ORIGINAL ARTICLE

Transrectal Ultrasonography Findings in Cases of Premature Ejaculation

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ABSTRACT

Background: Premature ejaculation (PE) seems to be the most common sexual complaint in men. Prostatic inflammation is a known cause of PE. Transrectal ultrasonography (TRUS) is widely used to help in the management of both benign and malignant diseases of the prostate. This study aimed To discuss TRUS findings in cases of PE.

Method: A case control study carried out on 24 married adult male patients with age ranged from 25 to 53 years, diagnosed with PE, attending our outpatient clinic at the Department of Urology, Faculty of Medicine, Zagazig University Hospital for the first time from October 2018 to June 2019. Full medical history was taken from all patients. All patients underwent a complete andrological and physical examination. Evaluation of prostate and seminal vesicles was done via transrectal ultrasound scanning methods.

Results: The TRUS findings of prostate showed that the volume of prostate among the studied cases ranged from 13.2 to 39.2 ml with mean 27.65 ml. 20.8% had calcification, 37.5% had inhomogeneous prostatic texture and only 4.2% had utricular cyst. The TRUS findings of seminal vesicle (SV) among the studied cases showed that total volume ranged from 4 to 9.5 ml with mean 6.55 ml.

Conclusion: The TRUS of SV must be considered in the clinical assessment of patients with PE. SVs ultrasound changes and its surgical or endoscopic management in future might be of a valuable goal for the management of patients with PE.

Key words: TRUS; Ejaculation; Urology; Ultrasonography.

INTRODUCTION

Premature ejaculation (PE) seems to be the most common sexual complaint in men, affecting 20-30 per cent of sexually active men. Regarding the international society for sexual medicine (ISSM), PE known as male sexual dysfunction that is characterized by ejaculation which occurs nearly before or within about one minute of vaginal penetration (lifelong PE) or a reduction in latency time to three minutes or less (acquired PE) and also the inability to retard ejaculation on nearly all vaginal penetrations.[1]. Many biological factors had been suggested to explain PE involving the glans penis hypersensitivity, instability in central serotonergic neurotransmission, difficulties in erection and other sexual abnormalities as prostatitis. In addition, these factors include thyroid disorders and chronic pelvic pain syndrome. However, data connecting PE with seminal vesicles (SVs) are little. SVs are bilaterally identified, with the ampullae of the vas deferens on each side of the midline [2].

The SVs are cystic structures which are darkly anechoic. Men who have stopped the ejaculation for a long duration could have dilated SVs. Several factors seem to be in relation to SV volume as age, smoking, sexual abstinence and hormones as testosterone and thyroid hormones [3]. In addition, a prostatic inflammation is a common cause of PE.

Chronic prostatitis (CP) had been considered as an important organic reason of PE. The majority of urologists are comfortable and familiar with transrectal ultrasonography (TRUS). It is widely used to clear the prostate anatomy and help in the management of both benign and malignant lesions of the prostate and also infertility. TRUS imaging is also used to demonstrate abnormalities in the size or structure of SVs or prostate [4]. The aim is to report the transrectal ultrasonography (TRUS) findings in cases of premature ejaculation (PE).

METHODS

Technical design:

A case control study was carried out on 24 married adult male patients with age ranged from 25 to 53 years, diagnosed with premature ejaculation (PE), attending our outpatient clinic at the department of urology, faculty of medicine, Zagazig university hospital for the first time from October 2018 to June 2019. Inclusion criteria involved patients with erectile function domain of the International Index of Erectile Function-15 (IIEF-15) ≥26; patients were not consuming any drugs that affect sexual function or psychological status; patients were without any major psychiatric or somatic diseases; patients complaints of perineal and/or ejaculatory pain or discomfort or patients who ejaculated always or nearly always prior to or within about 2 minutes of vaginal penetration from the first sexual experience. On the other hand, exclusion criteria involved patients who refused to share in the study, diagnosed to have prostate cancer, having urethral stricture, with neuropathic bladder or with acute painful perianal disorder and a hemorrhagic diathesis.

Methods:

Full medical history was taken from all patients including present, complaint, past and family history. All patients underwent a complete andrological and physical examination. The participants were also asked to complete questionnaires including demographics, self-estimated intravaginal ejaculatory latency time (IELT)and also were categorized as current smokers and nonsmokers. A physical examination of the prostate was considered during the assessment of patients with PE. Evaluation of the prostate and seminal vesicles was done via transrectal ultrasound scanning methods.

Administrative considerations:

Written informed consent was obtained from all participants and the study was approved by the research ethical committee of Faculty of Medicine, Zagazig University (Institutional Research Board IRB). The work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Statistical Analysis:

The collected data were computerized and statistically analyzed using SPSS program (Statistical Package for Social Science) version 25.0. Qualitative data were represented as frequencies and relative percentages. Quantitative data were expressed as mean ± SD (Standard deviation).We considered (+) sign as indication for direct correlation i.e., increase frequency of independent lead to increase frequency of dependent & (-) sign as indication for inverse correlation i.e., increase frequency of independent lead to decrease frequency of dependent, also we consider values near to 1 as strong correlation & values near 0 as weak correlation. The significance level for all above mentioned statistical tests was done. The threshold of significance is fixed at 5% level (P-value). P value of >0.05 indicated non-significant results. P value of <0.05 indicated significant results. P value of <0.01 indicated highly significant results.

RESULTS

The age of the studied cases ranged from 25 to 53 years with mean 35.71 years and the BMI ranged from 21 to 29 Kg/m2 with mean 27.29 Kg/m2. Regarding smoking, 54.2% were smoker (Table 1). The duration of premature ejaculation among the studied cases ranged from 1 to 8 years with mean 3.83 years and day of sexual abstinence ranged from 2 to 7 with mean 4.1 day. Regarding the type, 66.7% were acquired PE (Table 2). Regarding the TRUS findings of the prostate, the volume of prostate among the studied cases ranged from 13.2 to 39.2 ml with mean 27.65 ml. 20.8% had calcification, 37.5% had inhomogeneous prostatic texture and only 4.2% had utricular cyst (Table 3). TRUS

findings of the seminal vesicle among the studied cases showed that the longitudinal diameter (LD) ranged from 30.9 to 42.5 mm with mean 35.73 ml, the anterior-posterior diameter (APD) ranged from 6 to 15.6 mm with mean 10.60 mm and, the total volume ranged from 4 to 9.5 ml with mean 6.55 ml. Regarding other findings, 33.3% of the studied cases had areas of endo capsulation, 29.1% were bilateral and 25% had wall thickening and septa while 20.8% were bilateral. (Table 4). TRUS of the ejaculatory ducts revealed that only 4.2% of the studied cases had unilateral dilated ejaculatory ducts (Table 5). There was positive statistically significant correlation between the age and duration of PE, day of sexual abstinence and AP diameter of seminal vesicles. Also, there was a positive correlation between the AP diameter of the seminal vesicles and duration of PE, day of sexual abstinence and volume of seminal vesicles (Table 6).

Table 1: Sociodemographic characteristic data of the studied cases.

Variable	(n=24)	
Age: (year)		
Mean ±SD	35.71 ± 10.70	
Range	25 – 53	
BMI: (Kg/m2)		
Mean ±SD	27.29 ± 3.25	
Range	21 – 29	
Variable	**N**	**%**
Smoking:		
No	11	45.8
Yes	13	54.2

SD: Standard deviation

Table 2: History of Premature ejaculation among the studied cases.

Variable	(*n*=24)	
Duration of PE: (year)		
Mean ± SD	3.83 ± 2.06	
Range	1 – 8	
Day of sexual abstinence: (day)		
Mean ± SD	4.1 ± 2.52	
Range	2 – 7	
Variable	**N**	**%**
Type of PE:		
Life long	8	33.3
Acquired	16	66.7

SD: Standard deviation

Table 3: TRUS findings of prostate among the studied cases.

Variable	(*n*=24)	
Volume of prostate: (ml)		
Mean ± SD	27.65 ± 8.9	
Range	13.2 – 39.2	
Variable	**N**	**%**

Variable	(n=24)	
Other findings:		
Calcification	5	20.8
Inhomogeneous prostatic texture	9	37.5
Utricular cyst	1	4.2

SD: Standard deviation

Table 4: Correlation of BNP with different parameters among cases group.

Variable	(n=24)	
LD (mm)		
Mean ± SD	35.73 ± 3.99	
Range	30.9 – 42.5	
APD of SV (mm)		
Mean ± SD	10.60 ± 3.06	
Range	6 – 15.6	
Total volume: (ml)		
Mean ± SD	6.55 ± 1.66	
Range	4 – 9.5	
Variable	**N**	**%**
Other findings:		
Areas of endocapsulation	8	33.3
Unilateral	1	4.2
Bilateral	7	29.1
Wall thickening and septa	6	25
Unilateral	1	4.2
Bilateral	5	20.8

APD: anterior-posterior diameter of SV   LD: longitudinal diameter

SD: Standard deviation

Table 5: TRUS findings in ejaculatory ducts among the studied cases.

Variable	(n=24)	
	No	**%**
Findings:		
Dilated duct	**1**	**4.2**
Unilateral	**1**	**4.2**
Bilateral	**0**	**0**

Table 6: Correlation between different parameters among the studied cases.

		Age	BMI	Duration	Day of sexual abstinence	Volume Prostate	LD	APD
BMI	*r*	0.297						
	P	0.158						
Duration	*r*	**0.594****	0.343					
	P	**0.002**	0.101					
Day of absence	*r*	**0.493***	0.143	0.397				
	P	**0.014**	0.505	0.055				
Volume of Prostate	*r*	0.007	0.055	0.037	0.260			
	P	0.973	0.800	0.864	0.220			

		Age	BMI	Duration	Day of sexual abstinence	Volume Prostate	LD	APD
LD	*r*	0.225	0.378	0.046	0.133	0.387		
	P	0.289	0.069	0.831	0.537	0.061		
APD	*r*	**0.421***	0.250	**0.34***	**0.381***	-0.315	-0.244	
	P	**0.026**	0.238	**0.049**	**0.018**	0.134	0.250	
Seminal vesicle Volume	*r*	0.234	-0.103	-0.015	0.083	0.316	0.354	**0.361***
	P	0.272	0.633	0.944	0.700	0.133	0.090	**0.036**

r: Pearson's correlation coefficient   *: Significant (P<0.05)   **: Highly significant (P<0.01)

DISCUSSION

PE is a widely common disorder. It can be highly disturbing in some cases although it is usually related to fewer nuisances than ED. The exact cause of PE is unclear in the majority of cases, and likely involves a mix of organic and psychogenic agents. These agents include some hormonal disturbances, major neurological disorders, penile hypersensitivity and, reflex hyperexcitability. Two studies demonstrated previously a higher-than-normal incidence of PE in patients with CP [5].

Regarding the international society for sexual medicine (ISSM), PE is known as male sexual dysfunction characterized by: (i) ejaculation that occurs nearly previous or within nearly one minute of vaginal penetration from the first sexual experience (lifelong PE) or a clinically significant and bothersome decrease in latency time, mostly about three minutes or less (acquired PE); (ii) the inability to retard ejaculation on nearly all vaginal penetrations; and finally (iii) negative personal conditions as bother, distress, frustration or sexual intimacy avoidance [1].

TRUS was first used in the 1970s. In TRUS of the prostate, scanning starts in the axial plane and the base of the prostate and SVs are firstly visualized. A small quantity of urine aids the examination. SVs are bilaterally identified on each side of the midline [6].

Therefore, the present study aimed to discuss the TRUS findings in cases of PE. Total of 24 PE patients who sought treatment for the complaints of premature ejaculation were enrolled from andrology clinics during the period study from October 2018 to June 2019. The present study revealed that the age of the studied cases ranged from 25 to 53 years with mean 35.71 years and BMI ranged from 21 to 29 Kg/m2 with mean 27.29 Kg/m2. Regarding smoking, 54.2% were smokers.

The current study revealed that the duration of PE among the studied cases ranged from 1 to 8 years with mean 3.83 years and the days of sexual abstinence ranged from 2 to 7 with mean 4.1 days. Regarding type, 66.7% were acquired PE. This finding was going with results of Hong and colleagues [7] who reported that the mean duration of PE in their cases was 3.4±2.9 years and ranged from 1 to 8 years and the sexual abstinence was ranged from 1 to 9 day with mean standard deviation 3.4±2.0 day. According to the type of PE, they also found 38.6% of their cases had lifelong PE, and 61.4% of them had acquired PE.

The current study revealed that the volume of prostate among the studied cases ranged from 13.2 to 39.2 ml with mean 27.65 ml. Regarding other findings, 20.8% had calcification, 37.5% had inhomogeneous prostatic texture and, only 4.2% had utricular cyst. These findings were in accordance with the results conducted by Lotti and Maggi [8].

The current study revealed that longitudinal diameter (LD) of SVs among the studied cases ranged from 30.9 to 42.5 mm with mean 35.73 ml and anterior-posterior diameter (APD) ranged from 6 to 15.6 mm with mean 10.60 mm and total volume ranged from 4 to 9.5 ml with mean 6.55 ml. Regarding other findings, 33.3% of the studied cases had areas of endo-capsulation 29.1% bilateral and 25% had wall thickening and septa 20.8% were bilateral. Only 4.2% of the studied cases

had unilateral dilated ejaculatory ducts. These findings agreed with the study of Hong and colleagues [7] who demonstrated that patients with PE had larger mean APD of SV.

A previous study demonstrated that in patients with infection of male accessory gland, the patients with PE revealed a mean value of the SVs APD that was significantly higher in comparison to those patients without PE. These results showed the higher mean APD of SV in the patients with PE and confirmed that the peculiar ultrasound phenotype of SV can be related to PE. So, the ultrasound change in SV is probable to be associated with PE [9].

Lotti and colleagues [6] proved that the presence of abnormalities of SV as areas of endo-capsulation or wall thickening and septa was observed widely in cases with a higher total SV volume. In addition to that, a higher prostate volume along with a higher deferential ampulla mean diameter, were found in subjects with a higher pre- or post-ejaculatory total SV volume.

The current study revealed that there was positive statistically significant correlation between age and duration of PE and between day of sexual abstinence and APD diameter of seminal vesicles. Also, there were positive correlation between APD diameter of the vesicles and duration of PE, Day of sexual abstinence and volume of seminal vesicles. These findings were in accordance with the study of La Vignera and colleagues [10] who found that premature ejaculation diagnostic tool was significantly correlated with the mean APD of SV.

In other study, Lotti and colleagues [6] demonstrated that after adjusting for the period of sexual abstinence and age, the total SV volume ejaculation was positively associated with the ejaculate volume. On the other side, no correlation was found between pre- or post-ejaculatory total SV volume.

CONCLUSION AND RECOMENDATIONS

This study concluded that the TRUS of SV must be considered in the clinical assessment of patients with PE. SVs ultrasound changes and its surgical or endoscopic management in future might be of a valuable goal for the management of patients with PE. However, more studies with larger sample size are needed.

Declaration of interest

The authors report no conflicts of interest. The authors along are responsible for the content and writing of the paper.

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