

Outcomes of Arterial Grafts for the Reconstruction of Military Lower Extremity Injuries



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Disclosures

“This study was conducted under a protocol reviewed and approved by the US Army Medical Research and Development Command Institutional Review Board and in accordance with the approved protocol.”

“The views expressed are those of the presenter and do not reflect the official views or policy of the Department of Defense or its Components.”

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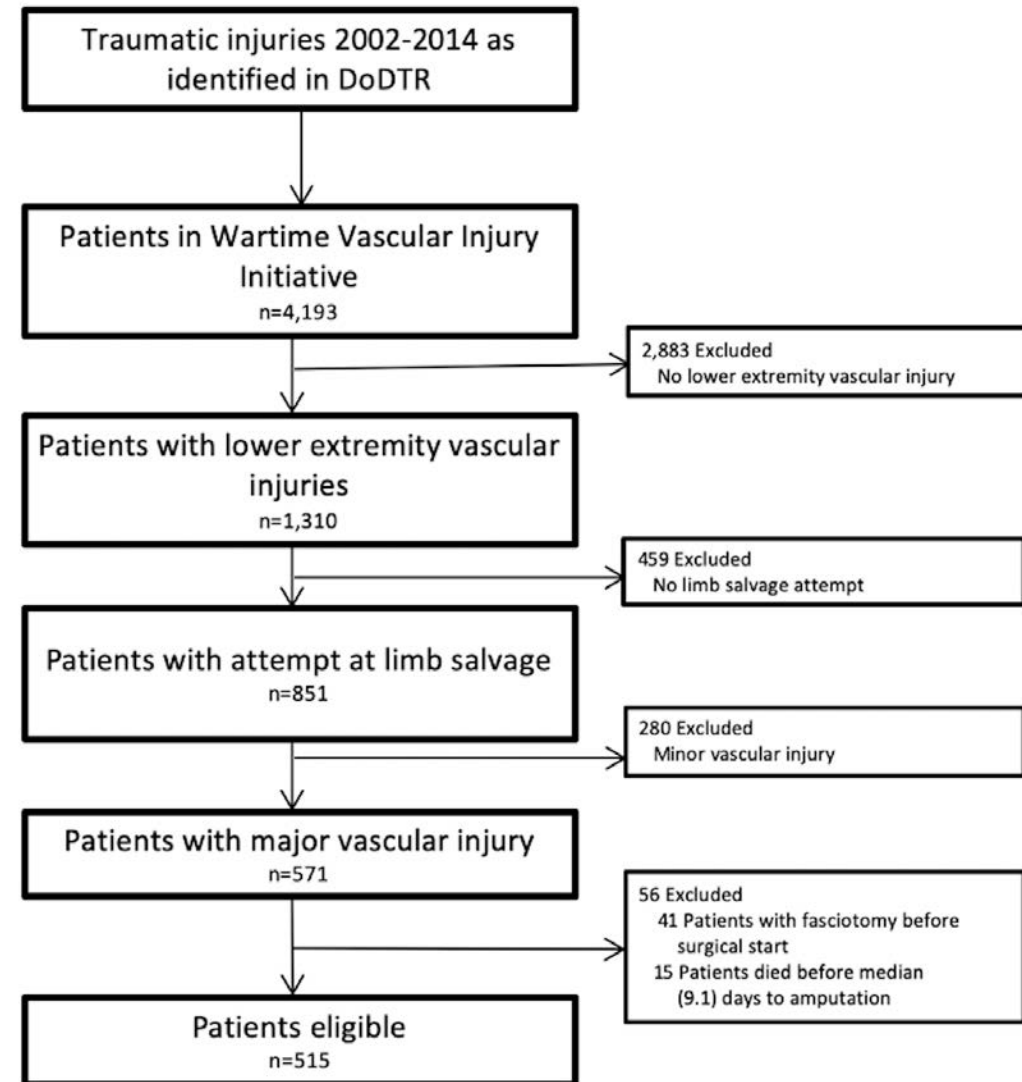
Background

- Injuries to lower extremity vasculature are among the most common seen in Iraq and Afghanistan¹⁻⁵
- Vascular procedures, on the lower extremity in particular, represent a significant percentage of the surgical workload at both role 2 and role 3 facilities down range^{1,6}



Methods

- Fasciotomy and Vascular Injury Outcomes (FaVIO) Database
 - Major lower extremity arterial or venous injury with surgical attempt at limb salvage
- Primary outcome: composite graft complication (thrombosis, stenosis, pseudoaneurysm, blowout, and/or AVF)
 - N=220



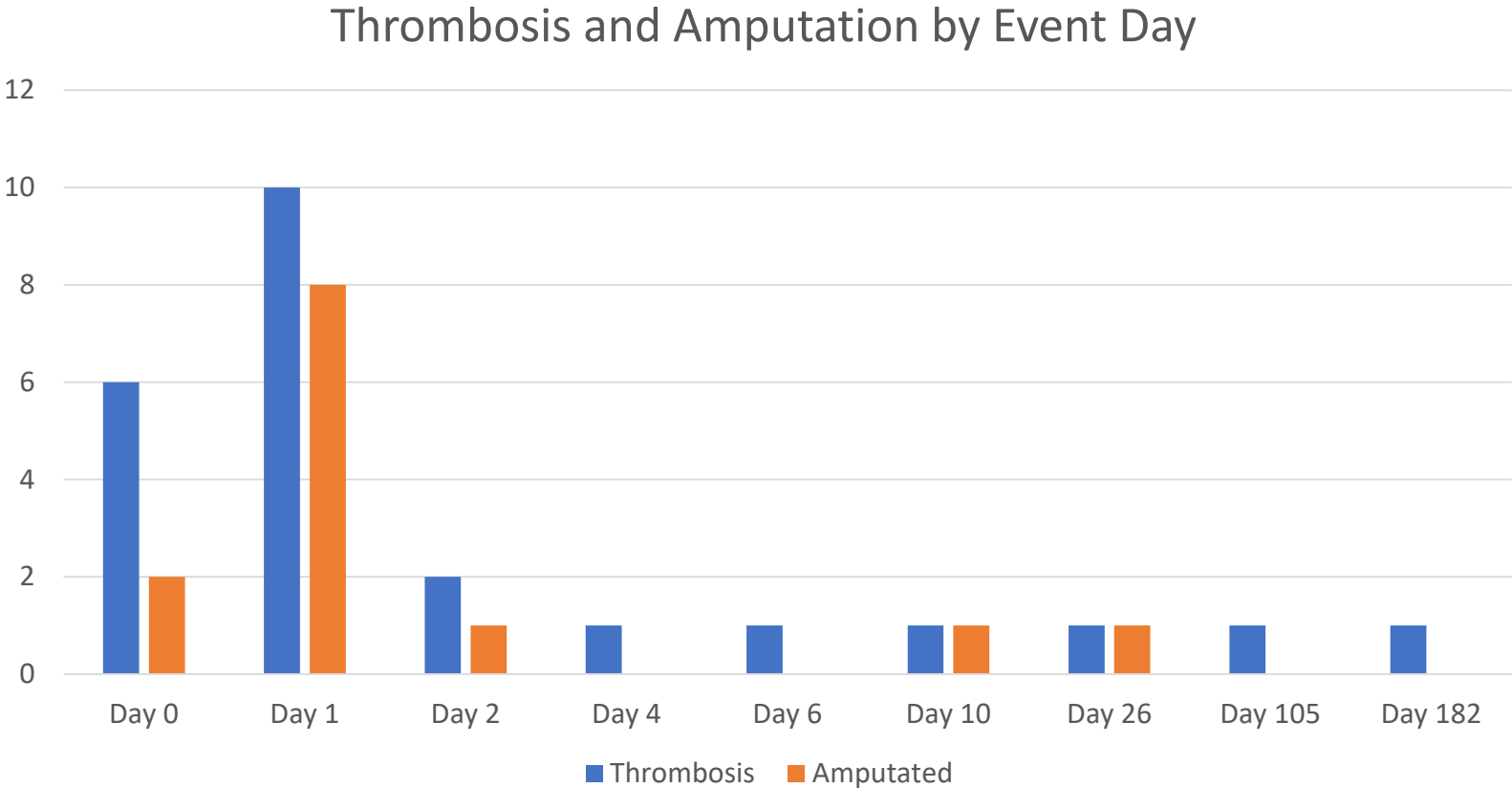
Injury and Treatment Characteristics

	No Graft Complication (n=164)	Graft Complication (n=56)	P
Tourniquet, n (%)	89 (54)	36 (64)	0.19
Fracture, n (%)	97 (59)	28 (50)	0.23
Combined arterial/venous, n (%)	76 (46)	23 (41)	0.49
Multiple level arterial injury, n (%)	17 (10)	11 (20)	0.07
Arterial shunt, n (%)	47 (29)	18 (32)	0.62
Graft level (distalmost)			0.87
Femoral, n (%)	73 (44)	26 (46)	
Popliteal, n (%)	56 (34)	17 (30)	
Tibial, n (%)	35 (21)	13 (23)	
Synthetic graft, n (%)	3 (2)	5 (9)	0.01
MESS, median (IQR)	6 (5-7)	6 (5-7)	0.92
Time to revasc, min, median (IQR)	390 (266-514)	365 (198-532)	0.96
Tourniquet time, min, median (IQR)	57 (38-76)	55 (38-72)	0.99

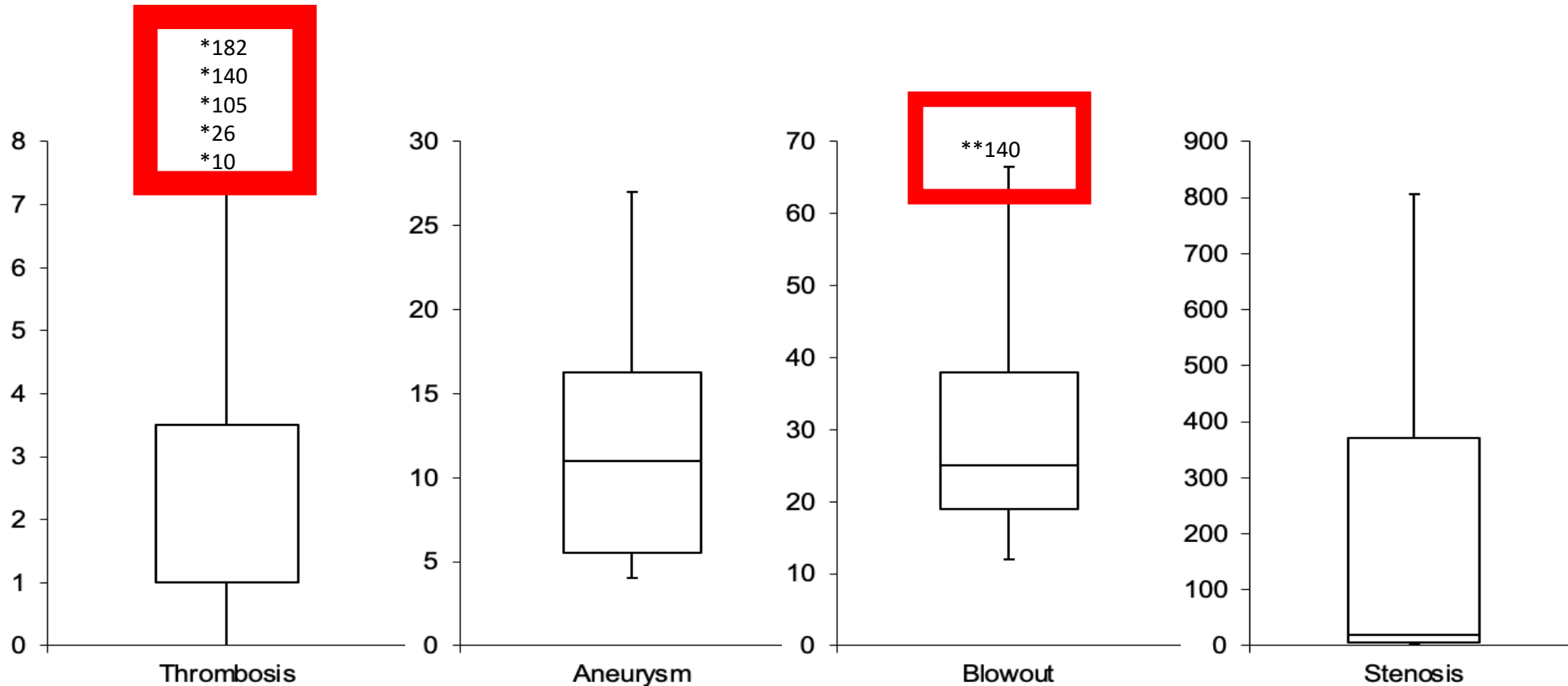
Graft Level and Graft Complication

	All (%)	Femoral (%)	Popliteal (%)	Tibial (%)
Total	220	99 (45)	73 (33.2)	48 (21.8)
Any GC	56 (25.5)	26 (26.3)	17 (23.3)	13 (27.1)
Thrombosis	24 (10.9)	10 (10.1)	9 (12.3)	5 (10.4)
Aneurysm	9 (4.1)	4 (1.8)	1 (1.4)	4 (8.3)
Blowout	5 (2.3)	5 (2.3)	0 (0)	0 (0)
Stenosis	27 (12.3)	12 (5.5)	8 (11)	7 (14.6)
AVF	2 (0.9)	1 (0.5)	0 (0)	1 (2.1)

Thrombosis Association with Amputation



Time to complication



*Outliers at 10, 26, 105, 140, and 182 days

**Outlier at 140 days

Conclusions

- Complication rates are high and occur far from index operation
 - Likely underestimating true incidence
- Synthetic conduits are a clear risk factor
 - Aligns with previous findings in the literature⁷
- Early graft thrombosis occurs and is associated with limb loss
 - Long-term surveillance is warranted especially in setting of synthetic grafts
 - Shunts should be considered to bridge to autologous conduit if possible
 - If not, short-term heparinization should be considered

References

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