Prospective Analysis of the Surgical Outcomes after Semirigid Penile Implant and their Impact on the Patients' and their Partners' Satisfaction Rate Human Andrology

Original Article

Mohamed F. Roaiah[1], Sameh F. Gamal El Din[1], Ahmed A. Abdul Rasool Khazaali[3], Wael F. Saleh[2]

[1]Departments of Andrology and STDs, [2]Obstetrics and Gynecology, Kasr Al-Ainy Faculty of Medicine, Cairo University, Cairo, Egypt, [3]Al-Mustansiriya University, Baghdad, Iraq

ABSTRACT

Purpose: The current study assessed the surgical outcomes of the semirigid implant and their impact on the patient's and the partner's satisfaction. To the best of our knowledge, this is the first study to highlight the essential role of both radial and axial rigidities in patients' and partners' satisfaction.

Patients and methods: The study included 32 patients and their partners. Their penile duplexes and Rigiscan proved the diagnosis. Subcoronal approach was adopted to insert the implant. Structured interview was carried out to evaluate the surgical outcomes using a 10-question questionnaire to evaluate the patients' and their partners' satisfaction rate prospectively, at 1, 3, and 6 months, respectively. Spearman's rank correlation coefficient or Spearman's ρ was used.

Results: In our patients, we found moderate satisfaction rates for the majority of both patients and their partners. The current study revealed that the majority of the study patients were complaining of poor radial rigidity and dropped penis, which had an adverse impact on the overall satisfaction of the patient. A significant relationship was revealed between reimplantation and poor radial rigidity. Age demonstrated a significant correlation with poor circumferential rigidity and dropped penis. As regards the female partners, they showed a significant positive correlation between their negative responses and poor radial rigidity.

Conclusion: This study highlighted the adverse impact of poor radial rigidity on patient satisfaction rate, which can be avoided with proper surgical technique. In addition, proper counseling is essential, especially for older patients, about the possibility of poor radial rigidity and dropped penis as they may push them to remove the implant.

Key Words: Erectile dysfunction, patients' and their partners' satisfactions, semirigid penile prosthesis, surgical outcomes.

Received: 18 December 2016, **Accepted:** 5 January 2017

Corresponding Author: Sameh F. Gamal El Din, MD, Department of Andrology and STDs, Kasr Al-Ainy Faculty of Medicine, Cairo University, Al-Saray Street, 11956, El Manial, Cairo, **Tel.:** +20 122 710 9309, **E-mail:** samehfayek@hotmail.com, **Fax:** (202)23682030

ISSN: 2090-6048, March 2017, Vol. 7, No. 1

INTRODUCTION

About 50% of men older than 40 years of age suffer from erectile dysfunction (ED), which impairs quality of life 1. Many men become unresponsive to medical therapy due to the development and/or progression of their medical comorbidities, and therefore require penile prosthesis (PP) implantation to remain sexually active 2. Before selecting this form of management, the patient and his sexual partner should be counseled as regards the benefits and risks of this procedure 3.

This study evaluated the impact of the surgical outcomes on the patient's and his partner's satisfaction rate prospectively, at 1, 3, and 6 months postoperatively. To the best of our knowledge, this is the first study to highlight the crucial role of both axial and radial rigidities on the patient and his partner's satisfaction. In addition, the possible relationship between aging, poor radial rigidity, and dropped penis that occurred unexpectedly postoperatively had an adverse impact on the patient's self-image and his sensation of maleness and the need to be supported by hand during intromission.

PATIENTS AND METHODS

The current study included 32 Egyptian married male patients between 29 and 72 years of age (mean age: 56.78 years). The study included patients suffering from ED in whom all treatment modalities failed or were contraindicated. Their penile duplexes and Rigiscans (Dacomed Corporation, Minneapolis, MN, USA) confirmed the diagnosis. The surgery was performed between January 2013 and January 2014 at the Department

 DOI: 10.21608/HA.2017.3553

of Andrology, Kasr Al-Ainy Hospital, Faculty of Medicine, Cairo University. Subcoronal approach was adopted in which the incision was made just proximal to the glans in the 'circumcision' line, followed by dissection of the Buck's fascia until the tunica albuginea was reached. Corporotomy was performed and then a stay suture was placed with repeated dilatation of the corpus cavernosum and frequent washing using a saline with antibiotic. Buck's fascia and the external wound were closed using Vicryl (ethicon) 30/ with round end.

The semirigid Promedon tubemalleable semi rigid penile implant (Promedon). alone was used in this study and Coloplast was excluded for financial reasons as it is more expensive. Eventually, 32 patients and their partners agreed to participate and signed an informed consent form followed by obtaining the approval from the Andrology Department Research Ethical Committee. This committee was organized and operated according to the Declaration of Helsinki for Human Subject Researcher (2004).

After the operation, patients were contacted through phone and asked to return to the Andrology Department at 1 week after the operation to detect any wound complications and 1 month later so that the prosthesis could be checked and possible problems addressed, and then followed up at 3 and 6 months successively. A structured interview in the outpatient clinic was designed to complete the questionnaire. The patients' wives were also interviewed using a separate structured interview by a gynecologist. The surgical outcomes were evaluated prospectively using a 10-question questionnaire in the structured interview to assess the patients' and their partners' satisfaction rate, which was created by Gittens et al.[4] to evaluate the female sexual function and her partner satisfaction after inflatable penile implant. Poor radial rigidity was defined as annoying rotational defect upon penis deflection.

Statistical analysis

Statistical analysis was performed using Spearman's rank correlation coefficient or Spearman's ρ, which is a nonparametric measure of correlation between two variables. Therefore, it can be used to measure the strength of correlation between two ordinal variables for a small sample size. The questionnaire (scored 1–5) assessed satisfaction with various domains related to the PP (Table 1) (e.g. overall satisfaction and satisfaction related to length, width, ease of use, and partner perception); scores 3 or more were classified as satisfied. The questions were designed with a Likert grading scale scored 1 through 5 (1, very unsatisfied; 2, moderately unsatisfied; 3, satisfied; 4, moderately satisfied; and 5, very satisfied) (Table 1).

RESULTS

The descriptive results as regards the prevalence of the surgical outcomes in our 32 patients showed a total of 11 patients with poor radial rigidity. Four patients presented with dropped penis only. Five patients presented with supersonic transport (SST) deformity. Total of four patients underwent reimplantation. Total of 14 patients adapted their intercourse position. Eleven patients were free of any complications. Ten of them had neither complications nor limitations as regards the position of intercourse (Table 2). We evaluated the responses of the patients using Moskovic questionnaire, which was the same during the three structured interviews. The majority of the study patients were satisfied as regards the ease of use of penile implant (10 patients gave score 3), moderately satisfied as regards the rigidity of the implant (12 patients gave score 4), satisfied as regards length of implant (13 patients gave score 3), satisfied as regards the width of implant (14 patients gave score 3), satisfied as regards the orgasm they achieved with the implant (12 patients gave score 3), satisfied as regards their partner satisfaction with their penile implant (14 patients gave score 3), and satisfied as regards overall satisfaction (18 patients gave score 3). In a retrospective point of view of the patients, 26 of them would undergo the procedure again if it was offered to them, and 22 of the patients would recommend this procedure to other patients. Moreover, the responses of the partners to Moskovic questionnaire were the same during the three structured interviews.

The majority of the study partners were very satisfied as regards the ease of use of penile implant (14 partners gave score 5), very satisfied as regards the rigidity of the implant (12 partners gave score 5), satisfied as regards the length of implant (12 partners gave score 3), satisfied as regards the width of implant (14 partners gave score 3), and moderately satisfied as regards their overall satisfaction with their husbands' penile implant (14 partners gave score 4). Nineteen partners would recommend this procedure again to their husbands if it was offered to them, but partners refused to answer the question about recommending this procedure to other patients due to cultural reasons. Six partners felt unusual pain during the intercourse (Table 3).

We might conclude that age had a correlation with dropped penis, poor circumferential rigidity, and adapting intercourse position, but it had no significant relation with SST deformity. Moreover, it may be concluded that adapting intercourse position (man on top or using hand support with other positions) had a correlation with dropped penis and poor circumferential rigidity, but it had a nonsignificant correlation with SST deformity. Reimplantation had a correlation with poor circumferential rigidity, but no correlation with other complications. Finally, it was clear that poor circumferential rigidity had a correlation with partners' negative responses in the form of upset and disappointment as a result of instability and slippage of the penis from the vagina during the intercourse,

which was aggravated in cases associated with dropped penis. Meanwhile, there were negative correlations between partners' negative responses and the remaining complications (dropped penis alone and SST deformity) (Table 4). In general, all questionnaire score variables had a significant negative relation with dropped penis and poor circumferential rigidity, which ranged from moderate to strong.

Moreover, the questionnaire score variables of the partners' responses revealed a highly significant negative relation with poor circumferential rigidity that augmented the negative impact of this complication on the partner's satisfaction. Most of the female partners preferred the usual missionary position (man on top) as a result of fear that any other position could result in implant break (Table 5).

Table (1): The questionnaire that was used in the structured interview to evaluate the surgical outcomes to assess the patients' and their partners' satisfaction rate

Questions	Response
Male partner questionnaire	1–5
(1) How would you rate the ease of use of your PP?	1–5
(2) How would you rate the rigidity of your PP for intercourse?	1–5
(3) How satisfied are you with the length your PP?	1–5
(4) How satisfied are you with the width (girth) your PP?	1–5
(5) How satisfied are you with the orgasms you achieve with your PP?	1–5
(6) How satisfied do you think your sexual partner is with your PP?	1–5
(7) What is your overall satisfaction with your PP?	1–5
(8) In retrospect, would you undergo this procedure again?	Y/N
(9) Would you recommend this procedure to other patients?	Y/N
(10) How many times do you use your PP for sexual activity each month? As numbers/month	
Female partner questionnaire	
(1) How would you rate the ease of use of your partner's PP?	1–5
(2) How would you rate the rigidity of your partner's PP for intercourse?	1–5
(3) How satisfied are you with the length of your partner's PP?	1–5
(4) How satisfied are you with the width (girth) of your partner's PP?	1–5
(5) What is your overall satisfaction with your partner's PP?	1–5
(6) Do you have pain associated with your partner's PP during sexual activity?	1–10
(7) In retrospect, would you recommend your partner to undergo this procedure again?	Y/N

N, no; PP, penile prosthesis; Y, yes.

Table 2: Frequency of the surgical outcomes

Postoperative complications	xx	Frequency (%)
Dropped penis	8 (25)	
Poor radial rigidity	11 (34.4)	
Supersonic transport deformity	7 (21.9)	
Delayed ejaculation	3 (9.3)	
Painful intercourse	2 (6.25)	
Delayed infection	1 (3.1)	
Patients free of complications	11 (34.4)	
Total		32 (100)

Table 3: Responses to the questionnaire used in the structured interview of patients and their partners

Questions for patients and partners	Sample size	Minimum score	Maximum score	Mean	SD	Median
1st Q score						
Patients	32	1	5	3.16	1.17	3
Partners	32	1	5	3.22	1.07	3
2nd Q score						
Patients	32	1	5	3.16	1.08	3
Partners	32	1	5	3.03	1.18	3
3rd Q score						
Patients	32	1	5	3.34	1.21	3
Partners	32	1	5	3.51	1.29	3
4th Q score						
Patients	32	1	5	3.31	1.20	3
Partners	32	1	5	3.11	1.01	3
5th Q score						
Patients	32	1	5	3.25	1.24	3
6th Q score						
Patients	32	1	5	3.22	1.01	3
7th Q score						
Patients	32	1	5	3	1.02	3
Partners	32	1	5	3.2	1.34	3
Frequency/ month	32	1	8	4.94	2.38	3

Table 4: Correlation between complications and age/adapting intercourse positions/reimplantation/ partners' negative responses

	Dropped penis	Poor circumferential rigidity	SST deformity
Age			
Spearman's ρ	0.67*	0.46*	-0.02
correlation coefficient			
P value	0.0001	0.009	0.87
Adapting intercourse position			
Spearman's ρ	0.36*	0.55*	0.14
correlation coefficient			
P value	0.04	0.001	0.43
Reimplantation			
Spearman's ρ	0.21	0.52*	0.25
correlation coefficient			
P value	0.23	0.002	0.15
Partner's negative response (upset and disappointment)			
Spearman's ρ	0.02	0.61*	-0.05
Spearman's ρ	0.02	0.61*	-0.05
correlation coefficient			
P value	0.38	0.001	0.67

Statistical analysis was performed using Spearman's rank correlation coefficient or Spearman's ρ, which is a nonparametric measure of correlation between two variables.
SST, supersonic transport.

Table 5: The relation between questionnaire score variables of the patients/partners and complications

Questionnaire score variables (1–5)	Poor circumferential rigidity	Dropped penis	SST deformity
1st questionnaire			
Patients			
Spearman's ρ	-0.52*	-0.67*	-0.19
correlation coefficient			
P value	0.002	0.0001	0.27
Partners			
Spearman's ρ	-0.372*	-1.97	-1.1
correlation coefficient			
P value	0.005	0.9	0.4
2nd questionnaire			
Patients			
Spearman's ρ	-0.47*	-0.59*	-0.34
correlation coefficient			
P value	0.006	0.0001	0.052
Partners			
Spearman's ρ	-0.27*	-2.5	-1.34
correlation coefficient			
P value	0.004	0.8	0.4
3rd questionnaire			
Patients			
Spearman's ρ	-0.47*	-0.71*	-0.29

correlation coefficient			
P value	0.006	0.0001	0.106
Partners			
Spearman's *ρ*	-0.18*	-1.71	-0.28
correlation coefficient			
P value	0.001	0.5	0.1
4th questionnaire			
Patients			
Spearman's *ρ*	-0.48*	-0.69*	-0.32
correlation coefficient			
P value	0.005	0.0001	0.06
Partners			
Spearman's *ρ*	-0.38*	-3.69	-0.32
correlation coefficient			
P value	0.005	0.81	0.3
5th questionnaire			
Patients			
Spearman's *ρ*	-0.47*	-0.75*	-0.22
correlation coefficient			
P value	0.007	0.0001	0.216
6th questionnaire			
Patients			
Spearman's *ρ*	-0.42*	-0.70*	0.009
correlation coefficient			
P value	0.016	0.0001	0.96
7th questionnaire			
Patients			
Spearman's *ρ*	-0.38*	-0.50*	-0.39*
correlation coefficient			
P value	0.03	0.004	0.03
Partners			
Spearman's *ρ*	-0.1*	-1.75	-2.22
correlation coefficient			
P value	0.03	0.5	0.7
8th questionnaire			
Patients			
Spearman's ρ	-0.46*	-0.66*	-0.13
correlation coefficient			
P value	0.008	0.0001	0.46
9th questionnaire			
Patients			
Spearman's *ρ*	-0.71*	-0.51*	0.03
correlation coefficient			
P value	0.0001	0.003	0.868
10th questionnaire			
Patients			
Spearman's *ρ*	-0.59*	-0.67*	-0.21
correlation coefficient			
P value	0.0001	0.0001	0.25

Statistical analysis was performed using Spearman's rank correlation coefficient or Spearman's ρ, which is a nonparametric measure of correlation between two variables.

SST, supersonic transport.

DISCUSSION

The current study reported the importance of both axial and radial rigidities of the penis to support the erect penis and help it to resist buckle and slippage during vaginal intromission and pelvic thrusting following penetration. To the best of our knowledge, this was the first study to evaluate the role of poor radial rigidity in the destabilization of the implant and it's slippage from the vagina during the penile thrusts, which may be, in our point of view, due to undergirth of the rods and aging. Unexpectedly, dropped penis was observed in eight patients of the 32 patients and was defined as being the inability to maintain the penis in a straightforward position without support by the patient's hand, which may be due to, in our point of view, weakness in the suspensory ligaments of the penis, as aging revealed a significant correlation with it.

To the best of our knowledge such unexpected outcome was not addressed in previous studies. Unfortunately, this complaint had a negative impact on the patient's self-esteem and sensation of maleness. In the current study, we found 11 patients who were free of any complications and were highly satisfied, as well as their wives, as regards the rigidity and ease of use. However, six patients were dissatisfied as regards the sensation of unnatural erection. Dissatisfaction rate was highest in patients with poor radial rigidity aggravated by the presence of dropped penis. Moreover, their wives showed a significant strong positive correlation. This complaint was aggravated when poor circumferential rigidity was associated with dropped penis. Six partners felt unusual pain during the intercourse due to either rigidity of the implant or atrophy of their genitalia as four of them were postmenopausal.

According to our prospective analysis, partner satisfaction scores were higher in men with higher penile implant satisfaction and vice versa. The current study demonstrated moderate satisfaction rates for the majority of both patients (69%) and their partners (53%). This result is consistent with the literature on this subject. Unfortunately, studies addressing the outcome of semirigid devices were few. In an Egyptian study, 70% of patients and 57% of partners were satisfied with their prosthesis (either AMS 650 or Mentor Acu-Form), with an increase in the frequency of intercourse, sexual desire, and ability to achieve orgasm 5. Recently, Falcone et al.[6] stated that the AMS Spectra is a reliable device to treat ED with a high patient satisfaction rate. Moreover, the AMS Spectra has an advantage over inflatable devices as regards patient affordability[6].

Eventually, and in the same context, the previous findings were augmented by two recent studies. The first one was performed by Bozkurt et al.[7] across 257 men with ED who underwent both inflatable and semirigid penile prostheses, which revealed that the SPP semi rigid penile prothesis implantation is still a viable treatment option in the surgical treatment of ED because of low cost and high durability with acceptable satisfaction rates.

The second one was conducted by Casabé et al.[8] across 60 patients who underwent semirigid PP and confirmed that malleable prostheses present a high level of satisfaction and confirm that the malleable prosthetic implant is an excellent option to treat patients with ED refractory to medical treatment.

CONCLUSION

This study highlighted the adverse impact of poor radial rigidity on the patient satisfaction rate, which can be avoided using proper surgical technique. In addition, proper counseling especially for older patients about the possibility of poor radial rigidity and dropped penis is essential as they have an adverse impact on patient self-esteem that may push him to remove the implant. As this was a single-center study and Coloplast was not included in the study, it was difficult to relate the poor outcomes to the technique or the Promedon itself.

CONFLICT OF INTEREST

There are no conflicts of interest.

REFERENCES

1. Lopushnyan NA, Chitaley K. Genetics of erectile dysfunction. J Urol 2012; 5:1676–1683.

2. Hellstrom WJ, Montague DK, Moncada I, Carson C, Minhas S, Faria G, Krishnamurti S Implants, mechanical devices, and vascular surgery for erectile dysfunction. J Sex Med 2010; 7(Pt 2):501–523.

3. Lewis RW. Corpus cavernosum: more confusion or more understanding? J Urol 1995; 153(Pt 1):667–668.

4. Gittens P1, Moskovic DJ, Avila D Jr, Chandrashekar A, Khera M, Lipshultz LI. Favorable female sexual function is associated with patient satisfaction after inflatable penile prosthesis implantation. J Sex Med 2011; 8:1996–2001.

5. Salama N. Satisfaction with the malleable penile prosthesis among couples from the Middle East – is it different from that reported elsewhere. Int J Impot Res 2004; 2:175–180.

6. Falcone M, Rolle L, Ceruti C, Timpano M, Sedigh O, Preto M, et al. Prospective analysis of the surgical outcomes and patients' satisfaction rate after the AMS Spectra penile prosthesis implantation. Urology 2013; 2:373–376.

7. Bozkurt IH, Arslan B, Yonguc T, Kozacıoglu Z, Degirmenci T, Gunlusoy B, Minareci S. Patient and partner outcome of inflatable and semi-rigid penile prosthesis in a single institution. Int Braz J Urol 2015; 41:535–541.

8. Casabé AR, Sarotto N, Gutierrez C, Bechara AJ. Satisfaction assessment with malleable prosthetic implant of Spectra (AMS) and Genesis (Coloplast) models. Int J Impot Res 2016; 28:228–233.