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LETTERS TO THE EDITOR

Operational Andrology

Improving operating efficiency with emphasis on prosthetic surgery

Neil Baum¹, David F Mobley², Paul Perito³

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Dear Editor,

Physicians are looking for methods and techniques to become more efficient and more productive. Not only is efficiency important in the office and clinical setting, but in the operating room as well. This article will discuss efficiency and productivity in the operating room and its benefit to patients, surgeons and hospitals.

Physicians today are challenged like no other time in our glorious history. Trends are taking place moving surgical patients from the operating room to the office setting using minimally invasive surgery instead of hospital procedures. There is a trend from open surgery to robotic and laparoscopic surgery. There is a movement from solo practice to large group practices, and younger physicians are being employed by hospitals instead of joining groups or starting a solo practice. There is also a trend for physicians to become involved in the business of medicine and many are pursuing combined MD and MBA degrees. Physicians have become concerned as reimbursements are decreasing, overhead costs are rising, and incomes are decreasing as a result. Compounding that problem, we are going to be faced that over 20 million patients are going to be added to the healthcare system in the United States as a result of the passage of the Affordable Care Act. The aging baby boomers will have increasing medical problems requiring our attention, and there will be additional demands upon physicians, particularly urologists. With physicians retiring at an earlier age and inadequate replacements to accommodate the increased number of patients, there is going to be a serious time challenge to physicians. The take home message is that physicians and hospitals are going to have to be more efficient and more productive in order to accommodate our future. One opportunity for all urologists who perform penile implant surgery is to improve their efficiency in the operating room. This article will discuss the advantages to patients, to surgeons and to hospitals for becoming more efficient in the operating room. Techniques especially useful to penile implant surgery will be presented.

ADVANTAGES TO PATIENTS

With the use of intraoperative injections of long-acting local anesthetics, such as bupivacaine and ropivacaine, there is a reduction in postoperative pain medication requirements in men who have had

penile implant surgery.¹ A reduction in pain and a reduced requirement for narcotics and opioids also reduces the risk of acute urinary retention requiring a catheter which prolongs recovery and leads to increased discomfort for the patient and requires a trial of voiding the following day, which may prolong hospitalization and/or require an additional office visit.²

Published studies suggest that surgeons who have a greater volume of cases and more operative experience have fewer reported postoperative complications.^{3–6} These studies cover a wide variety of surgical procedures, and given the scope of the evidence, it seems logical that the conclusion may be transferred to surgeons performing penile prosthetic surgery.

Multiple studies have demonstrated that longer operative time increase the possibility of operative field contamination, which may lead to an increased risk of surgical site infection.^{7–10}

If, indeed, surgeon experience and shorter operative times lead to fewer complications, it naturally follows that overall patient outcomes from prosthetic surgery will be improved. In addition, with fewer postoperative complications, the rehabilitation time or the time to device activation is reduced. With less tissue trauma, less scrotal hematomas, and faster recovery time, the patient can begin having sexual intimacy sooner than patients who spend longer times in the operating room. This translates not only to a happier patient, but also a happier partner, which is a large part of the equation in caring for men with erectile dysfunction.¹¹

Finally, there is a cost issue that impacts patients who are paying out of pocket for the surgery. Most hospital operating rooms charge patients by the time spent in the operating room. This is often measured and computed down to the minute. If the surgeon is more efficient with shorter operative times, there will be a reduction in the fee paid by the self-pay patient. Operating rooms usually estimate the time for each procedure based on historical data. With surgeons who take longer, the facility fee to the patient will be larger than for patients of surgeons who are more efficient. It is also based on the number of procedures performed. That is, surgeons who do more cases and have a higher volume will have a lower facility fee for their patients than surgeons who only do a few cases in the facility.

ADVANTAGES TO THE SURGEON

Surgeons are now motivated more than ever before to be efficient both in the operating room and in the office as they are challenged to see more patients. Surgeons do not have the luxury of excessive or unnecessary time in the operating room and are looking for effective

¹Tulane Medical School, 3525 Prytania, New Orleans, LA, USA; ²Institute for Academic Medicine, Houston, TX, USA; ³Urologist, Cora Gables, Florida, USA.
Correspondence: Dr. David F Mobley (mobleyresearch@gmail.com)
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procedures that have the same or better outcomes using minimally invasive techniques and improved efficiency. With improved operating room efficiency, we can assume that the number of procedures that a surgeon can perform will increase.

With minimally invasive procedures and shorter operating times, there is a potential for less blood loss. For example, in our experience, with a minimally invasive approach to implant a penile prosthesis blood loss can be reduced to < 30–50 cc.

It has been shown that minimally invasive surgery results in significantly less pain, less blood loss, less scarring, shorter recovery time, a faster return to normal daily activities, and in many cases, better clinical outcomes.¹²

A postoperative scrotal hematoma after the insertion of a penile prosthesis can significantly increase the pain, discomfort, the time that the patient can begin activating his device and increase the time to having sexual intimacy. Prevention of hematoma and swelling with closed-suction drains has been shown to promote an earlier recovery time without an increase in infection rate. In a series of 425 consecutive primary three-piece penile prosthesis implantations, there were a total of 14 (3.3%) infections and three hematomas (0.7%) during a mean follow-up of 18 months.¹³ A shorter operating time with less swelling and discomfort allows the patient to engage in sexual intimacy in a shorter period of time, significantly increasing patient and partner satisfaction.

Ultimately, the surgeon who spends less time in the operating room owing to efficiency and skill, does more cases, returns to the office sooner, receives fewer calls from patients, has improved patient satisfaction, is under less stress and has the opportunity to truly enjoy his/her practice. The bottom line is that a surgeon who is able to do more procedures efficiently improves his/her productivity and is less stressed and happier and continues to enjoy his/her practice of medicine.^{14,15}

ADVANTAGES TO HOSPITALS

Hospitals today are under more financial pressure to preserve their bottom line. For example, in the U.S., hospitals can be financially penalized if patients are rehospitalized for complications of the same disease state or what required their admission in the recent past. Anything that physicians can do to improve the efficiency of the hospital will benefit the physician, the patient and the hospital.

Improved efficiency means that hospitals can add more surgical cases to their schedule. Additional cases translate to more revenue for the hospital. Improving the efficiency by having shorter OR times, results in a reduction in costs for the hospital.¹⁶

There is a significant improvement in the morale of the operating room staff when surgeons are more efficient and have shorter operating times. We are not sure of the explanation of this observation, but perhaps the efficient team is less stressed, intraoperative complications are minimized, and the nurses and surgical assistants can return to the lounge to refresh for the next procedure.

Surgeons who are more efficient serve as role models to colleagues. For example, one of us (PEP) has had several hundred surgeons, including urologists, gynecologists and urogynecologists coming to his hospital to learn techniques of improving operating room efficiency.

IMPROVING EFFICIENCY IN PENILE IMPLANT SURGERY

We have found several principles that have allowed marked improvement in operating room efficiency with regards to implant surgery, and these principles in one form or another can be useful in many non-implant operative procedures.

The team

We find that that an operating room which employs two or three well-trained teams, completely familiar with all aspects of the surgical procedure, leads to much greater efficiency and with improved efficiency there are fewer mistakes that occur. Furthermore, a well-trained team has better surgeon-team communication and this, too, facilitates efficiency and the operating room effectiveness. Implant surgery is different from non-device surgery, and thorough familiarity with all aspects of the devices is critical to the efficiency and surgical success. We have observed operating suites in which nursing or assisting personnel are participating in prosthetic surgery for the first time. As a result, there are delays, problems with communication, and the surgeon can lose his/her focus thus greatly reducing efficiency and possibly patient safety. We suggest that you contact your local representative from the implant company as he/she may be a real asset in the training of a team.

Preparation

We believe that the efficiency can be enhanced if the detailed preparation can be done prior to the patient entering the operating room suite. This includes the opening of and preparation of all components that will be used in every case. For example, the reservoir for an inflatable penile prosthesis should be prepared before the case starts. The rubber-shod hemostats which are used to prevent injury to the tubing should be made in advance. All syringes used for testing and filling of the tubing should be loaded with normal saline and the syringes clearly marked on the side with the contents of the syringe. The surgeon's preference for antibiotic spray should also be in containers that are clearly marked so as not to confuse the various solutions that are on the operative field. Most surgeons make us use the same sutures for every case and these need to be open and ready and loaded onto needle holders. Local anesthetic for injection needs to be ready. All instruments and retractors which are used in every case need to be on the Mayo table. All this should be done before the patient, and the surgeon enter the operating room.

Surgical assistant

Preferably, your surgical assistant will be an individual who is totally familiar with the devices and with your technique so that no coaching is necessary during the procedure. A good surgical assistant needs to anticipate your next move and serve as an ally between the surgeon and the scrub nurse. A surgical assistant who is not familiar with the procedure can be more a liability than an asset.

The surgical procedure

It has been our experience that a urinary catheter (Foley) is rarely needed, yet its use is still very common especially by surgeons who have less surgical implant experience. A small incision, 2–3 cm, is all that is required and with the use of small retractors by your assistant, the surgeon can easily expose the tissue planes without resorting to a larger incision. As early in the case as possible, you should determine cylinder length so that these can be prepared by the nurse as this will significantly add to the efficiency of the procedure. Small corporotomies, 1.0–1.5 cm, are all that is required with the devices that have 0° input tubing exiting from cylinder. We also recommend that a single lateral stay suture on each side of the corporotomy can be tied to each other after insertion of the cylinders which eliminates the necessity of using multiple sutures in closing the corporotomy, and effectively reducing the risk of puncturing the cylinder with a needle to nearly zero. Closure of the skin by the assistant with a subcuticular suture eliminates the need for removal of sutures or staples, which is a definite benefit for the patient.

Clearing and turning over the room

As soon as the surgeon is satisfied with the procedure and that the device is functioning properly, and wound closure is imminent, the room cleaning and turnover can begin while the case in the room is coming to a conclusion and anesthesia is being reversed. It is not necessary to wait for the last suture to be placed to begin the turnover process as this leads to significant delays between cases. This turnover approach saves minutes between cases and facilitates the movement of the patient to recovery in preparation of the arrival of the next patient. For the surgeon who is fortunate enough to be able to use two rooms, efficiency is enhanced even further, but this is not a common situation. We know these few time-saving maneuvers work as we have tested them and can attest they will add efficiency in the operating room, and potentially improve patient safety. Many of these principles just described lend themselves to other non-prosthetic operative procedures.

SUMMARY

Times are changing. Physicians can no longer use only the skills and techniques that they learned during medical school and their training programs. We have to shift gears and recalculate our route. One of the best ways to do so is to improve your efficiency in the operating room. It is a win for the hospital, the patient, and the physician.

COMPETING INTERESTS

Both Drs. Baum and Perito have consulting agreements with Coloplast.

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