Case report

Glyceryl trinitrate ointment as a potential treatment for primary vaginismus

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Accepted 21 April 2000

Abstract

A Muslim Bedouin couple presented with difficulty in engaging in sexual intercourse, because of primary vaginismus. The couple rejected behavioral-cognitive therapy on ethnic, topically applied glyceryl trinitrate ointment to the vagina enabled the couple to enjoy satisfactory sexual relationship. © 2001 Elsevier Science Ireland Ltd. All rights reserved.

Keywords: Nitroglycerin; Glyceryl nitrate; Vaginismus.

1. Introduction

Primary vaginismus is defined as vaginismus that is congenital or that develops before the first occasion of penis-in-vagina sexual activity [1]. It is generally agreed that this entity is under-diagnosed, although rates of vaginismus have been reported ranging from 12 to 17% of females presenting to sexual therapy clinics [2].

For nearly three decades the treatment of vaginismus has emphasized a cognitive-behavioral approach. A shift from psychoanalytic to behavioral treatment in the late 1960s and early 1970s encouraged many women who had developed either primary or secondary vaginismus to seek treatment [1]. Women with primary vaginismus may benefit from cognitive-behavioral treatment, but success rates depend, among other factors, on an appropriate mindset on the part of the patient and adequate training of the therapist.

We report the case of a Muslim Bedouin couple who could not engage in sexual intercourse because the woman suffered from primary vaginismus. The couple did not agree to undergo cognitive-behavioral therapy due to cultural barriers, so a treatment trial was carried out with topical application of nitroglycerin ointment to the vagina. This treatment enabled the couple to have a satisfactory sexual relationship.

2. Case history

A 22-year old Bedouin woman and her 21-year old husband, both practicing Muslims from a low socio-economic class, came to the clinic because of failure to have sexual intercourse since their marriage a month earlier.

The physical examination was normal except for marked spasm of the pelvic floor. An optimal pelvic examination could not be performed because of this spasm and because the patient gripped the examiner's hand while the exam was being attempted.

The results of urinalysis and urine culture tests were normal.

The husband was in generally good health and denied any problem having an erection. The physical examination was normal and the penis was of normal size. The diagnosis was primary vaginismus and the couple were offered cognitive-behavioral therapy, which they refused on cultural and religious grounds. The treating physician explained the condition to the couple and gave them some basic guidelines. After another month of unsuccessful attempts to have sexual intercourse they were told to try again after topical applying nitroglycerin ointment to the vagina. The topical vaginal application of 0.2% glyceryl trinitrate ointment enabled them to have satisfactory sexual intercourse. A few weeks later the woman conceived and gave birth without problems or complications after 59 weeks of pregnancy. She had an episiotomy. Approximately 2 months after giving birth the couple resumed normal sexual relations without any
particular problems and without needing local treatment with nitroglycerin.

3. Discussion

Nitroglycerin was first synthesized in 1846 and was initially used for medical purposes by homeopathic physicians for the treatment of headaches and palpitations [3]. In 1879, Murrell [4] described the beneficial effects of nitroglycerin in patients with angina pectoris. Nitroglycerin and other organic nitrates are believed to relax smooth muscles by stimulation of the nucleotide guanylate cyclase, resulting in increased levels of cyclic guanosine monophosphate. The latter most likely induces relaxation by lowering free calcium concentrations in the cytosol. The biochemical effects of organic nitrates appear to be similar to those of the endothelium-derived relaxing factor (EDRF), which has been identified as nitric oxide [5]. Today, nitroglycerin is used as a smooth muscle relaxant primarily for prophylaxis and treatment of coronary insufficiency and other cardiac disorders. While the use of nitroglycerin in heart disease is well documented and recognized, its use for other medical conditions is less known. Recently, data have accumulated on the beneficial effects of nitroglycerin on non-cardiac disorders such as esophageal disorders, anal fissure, obstetric conditions such as pre-eclampsia, pre-term labor and delivery, and gynecological conditions such as severe dysmenorrhea and relaxation of the cervix prior to IUD insertion [6]. Since vaginismus refers to the recurrent or persistent involuntary spasm of the musculature of the outer third part of the vagina interfering with sexual intercourse, and nitroglycerin has been reported to be effective in the treatment of anal stricture, we presumed that it might be beneficial in this case. A review of the medical literature revealed no data on the effect of glyceryl trinitrate on pelvic muscles including the levator ani muscle. We chose to use 0.2% glyceryl trinitrate because of its reported success in the treatment of anal fissure [7].

In the case described, sexual intercourse became possible after topical application of this ointment. Besides relaxation of the vaginal muscles, it is possible that the ointment also served as a lubricant during the sexual act and may have improved the quality of the partner’s erection. The application of the ointment may also have aroused pleasure in the woman, making her more relaxed. The engorgement of blood vessels and the feeling local heat may have been helpful. Alternatively, it is possible that the association between the use of the ointment and the success in sexual intercourse was incidental, involved a placebo effect or was due to the suggestion of the therapist.

4. Conclusion

Based on the experience reported in this case and the potential benefit of this treatment for vaginismus or even dyspareunia, controlled studies comparing glyceryl trinitrate with placebo should be conducted to confirm the observation and to provide a more concrete basis for the use of nitroglycerin ointment for this indication, including a better understanding of its possible effect on pelvic muscles.

References