

## Relato de caso

# Rehabilitation strategies for vaginal stenosis following pelvic radiotherapy

## Reabilitação fisioterapêutica usada para tratar estenose vaginal pós-radioterapia pélvica

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### Resumo

**Objetivo:** Descrever uma estratégia de reabilitação fisioterapêutica usada para tratar estenose vaginal pós-radioterapia pélvica para câncer ginecológico. **Métodos:** Trata-se de um relato de caso de uma mulher com estenose vaginal pós-braquiterapia por carcinoma endometrial. A paciente já havia sido submetida também à hysterectomia abdominal com dissecação de linfonodos pélvicos e omentectomia. Os recursos fisioterapêuticos usados para tratar a estenose vaginal foram massagem perineal (MP), Treinamento dos Músculos do Assoalho Pélvico (TMAP), dilatador perineal e orientações sobre função sexual. A paciente foi tratada uma vez por semana por nove sessões e recebeu instruções para continuar a MP e TMAP em casa. **Resultados:** Após cinco sessões, a paciente referiu melhora na elasticidade vaginal, no entanto sem conseguir ter relação sexual com penetração. A relação sexual completa e sem dor só foi possível na oitava sessão. Ao final do tratamento (nona sessão), a paciente estava apta a manter uma vida sexual plena com seu marido. **Conclusão:** As técnicas de reabilitação fisioterapêutica utilizadas atingiram sucesso neste caso e podem ser consideradas como estratégia de tratamento para estenose vaginal pós-radioterapia pélvica.

**Palavras-chave:** braquiterapia, vagina, constrição patológica, modalidades de fisioterapia, massagem.

### Abstract

**Objective:** To describe rehabilitation strategy used to treat vaginal stenosis following pelvic radiotherapy for gynecological cancer. **Method:** This is a case report of a woman with vaginal stenosis after brachytherapy and hysterectomy (with pelvic lymph node dissection and omentectomy) to treat endometrial carcinoma. The physiotherapeutic resources used to treat vaginal stenosis were perineal massage (PM), Pelvic Floor Muscle Training (PFMT), perineal dilator and orientation for intercourse. The patient was treated once a week for nine weeks, and received instructions to continue PM and PFMT at home. **Results:** After five sessions, she referred improvement in vaginal elasticity, although still not able to attempt intercourse with penetration. Complete and painless intercourse was achieved at session 8. At the end of treatment, the patient was able to establish totally intimacy with her husband. **Conclusion:** The rehabilitation techniques achieved success at this case and may be considered as treatment strategy to vaginal stenosis following pelvic radiotherapy.

**Key-words:** brachytherapy, vagina, constriction pathologic, physical therapy modalities, massage.

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## Introduction

Pelvic radiotherapy is often necessary as a complementary treatment for women who underwent surgery due to cancer of the uterus, and cervix. Radiation may cause vascular and tissue damage of the vagina wall, causing dryness, inflammation, atrophy, reduction of elasticity and fibrosis [1]. As a result, one third of these women develop vaginal obstruction by scar tissue and consequently, vaginal stenosis. In addition to the reduction of sexual dysfunction, prevention of vaginal stenosis permits accurate examination and assessment of the vaginal canal as part of the ongoing medical 5 year-follow-up, care and support [2].

Frequently health professionals face the drama of these women who, besides to deal with the impact of the diagnosis of the disease and fear of death, have to deal also with the pain of the physical exams and impact in their sexual life.

There are few studies in literature about treatment of vaginal stenosis. The techniques usually studied are sexual reeducation and the use of vaginal dilators. However, there are no evidences that the regular use of dilatation have significant results to prevent or treat this condition [2,3]. Moreover, it was not found in the literature standardized methods to evaluate vaginal stenosis [4]. The purpose of this case report is to describe a rehabilitation strategy used to treat vaginal stenosis after pelvic radiotherapy for gynecological cancer.

## Case report

A 52 years old woman, with history of three pregnancies (three vaginal deliveries) and time since menopause of three years, who had been diagnosed with mixed type endometrial carcinoma and been submitted to laparoscopic hysterectomy, pelvic lymph node dissection and omentectomy. After surgery the patient was submitted to high-dose rate brachytherapy (700 Gry/h). Five months after the completion of brachytherapy, the patient was referred to the Physical Therapy Department at the Prof. Dr. José Aristodemo Pinotti Women's Hospital, University of Campinas (CAISM/UNICAMP) to treat vaginal stenosis. Initially, the patient complained about synechia vulvae, dyspareunia and discomfort during vaginal examinations or intercourse. However, her main concern was the limited physical intimacy with her husband.

The physical exam was used to evaluate vaginal stenosis and pelvic floor muscle function. The patient had vaginal stenosis grade 2 (according to Brand scale) [5] and in the subjective physical examination was observed a narrowing of the upper third of the vaginal canal, although the patient did not report pain during the exam. At Pelvic Floor Muscle (PFM) examination, the PERFECT scale [6] was used and the following scores were observed: P2/E4/R2/F4 (power 2, endurance 4, repetition 2 and fast repetition 4). This evaluation was carried out just to verify the woman's ability to perform the PFM contraction.

The patient was treated once a week over a period of nine weeks (total of nine sessions). She was submitted to the following techniques of rehabilitation: perineal massage, Pelvic Floor Muscle Training (PFMT), perineal dilator and orientation for intercourse. The patient also received instructions to continue perineal massage and PFMT at home.

Perineal massage was performed by the physical therapist during the sessions and by the patient at home. This technique involves preparing the local tissues for stretching and increases the elasticity of the vaginal wall. The technique was the same, but when the patient made at home, she was instructed to do once a day, after take a warm bath or use warm compress on perineal region for 3 to 4 minutes to prepare the area for massage. Then, sitting down in front of a mirror with her back against pillows, knees bent and apart, she was instructed to insert thumb comfortably into the vagina and stretch tissues in all directions (up, down and to both sides) trying to obtain tissue mobility. Using a clock face as reference, we recommended a sustained pressure to the vagina wall in different angles with emphasis at 3 to 9 o'clock, respecting the comfort level and avoiding bleeding or tissue lesion [7]. This procedure should last for three to five minutes at a time. To increase vaginal length, the patient was instructed to slowly insert her thumb fully (1 to 1.5 inches) into the vagina canal for one to two minutes. Then, start perineal exercise. Table I shows instruction for "how to perform perineal massage at home".

**Table I - Orientations to perform perineal massage at home.**

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Perineal massage is an important step of your treatment. Try to perform it in a private place, in a quiet moment of the day to allow you to get in touch to your own body. You can do that with your own hands and do not perform it if you have any infection, vaginal discharge or itching.

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You will need a warm compress, so keep close to you an iron and a piece of cloth. You will also use a clock to control the time.

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Before you start, it is important that you take a warm shower and empty your bladder. Keep your back supported against pillows, knees bent up and open and look at your perineal area using a mirror.

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Tighten and relax your perineal muscles imagining you are holding the urine flow. Note the movement of opening and closing of the vaginal canal. Perform 10 movements of pelvic floor muscles exercise.

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Heat a piece of cloth and position it over the vulva. Keep it there for a few minutes (10 minutes). Using a small amount of gel on your middle finger, start the massage.

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Relax your perineal muscle. Inhale and exhale and insert your index finger 3 to 4 centimeters into the vaginal canal. Press your finger down, toward the anus. Hold for 3 minutes. If you have any discomfort, inhale and exhale slowly and try to relax.

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Press the right side of the vagina wall and hold for 2 minutes.

Do the same to the left side.

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Now, imagine you have a clock positioned at the vaginal area, and you must perform movements from "3 to 9 o'clock" lubricating the walls and perform this movement 10 times.

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Introduce your middle finger in and out of the vaginal canal trying to introduce as deeper as possible without feeling any pain or discomfort. You must repeat this movement for 3 minutes.

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All these exercises must be repeated daily.

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Discuss with your physical therapist if you have any questions.

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The Pelvic Floor Muscle Training (PFMT) was performed to develop muscular proprioception and to increase vascularization of the perineal area. It is stimulated both perineal muscle contraction and relaxation. Once the patient was able to perform contraction/relaxation by herself, it was initiated treatment with perineal dilator, what happened after the second session.

The perineal dilator, in this case, was used as a pressure biofeedback device (Quarkmedical Products, Piracicaba, São Paulo, Brazil- Figure 1) designed for clinical pelvic floor assessment and rehabilitation. The vaginal sensor has a connecting tube that allows the sensor to be air-inflated and adjusted to vaginal wall. In this case, we used the device to promote expansion of the vaginal tissue. The probe was protected by a condom and introduced in the vaginal canal as far as possible, avoiding pain and discomfort. Then, it was inflated enough to stretch vaginal soft tissues and kept in this position for five minutes, while the patient performed PFMT. The probe was then removed from the patient's vagina.

**Figure 1** - Perineal dilator



The orientations for intercourse were provided with a folder containing instructions for the patient and her sexual partner (Table II). This folder included recommendations for alternative sexual positions. The patient was instructed to adopt a "sit a top position" for intercourse. This position allows her to control the ideal depth of penetration and hip movement feeling safety and more comfortable.

**Table II** - Orientation for intercourse.

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If you are returning to your sexual life, these are some tips to help you.

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Initially, it would be convenient to keep your bladder and bowels empty. Prepare your environment at a private and adequate place, free of interference.

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Before start, you and your partner must take your time to "prepare" the sexual activity stimulating each other. This will help the vaginal lubrication. Use a small amount of gel to facilitate penetration.

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Before penetration, inhale and exhale trying to open the vaginal canal. Adopt a "sit-a-top" position for intercourse. In this position, you will be able to control your ideal vaginal profundity of penetration and speed of hip movement feeling safer and more comfortable. If you feel pain, try to change position slowly. And remember...these are the initial steps for a satisfactory sexual life.

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Talk to each other and expose your feelings.

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Treatment outcomes for this case included patient satisfaction during intercourse and gynecological exam. In five sessions, the patient referred improvement in vaginal elasticity, although she was still not able to attempt sexual intercourse with penetration. At session seven greater penile penetrations was possible, but she still felt pain. Complete and painless intercourse was achieved at session eight. At the end of treatment (9th session), the patient was extremely satisfied with the results obtained and was able to establish an intimate relationship with her husband. After nine sessions, the patient had vaginal stenosis grade 1 (according Brand scale) [5] and in the subjective physical examination was not observed the narrowing of the upper third of the vaginal canal. These changes took to a huge psychological impact: "Today I feel like a normal woman again".

## Discussion

The present case-report showed the concomitant use of different strategies for pelvic floor rehabilitation (perineal massage, perineal dilator, PFMT and orientation for intercourse). We achieved satisfactory outcome since the patient was allowed to return to her sexual life and to be submitted to gynecologic exam without pain. The articles [2,3] about vaginal stenosis studied the use of dilators to prevention, not to treat it if the vaginal stenosis occurs. These results are pioneers and suggest an alternative treatment for this frequent morbidity associated to radiotherapy.

Pelvic radiotherapy may cause vaginal stenosis and although it is difficult to quantify, the incidence appear vary from 1.2% to 88% [8]. Doctors may advise their patients not to have intercourse during and after treatment with radiotherapy [9]. The use of vaginal dilators is widely recommended as a strategy to prevent vaginal stenosis. However, the ideal time to

initiate its use still remains unclear. Some authors suggests that the patient should wait 28 weeks after the end of radiotherapy treatment to start the use of vaginal dilators [10], while others recommend the use of such device as soon as 4 weeks, when the woman is already able to use them comfortably [11].

In fact, information about dilators is controversial not just among patients but also among health professional. White and Faithfull [12] studied this issue and observed discrepancy of the dilator use recommendations and lack of consistency in the content of patient education guides in current United Kingdom practice for patients submitted to pelvic radiotherapy.

Bonner *et al.* [13] and Bakker *et al.* [14] tried in their study to specify barriers and facilitators for the use of vaginal dilators and observed the following factors as barriers: lack of information, uncertainty about how and/or when to use such device, lack of time or forgetting, and the need of discretion due to an association with sex aids. Indeed, in our country, vaginal dilators are not easy to be found and its commercialization is restricted to sex shops. As “facilitator aspects” the author found concerns about stenosis, belief that dilators work, and acceptance of dilators use as part of their routine medical treatment [13].

The indications for use and safety associated with vaginal dilators are still controversial. Moreover, dilatation has been associated with traumatic recto vaginal fistula. Hoffman *et al.* [15] reported the cases of two patients treated with plastic dilators for 15 minutes on a daily basis. The patients were instructed to use the dilator so that they could feel pressure on top of the vagina. In a short period of time (four days in case 1 and six days in case 2) they presented stool from the vagina and were diagnosed with recto vaginal fistula. A systematic review shows that dilation is associated with tissue damage, scar formation and psychological sequelae, and therefore, it would not be possible to include dilation therapy during radiotherapy as a standard recommendation [16]. The fact is that skin grows when stretched [2].

Studies with vaginal agenesis show that the vagina can be stimulated to stretch if pressure is applied to the skin [17]. In our study, we used not just the dilator, but also massage and exercise to prepare the tissue for stretching, for we believe that this procedure seems to be less invasive and permits gradual goal achievement. In the present case, the patient was able to return to a satisfactory sexual life with the use of the cited strategies.

The sexual dysfunctions related to pelvic radiotherapy has received increased attention once quality of life and RT morbidity studies have shown that women receiving primary or adjuvant RT have more prolonged disruption to their sexual well-being than women after surgery [17]. To increase the vaginal canal, it seems to be fundamental the promotion of sexual rehabilitation. The main critic to the use of techniques that increase the length of the vaginal canal is that there is no way to measure all measures of vaginal canal (length, width and diameter) and for this reason is difficult to consider one

specific technique as “gold standard”. However, as Johnson *et al.* [16] point out in their study, “it is sexual function not vaginal length that is important for the patient” and for this reason, we included in our rehabilitation program special orientation for sexual intercourse (Table II).

Among the limitations of the study, we must consider the fact that not always vaginal stenosis allow introduction of the probe or even a finger by pain or area restriction. In this way a careful initial evaluation is very important. The authors did not have the results of PFM evaluation after treatment, because we considered this variable is not the objective of the case report. It is possible that emotional factors as self-confidence could influence the results and not just the techniques, however indeed this is a positive aspect too.

## Conclusion

These results are pioneers and show the return to sexual intercourse and vaginal exam at the end of treatment. The association of different strategies of pelvic floor rehabilitation (perineal massage, perineal dilator, PFMT and orientation for intercourse) may be considered as a treatment strategy for vaginal stenosis following pelvic radiotherapy and suggest an alternative treatment for this frequent morbidity associated to radiotherapy.

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