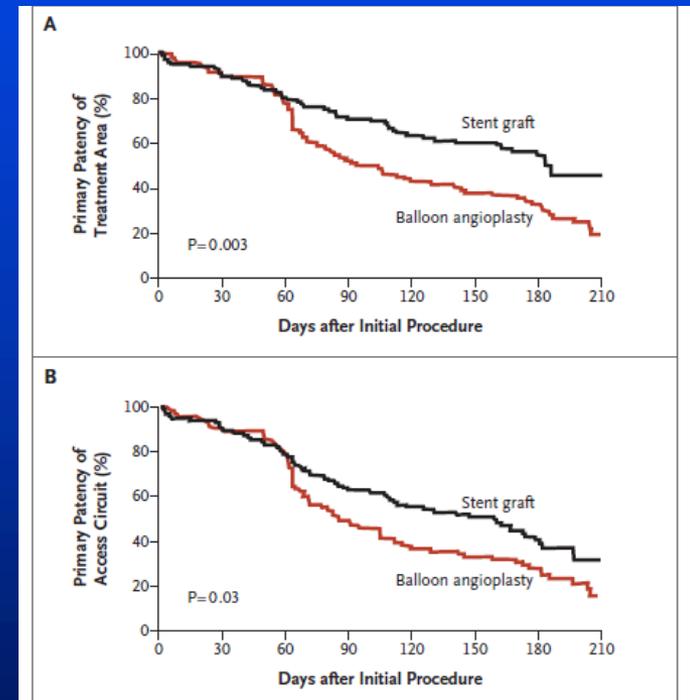


Consultant/Independent Contractor:  
Teleflex, MedComp, Cook, BD Bard,  
WL Gore  
Royalty: Cook, Teleflex

Angioplasty  
Remains the  
Standard of  
Care for Access  
Stenosis

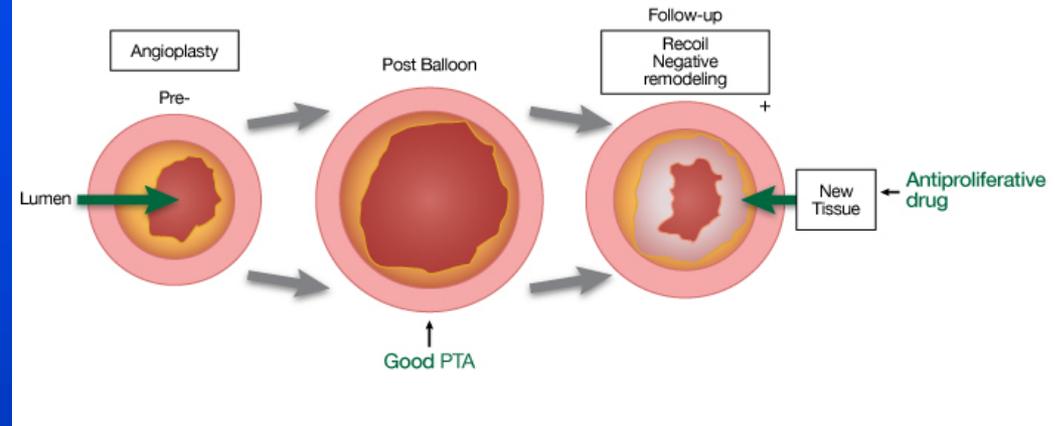
# Stent Grafts Are Better Than PTA (Right?)

- FLAIR, RENOVA and REVISE
  - Better at vein-graft anastomosis
- RESCUE
  - Better in BMS restenosis inc CV and fistulae
- AVeNEW
  - Better in fistula outflow (6 mo)
- No large RCT SG vs PTA
  - Cannulation zones
  - Inflow
  - CV



Haskal et al NEJM 2010;362:494-503

# PTA and Restenosis

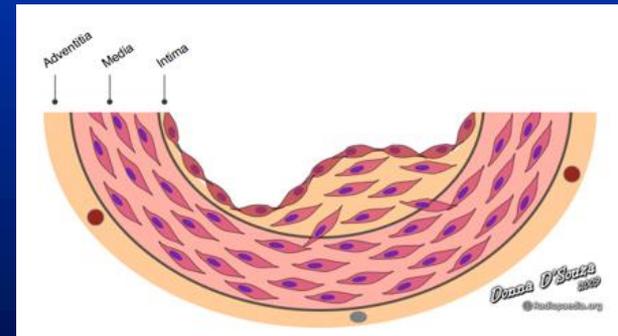
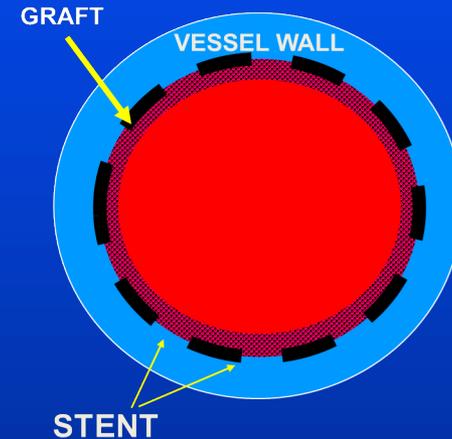


Graphic c/o Lutonix

- Acute gain: PTA – elastic recoil
- Late loss: Intimal hyperplasia
- Stent devices can maximize acute gain
- Drug coating can minimize late loss
- Drug coated stent does both

# PTA in Dialysis Circuits

- Some elastic recoil
  - Manageable with prolonged PTA
- Exuberant restenosis
  - Stent graft uses barrier approach
  - DCB uses chemical approach
  - Inhibit SMC migration



[https://www.google.com/search?q=restenosis+in+dialysis&espv=2&biw=1600&bih=1087&source=lnms&tbn=isch&sa=X&ved=0CAYO\\_AUoAWoVChMI7q7Wq4idyAIVCVQ-Ch2dDAmg#tbn=isch&q=smooth+muscle+cell+migration+restenosis&imgcr=5z5IVp0SPMAPUM%3A](https://www.google.com/search?q=restenosis+in+dialysis&espv=2&biw=1600&bih=1087&source=lnms&tbn=isch&sa=X&ved=0CAYO_AUoAWoVChMI7q7Wq4idyAIVCVQ-Ch2dDAmg#tbn=isch&q=smooth+muscle+cell+migration+restenosis&imgcr=5z5IVp0SPMAPUM%3A)

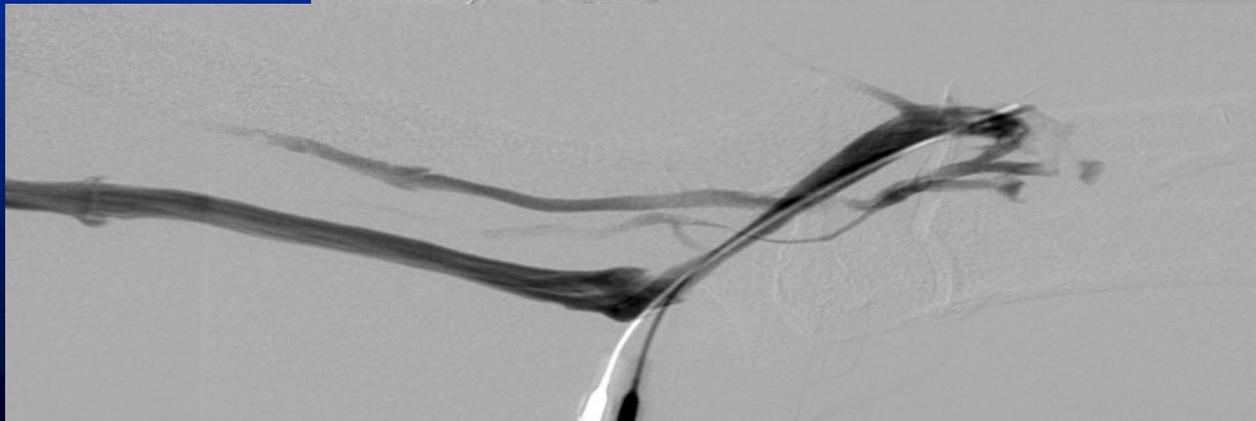
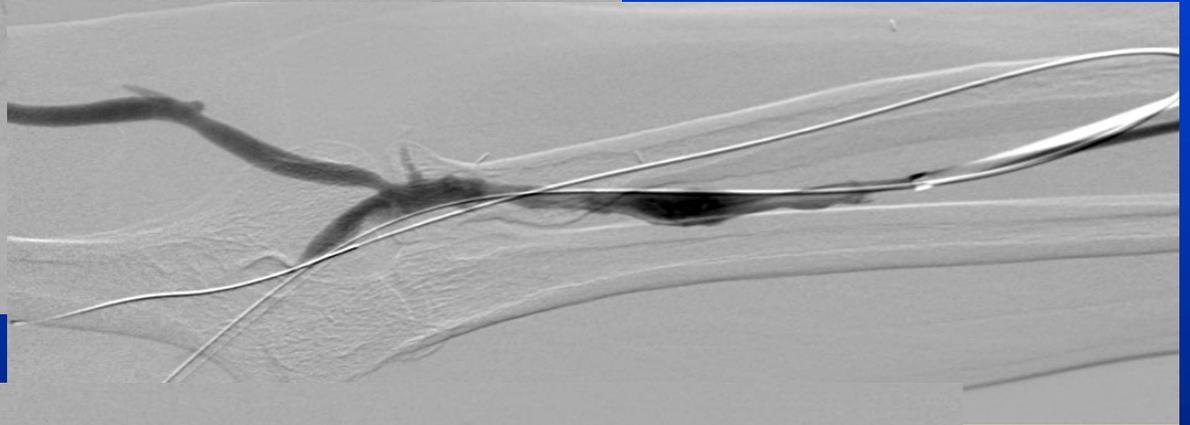
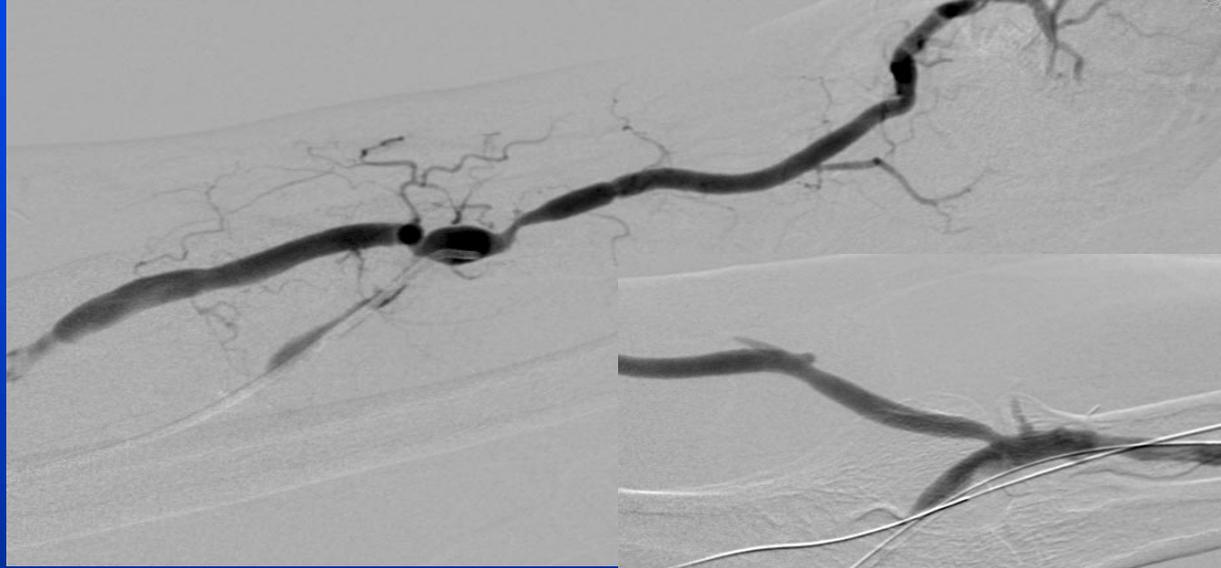
# POBA Works

- Judicious use of technology critical
- POBA first in
  - Virgin PTA esp FA fistulae
  - Immature fistulae
  - Good track record
- When POBA fails, right tool for the job
  - Restenosis-DCB
  - Elastic recoil-stent graft

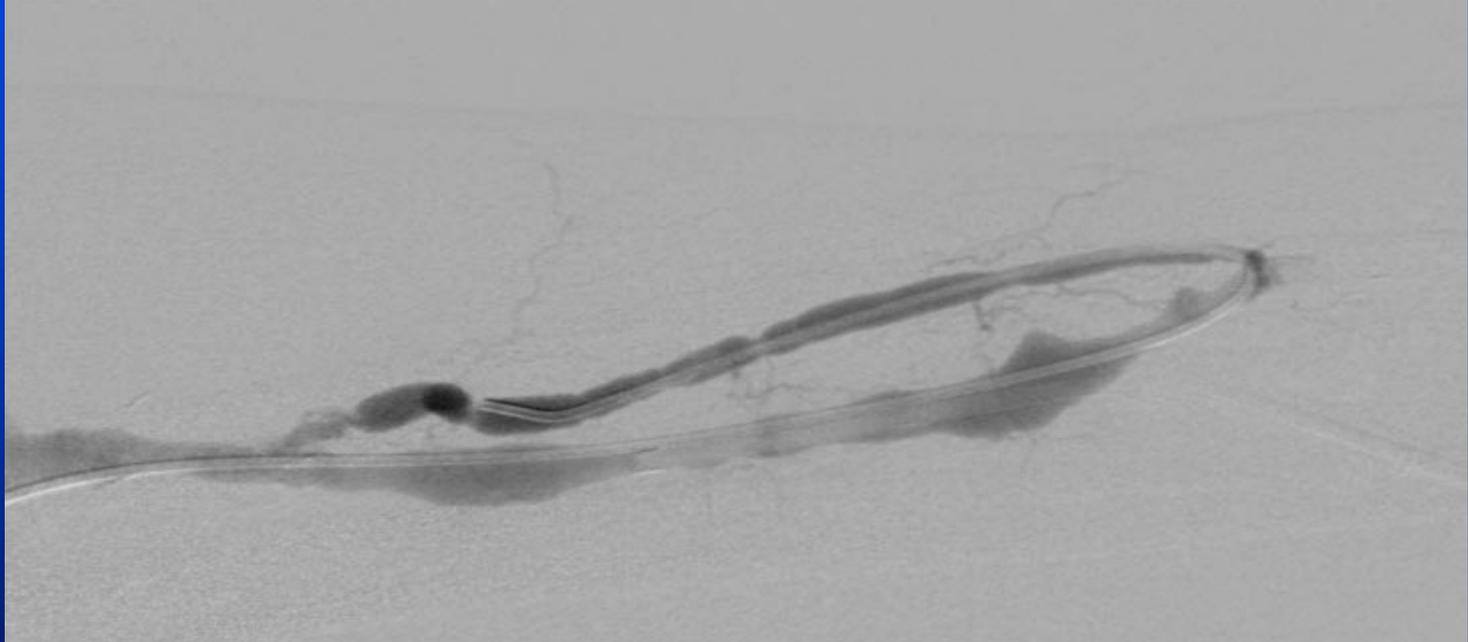
# “Good” POBA

- Can get excellent PTA results with good practices
  - Prolonged inflation (5 min cycles)
  - UHPPTA
  - Progressive oversizing

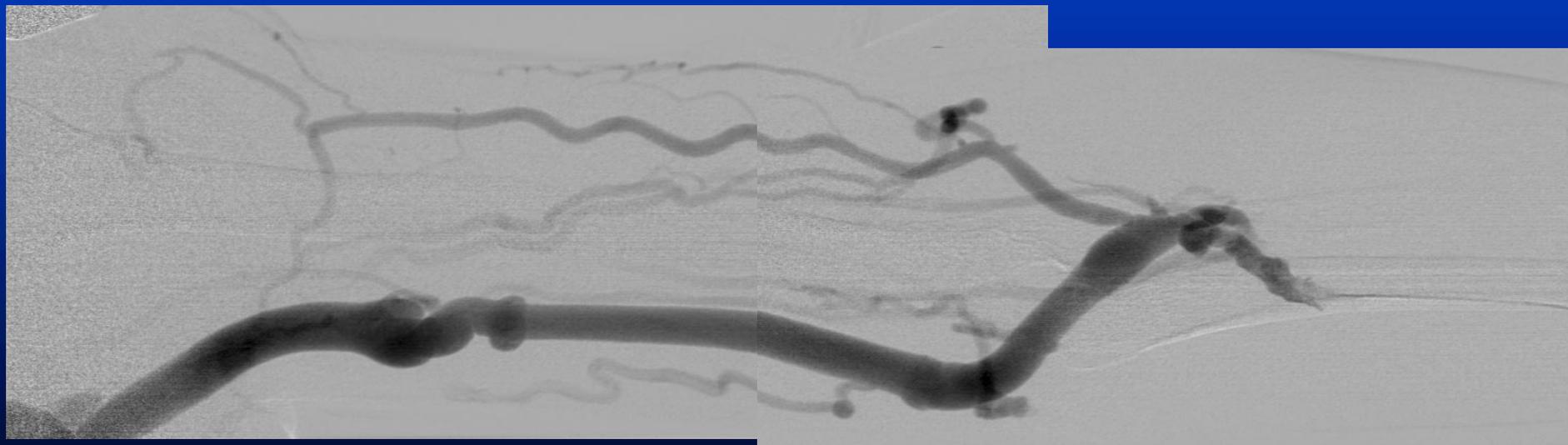
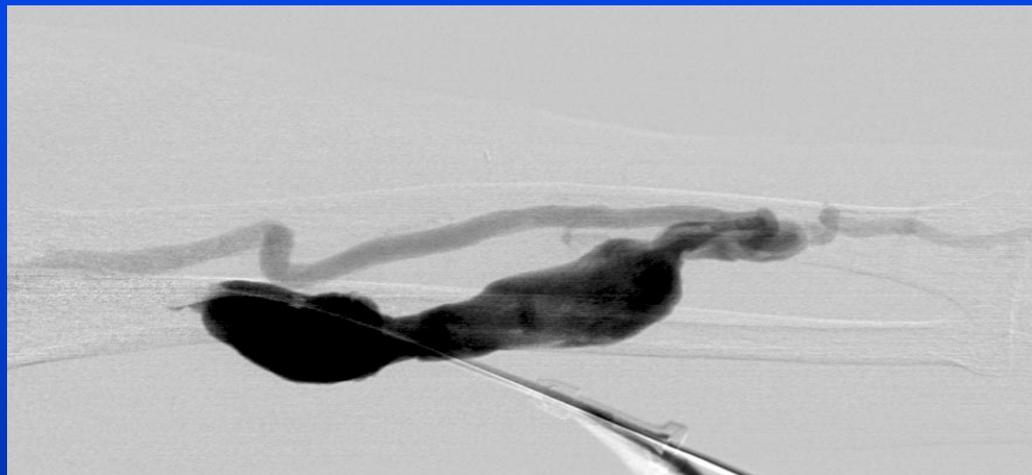
# PTA For Non-Maturation



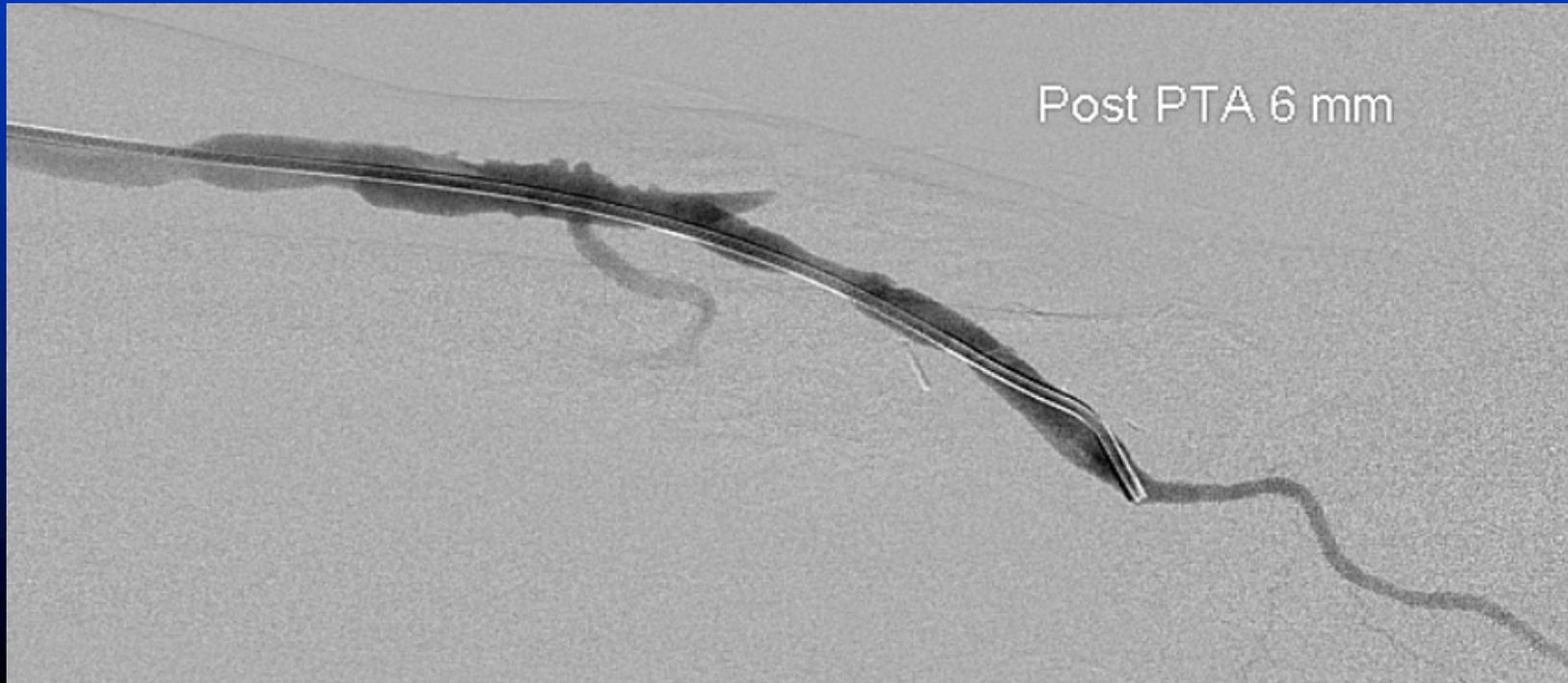
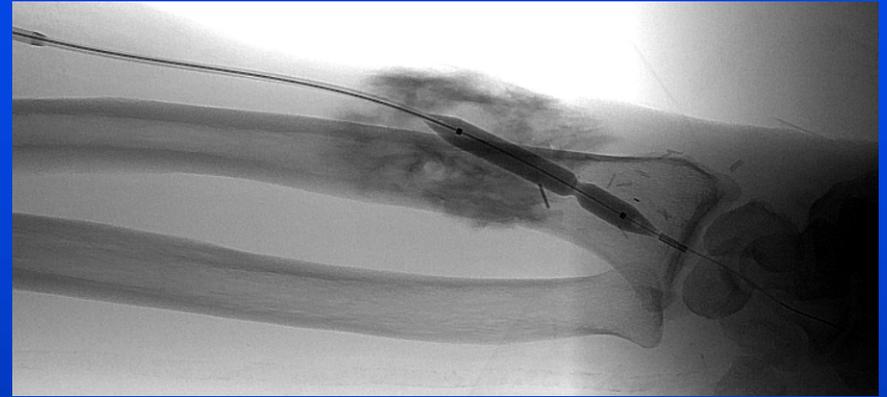
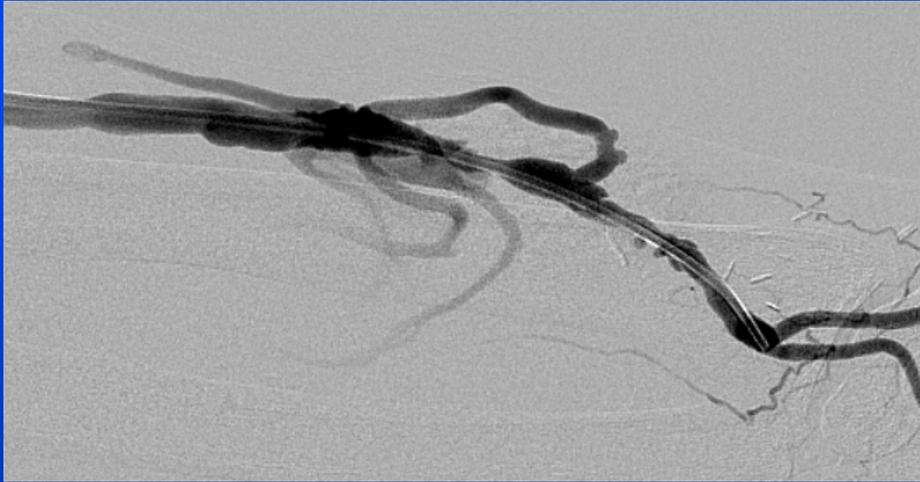
# Post PTA (3 hours of work)



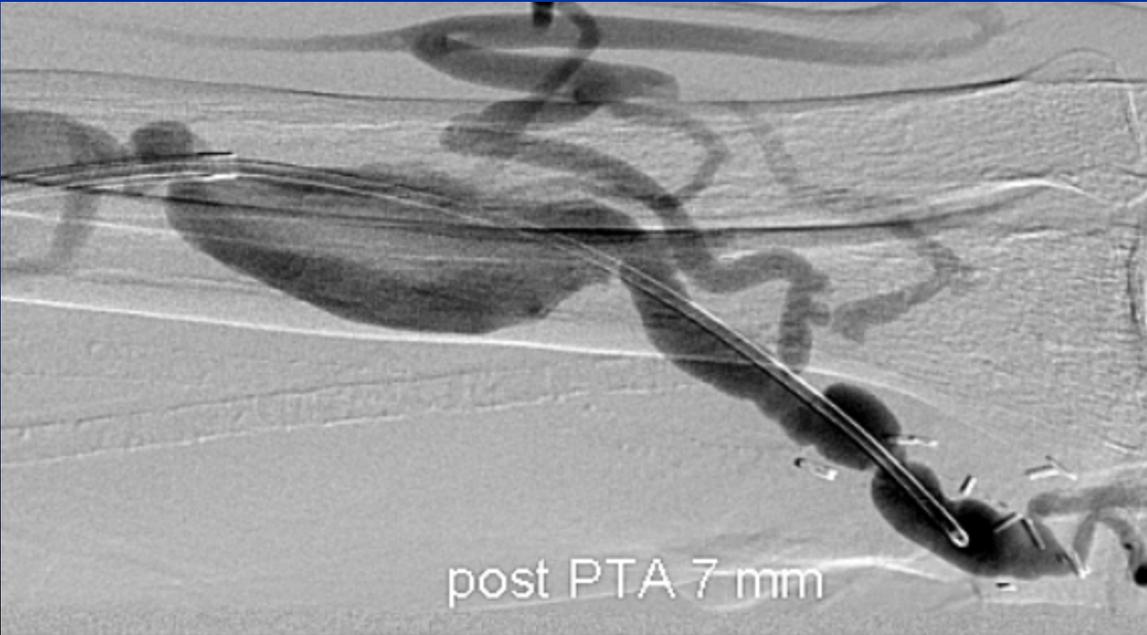
30 month  
F/U



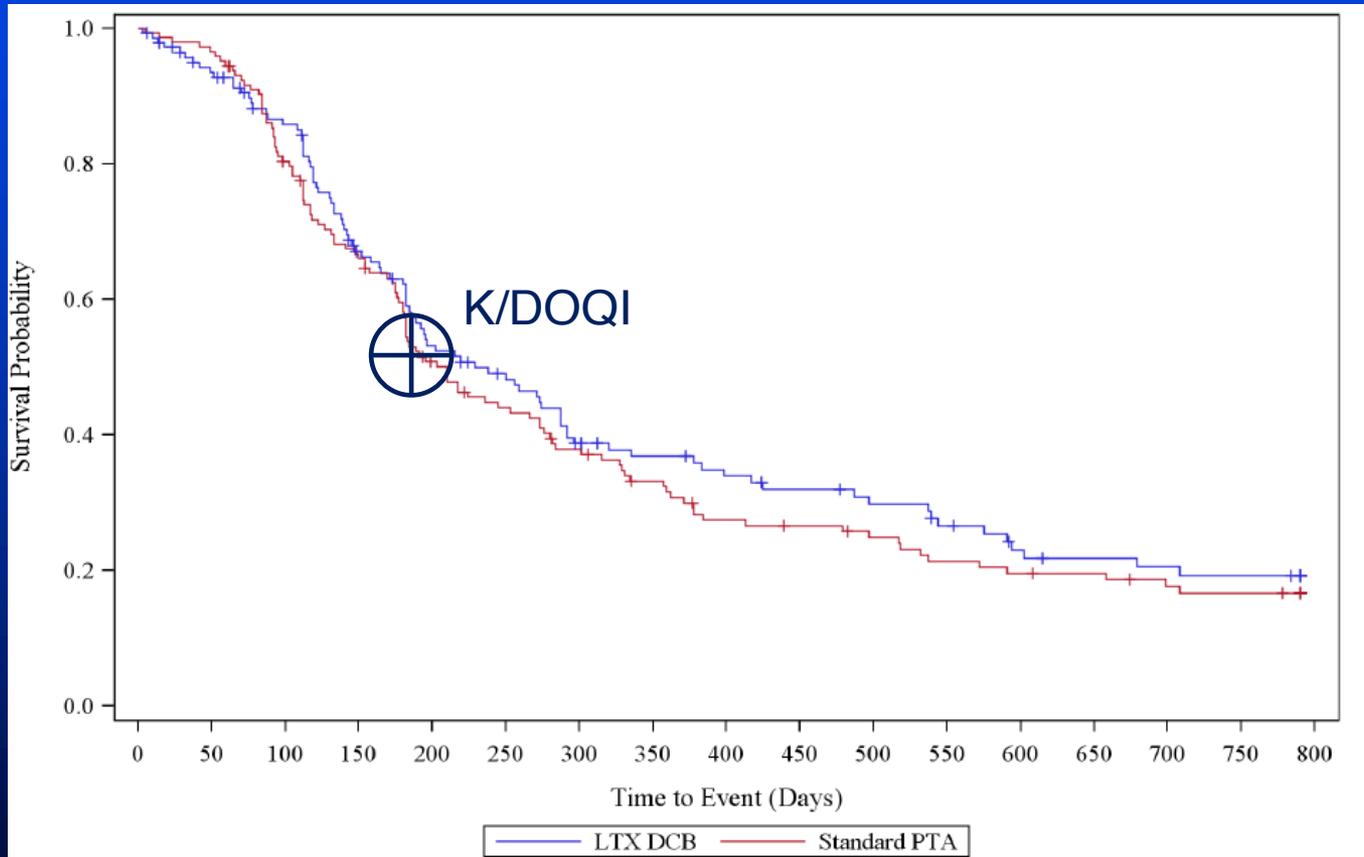
# PTA for difficult cannulation



3 year FU



# (Good) PTA works!



Lutonix AV trial-Access circuit primary patency

# DCB?

- DCB will not help elastic recoil
- DCB will help with restenosis, theoretically without candy-wrapper effect
- DCB avoids leaving metal/plastic behind

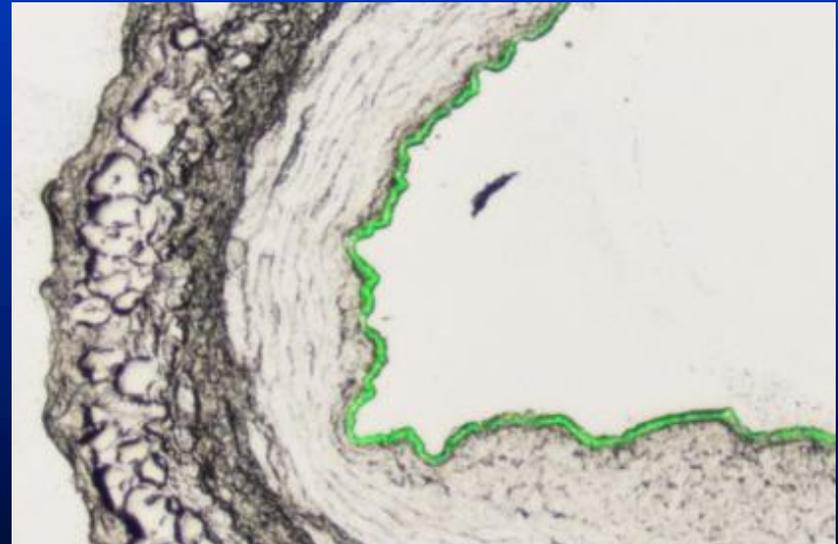
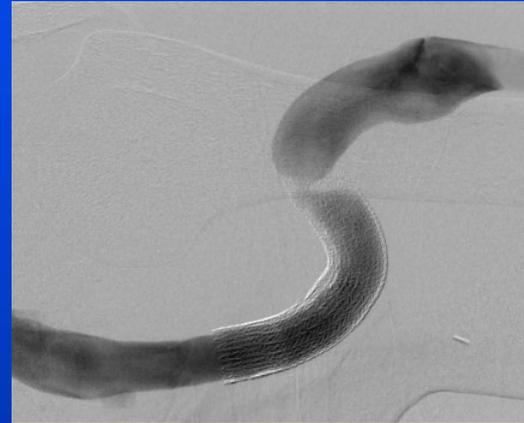


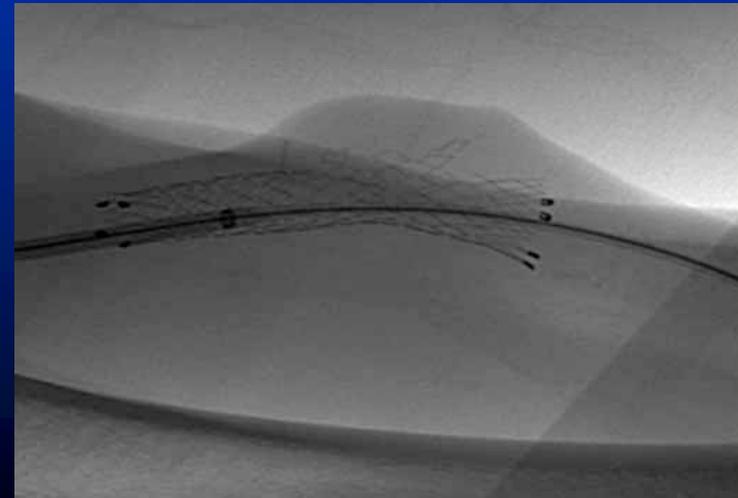
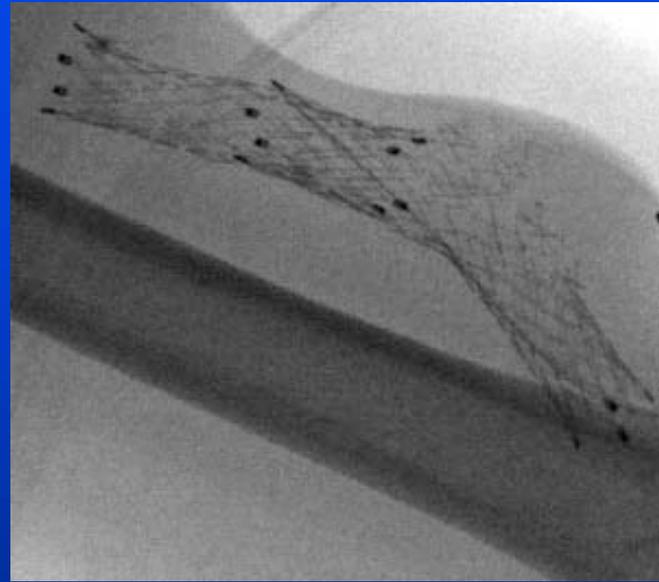
Image courtesy of Lutonix

# Stent-Graft?

- Stent grafts only proven superior in selected applications and only in limited time period (max 2y)
  - Cost issues
  - “the long view”
- Device of choice for elastic recoil/rupture unresponsive to prolonged PTA (min 2 x 5 min cycles)

# Downsides to Metallic Devices

- Fracture
  - Embolization
  - Skin erosion
  - Restenosis
- Infection in cannulation zones
- Jailing of viable future access sites
- Cost

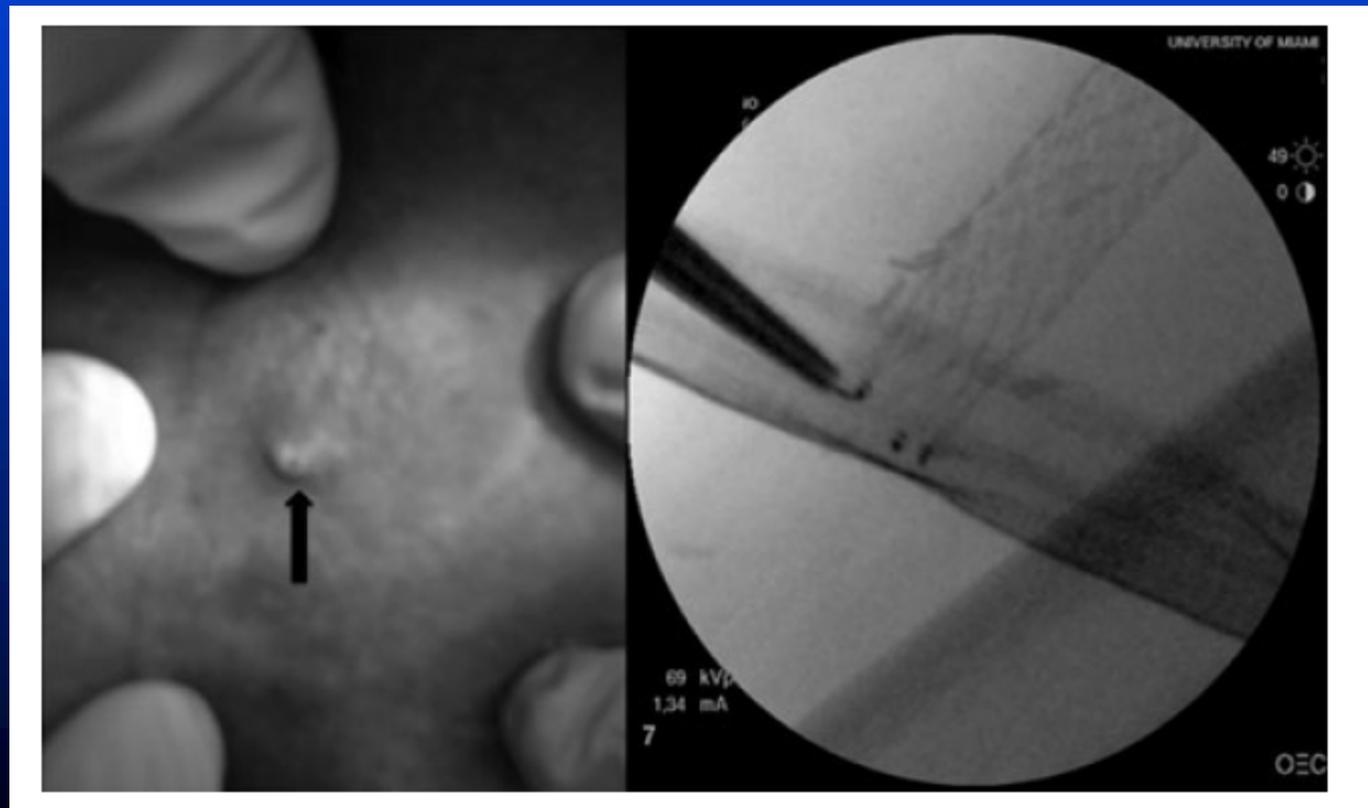




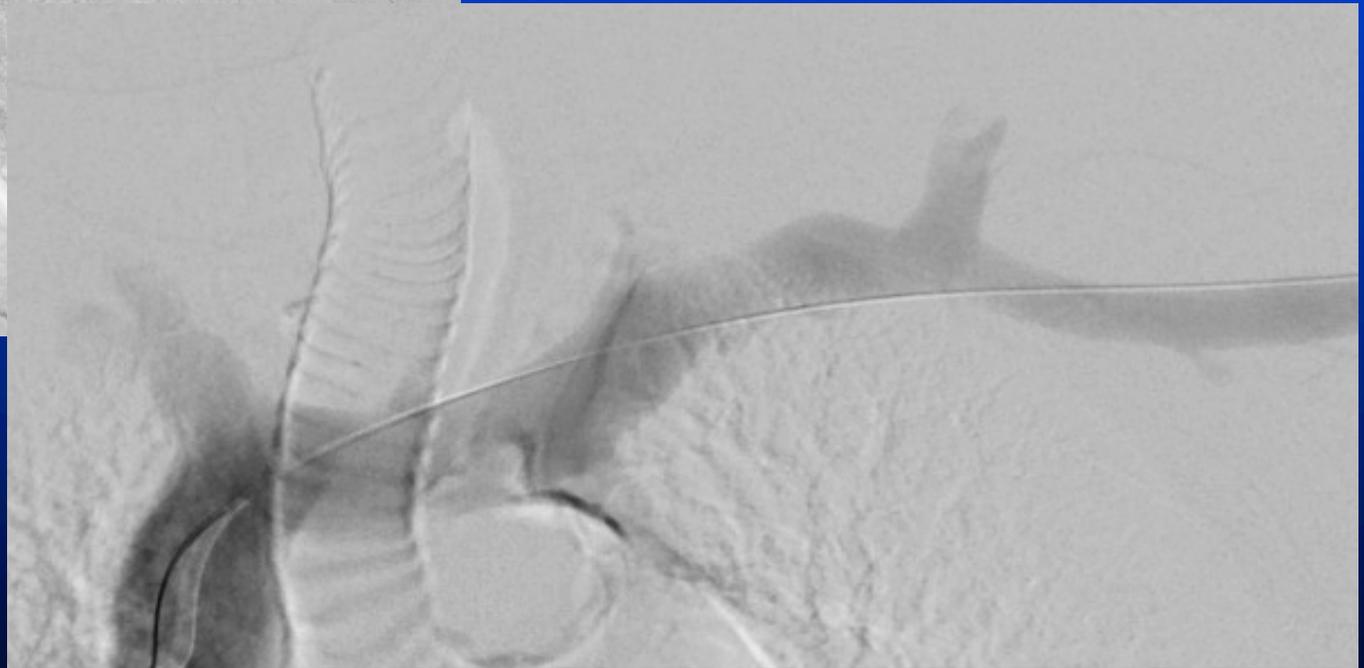
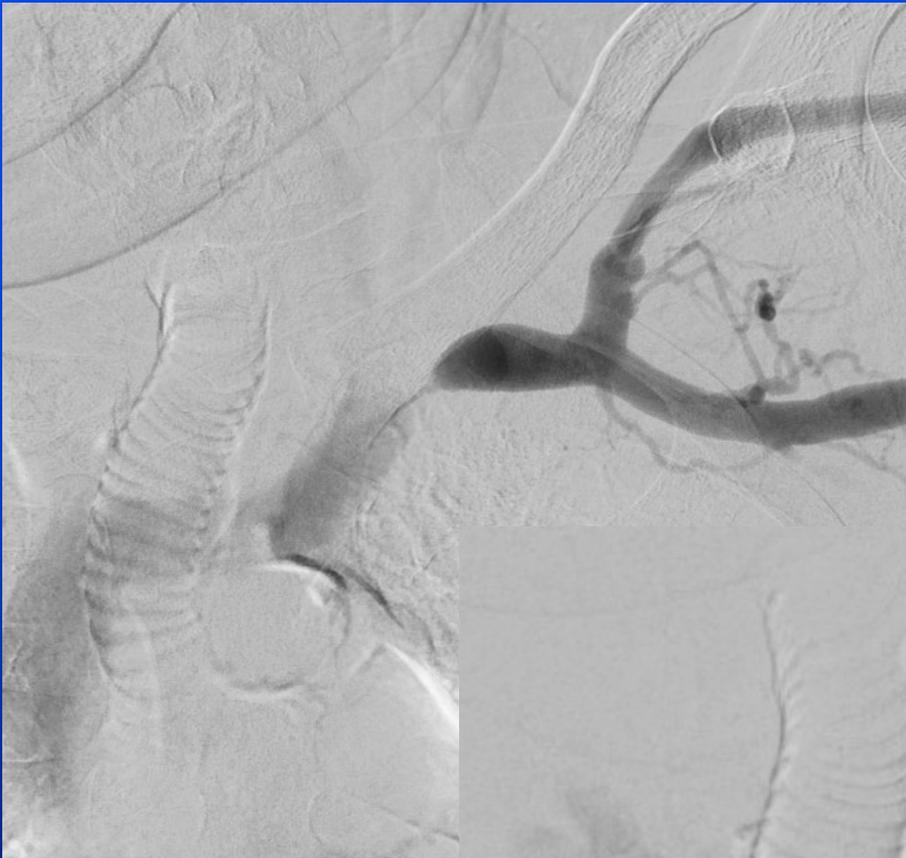
# Stent Graft Infection and Protrusion Through the Skin: Clinical Considerations and Potential Medico-Legal Ramifications

Arif Asif,\* Florin Gadalean,† Nadia Eid,\* Donna Merrill,\* and Loay Salman\*

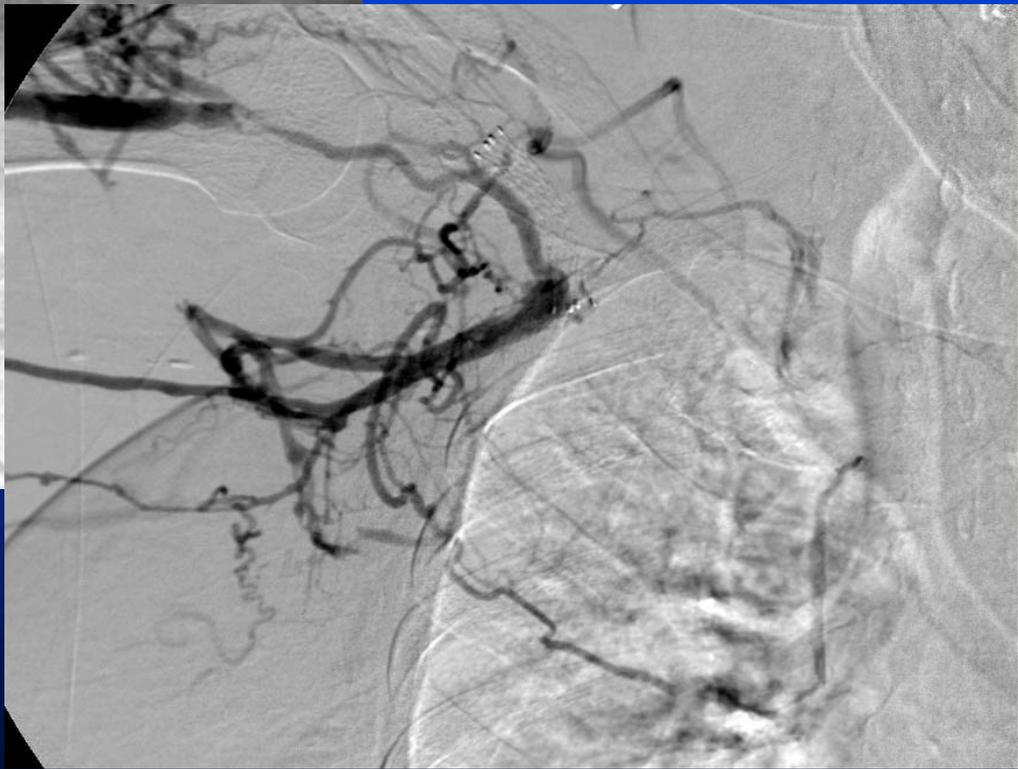
*Seminars in Dialysis*—Vol 23, No 5 (September–October)  
2010 pp. 540–542



Good place for a stent? Or worse, a stent graft? LIJ patent and usable.

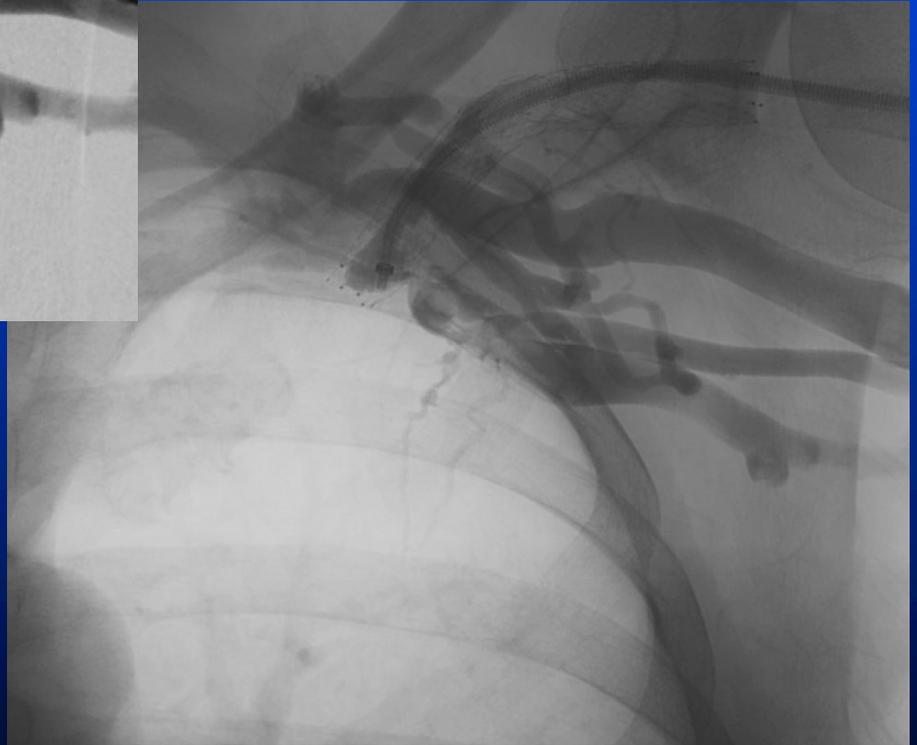
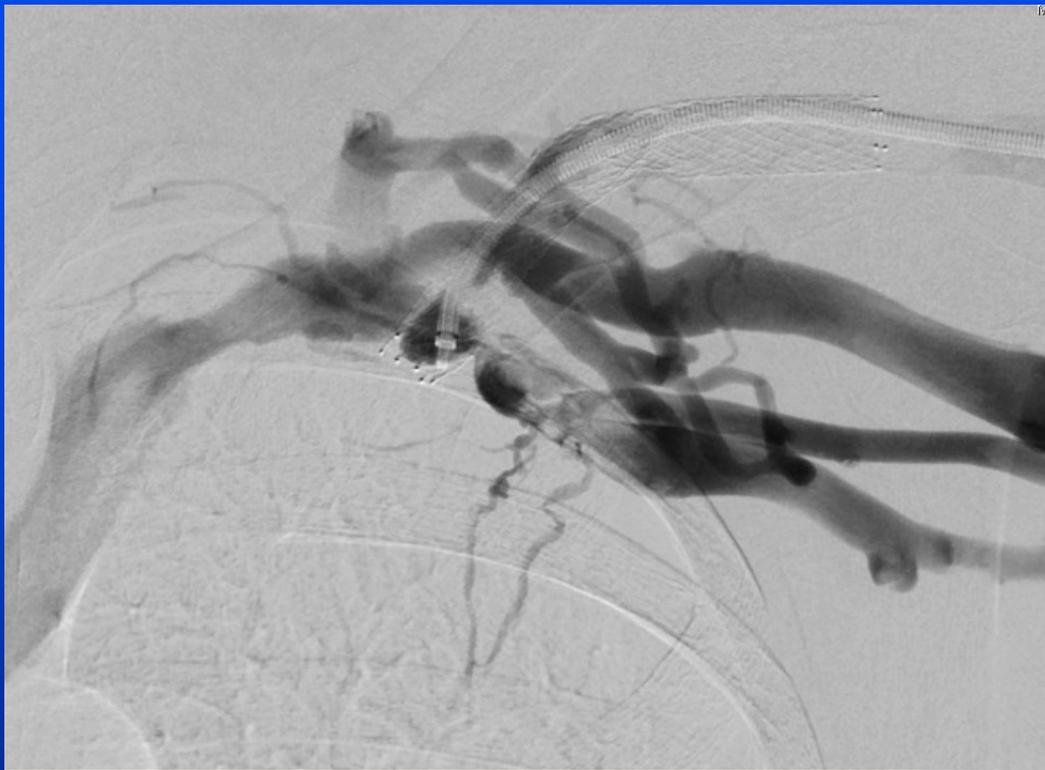


POBA





“perfectly landed”  
cephalic arch stents



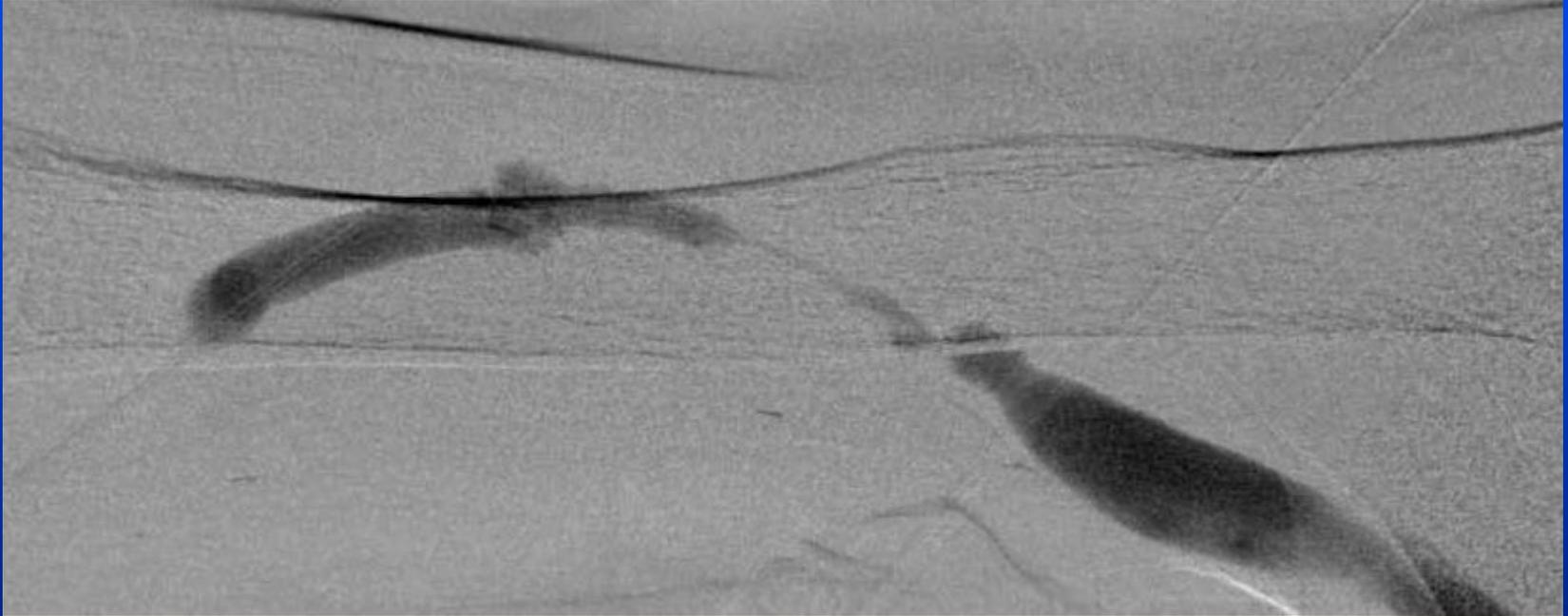
Not all are “perfectly landed”

# Analysis of Infection Risk following Covered Stent Exclusion of Pseudoaneurysms in Prosthetic Arteriovenous Hemodialysis Access Grafts

Charles Y. Kim, MD, Carlos J. Guevara, MD, Bjorn I. Engstrom, MD, Shawn M. Gage, PA, Patrick J. O'Brien, MD, Michael J. Miller, MD, Paul V. Suhocki, MD, Jeffrey H. Lawson, MD, and Tony P. Smith, MD

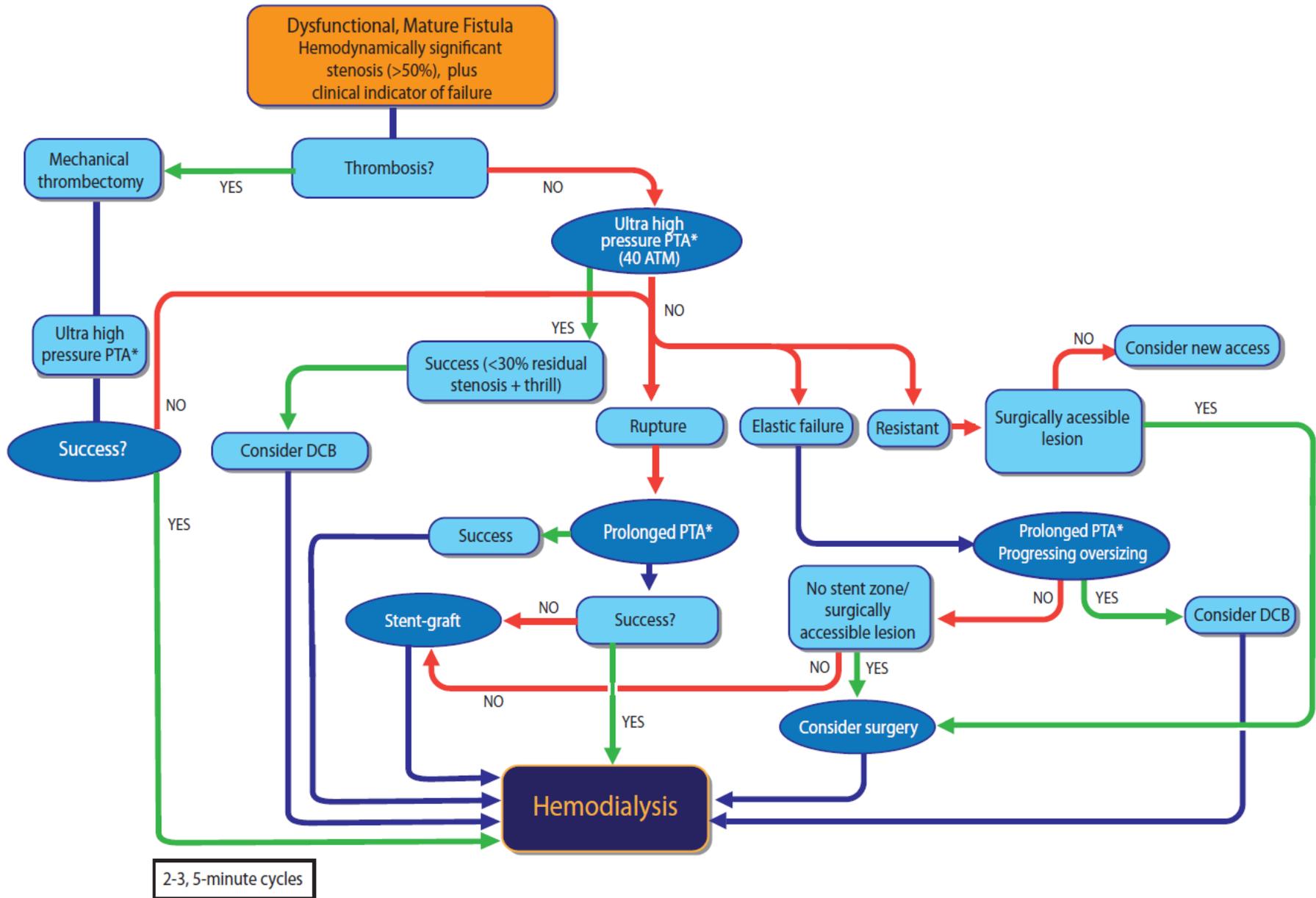
*J Vasc Interv Radiol 2012; 23:69–74*

- 16.3% infection leading to excision
- Intragraft stent infection higher than elsewhere 26.9% vs 6.9%,  $P > 0.001$



# Cost

- Stent ~\$1000
- Stent-graft ~\$1000-3000
- DCB ~\$1000
- PTA balloon ~\$200 or less
- Shocking that CMS (Medicare) has not limited payment given lack of cost effectiveness proof



# Conclusions

- POBA works...well!
  - has to be done correctly
- Stent grafts great in highly selected locations and applications
- DCB offer benefits over SG when POBA fails (except elastic recoil)

