-smelling fluid. There was a local intense inflammatory reaction (Fig. 1) and the patient reported pain at vaginal touch.

Magnetic resonance imaging (MRI) of the pelvis performed with venous administration of the gadolinium-based

TABLE 1. PATIENT RESPONSES TO THE FEMALE SEXUAL QUOTIENT BEFORE AND AFTER VAGINAL LASER TREATMENT

<i>Question</i>	<i>Answer before laser therapy</i>	<i>Answer after laser therapy</i>
Do you often think about sex spontaneously, remember sex, or imagine yourself having sex?	Sometimes	Most of the times
Is your interest in sex enough for you to participate in sexual intercourse at will?	Sometimes	Approximately 50% of the times
Do foreplay (caresses, kisses, hugs, cuddles, etc.) encourage you to continue sexual intercourse?	Sometimes	Most of the times
Do you usually get lubricated (wet) during intercourse?	Approximately 50% of the times	Most of the times
During intercourse, as your partner's arousal increases, do you also feel more stimulated for sex?	Most of the times	Always
During intercourse, do you relax your vagina enough to facilitate penetration of the penis?	Sometimes	Sometimes
Do you usually feel pain during intercourse when the penis penetrates your vagina?	Always	Rarely
Can you get involved, without getting distracted (without losing concentration), during intercourse?	Sometimes	Sometimes
Can you get an orgasm (maximum pleasure) in your sexual relationship?	Rarely	Sometimes
Your sexual satisfaction makes you want to have sex other times, on other days?	Sometimes	Approximately 50% of the times
Final result	Bad to unlikely	Fair to good

TABLE 2. TECHNICAL SETTINGS USED IN TREATMENT

Power density	40 W/cm ²
Wavelength	10,600 nm
Fluence and density	5.37 J/cm ³ and 6.4%
Frequency of treatment	1 Each 4 weeks
Cumulative dose given	3 Doses
Duration of each treatment session	240 sec
Dwell time	1000 μ sec
DOT spacing	1000 μ m

contrast agent showed a simple linear fistulous path between the anterior wall (12 h) of the anal canal and the posterior wall of the vagina associated with intense enhancement due to the presence of active inflammatory tissue (Fig. 2).

The patient answered the Female Sexual Quotient (FSQ)⁸ questionnaire, and the score obtained (40) was compatible with bad/unfavorable sexual function (Table 1).

Subsequently, the patient was kept in therapy with infliximab (anti-TNF) and submitted to three sessions, fractionated at weeks 0, 4, and 8, using the CO₂ laser (SmartXide² V² LR, MonaLisa Touch; DEKA). The settings were: DOT (micro-ablative zone) power of 40 W, dwell time of 1000 μ sec, DOT spacing of 1000 μ m, and a two stack (Table 2). The laser probe was gently inserted into the vagina, without using the speculum, lubricants, or topical anesthetics. The procedure took 4 min and no pain was related. The patient was instructed to avoid sexual activity within 3 days of the laser procedure.

Results

At week 12, during examination, no inflammatory signs in the lower third of the vagina were observed, and the fistulous orifice was not visible. No more complaints of vaginal burning, dyspareunia, or bleeding during intercourse were reported this time. The patient answered again the FSQ,⁸ and the score obtained (66) portrayed regular sexual function (Table 1; Fig. 3).

At week 12, the patient was submitted to a new pelvis MRI, which demonstrated the persistence of the RVF. However, there was no evidence of contrast enhancement, inferring improvement of the inflammatory activity demonstrated in previous examinations (Fig. 4).



FIG. 3. Photo after the laser treatment, demonstrating the absence of the orifice in the posterior vaginal wall.

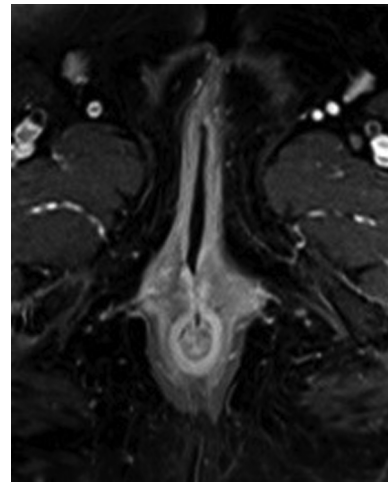


FIG. 4. At week 12, the patient was submitted to a new pelvis MRI, which demonstrated the persistence of the rectovaginal fistula, however, without evidence of contrast enhancement, inferring improvement of the inflammatory activity demonstrated in the previous examination.

Discussion

The management of RVF associated with Crohn's disease still remains a medical challenge, and no standard treatment is accepted worldwide. Despite the great therapeutic arsenal, success rates remain low. The ACCENT II study reported a 64% response rate (reduction of 50% in number of fistulas at a 10-week follow-up). At the 14-week follow-up, 72% of the patients treated with infliximab had no sign of active RVF. But to this day, patients who are refractory to treatment can be evaluated for a proctectomy.^{4,9} A recent meta-analysis showed that the success in using secondary anti-TNF therapies has a failure rate of 45%, when compared with the first attempt (30%), so other therapies were not utilized in the treatment of this patient.¹⁰

In the research for adequate treatment, fractional CO₂ laser may rise as a potential complementary, promising, and safe therapeutic strategy, in analogy to its use with great success for the treatment of vulvovaginal atrophy in climacteric patients, evidenced by several studies.¹¹⁻¹³ The treatment offers no collateral damage, due to the quick and painless administration.

The patient was evaluated considering quality-of-life improvement and partial closure of the fistulous path. She was invited to respond to the FSQ.⁸ Before the first laser application, the sum of the patient's responses was 40 (Table 1), evidencing a poor to unfavorable sexual performance pattern. One month after the last laser application, the sum of the responses was 66, which means a good standard for sexual performance, evidencing the improvement after the laser treatment (Table 1).

Conclusions

This case reports improvement in quality of life, reduction of inflammation in the fistulous trajectory, and partial closure of the RVF as a result of treatment with fractional intravaginal CO₂ laser and anti-TNF therapy. The procedure proved to be safe in this special group of patients. More

studies are required to establish this method as a complementary therapeutic resource for patients with RVF.

Author Disclosure Statement

No competing financial interests exist.

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