

Femoral Vein Neo-Aorta for Infected Aortic Pathology

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Disclosure

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✓ No conflict of interest

Infected Aortic Pathology

- Infected aortic aneurysms (0.7%) of all aortic aneurysms
 - Aortic infections secondary to previous procedure (0.5-2% of all aortic surgeries).
 - Most difficult & highly morbid conditions to treat
 - Mortality 15-36%
 - Limb amputation rate 10-45%
 - New graft infection 10-15%)
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- *Oderich GS, Panneton JM, Bower TC, Cherry KJ Jr, Rowland CM, Noel AA, Hallett JW Jr, Gloviczki P. Infected aortic aneurysms: aggressive presentation, complicated early outcome, but durable results. J Vasc Surg. 2001 Nov; 34(5): 900-8.*
 - *Lew W, Moore W. Antibiotic-Impregnated Grafts for Aortic Reconstruction . Semin Vasc Surg. 2011 (24): 211-219*
 - *Lonn L, Dias N, Veith Schroeder T, Resch T. Is EVAR the treatment of choice for aortoenteric fistula? J Cardiovasc Surg (Torino). 2010 Jun; 51(3): 319-27. Review.*
 - *Young RM, Cherry KJ Jr, Davis PM, Gloviczki P, Bower TC, Panneton JM, Hallett JW Jr. The results of in situ prosthetic replacement for infected aortic grafts. Am J Surg. 1999 Aug; 178(2): 136-40.*

Conduits for Infected Aortic Pathology

- Standard Prosthetic Grafts
 - Antibiotic impregnated prosthetic graft
 - Endografts
 - Cryografts
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- In-Situ Reconstruction
 - Extra-Anatomical Bypass

Limitations of non-autologous grafts

- Gross macroscopic infection;
- Rapid aneurysmal growth with systemic sepsis
- +VE blood cultures limit their use
- Risk of future graft infection is significant (4-22%)

- *Lew W, Moore W. Antibiotic-Impregnated Grafts for Aortic Reconstruction . Semin Vasc Surg. 2011 (24): 211-219*
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- *Young RM, Cherry KJ Jr, Davis PM, Gloviczki P, Bower TC, Panneton JM, Hallett JW Jr. The results of in situ prosthetic replacement for infected aortic grafts. Am J Surg. 1999 Aug; 178(2): 136-40.*
- *Harlander-Locke MP, Harmon LK, Lawrence PF, Oderich GS, McCready RA, Morasch MD, Feezor RJ; Vascular Low-Frequency Disease Consortium, Zhou W, Bismuth J, Pevec WC, Correa MP, Jim J, Ladowski JS, Kougiass P, Bove PG, Wittgen CM, White JV. The use of cryopreserved aortoiliac allograft for aortic reconstruction in the United States. J Vasc Surg. 2014 Mar; 59(3): 669-74.*
- *Touma, J. et al. In Situ Reconstruction in Native and Prosthetic Aortic Infections Using Cryopreserved Arterial Allografts. European Journal of Vascular and Endovascular Surgery, 2014.8;3,292 - 299*

European Journal of Vascular & Endovascular Surgery

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In Situ Reconstruction in Native and Prosthetic Aortic Infections Using Cryopreserved Arterial Allografts

[J. Touma, F. Cochenec, J. Parisot, A. Fialaire Legendre, J.-P. Becquemin, P. Desgranges](#)

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Superficial Femoral Vein is Superior to Cryopreserved Allografts for *in situ* Aortic Reconstruction

[J.R. Boyle](#)

Experience with cryopreserved aortic allografts in aortic reconstructions shows an unsatisfactory 30-day survival rate, as well as a substantial early graft-related complication rate.

Why Femoral Vein Graft?

- Femoral vein conduit has been shown to be more resistant to infection despite being in bacterial bath
 - 5-year cumulative primary patency of the aortic bifurcation reconstruction with femoro-popliteal veins - 83%
 - Secondary or assisted patency \approx 100%
 - Limb-salvage rate - 86%.
-
- Clagett GP, Bowers BL, Lopez-Viego M A, Rossi M B, Valentine R J, Myers S I, Chervu A. Creation of a neo-aortoiliac system from lower extremity deep and superficial veins. Ann Surg. Sep 1993; 218 (3): 239–249.
 - Clagett GP, Valentine RJ, Hagino RT. Autogenous aortoiliac/femoral reconstruction from superficial femoral-popliteal veins: feasibility and durability J Vasc Surg 1997; 25: 255–266
 - Beck AW, Murphy EH, Hocking JA, et al: Aortic reconstruction with femoral-popliteal vein: Graft stenosis incidence, risk and reintervention. J Vasc Surg, 2008, 47:36-44,
 - Oderich GS, Panneton JM, Bower TC, Cherry KJ Jr, Rowland CM, Noel AA, Hallett JW Jr, Gloviczki P. Infected aortic aneurysms: aggressive presentation, complicated early outcome, but durable results. J Vasc Surg. 2001 Nov; 34(5): 900-8.
 - Schulman ML, Badhey MR. Deep veins of the leg as femoropopliteal bypass grafts. Arch Surg 1981; 116:1141-5.

Infected aortic / graft pathology N=31

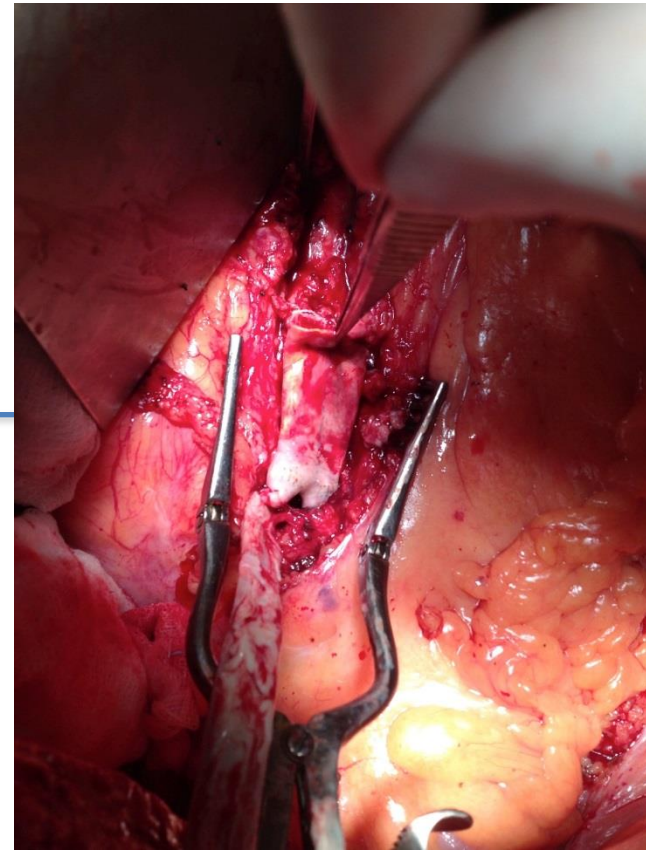
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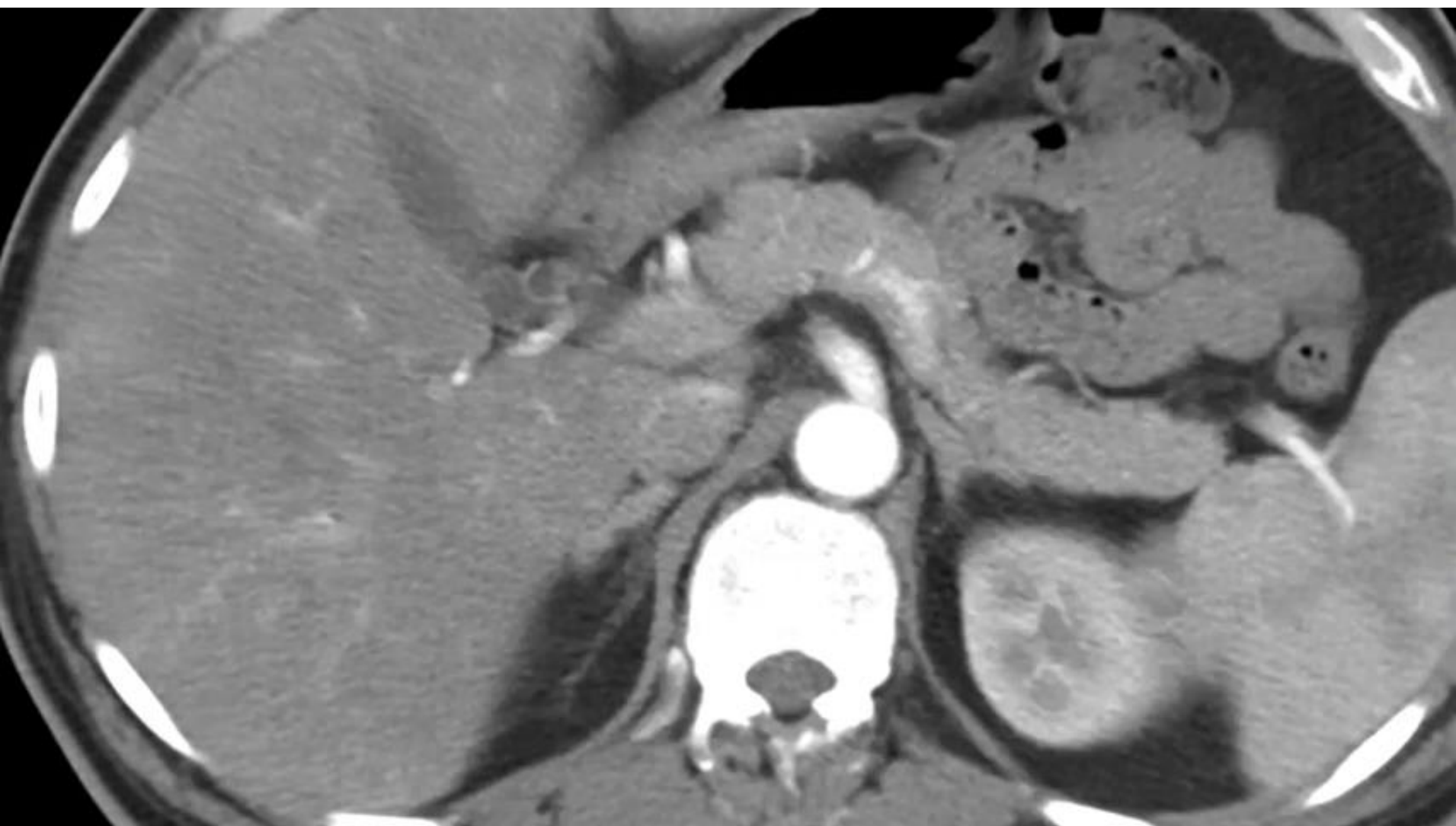
Pathology

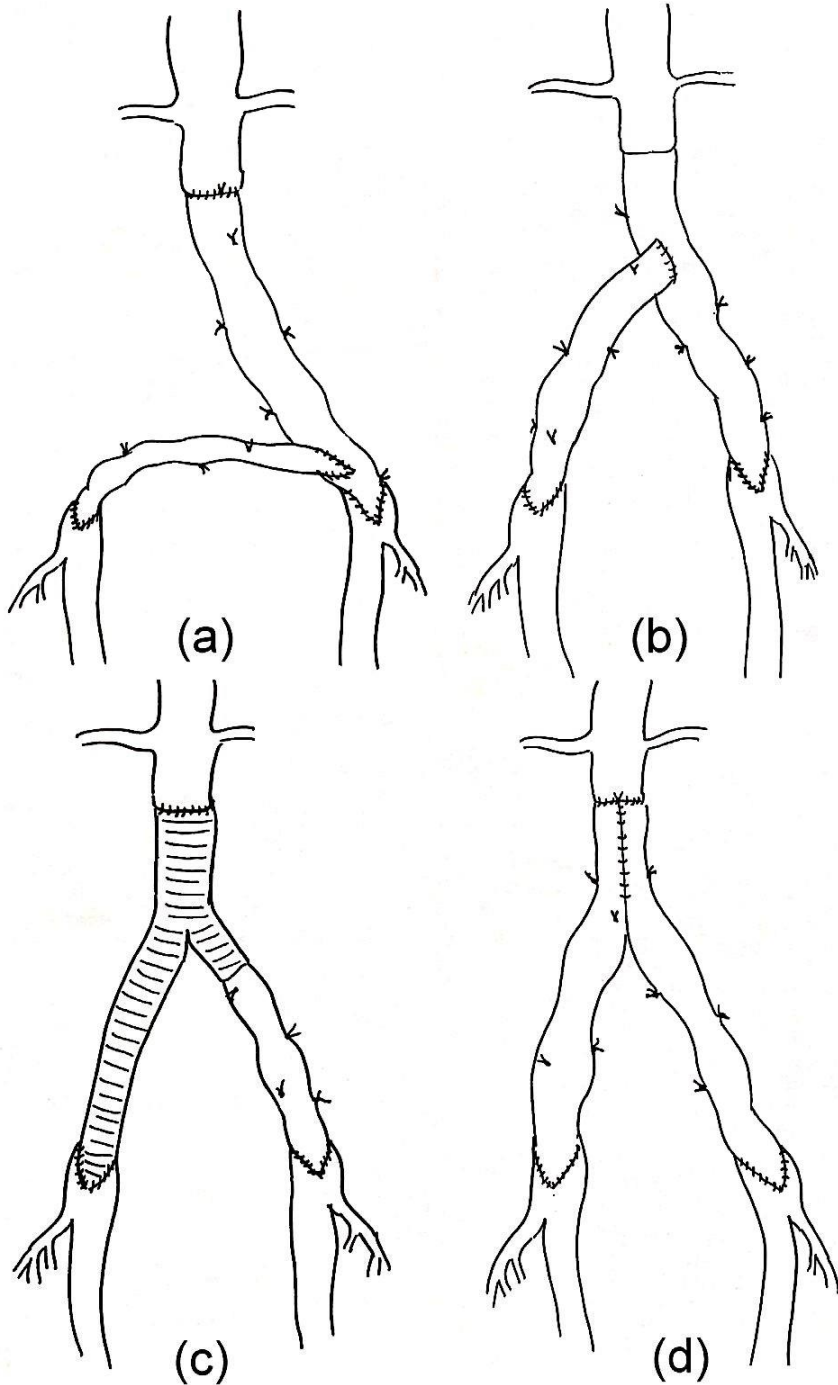
Mycotic AAA	23
Aortoenteric Fistula	4
Grafts	3
Endografts	1

Procedures

Femoral Vein Neo-Aorta	16
Silver Dacron Graft	7
Axillo-Fem Bypass w	7
Aortic debridement	
Cryo Aorta	1



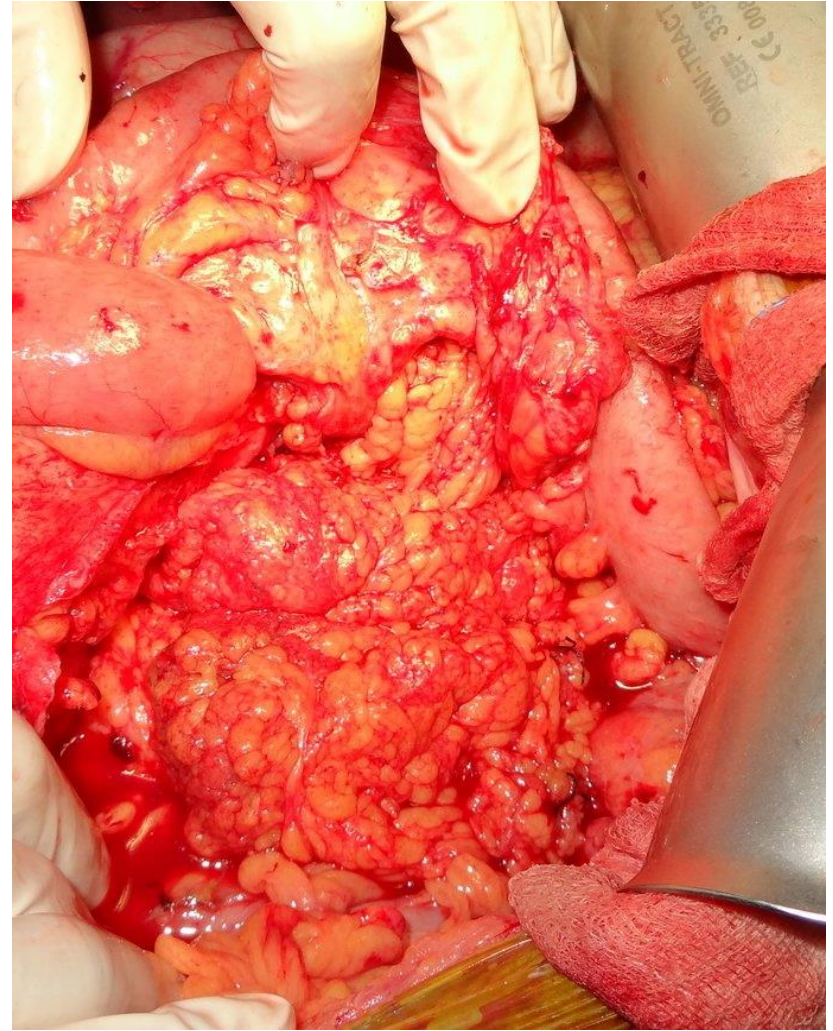




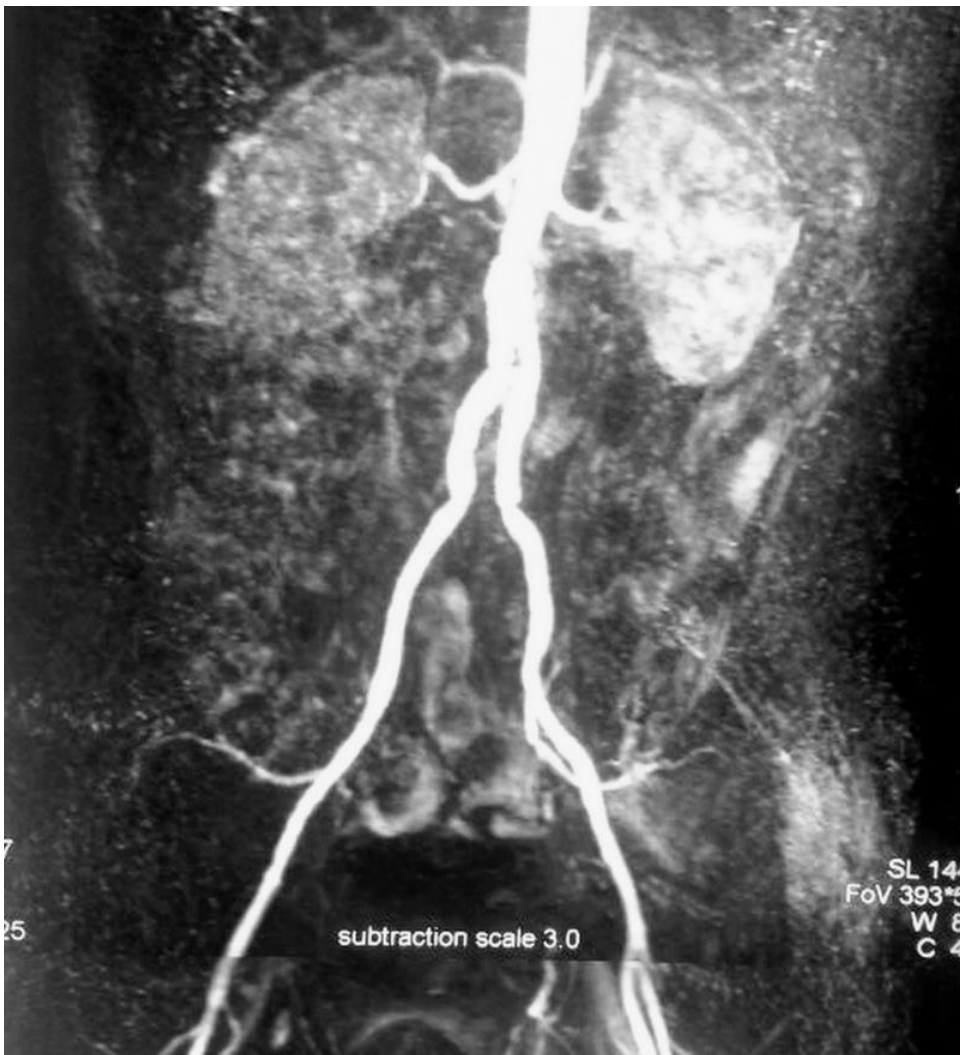
Types of configurations of conduits in use for in-situ aortic replacement.

Conduit shaded in dark is autologous or homologous arterial graft.

Omental cover



Follow-up



MRA of Neo-Aorta



MR Venogram showing Profundization

Femoral Vein Neo-Aorta

- N = 16
- Mortality 1 (6.25%)
Blow out 1 : treated with Aortic cuff stent graft. Died 6 months later with re-rupture and sepsis.
- Minimum 6 months of culture guided Antibiotics.
- 1 patient developed DVT in popliteal vein distal to the point of termination of harvest. Managed conservatively.
- Length of hospital stay 7-21 days

Conclusion

- Femoral Neo-Aorta is a viable option for replacement of Aorta for infected aortic pathology not involving the neck and iliac arteries.
 - It can be performed with low morbidity and mortality in this difficult condition