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ORIGINAL ARTICLE

The diagnosis value of needle electrode electromyography in vaginismus

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KEYWORDS

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EMG;
Unconsummated
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Medico-legal
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Sexuality;
DSM-5

Summary

Objective. – To investigate the contribution of needle electrode electromyography (EMG) in the diagnosis of vaginismus.

Methods. – The electromyographic activity of ischio-cavernosus and bulbo-cavernosus muscles was recorded by using a concentric needle EMG on 9 women with vaginismus, then compared to the EMG activity of no vaginismus women. The agreement between the needle electrode EMG and clinical exam was assessed by measuring the Cohen Kappa coefficient.

Results. – The EMG was abnormal in 7 women presenting vaginismus by showing a significant reactivity after stimulating the vaginal introitus. A hyperexcitability was found in 4 cases. The EMG and clinical findings presented a high level of agreement.

Conclusion. – The pelvic floor muscles in vaginismus patients showed an increased EMG activity at rest and on induction of vaginismus. The needle electrode EMG can be useful for the diagnosis of vaginismus.

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Introduction

Vaginismus is a sexual dysfunction affecting 1 to 6% of women in active sex life (Moreira, 2013). It often leads to non-consumption of marriage and can be a cause of divorce application (Nabil Mhiri et al., 2013). In DSM-5, vaginismus and dyspareunia were fused into one diagnostic entity called “genito-pelvic pain/penetration disorder” (Ghanizadeh, 2013). This disorder is defined as a marked difficulty with at least one of the following symptoms:

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- inability of vaginal intercourse/penetration;
- genito-pelvic pain;
- fear of vaginal intercourse/penetration/pain;
- heightened pelvic floor muscle tension during attempted penetration (Lahaie et al., 2015).

However, it may be difficult to bring out a vaginal muscle tension by a gynecological exam for these patients (Crowley et al., 2009). Moreover the medico-legal diagnosis of vaginismus, in some case, needs an objective tool to detect the muscle tension.

The electromyography (EMG) allows the study of muscle activity. There are few studies, which tackled this issue (Binik, 2010). Most of them concerned the surface EMG (sEMG) with using a tampon-like probe inserted into the vagina (and/or anus) followed by a global measure of pelvic muscle tension. Many of these women are not able to insert a sEMG probe; which makes this type of measurement impossible. The results of these studies are contradictory (van der Velde et al., 2001; Binik, 2010). There is a lack of data concerning the needle electrode EMG (Shafik and El-Sibai, 2002). The current study assesses the contribution of needle electrode EMG in the diagnosis of vaginismus.

Methods

Population

The study included 20 women referred for a pelvic floor EMG by a sexologist as part of an expertise for a no consummated marriage, between the period of January 2009 and March 2016. Nine of them presented vaginismus (Lahaie et al., 2015). Eleven women did not complain of neither vaginismus nor dyspareunia. All patients had no medical or surgical history. The physical exam was normal. The EMG exam was undergone with the consent of the patients.

Procedure

The electromyographic activity of two superficial muscles of perineum (the ischio-cavernosus and the bulbo-cavernosus muscle) was studied by introducing a concentric monopolar needle electrode (Nihon Khoden, length 50 mm) (Podnar and Vodusek, 2001). The bulbo-cavernosus muscle arises from the central tendinous point of the perineum and from the raphe in front. The ischio-cavernosus muscle arises from the medial aspect of the ischial tuberosity and more anteriorly, from the ischial ramus and it inserts into the crura of the clitoris (DeLancey, 1994). An EMG apparatus (Nihon Khoden MB 2200 and MB2300, Japan) was used to record the muscle activity. Standard filter settings were used (5–10 kHz) (Podnar and Vodusek, 2001). The electromyographic activity was assessed at rest after reassuring patient and secondly after stimulation by touching the vaginal introitus. The analysis was made visually by the same neurophysiologist for all patients. The vaginismus was evoked when a significant basal hyperexcitability at rest was found with a significant reactivity and enrichment after stimulation (van der Velde et al., 2001).

Statistical study

We used SPSS software (version 19). The values were given as the mean $\pm$ standard deviation. Differences between women with vaginismus and no vaginismus ones were tested for statistical significance using the χ^2 .

The Cohen Kappa coefficient was measured to assess the agreement between the clinical exam and EMG. The closer to 1 the Kappa coefficient is, higher is the degree of agreement (Landis and Koch, 1977).

A value of $P < 0.05$ has been considered significant with 95% confidence intervals.

Results

The average age of the women was 31 ± 9 years with a range between 19 and 51 years. The EMG was normal for the 11 no vaginismus women (Fig. 1). In the 9 other cases presenting vaginismus, the EMG was abnormal in 7 cases by showing a significant reactivity after stimulation in both bulbo and ischio-cavernosus muscles ($P = 0.002$). A sustained muscle activity at rest was registered in 4 vaginismus women ($P = 0.013$) (Fig. 2). In two of them, pseudo-myotonic discharges were recorded (Fig. 3).

Table 1 shows the results for the consistency between clinical findings and the EMG results. The Kappa coefficient measured was 0.787 ($P = 0.02$).

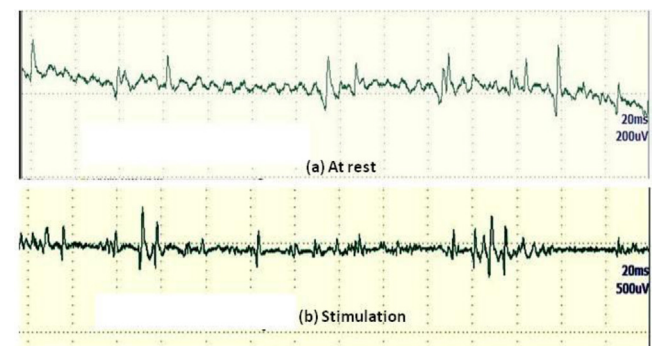


Figure 1 EMG activity of the ischio-cavernosus muscle in a non-vaginismus patient at rest (a) and during stimulus (b).

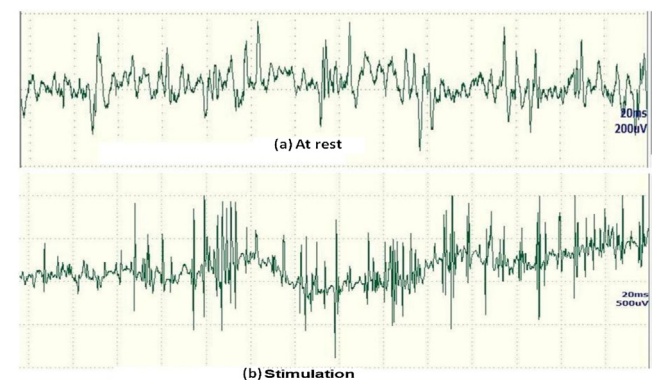


Figure 2 EMG activity of the bulbo-cavernosus muscle in a vaginismus patient at rest (a) and during stimulus (b).

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