

Penile Implant: Review of a “No-Touch” Technique

J. Francois Eid, MD

ABSTRACT

Introduction: Over 25% of the more than 725,000 cases of nosocomial infection in the United States are related to an implantable device. Despite the standard typical strategies available, infection rates for breast implants, cerebrospinal shunts, and penile implants remain unacceptably high. This paper will review use of a “no-touch” technique in varied surgical procedures from orthopedic fracture repair, cerebrospinal fluid shunt placement, and breast reconstruction/augmentation to penile prosthesis implantation.

Aim: One of our aims was to investigate whether the “no-touch” concept was unique to the field of penile implants and if similar results were obtained in other subspecialties. The other was to examine whether the low infection rate initially obtained with the “no-touch” technique was maintained for a larger number of penile implant procedures.

Methods: The literature was reviewed for the use of the “no-touch” technique in procedures as varied as orthopedic fracture repair, cerebrospinal fluid shunt placement, breast reconstruction/augmentation, and penile prosthesis implantation. In addition, a single surgeon’s experience with 3342 penile implant surgeries with and without the use of the “no-touch” technique was reviewed.

Main outcome measure: Penile implant infection rate was examined for 3342 consecutive cases between January 2002 and December 2014. Infection of standard technique was compared with rate of infection with antibiotic impregnated devices and starting in 2006 with the addition of the “no-touch” enhancement.

Results: Literature review revealed that the “no-touch” technique decreased postoperative cerebral shunt infection from 9.1% to 2.9%. Breast implant reconstruction surgical site infection decreased from 19% to none with the “no-touch” technique. Penile implant infection rate fell from 5.3% in 2002 to 1.99% with the use of antibiotic impregnated devices and to 0.44% with the addition of the “no-touch” technique.

Conclusion: Use of a “no-touch” technique involving a mechanical barrier makes a difference in preventing infection of an implantable device.

Sex Med Rev 2016;4:294–300. Copyright © 2016, International Society for Sexual Medicine. Published by Elsevier Inc. All rights reserved.

Key Words: Penile Prosthesis; Surgical Technique; Infection Prevention

INTRODUCTION

There are more than 725,000 cases of nosocomial infection in the United States each year, over 25% of which are device-related.¹ Of these, the most difficult to manage tend to be infections associated with surgical implants, as follow-up typically requires lengthy courses of antibiotics, as well as repeated surgical procedures.² Such infections occur across a number of medical specialties, including neurosurgical, orthopedic, plastic, and urologic surgery, and can have serious clinical consequences. For example, infections associated with ventricular shunts or fracture-fixation devices can result in serious disability, whereas

infections associated with mammary or penile implants can cause significant disfigurement and psychological trauma. These types of infections also can have considerable economic consequences related to the costs of device removal and replacement, regardless of the type of implant.³

Because infections associated with surgical implants can be difficult and costly to manage, as well as devastating to the patient, prevention is critical. Typical strategies include pre- and postoperative systemic antibiotic administration, topical application of antibiotics and/or antiseptics, irrigation of the surgical field with antimicrobial or saline solution, and use of antibiotic-coated devices. Even with such strategies, infection rates remain unacceptably high. For example, postoperative infection has been reported in 4% and 18% of primary and revised penile implant cases, respectively,⁴ 1% to 6% of prosthetic breast implant cases,⁵ and 8% to 10% of cerebrospinal fluid shunt operations.⁶

Received December 2, 2015. Accepted January 23, 2016.

Advanced Urological Care, PC, New York, NY, USA

Copyright © 2016, International Society for Sexual Medicine. Published by Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.sxmr.2016.01.002>

AIMS

This paper will review the use of a relatively novel “no-touch” technique found to reduce the risk of postoperative infection following surgery for orthopedic fracture, cerebrospinal fluid shunt placement, breast reconstruction/augmentation, and penile prosthesis implantation. It will focus primarily on the latter application.

Early Use of the “No-Touch” Technique During Orthopedic Surgery

In the 1890s, Sir William Arbuthnot Lane developed a “no-touch” surgical technique as part of his effort to maintain a more aseptic environment during open reduction of orthopedic fracture using screws, wires, and steel plates.^{7–9} The technique involved the use of thick gauze to cover the patient’s skin and wound edges, as well as long-handled instruments that increased the distance between the surgeon’s hands and the open incision. Additionally, the knife used to make the initial skin incision was discarded and a new knife was used in the wound, and Lane’s operating room assistants used forceps to pass instruments to him and thread needles for suturing.

Use of the “No-Touch” Technique During Neurosurgery

Ashpole acknowledged the benefit of using a “no-touch” technique when implanting ventricular shunts, but noted that it was difficult to accomplish due to the “small and slippery” shunt components.¹⁰ He therefore designed a set of instruments that could be used to handle and assemble shunt systems without touching them. The instruments included a block to hold the valve, as well as several different types of forceps, each for specific tasks. In addition to reducing the risk of infection, he pointed out that the technique decreased the risk of damaging the shunt-related devices and catheters, although no data were provided for either endpoint.

Faillace avoided some of challenges noted by Ashpole by using a 1-piece shunt that did not require assembly, thus circumventing the need for special instruments.¹¹ His “no-touch” approach attempted to avoid bacterial contamination by taking extreme care not to touch the skin incision edges and shunt components during the implantation procedure. Instead, only instruments were used to handle the shunt and shunt sutures, and those instruments were kept separate from the instruments used to dissect the skin and soft tissue. When compared with his previous surgical protocol, the “no-touch” technique decreased the postoperative shunt infection rate from 9.1% (based on 120 surgeries) to 2.9% (based on 67 surgeries), reflecting a clinically significant improvement. Table 1 describes the differences in the 2 protocols.

Although a more recent study of ventricular shunt infection by Kanev and Sheehan did not cite Faillace’s work, it noted several features that distinguish their “no-touch” technique during shunt

Table 1. Comparison of no-touch vs conventional technique for ventricular shunt implantation

	No-touch technique	Conventional technique
Operating room environment		
Limit personnel traffic	Yes	Yes
Educated assistants	Yes	No
Patient preparation		
Hair shaved	Yes	Yes
Supine or lateral decubitus position	Yes	Yes
Shunt tunneled posteriorly in patient with tracheostomy, gastrostomy-jejunostomy, colostomy, halo	Yes	Yes
Vancomycin and gentamicin prophylactic antibiotics	Yes	Yes
Surgical field		
Wide, occlusive, 2 layers of drapes	Yes	Yes
Double gloves	Yes	Yes
Prevent wound skin-edge exposure	Yes	Yes
Shunt touched by surgeon’s hands	No	Yes
Shunt instruments kept separate from skin dissection instruments on a separate table	Yes	No

placement.⁶ These included (1) using Michelle clips to secure bacitracin-soaked gauze to the edges of the skin incisions to minimize contact between instruments or fingers and the incision edges; (2) handling shunt components only with latex-free silastic-tipped forceps, to decrease mechanical injury to shunt tubing, thereby limiting potential sites for bacterial adherence; and (3) assuring that the instruments used to place the shunt never come into contact with skin edges. The authors reported that their infection rate was limited to 1.33% during a 62-month period when they placed or revised 526 shunts.

Use of the “No-Touch” Technique During Plastic Surgery

Use of a “no-touch” technique has also been reported by several different plastic surgeons for breast augmentation or reconstruction procedures. For example, Mladick used a “no-touch” technique for 557 saline implants during a period from 1987 to 1992.¹² He described it as a “superiorly sterile technique that eliminates any possible source of bacterial contamination,” although he acknowledged that the technique described by Fairbank was more strictly sterile. The objective of Mladick’s technique was to avoid contact between the implant and the patient’s skin, as well as to minimize contact with the breast tissue. For

Download English Version:

<https://daneshyari.com/en/article/4274673>

Download Persian Version:

<https://daneshyari.com/article/4274673>

[Daneshyari.com](https://daneshyari.com)