Pelvic Floor Rehabilitation with Intravaginal Inflatable Balloon: Case Report

Reabilitação do Pavimento Pélvico com Balão Intravaginal Insuflável: Relato de Caso

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Abstract

Genitopelvic pain/penetration disorder (GPPD) is characterized by the inability of nonpainful vaginal penetration. There's no "gold-standard" treatment, thus the combination of therapies such as pharmacotherapy, psychotherapy and pelvic floor rehabilitation are often used as a first line treatment options. We present a case of GPPD treated with a combination of topical anesthetic and pelvic floor rehabilitation program resorting to an intravaginal inflatable balloon for stretching exercises of the pelvic floor muscles. The patient was evaluated before and 3 months after the onset of the treatment, applying the *New Scale of Sexual Satisfaction* and the *Female Sexual Function Index*. The results revealed an overall improvement of both scales scores. A pelvic floor rehabilitation in association with an intravaginal inflatable balloon revealed to be an effective treatment option for GPPD, making it a possible new treatment technique of other pelvic floor dysfunctions, particularly the ones with evidence of muscular hypertonicity.

A dor génito-pélvica/distúrbio de penetração (DGPDP) caracteriza-se pela incapacidade de penetração vaginal não dolorosa. Não há tratamento padronizado portanto, a combinação de terapias como farmacoterapia, psicoterapia e reabilitação do pavimento pélvico são frequentemente opções de primeira linha. Apresentamos um caso de DGPDP tratada com uma combinação de anestésico tópico e programa de reabilitação do pavimento pélvico recorrendo a um balão intravaginal insuflável para exercícios de alongamento da musculatura do pavimento pélvico. A doente foi avaliada antes e 3 meses após o início do tratamento, aplicando-se a *Nova Escala de Satisfação Sexual* e o *Índice de Função Sexual Feminina*. Os resultados revelaram uma melhoria global nas pontuações de ambas as escalas. A reabilitação do pavimento pélvico associada a um balão intravaginal insuflável revelou-se uma opção de tratamento eficaz para a DGPDP, tornando-se uma possível nova técnica de tratamento de outras disfunções do pavimento pélvico, particularmente se evidência de hipertonicidade muscular.

Keywords: Sexual Dysfunctions, Pelvic Pain; Pelvic Floor Disorders Rehabilitation; Physical and Rehabilitation Medicine, Case Report.

Abbreviations: GPPD – Genitopelvic pain/penetration disorder, DSM-5 - Diagnostic and Statistical Manual of Mental Disorders; NSSS – New Scale of Sexual Satisfaction; FSFI - Female Sexual Function Index; PPM – Pelvic Floor Muscles.

Introduction

Genitopelvic pain/penetration disorder (GPPD) was introduced as a new diagnosis in the fifth version of the Diagnostic and Statistical Manual of Mental Disorders[1]. It is defined as persistent or recurrent difficulties with one or more of the following:[1] vaginal penetration during intercourse;[2] marked vulvovaginal or pelvic pain during vaginal intercourse or penetration attempts;[3] marked fear or anxiety about vulvovaginal or pelvic pain in anticipation of, during, or as a result of vaginal penetration;[4] marked tensing

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or tightening of the pelvic floor muscles (PFM) during attempted vaginal penetration. To meet diagnostic criteria, at least one of these symptoms must have persisted for a minimum of six months and cause significant distress, the sexual dysfunction cannot be better explained by a nonsexual mental disorder or as a consequence of severe relationship distress or other stressors and is not attributable to the effects of a substance/medication or another medical condition.[2, 3]

The etiology is frequently multifactorial, including genetical, hormonal, inflammatory, musculoskeletal, neurological, structural and psychosocial alterations, though the large majority still remains idiopathic.[3, 4] There's no "gold-standard" treatment, thus the combination of pharmacotherapy, psychotherapy and pelvic floor rehabilitation are preferred as first line treatment options[4]. GPPD is often underdiagnosed[3], yet it significantly impacts patients' quality of life and sexual functionality. Hence, it is essential to provide new treatment modalities.

Cases Description

We evaluated a 24-year-old woman with no relevant medical, gynecological, or obstetric history, who presented with a 7-year history of severe dyspareunia, characterized by intense vaginal pain during attempted penetration, rendering vaginal intercourse unfeasible. Symptoms began approximately two years after coitarche, with no identifiable physical or psychological precipitating factor, and progressively worsened over time, with a marked aggravation in the past year. She reports having had five sexual partners since coitarche and is currently in a stable heterosexual relationship for the past year. She had previously been evaluated by Gynecology for two years without identifying structural and pathological alterations that could explain the symptoms. The use of lubricants was recommended and the patient was discharged to regular follow-up with a General Practitioner doctor. However, her symptoms persisted prompting referral to a Physical and Rehabilitation Medicine consultation.

During consultation, the patient reported consistent symptoms over the 7-year period, including severe vaginal pain upon penetration and the inability to sustain sexual intercourse with penetration, affecting all phases of the sexual response cycle. She denied abnormal vaginal discharge or hemorrhage, gastrointestinal or urinary alterations, psychological or sexual trauma. Physical examination excluded lumbar or sacral neuromuscular alterations, abnormalities in the inspection of the vulva and vulvar hypersensitivity, but intense pain and resistance in vaginal digital examination was noted, as well as multiple trigger points (especially in the right pubococcygeus muscle) and global muscular tension. Assessment of muscular strength was not feasible due to patient intolerance.

Following discussion with the patient, she was requested to complete two questionnaires immediately before and three months after initiating treatment: the New Scale of Sexual Satisfaction (NSSS) and the Female Sexual Function Index (FSFI), both in the Portuguese validated vision. Additionally, lidocaine gel was prescribed to be applied 15 minutes before sexual intercourse.

The patient underwent a pelvic floor rehabilitation program lasting ten weeks, consisting of two individual supervised sessions per week, delivered by a specialized pelvic floor physiotherapist and prescribed by a PRM physician. The program aimed to improve pelvic floor function, focusing on motor control, vulvar desensitization, and progressive intravaginal training using a dilator device. The first four sessions involved vulvar desensitization massage techniques to reduce local hypersensitivity and facilitate progression to intravaginal exercises. Concurrently, the patient was introduced to diaphragmatic breathing exercises and pelvic floor motor control training, emphasizing voluntary isolated contractions, dissociation from accessory muscle groups, and coordination with breathing patterns. In the fifth session, intravaginal stretching exercises were initiated using an intravaginal inflatable balloon (Epi-no®), inserted in a deflated state. During this session, breathing and motor control exercises were performed with the dilator in place for more than 50% of the session duration. Between sixth and tenth sessions, the dilator was inserted at the beginning of each session and maintained for over 50% of the time, with progressive inflation up to the patient's maximum tolerated pressure, which was reached in the tenth session (18 mmHg). The previously introduced exercises were continued and adapted according to the resistance provided by the inflated balloon. In the subsequent sessions, considered the consolidation phase, treatment began with the dilator pre-inflated to the maximum tolerated pressure (18 mmHg), maintained throughout the entire session. Breathing and pelvic floor motor control exercises were sustained.

A home exercise program was also taught on the 1st session and maintained throughout the whole program, consisting of daily diaphragmatic breathing exercises (5–10 minutes) and pelvic floor motor control exercises, namely: the "elevator" exercise (gradual contraction at different intensities followed by progressive relaxation), "quick flicks" (rapid, short contractions), and sustained holds (5–10 second contractions followed by equal-duration rest). All exercises were performed in coordination with the breathing cycle and with attention to avoiding activation of accessory muscles.

A systematic representation of the program is outlined in Table 1.

Table 1 - Pelvic floor muscle training program description

Pelvic Floor Muscle Training (PFMT) Program Description (According to PFMT-CERT Guidelines)
1. Description of the exercise program: The PFMT program was conducted over **5 weeks**, with a frequency of **2 sessions per week**, for a total of **10 supervised sessions**. The program was **prescribed by a physical and rehabilitation physician** and **delivered individually** by a physiotherapist specialized in pelvic floor rehabilitation. **2. Setting and supervision:** All sessions were performed in a clinical setting with **direct supervision**. Exercises were personalized based on individual assessment and patient tolerance. **3. Content of the sessions:** • **Sessions 1– 4:** - **Vulvar desensitization massage**, aiming to reduce pain/discomfort and allow progression to intravaginal exercises. - **Diaphragmatic breathing exercises** to promote pelvic-abdominal coordination. - **Pelvic floor motor control exercises**, focusing on awareness and isolated activation/relaxation of pelvic floor muscles, often combined with breathing. • **Session 5:** - Introduction of **intravaginal stretching exercises**, using an **intravaginal inflatable balloon (Epi-no®)**, inserted **deflated**. - Exercises (motor control and breathing) were performed with the balloon **in place for more than 50%** of the session duration. • **Sessions 6–10:** - The balloon was **inserted at the beginning of each session** and maintained in place for **over 50% of the session**. - The balloon was **progressively inflated** up to the patient's maximum tolerance, reaching **18 mmHg** at session 10. - Pelvic floor motor control and diaphragmatic breathing exercises continued throughout. • **Sessions beyond session 10 (maintenance phase):** - Sessions started with the balloon **inflated to the maximum tolerated pressure (18 mmHg)** and kept in place **throughout the session**. - Previously introduced exercises were maintained during this phase. **4. Home Exercise Program (HEP):** Patients were instructed to perform the following exercises at home, daily or at least 5 days/week: • **Diaphragmatic breathing**: - In supine or sitting position, focusing on abdominal expansion during inhalation, followed by relaxed exhalation. - 5–10 minutes per session. • **Pelvic floor motor control exercises**, including: - **"Elevator exercise"**: Gradual contraction of the pelvic floor in stages (e.g., 30%, 60%, 100%) and then slow relaxation. - **"Quick flicks"**: Short, rapid contractions and relaxations of pelvic floor muscles (e.g., 10 repetitions). - **"Hold and release"**: Sustained contraction (5–10 seconds), followed by equal rest. Repeated 5–10 times.Patients were encouraged to **coordinate breathing with each pelvic floor contraction**, ensuring no co-contraction of gluteal or abdominal muscles. **5. Progression criteria and adaptation:** Progression was based on patient tolerance, particularly regarding balloon inflation and duration. Exercises were adjusted according to individual response, with attention to comfort, muscle control, and absence of pain.

Table 2 - Detailed results of the female sexual function index scores, before, 3 and 6 months after the onset of treatment on case 1 and 2, respectively. Parameters showing the most significant improvements in each case are highlighted in green.

	Case 1	
Parameter	**Before treatment onset**	**3 months after treatment onset**
Desire	**2,4** / 6	**4,2** /6
Arousal	**2,1** / 6	**5,1** / 6
Lubrification	**3** / 6	**3** / 6
Orgasm	**2,4** / 6	**2,8** / 6
Satisfaction	**3,2** / 6	**5,6** / 6
Pain	**0,8** / 6	**4,8** / 6
TOTAL	**13,9** / 36	**25,5** / 36
	83% improvement	

At the follow-up consultation, the patient reported an improvement in symptoms, including the absence of pain during penetration, no longer requiring topical anesthetics and successful sexual intercourse since the 15th session. Objective evaluation confirmed these improvements, with no pain or resistance during vaginal digital examination, absence of trigger points and no abnormal muscular tension. Muscular strength was globally preserved (modified Oxford scale of 5 out of 5). NSSS scores revealed an overall improvement, particularly in ego-centered parameters, while FSFI scores exhibited a statistically significant improvement, notably in desire, arousal, satisfaction and pain, with an approximated 83% of overall improvement, as exhibited in Table 1.

Discussion

Evidence of improvement in both NSSS and FSFI scores was observed, with significant enhancement noted in the ego-centered parameters of NSSS. FSFI results demonstrated a clinically significant increase in the total score, showing an overall improvement of nearly 83%, particularly notable in desire, arousal, satisfaction, and pain parameters. Objective evaluation during digital vaginal examination revealed a decrease in resting muscle tone.

GPPD, an often underdiagnosed entity, is characterized by pain during penetration and is associated with increased resting muscle tone of the PFM, potentially contributing to symptoms exacerbation and perpetuation.[3] The challenging nature of diagnosis and treatment can be frustrating for both patients and physicians. Thus, comprehensive and thorough evaluation is crucial to establish, whenever possible, a plausible causal factor.[3] A multidisciplinary approach is recommended, frequently involving pelvic floor rehabilitation as one of initial interventions, after Gynecological evaluation and, if justified, Psychiatric evaluation.[3, 5]

Pelvic floor rehabilitation aims to decrease muscle tension at rest, enhance PFM control and awareness, improve vaginal introitus elasticity and facilitate penetration exposure.[5] The latter is particularly beneficial for individuals experiencing penetration anxiety, fostering a calm and comfortable environment for gradual contact with penetration.[5]

Although pelvic floor rehabilitation has demonstrated effectiveness in the treatment of GPPD,[3, 5, 6, 7] there is a paucity of studies investigating individual efficacy of different rehabilitation techniques. In literature, electrostimulation with biofeedback is one of the most used techniques, nonetheless combining it with other measures targeting muscle resting tone may optimize outcomes. Further research into more effective techniques is warranted (7). In this case, we opted to use the inflatable balloon device, as it allows for gradual and controlled stretching of the pelvic floor muscles in a more comfortable manner for a patient presenting with marked hypersensitivity at the initial assessment. This approach aimed to promote treatment adherence and overall therapeutic success. Additionally, the balloon also provides sensory feedback, as the patient receives direct tactile input from the stretching of the pelvic floor muscles, which can help increase motivation—particularly relevant in this case, where the main difficulty was related to penetration.

One limitation of this case is the lack of objective evaluation of the patient's resting tone using a standardized scale, relying solely on digital vaginal examination, which is examiner dependent. Additionally, no quality-of-life questionnaires were administered, despite major impact on quality of life reported by the patient following treatment.

Conclusion

Pelvic floor rehabilitation combined with intravaginal inflatable balloon appears to be an effective treatment option for GPPD, suggesting its potential as a new technique in the management of other pelvic floor dysfunctions, especially those presenting with muscular hypertonicity. However, improvement in symptoms could not be solely attributed to intravaginal inflatable balloon use. Robust clinical trials are imperative to evaluate the impact of pelvic floor rehabilitation with an intravaginal inflatable balloon on PFM stretching, compare its efficacy with other techniques and study larger and more heterogeneous patient populations with varying GPPD symptoms.

Referências / *References*

1. Tetik S, Yalcinkaya Alkar O. Vaginismus, dyspareunia and abuse history: a systematic review and meta-analysis. J Sex Med. 2021;18(9):1555–70.
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed., text revision (DSM-5-TR). Washington (DC): American Psychiatric Association; 2022.
3. Dias-Amaral A, Marques-Pinto A. Female genitopelvic pain/penetration disorder: review of related factors and overall approach. Rev Bras Ginecol Obstet. 2018;40(12):787–93.
4. Al-Abbadey M, Liossi C, Curran N, Schoth DE, Graham CA. Treatment of female sexual pain disorders: a systematic review. J Sex Marital Ther. 2016;42(2):99–142.
5. Brotto LA, Yong P, Smith KB, Sadownik LA. Impact of a multidisciplinary vulvodynia program on sexual functioning and dyspareunia. J Sex Med. 2015;12(1):238–47.
6. Bornstein J, Goldstein AT, Stockdale CK, Bergeron S, Pukall C, Zolnoun D, et al. 2015 ISSVD, ISSWSH and IPPS consensus terminology and classification of persistent vulvar pain and vulvodynia. J Sex Med. 2016;13(4):607–12.
7. van Reijn-Baggen DA, Han-Geurts IJM, Voorham-van der Zalm PJ, Pelger RCM, Hagenaars-van Miert C, Laan ETM. Pelvic floor physical therapy for pelvic floor hypertonicity: a systematic review of treatment efficacy. Sex Med Rev. 2022;10(2):209–30.