

EJACULATORY DISORDER

Practice Patterns Among Korean Urologists for Glans Penis Augmentation Using Hyaluronic Acid Filler in the Management of Premature Ejaculation



Hyeong Guk Jeong, MD,¹ Sun Tae Ahn, MD,¹ Jong Wook Kim, MD, PhD,¹ Kyung Keun Seo, MD,² Dong Soo Lee, MD,² Hong Sun Uh, MD,² Je Jong Kim, MD, PhD,¹ and Du Geon Moon, MD, PhD¹

ABSTRACT

Introduction: Glans penis augmentation (GPA) using hyaluronic acid (HA) gel has been developed for treating premature ejaculation (PE) with penile hypersensitivity. The injected HA filler creates a barrier that reduces the tactile stimuli to the hypersensitive dorsal nerve. Although the HA filler is biodegradable and is believed to not cause permanent loss of sexual function, the current International Society for Sexual Medicine guideline for PE does not recommend this procedure owing to concerns regarding sexual dysfunction.

Aim: To investigate the practice patterns for GPA using HA filler among Korean urologists, and to identify whether urologist experienced patient reports of sexual dysfunction post-treatment.

Methods: Between March 2016 and July 2016, a specially designed questionnaire was mailed to 86 selected Korean urologists who had used injectable materials to treat PE.

Main Outcome Measures: The prevalence and awareness of sexual dysfunction after GPA using HA filler were evaluated.

Results: Overall, 56 urologists completed the survey (response rate: 69.2%), of which 36 (64.3%) had performed GPA using HA filler. They reported having performed a combined total of 4,344 such GPA procedures. Most urologists (72.7%) performed GPA using HA filler in patients who benefit from topical anesthetics. Patients with a history of failed pharmacotherapy (59.1%) and selective dorsal nerve neurotomy (45.5%) were selected for GPA using HA filler. The respondents (44.4%) encountered overall 206 (4.7%) cases of patients reports of recurrence of PE. Interestingly, only 36 (0.8%) cases of glans pain or paresthesia and no cases of erectile dysfunction post-treatment were reported.

Conclusion: Korean urologists performed GPA using HA filler when pharmacotherapy failed or if there was a response to topical treatment. Paresthesia and hypoesthesia after GPA using HA filler are rare, and no cases of erectile dysfunction were encountered by Korean urologists. **Jeong HG, Ahn ST, Kim JW, et al. Practice Patterns Among Korean Urologists for Glans Penis Augmentation Using Hyaluronic Acid Filler in the Management of Premature Ejaculation. Sex Med 2018;6:297–301.**

Copyright © 2018, The Authors. Published by Elsevier Inc. on behalf of the International Society for Sexual Medicine. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Key Words: Pre-Mature Ejaculation; Glans Penis Augmentation; Hyaluronic Acid Gel; Sexual Function Loss

Received January 12, 2018. Accepted June 27, 2018.

¹Department of Urology, Korea University College of Medicine, Seoul, Korea;

²Association of Korean Urologists, Seoul, Korea

Copyright © 2018, The Authors. Published by Elsevier Inc. on behalf of the International Society for Sexual Medicine. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.esxm.2018.06.005>

Sex Med 2018;6:297–301

INTRODUCTION

Urologists in clinical practice frequently encounter men reporting the sexual condition of premature ejaculation (PE). Although the exact prevalence remains unclear, numerous previous studies have revealed PE as the most common men's sexual dysfunction and reported its prevalence at 20–30%.^{1–3}

According to the current International Society for Sexual Medicine (ISSM) guidelines for PE, only pharmacological and

psychological/behavioral treatments are recommended.⁴ Several types of pharmacotherapy are indicated for the treatment of PE, including topical local anesthetics (LA),⁵ selective serotonin reuptake inhibitors (SSRIs),^{6,7} phosphodiesterase type 5 inhibitors,⁸ and tramadol.⁹ Unfortunately, some patients do not respond to these treatments.¹⁰ Complementary and alternative treatment is considered for these patients.

Selective dorsal nerve neurotomy (SDN) and glans penis augmentation (GPA) using hyaluronic acid (HA) gel are surgical treatments for PE that is refractory to behavioral and/or pharmacological treatment, but responds to topical LA. The underlying principle of GPA using HA filler in the treatment of PE is that an appropriately injected HA filler creates a barrier to reduce tactile stimuli to the hypersensitive dorsal nerve. Unlike SDN, HA filler is a biodegradable material^{11,12} that is believed not to cause a permanent loss of sexual function. We have previously reported that GPA using HA filler was effective and safe without permanent sexual dysfunction,^{13,14} and recently Abdallah et al¹⁵ reported the usefulness of HA dermal fillers in the treatment of PE. Several studies have evaluated the practice patterns among urologists for the management of PE; however, the previous surveys did not assess practice patterns regarding GPA using HA fillers in the management of PE.^{10,16–18} The practice patterns regarding GPA using HA fillers among contemporary urologists are unknown. Therefore, we aimed to investigate the current practice patterns regarding GPA using HA filler in the management of PE among Korean urologists, and to determine whether the urologists encountered patient reports of sexual dysfunction after the procedure.

METHODS

Approval was obtained from our institutional review board. Based on a previous Korean nationwide survey that analyzed the practice patterns of Korean urologists in the management of PE,¹⁶ we obtained a list of 89 urologists who had managed PE patients using injectable materials. A specifically designed questionnaire was e-mailed between March 2016 and July 2016 to all the selected subjects. The questionnaire consisted of 3 sections: respondent demographics, management of PE, and practice patterns of GPA using HA filler. In the demographics section, the respondent's age, practice location and type of setting, and time since acquiring the urology certification were requested. The "management of PE" section consisted of questions about their preferred management method, overall patient satisfaction with pharmacological treatments and topical anesthetics, whether the responder performed surgical treatment, and awareness of the necessity for surgical treatment.

In the section regarding "practice pattern of GPA using HA filler," the respondent's experience, number of procedures performed, indications for the procedures, complications encountered, and their estimate of the overall patient satisfaction after the procedure were examined. A multiple-choice question was

used to ask about the complications encountered; the options were edema, erectile dysfunction, glans pain or paresthesia, hematoma, psychotic disorder, recurrence of PE, scar formation, and wound dehiscence.

There was no compensation provided to the participants. The results were tabulated and descriptive statistics, including frequency and proportion, were calculated.

RESULTS

A total of 56 urologists completed the questionnaire by the end of the survey period, with a response rate of 69.2%. Their mean age was 50.1 (range, 37–64) years and the mean period since acquiring the urology certification was 19.0 (range, 6–34) years. Their practice settings and other demographics are presented in [Table 1](#).

Our respondents employed multiple modalities for treating PE patients. SSRIs were most commonly used to treat PE patients, by 54 (96.4%) of the respondents. Other management modalities included SDN (49, 87.5%), topical LA (41, 73.2%), GPA using HA filler (36, 64.3%), phosphodiesterase type 5 inhibitors (35, 62.5%), and behavioral therapy (25, 44.6%). The respondents believed overall patient satisfaction with the most common pharmacological treatment (SSRIs) as 61.7%, and 51.4% with topical LA. When questioned about the necessity for surgical treatments for PE, 19.6% of respondents thought they were definitely necessary, 53.6% thought they were necessary, 12.5% did not think they were necessary, and 14.3% had no opinion.

36 respondents (64.3%) had an experience of performing GPA using HA filler. They had performed a total of 4,344 GPA procedures using HA filler until the time of the survey, with an

Table 1. Demographics of study participants

Variables	N (%)
Age, y	
30–39	8 (14.3)
40–49	22 (39.3)
50–59	20 (35.7)
≥60	6 (10.7)
Practice setting	
Private	49 (87.5)
Academic	4 (7.1)
Other	3 (5.4)
Community	
Suburban	10 (17.9)
Urban	46 (82.1)
In practice, y	
0–10	11 (19.6)
11–20	25 (44.6)
21–30	16 (28.6)
>30	4 (7.1)

average of 2.2 performed per month. Of the 36 urologists, 22 (64.3%) performed GPA using HA filler for the management of PE alone and 11 (30.6%) performed the procedure for the management of both PE and subjective reports of the small glans penis arising from a sense of sexual inferiority. The age distribution of patients who underwent GPA using HA filler and the practice patterns of the procedure, such as injected HA volume and indications, are presented in Table 2. The respondents believed that 55.6% of the patients with PE were satisfied after the procedure, 38.9% considered it neither satisfactory nor unsatisfactory, and only 5.6% were dissatisfied. The respondents assessed that the factors related to poor patient satisfaction with the procedure were: unnatural appearance after injection (55.6%), recurrence of PE (36.1%), not long-lasting (33.3%), and high cost (13.9%).

Among the 4,344 cases of GPA using HA filler, the respondents answered that 206 (4.7%) patients experienced recurrence of PE, the most common complication reported. Other complications reported were as follows: glans pain or paresthesia, scar formation, hematoma, wound dehiscence, and edema (Table 3). However, the above complications were rare, and no respondents experienced erectile dysfunction following the procedure.

DISCUSSION

Based on the hypotheses of the organic etiology of PE, the principle of current surgical treatments is to reduce the sensitivity of the glans penis. However, the American Urological Association and European Association of Urology guidelines for the management of PE do not consider the need for surgical treatment,^{19,20} and the ISSM guideline does not recommend SDN or GPA using HA filler due to concerns over the permanent loss of sexual function.⁴

Table 2. Age distribution of patients treated with hyaluronic acid gel glans penis augmentation and practice patterns

Patient age distribution, y	
20–29	15.3 %
30–39	30.0 %
40–49	33.1 %
≥50	21.6 %
Injected HA volume, mL	
1	1 (2.8%)
2	18 (50.0%)
3	11 (30.6%)
4	5 (13.9%)
≥5	1 (1.8%)
Indications for GPA using HA filler	
Failed prior pharmacotherapy	13 (59.1%)
Failed prior selective dorsal nerve neurotomy	10 (45.5%)
Benefit from topical anesthetics	16 (72.7%)
Primary management	2 (9.1%)

GPA = glans penis augmentation; HA = hyaluronic acid.

Table 3. Complications after hyaluronic acid gel glans penis augmentation

Complication	Experience of urologist, N (%)	GPA using HA filler, N = 4,344 Patients, N (%)
Recurrence of pre-mature ejaculation	16 (44.4)	206 (4.7)
Glans pain or paresthesia	8 (22.2)	21 (0.5)
Erectile dysfunction	0 (0)	0 (0.0)
Edema	5 (13.9)	6 (0.1)
Psychotic disorder	0 (0)	0 (0.0)
Hematoma	9 (25.0)	16 (0.4)
Scar formation	8 (22.2)	17 (0.4)
Wound dehiscence	8 (22.2)	11 (0.3)

GPA = glans penis augmentation; HA = hyaluronic acid.

Despite the guideline recommendations and clinical practice patterns that prefer SSRIs, our respondents assessed that unfortunately the overall patient satisfaction with SSRI therapy was only 61.7%. In a previous survey by Shindel et al,¹⁰ SSRIs were found to be the first management modality preferred by 71% of the urologists in the United States; however, 56% of the urologists used treatments other than SSRI-dose modification or change in regimens as a secondary management for those who did not respond to the initial management with SSRIs.

This low satisfaction can be explained by several well-known limitations of SSRI therapy. Since the main drawback is recurrence after the cessation of treatment, SSRIs must be taken continuously. Although there is level-1a evidence to support the efficacy and safety of SSRI therapy according to the ISSM guidelines,⁴ treatment-related side effects, although uncommon and dose-dependent, lead to patients not complying with treatment.^{21,22} Topical LAs can cause local irritation, penile hypoesthesia, transvaginal contamination and female genital anesthesia, and erectile dysfunction.²³ These suggest that the need for alternative treatments might be perceived by physicians treating the patients in practice. This was reflected in our survey, wherein 73.2% of the respondents thought that surgical treatments were necessary in the management of PE. Consequently, 64.3% of our respondents had an performed GPA using HA filler.

It is noteworthy that in our survey no respondent encountered erectile dysfunction after GPA using HA filler, although 21.6% of those treated were over 50 years of age. The principle underlying the GPA using filler in management of PE is the creation of a barrier by the bulking agent that inhibits tactile stimuli to the hypersensitive dorsal nerve receptors. The most important property of an ideal filler is safety. HA is an ubiquitous component of all mammalian connective tissues with the same chemical and molecular composition in all species; hence, it is highly biocompatible without creating foreign-body reactions.¹¹ The authors developed GPA using HA filler for the small glans penis and PE.^{14,24} The HA gel injection site is the lamina propria

just over the nerve, to reduce the access of the nerve receptors to tactile stimulation. In contrast to SDN, GPA using HA filler does not lead to complete ablation of the sensation, and the HA is easily degradable by hyaluronidase; in fact, if properly injected, the HA gel will be naturally degraded even better over time. Thus, the barrier formed by the HA gel is not permanent, and it does not induce permanent sensory loss or sexual dysfunction. Our results also revealed that GPA using HA filler is not harmful for erectile function, and the procedure did not cause permanent loss of sexual function. However, the main drawbacks of this treatment are the lack of studies on long-term safety and the lack of a standard procedure for filler injection.

The limitation of our study is that the results were dependent on the respondents' memory and were self-reported, similar to those in previous survey studies. However, complications due to GPA are a sensitive problem and can result in medical litigation; it is unlikely that the physicians would not remember any such event. Most importantly, no case of erectile dysfunction was encountered by the respondents. In addition, our study focused on GPA using HA filler treatment questionnaires and the survey was conducted among urologists who had performed injection therapy for PE; thus, there is a possibility of bias. However, the objective of this study was to analyze the clinical practice patterns regarding GPA using HA filler treatment in Korea, rather than the efficacy and safety of this procedure.

An additional potential limitation could be our relatively small sample size among the practicing urologists in this country. However, as noted above, the survey was conducted among urologists who had performed injection therapy for PE and the number of such urologists was small. However, the response rate to our survey was high, even among academic urologists who lacked interest in the surgical treatment of PE, as noted in a previous study.¹⁶

Despite these limitations, practice pattern surveys regarding GPA using the HA filler treatment for PE are lacking, and we believe that our survey provides an overview of the surgical treatment of PE in contemporary Korean urology practice, particularly in private clinical settings.

CONCLUSION

The reported incidence of paresthesia and hypoesthesia after GPA using HA filler was low and there were no reports of erectile dysfunction after the treatment in real-life urology practice. Although our survey instrument was not a validated measure for the safety assessment of GPA using HA filler, the results suggest that a well-designed, multi-center study is necessary to understand the relationship between GPA using HA filler and the loss of sexual function, as it might be necessary to re-visit the current guidelines for the treatment of PE.

Corresponding Author: Du Geon Moon, MD, PhD, Department of Urology, Korea University Guro Hospital, no.

148 Gurodong-ro, Guro-gu, Seoul 08308, Korea. Tel: 82-2-2626-3201; Fax: 82-2-2 626-13 21; E-mail: dgmoon@korea.ac.kr

Conflict of Interest: The authors report no conflicts of interest.

Funding: None.

STATEMENT OF AUTHORSHIP

Category 1

(a) Conception and Design

Hyeong Guk Jeong; Kyung Keun Seo; Dong Soo Lee; Hong Sun Uh; Du Geon Moon

(b) Acquisition of Data

Sun Tae Ahn; Jong Wook Kim

(c) Analysis and Interpretation of Data

Hyeong Guk Jeong; Sun Tae Ahn; Jong Wook Kim

Category 2

(a) Drafting the Article

Hyeong Guk Jeong; Sun Tae Ahn; Jong Wook Kim

(b) Revising It for Intellectual Content

Kyung Keun Seo; Dong Soo Lee; Hong Sun Uh; Je Jong Kim

Category 3

(a) Final Approval of the Completed Article

Du Geon Moon

REFERENCES

1. Porst H, Montorsi F, Rosen RC, et al. The Premature Ejaculation Prevalence and Attitudes (PEPA) survey: prevalence, comorbidities, and professional help-seeking. *Eur Urol* 2007; **51**:816-824.
2. Laumann EO, Nicolosi A, Glasser DB, et al. Sexual problems among women and men aged 40-80 y: prevalence and correlates identified in the Global Study of Sexual Attitudes and Behaviors. *Int J Impot Res* 2005; **17**:39-57.
3. Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: prevalence and predictors. *JAMA* 1999; **281**:537-544.
4. Althof SE, McMahon CG, Waldinger MD, et al. An update of the International Society for Sexual Medicine's guidelines for the diagnosis and treatment of premature ejaculation (PE). *Sex Med* 2014; **2**:60-90.
5. Dinsmore WW, Wyllie MG. PSD502 improves ejaculatory latency, control and sexual satisfaction when applied topically 5 min before intercourse in men with premature ejaculation: results of a phase III, multicenter, double-blind, placebo-controlled study. *BJU Int* 2009; **103**:940-949.
6. McMahon CG, Althof SE, Kaufman JM, et al. Efficacy and safety of dapoxetine for the treatment of premature ejaculation: integrated analysis of results from five phase 3 trials. *J Sex Med* 2011; **8**:524-539.
7. McMahon CG, Touma K. Treatment of premature ejaculation with paroxetine hydrochloride as needed: 2 single-blind placebo controlled crossover studies. *J Urol* 1999; **161**:1826-1830.

8. Aversa A, Pili M, Francomano D, et al. Effects of vardenafil administration on intravaginal ejaculatory latency time in men with lifelong premature ejaculation. *Int J Impot Res* 2009; **21**:221-227.
9. Kaynar M, Kilic O, Yurdakul T. On-demand tramadol hydrochloride use in premature ejaculation treatment. *Urology* 2012; **79**:145-149.
10. Shindel A, Nelson C, Brandes S. Urologist practice patterns in the management of premature ejaculation: a nationwide survey. *J Sex Med* 2008; **5**:199-205.
11. Larsen NE, Pollak CT, Reiner K, et al. Hylan gel biomaterial: dermal and immunologic compatibility. *J Biomed Mater Res* 1993; **27**:1129-1134.
12. Smith KC. Reversible vs nonreversible fillers in facial aesthetics: concerns and considerations. *Dermatol Online J* 2008; **14**:3.
13. Kwak TI, Jin MH, Kim JJ, et al. Long-term effects of glans penis augmentation using injectable hyaluronic acid gel for premature ejaculation. *Int J Impot Res* 2008; **20**:425-428.
14. Kim JJ, Kwak TI, Jeon BG, et al. Effects of glans penis augmentation using hyaluronic acid gel for premature ejaculation. *Int J Impot Res* 2004; **16**:547-551.
15. Abdallah H, Abdelnasser T, Hosny H, et al. Treatment of premature ejaculation by glans penis augmentation using hyaluronic acid gel: a pilot study. *Andrologia* 2012; **44**-(Suppl):650-653.
16. Yang DY, Ko K, Lee WK, et al. Urologist's practice patterns including surgical treatment in the management of premature ejaculation: a Korean nationwide survey. *World J Mens Health* 2013; **31**:226-231.
17. Seo DH, Jeh SU, Choi SM, et al. Diagnosis and treatment of premature ejaculation by urologists in South Korea. *World J Mens Health* 2016; **34**:217-223.
18. Luján S, García-Fadrique G, Morales G, et al. Are urology residents ready to treat premature ejaculation after their training? *J Sex Med* 2012; **9**:404-410.
19. Hatzimouratidis K, Amar E, Eardley I, et al. Guidelines on male sexual dysfunction: erectile dysfunction and premature ejaculation. *Eur Urol* 2010; **57**:804-814.
20. Montague DK, Jarow J, Broderick GA, et al. AUA guideline on the pharmacologic management of premature ejaculation. *J Urol* 2004; **172**:290-294.
21. Waldinger MD, Hengeveld MW, Zwinderman AH, et al. Effect of SSRI anti-depressants on ejaculation: a double-blind, randomized, placebo-controlled study with fluoxetine, fluvoxamine, paroxetine, and sertraline. *J Clin Psychopharmacol* 1998; **18**:274-281.
22. Jiann BP, Huang YJ. Assessing satisfaction in men with premature ejaculation after dapoxetine treatment in real-world practice. *Int J Clin Pract* 2015; **69**:1326-1333.
23. Busato W, Galindo CC. Topical anesthetic use for treating premature ejaculation: a double-blind, randomized, placebo-controlled study. *BJU Int* 2004; **93**:1018-1021.
24. Kim JJ, Kwak TI, Jeon BG, et al. Human glans penis augmentation using injectable hyaluronic acid gel. *Int J Impot Res* 2003; **15**:439-443.

SUPPLEMENTARY DATA

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.esxm.2018.06.005>.