REVIEW ARTICLE

Preoperative counseling for penile implant surgery: standardized approach in a high-volume center of excellence

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Shared-decision making is crucial in today's society. Although penile prosthesis surgery has had significant improvements regarding technique and materials over the last few decades - with the highest satisfaction rate in erectile dysfunction treatment at present time -, dissatisfaction can occur because of bad preoperative counseling with the creation of unrealistic expectations. This paper includes a small narrative review regarding the most important preoperative variables to be discussed in the preoperative setting. Literature search was conducted in December 2023 using PubMed. Additionally, our own standardized flowchart for preoperative counseling was added. The most important aspects of preoperative counseling include a description of the pathophysiology of erectile dysfunction as well as alternative treatments. Information should be given about which implant categories exist. Additionally, some information about the procedure itself as well as the financial aspect should be communicated. The most frequent and most important complications should be illustrated. Last but not least, the patient's expectations should be evaluated. Our added standardized flowchart with figure acts as a practical guideline for professionals as well as for patients. Our standardized approach for preoperative counseling emphasizes reasonable postoperative expectations aiming for a well-informed patient with high postoperative satisfaction. Our general strategy is to underpromise and overdeliver.

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INTRODUCTION

Erectile dysfunction (ED) is a condition which has a significant impact on quality of life (QoL) for patients and their partners, resulting in stress, depression and relationship issues [1]. It affects more than half of men 40–70 years of age [2].

The evolution in surgical techniques and prosthesis materials has led to a significant improvement in treatment for ED non-responding to conservative treatments. Penile implant surgery is considered to be the treatment with the highest satisfaction rate for ED [3, 4]. However, dissatisfaction can still occur, mainly because of the postoperative penile length [5, 6]. The increasing trend towards providing more comprehensive information to patients is of vital importance, especially in today's society where shared decision making is crucial.

In this paper, we will describe the most important aspects that should be mentioned during preoperative counseling in ways of a narrative literature review. We will also demonstrate the standardized flowchart in our high-volume center of excellence. The aim is to encourage patients to take an active role in their process and giving them the opportunity to give them well informed decisions resulting in high satisfaction rates.

METHODS

A literature review was performed using all relevant articles sourced from PubMed. The search was conducted in December 2023. MeSH-terms used were "penile prosthesis", "preoperative procedure", "preoperative care", "patient satisfaction". We selected the articles based on the foreseen paragraphs which are the most important variables to be discussed preoperatively. These were based on our own standardized flowchart, which is also added in the last paragraphs of this paper.

PATHOPHYSIOLOGY AND ALTERNATIVE TREATMENTS

Patients should be well-informed and educated about the pathophysiology and processes of ED. There are different etiologies, such as vasculogenic, neurogenic, drug-related, hormonal, local (e.g. Peyronie's Disease) and psychogenic. Multiple of these factors can coexist with an emphasis on the psychogenic component [7]. Studies show that highlighting the psychological and physiological components of sexual problems have a positive impact on patient satisfaction [8].

In general, penile implant surgery can be considered in patients who are not suitable or non-responders to conservative treatments, including lifestyle modifications, oral phosphodiesterase-5 inhibitors (PDE5I), intraurethral suppositories, intracavernous self-injections and vacuum devices. For a long time-period, the European Association of Urology (EAU) guidelines recommended penile implant surgery as a third-line treatment. However, in the 2020 EAU guidelines, the recommendation has changed to "if other treatments fail or depending on the patient's preference" [7]. We recently published data showing that more than half of the patients with a penile implant would have wanted the operation

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earlier in their treatment process, validating the omission of the "three-level" concept and underlining the importance of a well-informed patient [9].

CHOOSING THE RIGHT IMPLANT

There are two categories of penile prostheses on the market. The semi-rigid implants and the inflatable (two- or three-piece) systems. Both implants have their pros and cons and should be discussed thoroughly with the patient [10]. An inflatable penile prosthesis (IPP) is generally preferred because of the more "natural" feel and appearance, although there are no prospective randomized controlled trials comparing both implant classes for satisfaction rates [7]. Drawbacks are the mechanical complexity, resulting in a potential for mechanical failure as well as the need for good manual dexterity to use the device. Additionally, the necessity to place a reservoir in a three-piece system is sometimes challenging in patients who have undergone previous pelvic surgery, often requiring alternative techniques, e.g. the submuscular placement of the reservoir [11]. The semi-rigid prostheses are easy to use, meaning it is a valid option in patients with limited manual dexterity. The most important drawback is the continuous state of erection which is sometimes difficult to cover or conceal [12].

INFORMATION ABOUT THE PROCEDURE ITSELF

An explanation of the surgical procedure for the patient in an understandable way is of utmost importance in order to comprehend the anatomical aspects involved. Obviously, the procedure depends on which kind of prosthesis is being implanted. The approach itself, infrapubic or penoscrotal, is mainly chosen based on the surgeon's habits. A systematic literature review reporting data of a three-piece IPP implantation withheld no difference in satisfaction or complication rates between infrapubic or penoscrotal placement [13]. The method should be chosen based on the patient's anatomy, previous pelvic surgery and surgeon's experience.

FINANCIAL CONSIDERATIONS

An important aspect of this elective surgery is its costs, although there are significant varieties between countries, e.g. because of different insurance companies. An assessment should be made preoperatively to avoid unforeseen financial issues for the patient afterwards.

A recent systematic review evaluated the costs associated with penile prosthesis surgery in the USA and Europe. The cost of the prostheses has remained relatively stable over the years since the start of their production compared to inflation, the overall cost of implant surgery significantly exceeded this. For example, the mean cost of IPP changed from $7690 in 1988 to $29,720 between 1990 and 2010 in the USA [14].

COMPLICATIONS

The two main complications of penile implant surgery are infection and mechanical failure. Due to the advancements in surgical materials (e.g. coated prostheses) and appropriate use of antibiotics, infectious complications have been brought down to a range of two to three percent in low-risk patients [15]. Although these numbers are low, patients need to be aware of this significant complication and its consequences, especially if the patient has risk-factors for infectious complications. These variables include corporal fibrosis, diabetes mellitus, spinal cord injury, immunosuppressed status (e.g. after organ transplantation) and in revision surgery [7].

Nowadays, due to technical advances, the risk of mechanical failure in a IPP is lower than 5% after a follow-up of five years [7]. A large series including 14,969 patients concluded a reoperation rate for non-infectious complications in 3.9% [16]. Patients should be aware that mechanical failure is inherently associated with a need for revision surgery.

The benefits of surgery must outweigh the possible per- and postoperative complications. Treatment of chronic diseases such as diabetes mellitus and cardiovascular comorbidities should be optimized before surgery. For example, patients with uncontrolled diabetes are considered at risk for infectious complications. The Princeton Consensus Conference (I,II,III) is included in the cardiac-risk assessment flow-chart in the EAU guidelines [17–19]. Surgical problems could arise after surgery in the lower-abdomen due to reservoir placement [11].

EXPECTATIONS REGARDING SEXUAL FUNCTION

Unrealistic expectations regarding postoperative sexual function can lead to lower satisfaction rates. The most reported reason for dissatisfaction after penile implant surgery is a perceived loss of penile length [9]. Obviously, complications e.g. device infection requiring explanation will also result in a lower satisfaction rate.

We recently published data of IPP implantation in which we saw that the stretched penile length preoperatively is a good estimate for the prediction of the postoperative penile length. We could also conclude that the penile length postoperatively does not significantly change in deflated or inflated status in the same study, meaning that the penis will be a shower instead of a grower after the operation [6]. Both findings are of significant value and should be mentioned preoperatively in order to filter out possible wrong expectations.

The data for this study were collected from the Phoenix trial, a prospective registry evaluating daily practice, surgical treatment and follow-up outcomes in penile implant surgery [20]. Potential altered penile sensation differences could also lead to lower satisfaction rates and this potential problem should therefore also be mentioned preoperatively.

STANDARDIZED APPROACH IN OUR HIGH-VOLUME CENTER OF EXCELLENCE

Our hospital began offering the standardized counseling program for penile implant surgery in 2008. This was initiated and further developed due to various reasons, such as the impact of the COVID-19 pandemic, the presence of less experienced nurses at the new campus building and the need for a shorter hospital stay, limiting the time preoperative counseling.

When the indication for a penile implant has been determined by the surgeon, an appointment with our specialized nurse is scheduled automatically a few weeks before the actual surgery. Due to this specific timing, the patient still has some time to process all the information and has a chance to ask questions (extra appointment or by telephone). The specialized nurses have had a specific training regarding peri-operative care in penile and sphincter prosthesis surgery. They also take part in the follow-up scheme for prostate cancer patients, a patient group needing good counseling on postoperative ED after radical prostatectomy or radiotherapy [9].

A specific flowchart has been set up to standardize procedures, guaranteeing the same amount of information for all patients with minimizing the risk of oversight. Apart from this, we want to mention that the patient has already received a comprehensive explanation from the surgeon, although this is often less standardized.

The following parts will be asked or explained to the patient and/or partner. An additional illustration (Fig. 1) was created in order to have a better overview.

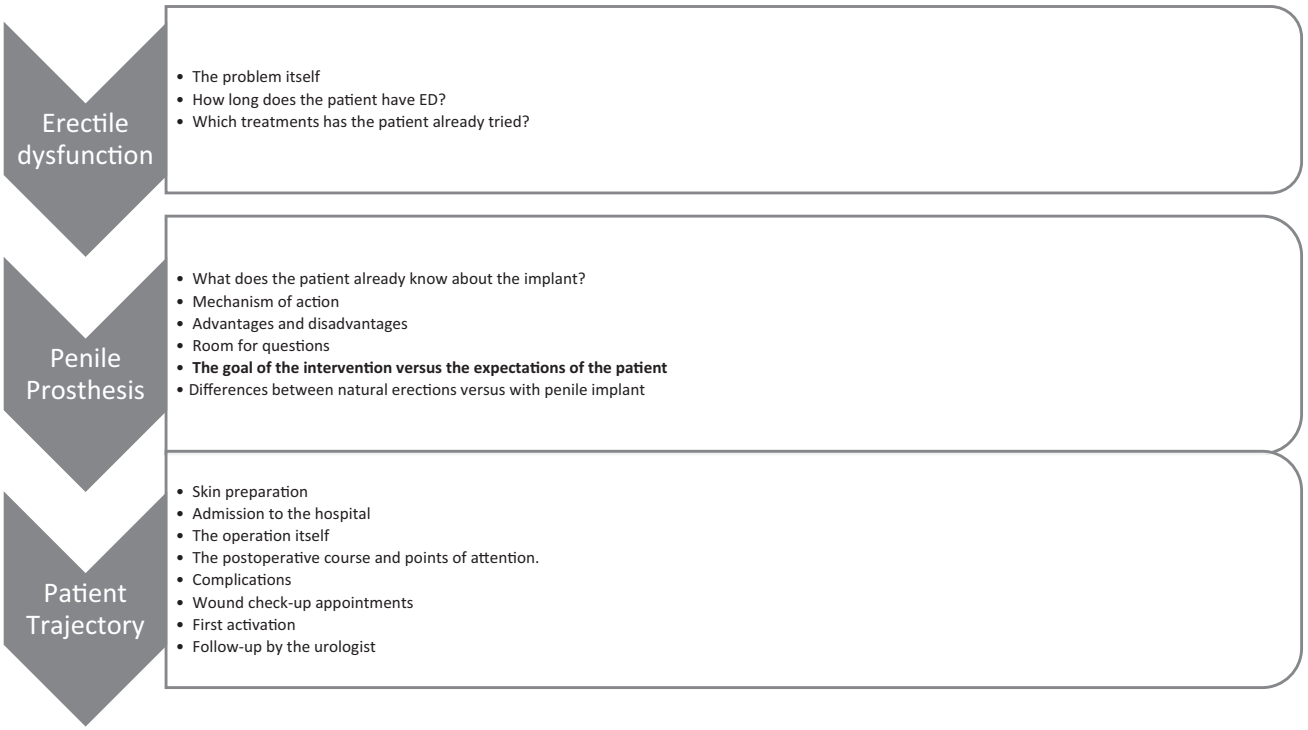

Fig. 1 Standardized flowchart for preoperative counseling in penile implant surgery.

In the first part of the session, we talk about ED itself. We ask how long the patient already had ED and what treatments he already tried.

The second part of the session focuses on the penile prosthesis itself. What does the patient already know about a penile implant? We explain what a penile implant is (IPP/semi-rigid) and how it works. We also explain the pros and cons about the procedure and different categories of implants and brands. We additionally leave some room to ask any questions. The goal versus the expectations of the patient are discussed, which is one of the most important aspects of our counseling. The differences between a natural erection versus an erection with an implant are also discussed.

The last part of the consultation covers the pre- and post-operative course. The skin preparation at home one day before surgery and on the admission day is illustrated. The admission itself is reviewed, from the registration desk all the way to the patient room. The procedure itself is talked about in a practical way, as well as the recovery after the procedure. We discuss the events at the first postoperative day including the procedure of the discharge to home. The postoperative course and points of attention after prosthesis surgery are addressed. A list of possible complications, what to do and how to contact us is also on the agenda. Additionally, information is given about the postoperative appointments for wound check-up (with the specialized nurse). Finally, the process and timing for the first activation of the prosthesis as well as the follow-up scheme with the urologist/surgeon is being discussed.

CONCLUSION

This article demonstrates some of the most crucial aspects for counseling in penile implant surgery. Our overview illustrates some key features that deserve consideration in a preoperative setting. Additionally, our standardized flowchart used in the informative preoperative consultation was added as a practical guide. By using this standardized approach, we try to merge structure and evidence-based data in order to optimize the quality of our counseling which will result in a well-informed and satisfied patient. Our general strategy is to underpromise and overdeliver.

DATA AVAILABILITY

Not applicable.

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AUTHOR CONTRIBUTIONS

Conception and design: AVH, KVR; Administrative support: ML, KVR; Provision of study materials or patients: ML, KVR; Collection and assembly of data: AVH, ML, KVR; Data analysis and interpretation: AVH; Manuscript writing: AVH, KVR ; Final approval of manuscript: AVH, ML, KVR.

COMPETING INTERESTS

All authors have completed the ICMJE uniform disclosure form. The authors have no conflicts of interest to declare.

ADDITIONAL INFORMATION

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