(PD20-08) Decreased skin contact via “No-Touch” Surgical Technique shifts causative microorganisms in Inflatable Penile Prosthesis Infection

Daniel E. Nassau, Brian F. Dinerman, Joseph Sarcona, J. Francois Eid

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Introduction

Inflatable penile prosthesis (IPP) is a well-established, guideline recommended, treatment for refractory erectile dysfunction (ED).

Infection is a dreaded complication of IPP surgery.

Historically, infection occurs in high as 4% of primary implants and 18% of revisions.

- Antibiotic and Hydrophilic coated implants have decreased infection rate to 2%
- Over 70% of infections are believed to be caused by skin flora

Carson CC: Efficacy of antibiotic impregnation of inflatable penile prostheses in decreasing infection in original implants. J Urol 2004; 171: 1611.
Wolter CE et al: The hydrophilic-coated inflatable penile prosthesis: 1-year experience J Sex Med 2004; 1:221.

Introduction

Organism	% of Reports	Average Number of days from implantion to onset	Median Number of days from implantion to onset
Staphylococcus Epidermid	34%	366	154
Staphylococcus Aureus	29%	402	63
Candida Albicans	11%	215	118
Enterococcus	9%	NI	NI
Escherichia Coli	8%	764	389
Pseudomonas Aeruginosa	6%	106	63
Klebsiella Pneumonea	3%	208	175

Mentor Product Evaluation Dept. (explanted devices 1992-2000)

Introduction

Utilizing a ”No-Touch” technique along with antibiotic coated or hydrophilic IPPs reduces the infection rate to 0.5%.

How does decreasing skin contact alter infections?

If direct contamination was the cause of skin flora infection, we would except a decreased rate of causative skin flora microorganisms in IPP infections with decreased skin contact during surgery

Eid JF, et al: Coated implants and “No Touch” surgical technique decreases risk of infection in inflatable penile prosthesis implantation to 0.46%. Urology 2012;79: 1310-1316.

Hypothesis

The “No-Touch” technique shifts causative micro-organisms away from skin flora due to decreased skin contamination during surgery.

Methods

Retrospective review of a prospectively maintained high volume single surgeon database

January 2002-October 2019

- Initial and revision IPP surgery included
- AMS or Coloplast devices were used at surgeon discretion

10-minute mechanical wash followed by Chlorhexidine based skin prep

Methods

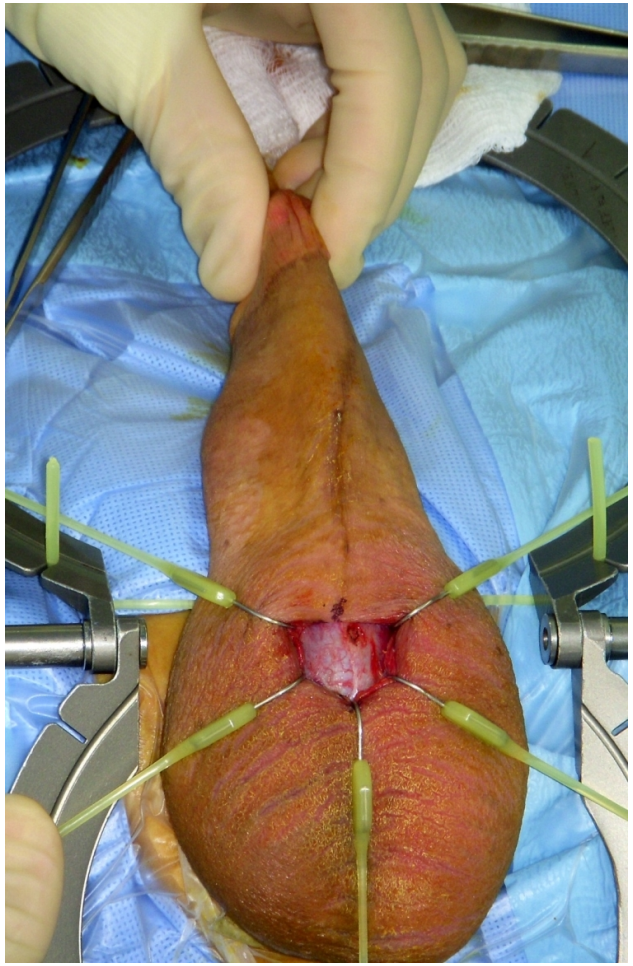
2002-2005: Standardized approach

- Penoscrotal approach
- Reservoir placed in prevesical or submuscular space with or without the aid of a second incision

2006-2019: ”No-Touch” technique (NTT) added to the standardized approach

- Temporary instruments are used for the for the skin incision and then discarded
- Plastic draping ensures the main surgical instruments and IPP do not contact the skin

Methods



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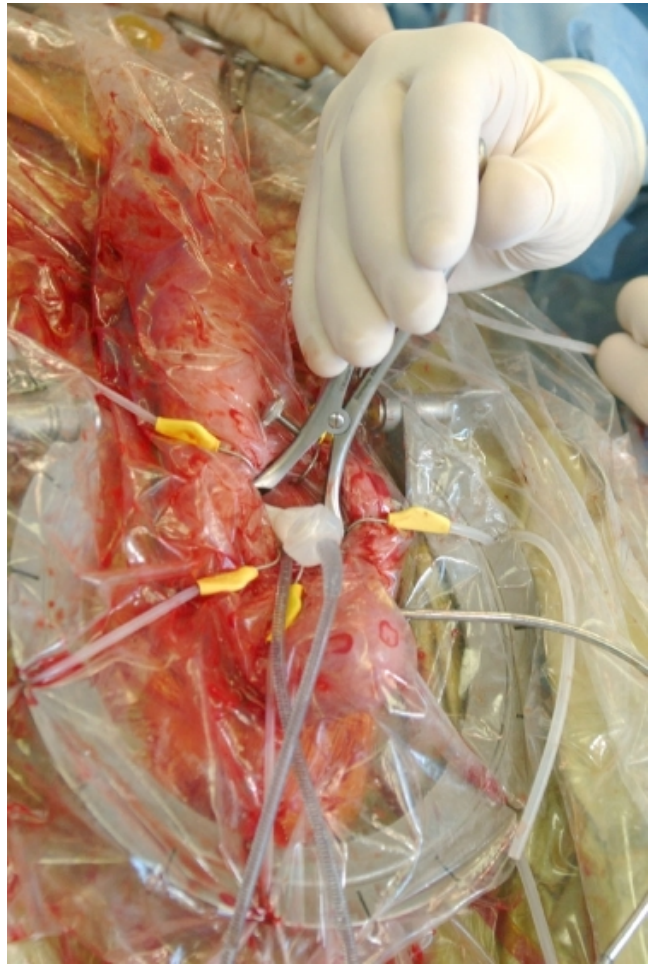
Methods

Methods



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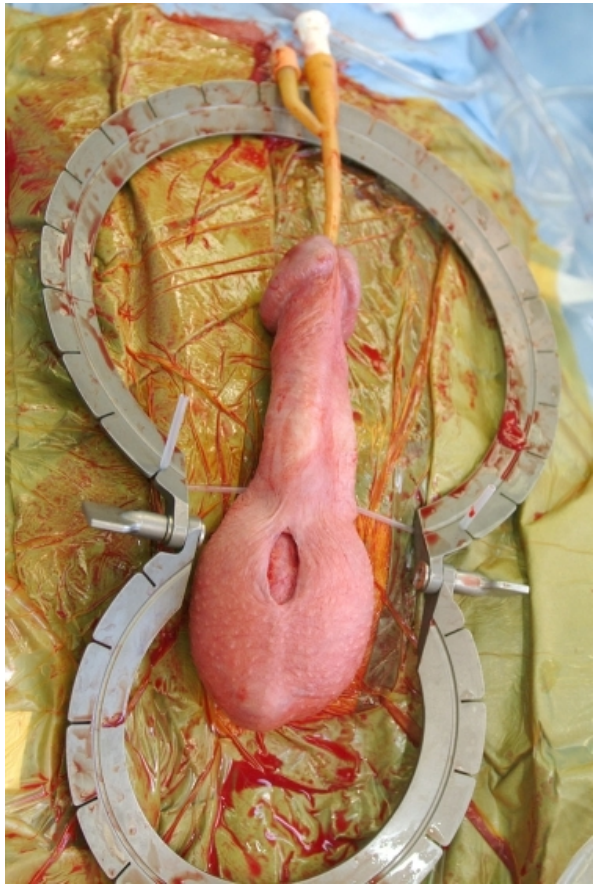
Methods



Saline is used for irrigation

Gloves are changed after any skin contact or when a new component of the IPP is opened onto the field

Standard technique is the same without the use of the 1012 drape

Methods

Infection rates and culture data were compared between those in the standard technique group and the NTT group

Infections diagnosed clinically

Bacterial cultures taken at the time of operative explanation

Causative microorganisms were separated into skin flora and non-skin flora

Fischer's exact test was used to evaluate significance

Results

4826 IPPs were implanted during the study period

- Standard Technique: 852 implanted with 23 infections (2.4%)
- NTT: 3974 implanted with with 23 infections (0.57%)

Age and diabetes were similar between both groups

Results

Organism	Standard	NTT
No Growth	**12**	**6**
Coag(-) Negative Staph	6	4
Staph A.	2	0
Staph E.	0	1
Candida	1	0
Total Skin	**9**	**5**
GBS	0	1
E. Coli	0	3
Klebsiella	0	1
Pseudomonas	1	2
Enterococcus	1	2
Lactobacillus	0	1
Provendencia	0	1
Multi-Gram Negative	0	1
Total Non-Skin	**2**	**12**

Standard Technique:

Skin – 9 of 11 (81%)

Non-Skin – 2 of 11 (19%)

NTT:

Skin – 5 of 17 (29%)

Non-skin – 12 of 17 (71%)

p = .0008

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Limitations

Overall infection rate is low with a high “no growth” culture rate in the standard group compared to the NTT group

Much larger sample size in the NTT group

Surgeon experience may also contribute to decreased infection rate

Patients may be lost to follow-up

Conclusions

“No-Touch” technique maintains a low infection rate, likely by decreasing skin flora contamination and infection.

Data suggests that skin contact during IPP insertion increases infection risk with skin flora.

Non-skin flora IPP infection could be caused by other factors than direct contamination and should be an area of study to further prevent its occurrence.