

Can Physical Therapy Help A Virgin 10 Years Old Complaining From A Terrible Vaginal Noise? A Case Report.

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Abstract: Vaginal Noise (VN) is an embarrassing symptom of pelvic floor dysfunction which creates social and psychological problems. **objective:** This report studied the efficacy of physical therapy rehabilitation program in hindering VN in a virgin 10 yrs old had Rectocele. **Subjects & Methods:** A female virgin, 10 yrs old, BMI=26 kg/m² suffering from a terrible complain of VN countless times a day since 3 yrs. Her prolonged suffering from VN was exceptionally embarrassing caused school absenteeism, social and psychological problems. Evaluation was done before the start of the study and every month for 5 months using: VN questionnaire regarding frequency, severity of VN and its effect on QOL, in addition to Dynamic trans-perineal ultrasound before the start of the study and after 5 months of treatment. **Intervention:** Pelvic floor electrical stimulation and Biofeedback were applied 3 sessions per week for 6 months in addition to Pelvic floor exercises. **Results:** A significant improvement was noticed in all measuring variables for physical therapy program. **Conclusion:** The results of this report testified that the constructed physical therapy program was very effective in hindering VN and confirmed the safety and the aptness of this modalities for women especially virgins who distressed deeply from vaginal noise.

Key Words: Vagina, noise, Electrical stimulation, Biofeedback, Pelvic floor exercises.

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I. Introduction

Vaginal Noise (VN) is a symptom of pelvic floor dysfunction of unknown prevalence, uncertain causes and indefinite underlying mechanisms which has been described in a few studies and each may use a different term to describe it including: Flatus vaginalis, vaginal flatulence, vaginal gas, vaginal wind, garrulous vaginalis, garrulitas vulvae, chattering vulva, and incontinentia vulvae plus other slang terms including: fanny farts, varts, queef, queeb, quafe and queever¹.

Vaginal Noise is “An involuntary passage of odorless air through the vagina, which is often audible and/or sensible, and usually associated with posture changes”. It is a natural phenomenon that occurs when air is forced into the vagina, and then expelled as the muscles of the vaginal wall naturally contract².

Vaginal Noise has been described as an uncomfortable situation with a negative impact on the quality of life (QoL) of women of all ages, which not only creates social and psychological problems, but also interferes with the marital relationship and religious duty practice³.

The prevalence of vaginal Noise is 47% up to 66% in women, 27% up to 73% in patients with stress urinary incontinence (SUI), 4% in the virgin girls. Surprisingly, VN was seen also in women with a history of childbirth through cesarean section, as well. VN commonly occurs during or immediately after sexual intercourse, during gynecological examinations, insertion of a tampon, vaginal surgery in addition to exercise and posture changes. The most common pathological conditions that cause vaginal air include: Inflammatory bowel disease, pelvic malignancies and radiotherapy, pelvic floor dysfunction or prolapse and Recto or colo-vaginal fistula from multiple causes^{2,4,5}.

Nevertheless, There are many underlying mechanisms by which vaginal noise could be caused including deficient perineum, air ingress at the introitus with resultant air trapping in the vagina, vaginal rigidity or inelasticity plus low BMI that can cause inadequate support of the vaginal wall, which makes it possible for the anterior and the posterior vaginal walls to fold over each other, this causes an airflow with noise^{1, 2,6,7}.

Recently, VN appears most successfully treated by a vaginal support / space occupying devices including the use of pessaries and Tampon in addition to surgical correction, like an anterior and/or posterior colpoperineorrhaphy, cervix amputation, vaginal hysterectomy, and sacrosplinal vaginal fixation^{5, 6,8,9}.

These treatment options were regrettable for virgin girls that have no sexual relationship and delivery. This is claimed the need for a suitable physical therapy rehabilitation program adapted especially for virgins who distressed deeply from vaginal Noise.

II. Case description

A case of female virgin, 10 yrs old, 60 kgs weight, 152 cm height, BMI=26. The patient's symptoms started by passing wind vaginally countless times a day with a very loud sound, audible and sensible even at rest, during activities and more apparent with bearing down. It began gradually and worsened over a period of 3 years. In addition to symptoms of urinary frequency, constipation, chronic pelvic pain referred to lower limbs, continuous discomfort and longing for vaginal and perineal itching. Her prolonged suffering from this horrible complaint was exceptionally embarrassing caused school absenteeism, social and psychological problems.

2.1. INITIAL EXAMINATION:

Along the last 3 years she had many assessment sittings that revealed ; Normal abdominal US, Normal pelvic MRI, Clear vagina on per-hymen Vaginoscopy and Cystoscopy (No infection, No foreign body, No fistula). While, Dynamic pelvic floor ultrasound revealed normal external and internal genital organs, but Anterior Rectocele was emerged caused vagina to be compressed with stressing and defecography.

An informed consent form had been signed from patient's parents before starting the intervention. The duration of this study was 6 months from August, 2017 to January, 2018.

2.2. EVALUATIVE PROCEDURES:

1. **A Vaginal Noise questionnaire** as answered and reported by the patient and her mother before intervention , every month for 5 months of intervention period regarding VN during the awaking periods all over the day regarding:

- **Frequency of VN (Mean of VN Number/week).**
- **Severity of VN**, that could be answered on a 4-point scale: 0= NO sound, 1=mild , 2= moderate, 3= severe, 4= very severe.
- **Relation of VN to Daily living activities (ADL):** If VN arises during Rest and/or during activities (getting up or sitting, praying, exercising, and jogging, changing from a sitting to a standing position or vice versa).
- **Quality of life (QOL) impact or subjective 'bother' due to VN** that could be answered on a 4-point scale: 'not at all', 'a little', 'moderately', 'very much'.

2. **Dynamic Trans-perineal ultrasound (DTP-US) regarding Rectocele measurements and Vaginal dimensions before intervention and after 5 months of intervention :**

This case was examined using Dynamic Trans-perineal ultrasound (DTP-US) while the patient's rectum was filled with ultrasonographic coupling gel. The images were obtained at rest, straining and sustained squeezing⁵.

In the pre-intervention month (August 2017), DTP-US revealed a rectocele as a herniation of the anterior rectal wall into the vagina, Fig.(1). After 5 months of intervention, DTP-US was repeated to re-assess rectocele dimensions as well as dimensions of the compressed part of vagina by rectocele during rest, with stressing and defecography, posterior vaginal wall thickness, vaginal introitus diameter, perineal length, midvaginal width diameters, anterior and posterior vaginal wall lengths in addition to relation of leading edge of pelvic organ prolapse in relation to hymen.

2.3. PHYSICAL THERAPY INTERVENTION:

Pelvic floor rehabilitation program consisted of combined Pelvic floor electrical stimulation and Biofeedback was applied using Myo 200 device (Gymna Unify NV), 3 sessions per week for 5 months treatment period.

As the patient was rested in comfortable prone lying positions, Per-anal electrical stimulation (ES) was applied using a sterile rectal stimulator with another carbon electrode were kept at lumbosacral region. ES was done using the following parameters: Biphasic surge impulse, pulse time (200µs), intensity (90 v CV), frequency (60 Hz), ON time 25/Off time 4 sec, with total treatment time = 25 min/ session.

While, Biofeedback was applied by using a sterile rectal pressure probe covered with condom, with the middle of the air chamber placed 3.5 cm inside the introitus. Under visual control, the patient was instructed to squeeze the probe for 5 seconds and try to hold it for 5 seconds and relax for 5 seconds, repeat this for 5 times to determine the target that patient had to reach according to patient tolerance, then the patient was asked to squeeze on the probe to reach the tolerated goal and hold it for 5 seconds and relax for 5 seconds, repeat this for 10 minutes. In addition to Pelvic floor strengthening exercises (PFE) as a home routine for 20 min, 5 times per day.

III. Results

Table (1) highlighted the mean number of vaginal noise per week, its relation to ADL, its severity, and its effect on quality of life in the pre intervention month (August 2017), and in the following intervention 5 months in a 10 years old girl. An obvious decrease in the mean number of vaginal noise per week between (310 VN/week) pre intervention to absence of VN after the end of the 5 months intervention.

With regard to relation of VN to ADL, patient felt VN during both rest and activities before starting the intervention and in the first 2 months of intervention and felt only during activities in the next 2 months with complete absence of VN after the end of the 5 months of intervention with gradual decrease in the severity of VN through the 5 months intervention period.

In addition, the post intervention results revealed a gradual reduction in the terrible effect of VN on the Quality of life (QOL) through the 5 months intervention period.

While, comparing the results of Dynamic trans-perineal ultrasound Findings in the pre intervention month (August 2017), and after 5 months of treatment, revealed a marked decrease in Rectocele dimensions before starting the intervention (31×19 mm) and (20×17mm) after 5 months of intervention respectively. Dimensions of the compressed part of vagina by Rectocele during rest and with stressing and defecography (33×12 mm,24×10 mm) respectively before starting the intervention and (25×7 mm,23×9 mm) after 5 months of intervention. Furthermore, a large decrease in posterior vaginal wall thickness before starting the intervention from (4.8-5.9 mm) to (3.0-4.6 mm) after 5 months of intervention. However, other DTP-US findings showed more or less similar dimensions either pre or post intervention (Table,2).

IV. Discussion

This study was designed to examine the efficacy of physical therapy rehabilitation program in hindering vaginal noise in a virgin 10 years old with Rectocele.

The results of this study highlighted the efficacy of physical therapy program in marked decreasing of the frequency and severity of VN either during rest or activities, before starting the intervention and after 5 months of intervention. In addition to the obvious decrease of rectocele dimensions, and dimensions of the compressed part of vagina by Rectocele during rest and with stressing and defecography in Dynamic trans-perineal ultrasound findings before starting the intervention and after 5 months of intervention.

Since, the studies regarding the efficacy of pelvic floor muscles exercises on controlling VN was controversial. Krissi et al, (2003)⁵, Hsu,(2007)⁶, and Miranne et al, (2015)⁴ reported pelvic floor muscles exercises as an effective option for some patients with pelvic floor muscle weakness. But on the contrary, Shafik, (1995)¹⁰ confirmed that PFM training was ineffective for VN as it is not associated with pelvic floor muscle (PFM) dysfunction.

At this point, the results of this study might be explained by the effect of biofeedback in combination with electrical stimulation on training pelvic floor muscles, diminishing rectocele and so hindering VN.

As, the literature reflects 3 potential mechanisms by which biofeedback therapy for rectal disorders might work: (1) to improve contraction of the striated muscles of the pelvic floor, designated as strength training; (2) to enhance the ability to perceive and respond to rectal distention, known as sensory training; and (3) to combine sensory and strength training and to coordinate these functions, known as coordination training, this improvement of symptoms can be sustained for several years, and can be effective regardless of the patient's age^{11,12}.

While, the concept behind Electrical stimulation is to increase the nerve firing of the pudendal nerve, which increases the pelvic floor muscle activity and strength. When an individual initially starts ES, it is done passively, then progressed to include PFM contractions with ES, and finally to the patient contracting the pelvic floor muscles without the stimulation¹³.

Moreover, ES is followed by contraction and relaxation of the pelvic floor muscles, leading to constriction and dilatation of the arterioles and capillaries and easy blood flow that enhances the presence of oxygen, tissue nutrients and phagocytic cells and the removal of metabolic waste products¹⁴, that can also explain the marked decrease in posterior vaginal wall thickness before starting the intervention from (4.8-5.9 mm) to (3.0-4.6 mm) after 5 months of intervention.

The results of this study can be supported by the work of Neumann et al. (2006)¹⁵ who claimed that adding BFB to pelvic floor muscle training or in combination with ES were more effective in the treatment of different pelvic floor disorders including urinary incontinence and defecatory disorders.

In addition, the post intervention results revealed very severe subjective bother to VN as reported by patient and her mother before intervention due to the auditory nature of VN that caused patient to shame, appeared less in the public and long periods of school absenteeism with gradual reduction in the terrible effect of VN on Quality of life (QOL) or subjective 'bother' to VN through the 5 months intervention period but they were still worried about the possibility of VN reoccurrence in the future. This result is supported by the work of Miranne et al, (2015)⁴ who reported at least 64% of the studied group were somewhat bothered by VN and only

22% reported a negative effect on quality of life due to the auditory nature of this condition and the potential for confusion with anal flatulence.

V. Figures and Tables

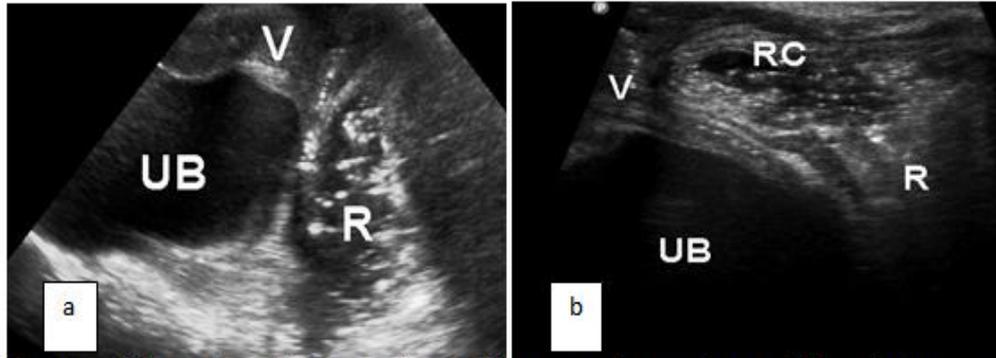


Fig (1): (a) Transperineal ultrasound at rest; (b) Transperineal ultrasound during maximal straining, after rectum filling with ultrasonographic coupling gel, showing a Herniation of the anterior rectal wall into the vagina confirming a rectocele (RC). UB: Bladder, V: Vagina; R: Rectum; RC: Rectocele

Table (1): Mean number of vaginal noise per week, its relation to ADL, and its severity, its effect on quality of life in the pre intervention month (August 2017), and in the following intervention 5 months, in a 10 years old girl.

Months	Mean of VN Number/week	VN relation to ADL	Severity of VN	Effect of VN on QOL
August 2017	310	During rest and activities	Very severe	Very much
September 2017	146	During rest and activities	Very severe	Very much
October 2017	18	During rest and activities	Severe	Moderately
November 2017	4.5	During activities	Moderate	Moderately
December 2017	0.5	During activities	Mild	Little
January 2018	N0 VN	N0 sound	N0 sound	Little

Table (2): Findings of Dynamic trans-perineal ultrasound (DTP-US) including Vaginal dimensions, Rectocele measurements in the pre intervention month (August 2017), and after 5 months of treatment, in a 10 years old girl:

DTP-US measures	Before intervention	After 5 months of intervention
Rectocele dimensions	31×19mm	20×17mm
Dimensions of the compressed part of vagina by Rectocele		
- During rest	33×12 mm	25×7mm
- With stressing and defecography	24×10mm	23× 9mm
Posterior vaginal wall thickness	4.8-5.9 mm	3.0-4.6 mm
Vaginal introitus diameter	4.5 mm	3.5 mm
Perineal length	45-50 mm	42-45 mm
Midvaginal width		
- Outer diameter	16-18 mm	19-22mm
- Inner diameter	4-5 mm	1 4-5 mm
Anterior vaginal wall length	41-43 mm	44-46 mm
Posterior Vaginal length	51-58 mm	52-57 mm
Relation of leading edge of pelvic organ prolapse in relation to hymen	49-52 mm	49-53 mm

VI. Conclusion

The results of this report testified that the constructed physical therapy program including Biofeedback, Electrical stimulation in combination with pelvic floor muscle training, was safe and effective in hindering vaginal noise in women especially virgins who distressed deeply from vaginal noise.

VII. Recommendation

Future studies are needed to further investigate these findings on large number of women suffering from vaginal noise.

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