



## Optimal Treatment For Groin Infection After Prosthetic Bypasses From The Common Femoral Artery: How To Save The Graft And The Leg

Hosam F El Sayed, MBBCh, PhD, FACS  
 Associate Professor of Surgery,  
 Division of Vascular Surgery,  
 Eastern Virginia Medical School At ODU  
 Norfolk, VA




## Disclosures

- Consultant: Medtronic Inc, Medical Metrics Inc.
- Advisory Board: Medtronic Inc.




### Groin Infection

- Groin Incisions is the Achilles Heel in Vascular Surgery
- Groin Incisions may be complicated by wound dehiscence, lymphocele or infections in 5-10% of patients.
- This poses extreme importance when there is a prosthetic graft underneath supplying the limb.




### Traditional Treatment Options

- Excision with vascular ligation
  - Amputation rate up to 60%
- Excision with revascularization (inline or extra-anatomic)
  - More extensive surgery, in those patients with multiple comorbidities with mortality of up to 22%.




### Graft Preservation

- Several Modalities exist (Surgical debridement and long term Abx)
  - LWC
  - Muscle flap coverage
  - VAC closure
  - Serial debridement and antibiotic beads use
- Results are variable even for the same technique
- Graft preservation proved successful in 60-100% of cases



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### Evaluating effectiveness of antibiotic polymethylmethacrylate beads in achieving wound sterilization and graft preservation in patients with early and late vascular graft infections

Mun Jee Pui, MD, George Pitsalis, MD, Neal R. Banerji, MD, MPH, Rahul O. Dandekar, MD, Peter H. Lin, MD, Panagiotis Kougiou, MD, and Carlos Ferra Berthoin, MD, MSc, Jönköping, TX

- 31 patients with 37 infections, mean follow up of 26 months
- Wound sterilization 94%
- Graft preservation achieved in 86%
- Limb salvage 87%

(Mun et al. Surgery, 2013)




From the Society for Vascular Surgery

### Long-term outcomes of lower extremity graft preservation using antibiotic beads in patients with early deep wound infections after major arterial reconstructions

Nader Zamani, MD, Sherene E. Sharath, PhD, MPH, Neal R. Banerji, MD, MPH, Jonathan D. Braun, MD, and Panos Kougiou, MD, MSc, Houston, TX

- 68 patients with median follow up of 3.2 years
- Graft preservation Successful in 87%
- Limb salvage 84%



(Zamani et al. JVS, 2020)



### Metanalysis of using antibiotic beads for groin graft infections

- Found 6 studies (147 patients, 160 infections). Pooled analysis
- Graft preservation 91%
- Reinfection 4%
- Major amputation 0%
- Long term mortality 6%

(Sharath et al. Ann Vasc, 2021)






### Extra-Anatomic Bypass and Excision is Superior to Graft Salvage Attempts with Antibiotic Beads to Treat Vascular Graft Infections in the Groin

Thomas J. Perry II, Simon Fraser, Kristine Orton, Mousir Hajarani, Bryan Tillman, Patrick Vaccaro, Michael R. Go, and Timur P. Sarac, Columbus, Ohio

- 53 groin graft infections. 22 treated by excision and extra-anatomic bypass, and 31 by serial debridement and beads.
- No significant difference in survival, patency or limb salvage
- Significant increase in reinfection rate in the beads group (26% vs 4.5%)
- Recommended to use the technique very selectively.


(Sarac et al. Ann Vasc, 2023)

### Patient Selection


Graft Preservation is not for Every Patient

- Graft has to be patent
- Infection has to be localized
- No systemic sepsis
- Anastomosis has to be intact
- Pseudomonas, Fungal infection, VRE?!



### Attention to Details Using the Technique

- Initial operation and antibiotic beads placement
- Serial debridement and beads replacement
- Wound closure and long term antibiotic therapy

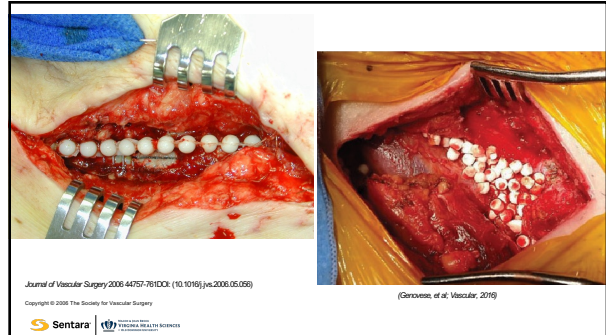
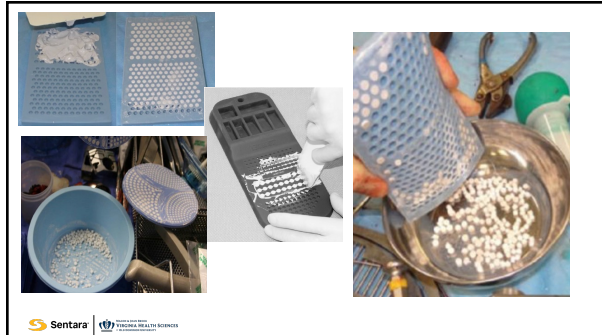


### Technique of Serial Debridement and Antibiotic Beads (Surgical Session)

- Cultures (drainage and tissue),
- Aggressive debridement.
- Washout (Pulsvac)
- Antibiotic Beads (Vancomycin, Tobramycin/Gentamycin)
- Wound closure (Watertight)



### Debridement and Washout



*Journal of Vascular Surgery* 2006;44:757-761DOI: (10.1016/j.jvs.2006.05.056)  
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(Gorenstein, et al. *Vascular*, 2016)



### Serial Debridement and Antibiotic Beads

- Wait 4-6 days between sessions.
- Usually, there is wound drainage
- Await culture results



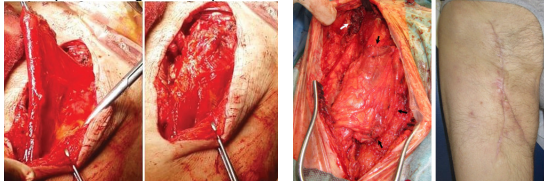
### Wound Closure

- Debridement and washout
- Muscle Flap Coverage
- Don't have to close the skin
- Wound VAC
- Long term antibiotics (At least 6 weeks of IV antibiotics, at least 6 months of PO antibiotics)



**Muscle Flap Coverage**

- Has to be tension free
- Proper inseting of the flap



Abdelmoneed et al, 2020  
Sartorius Flap

Silvestre et al, 2014  
Rectus Femoris Flap

**My Case Series**

- 17 prosthetic groin infection in 17 patients with mean follow up of 21 months
- Successful graft preservation in 94%
- Limb salvage was 88%



**Conclusions**

- Graft Preservation using antibiotic beads and serial debridement is possible with good results.
- Proper patient selection
- Sound surgical principles apply
- Wounds have to be sterilized before attempting closure
- Vascularized muscle coverage is a must as well as long term antibiotic
- Standardization of the technique and attention to details

