Review Article on Urological Surgery

Lessons learned from 25 years of prosthetic surgery

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Abstract: Every year 50,000 penile implant surgeries are performed worldwide. More than 75% of these cases are done by surgeons doing very few implants; i.e., less than 4 cases a year, and it is well known that surgeons doing higher volumes have better outcomes. However, establishing a successful penile implant center relies on more than just the performing surgeon: a multi-disciplinary medical and paramedical team is of utmost importance. Besides this, standardized work up is required and includes integration of the couple, using questionnaires, sharing all possible information/sources with the patient and partner, etc. The implant surgeon should be careful not to create unrealistic expectations in the couple. Additionally, since this type of surgery is a very technical and multi-modal intervention, a fast track method is indispensable. To achieve this, well-trained teams in the patient ward, operation room, and consultation department are essential. Even those surgeons who consider themselves expert in penile implant surgery can improve their outcomes by attending master classes for expert implanters, and by reassessing their own surgical procedures.

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Introduction

Erectile dysfunction (ED) was considered a psychogenic disorder until the 1960s. For this reason, there was no real treatment available tackling the vasculogenic nature of "impotence". In 1973, the first inflatable penile implant became available on the market when Bradley, Scott, and Timm published their first data on such a device. In 1982, Virag described vasodilatation and the subsequent erection caused by intracavernous injection of papaverine, underlining the vasculogenic nature of ED. Finally, Goldstein introduced oral drugs in the treatment of ED, launching sildenafil as the first phosphodiesterase type 5 inhibitor (PDE-5i) in 1998.

Yearly, around 50,000 penile implants are implanted worldwide. Many, if not most of these cases are performed by low volume implant surgeons, and 75% of implant surgeons are doing less than 4 cases a year. After 1998, there was a global drop in implant numbers due to the availability of PDE-5i's. However, after this decline which lasted several years, we noticed a higher number of implants compared to the pre-sildenafil era. This increase can be explained by the fact that PDE-5i's made ED more open to everyday discussion. Another reason was that many PDE-5i's responders became non-responders after a certain time, and thus sought new solutions for their ED.

My penile implant clinic, The Ageing Male Clinic, established in 2005, is part of a subdivision of the urology department in my hospital. In this ageing male clinic, we focus on ED, late onset hypogonadism, and possible interaction with benign prostatic hyperplasia and prostate cancer. Since we face an aging population demographic seeking a better quality of life, we take care of these patients in a holistic approach which includes the expertise of cardiologists, endocrinologists, sexologists, gynaecologists, general practitioners, nurse practitioners, dedicated scrub nurses in the operating theatre, dieticians, etc. The key to success is a well-trained, organised team that involves all the partner areas described above. Last but not least, one should work according to the relevant scientific guidelines,

and state-of-the-art practice should be a sine qua non.

Pre-operative care and work-out

Proper pre-operative care is critical to success, and satisfaction rates will be high if one gives attention to this part of the trail.

From the beginning, it is of utmost importance to integrate the couple in this process, and involving the partner will be of extreme value throughout the whole track the patient will follow. Symptom scores are very valuable in estimating the degree of ED (e.g., IIEF, SEP, etc.) and in estimating the success of the chosen treatment. All patients need an extensive blood exam with special attention to cholesterol, renal function, liver metabolism, glucose, and, if applicable, diabetic control, androgen, and associated hormonal levels. In my practice, I personally perform a pharmaco-Doppler ultrasound for all patients. By doing so, we can objectively identify the origin of the patients ED, help show the patient what intracavernous therapy contains, and give the physician an idea if the patient responds to a certain dose of an injectable vasoactive product like prostaglandin-E-1. Above all, it has legal importance if this information is in the patients file. In select cases, it might be useful to measure nocturnal penile tumescence.

Having clear documentation to hand over to the patient and his partner is indispensable. Showing animated videos, which are made available by the different device companies, and providing real live photographs of implanted patients, can be very informative for the patient. These give the patient and his partner a more realistic idea of the implant. If a patient asks to feel and touch an implant/pump, you should let them do so; however, I feel this can also create the impression that the implant is an artificial prosthetic device, and as such, an artificial penis, especially in the partner's eyes. Patients and partners should be offered the possibility to be counselled by a dedicated prosthetic nurse/sexologist.

Most device companies give a mechanical failure guarantee; however, this is not written in stone, and patients should be made aware of this fact by notifying them that mechanical failures can occur, especially after a longer period of time has elapsed since penile implants do not function forever. This is something that has to be given full attention especially in younger patients, because they will probably need more penile implants during their sexual life. Compared to other therapies, and depending on your country and health system, penile implants can be considered inexpensive, as is the case in Belgium where penile implants are partially reimbursed.

In well trained hands, this surgery should be considered safe with low complication rates; it can also be seen as a "small" surgery when you compare this to other urological procedures. On the other hand, being an irreversible procedure, one can see this as a "big" operation, and post-operative pain can be substantial in the first post-operative period, which needs to be explained to the patient and partner. Patients and partners should be aware that the penis will have another appearance in the flaccid state: the penile implant may be visible. Post-operative length is an important issue that needs to be addressed in order to avoid never-ending post-operative discussions: it is ED that makes a penis shorter, not the penile implant, so the patients' penis will already have been shorter for quite some time in comparison to years previous. Patients and partners should also be aware that penile rigidity is far more important than penile length in having successful intercourse. This knowledge should be taken into account when timing the penile implant surgery: the longer surgery is postponed, the shorter the penis will be because the absence of (nocturnal) erections will cause penile atrophy and shrinkage. It is extremely important to make it clear that this is an irreversible procedure: there is no way back. A penile implant does not interfere with orgasm and ejaculation, and this information should be given before implanting a patient. In short, low pre-operative expectation rates are correlated with high post-operative satisfaction scores and vice versa (1). It is wrong to promise patients and partners "heaven"; realistic expectations will prevent a great deal of post-operative problems.

A standardized peri-operative procedure

One should create a fast track in order to improve this multi-modal intervention. The nurses on the ward should be given the following instructions on how to prepare the patient before going to the operating room (OR): disinfecting shower/bath; shaving in the OR and not on the ward just prior to surgery. Post-operative instructions for nurses include the following: catheter removal, ice application on the operative site, removal of the bandage, implant deflation, and arrangement of rapid post-operative control.

In the OR, a dedicated team should be available, which entails specialised nurses who assist in this kind of surgery on a weekly base. Shaving is done just before surgery, and consists of a rigorous disinfection with an alcohol-based

Figure 1 Lessons learned from 25 years of prosthetic surgery (2). Available online: http://www.asvide.com/watch/32935

solution, antibiotic administration well before incision, and other measures. Since prosthetic infection is the biggest fear of implant surgeons, all measurements taken prior to surgery are of extreme importance in order to prevent infection. Working with a dedicated team will reduce operating time which is well known to be a key factor in preventing infection. In the OR, doors should remain closed, as few people as possible should be allowed inside, no one should be allowed in or out during the operation. All parties should wear masks and head caps, while laminar airflow, low room temperature, should be taken care of (*Figure 1*).

Conclusions

It should be made completely clear that high-volume implanters have superior outcomes compared to low-volume implanters; this is well described in a paper by Lotan *et al.* (3). Regularly attending educational sessions with recognised experts will improve a surgeon's surgical outcome and skills (4). Having fast track strategies (5,6) and continually reassessing one's surgical procedure will improve personal and team outcomes (7). If one is well-trained in this kind of surgery and properly focused on clear communication with the patient and partner, there should be no need to avoid penile implant surgery due to the fear of malpractice suits. Correct and honest counselling with appropriate expectations before surgery will reduce the risk of legal consequences (8). Partner involvement cannot be overstressed: not involving the partner in the whole process will have an irrepressibly negative impact on the outcome, particularly in regards to patient and partner satisfaction. The partner plays a key supportive role in ED treatment, and as such can amplify any discordant attitudes or unrealistic expectations that arise (9). Having written information available will help in counselling patients. It can be used as an informational source for the patient and as encouragement to patients and partners to seek help and treatment for their ED condition (10). Finally, training courses on ED management can be useful in enhancing physician's communication skills, as accurate counselling is crucial to a positive outcome and thus needs to be addressed as well (11).

There is a very important Latin saying, *primum non nocere*, which means that, above all, one should not harm a patient by treating him, or, in other words, the treatment cannot create a worse situation than the patients' condition. Always keep in mind that "perfect is the enemy of good". Trying to get the most out of the treatment might lead to a condition worse than it was prior to performing those extra steps: keep it simple! Like the famous German writer Goethe once said: "in der Beschrenkung ziegt sich zuesrt der Meister"—in restraint the master shows first. One should not aim to do everything; instead, one should focus on one's subspecialty and produce whatever benefit one can. Abstaining from certain surgical procedures and referring to a more experienced colleague instead might seem onerous and difficult, but it will produce peace of mind and a good night's rest as opposed to nightmarish worry. Steve Wilson, the "godfather of penile prosthetic urology", is absolutely in the right when saying that one should not implant a stranger, one should also keep in mind that the "last one who touches the patient, gets him" (12).

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Footnote

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