Niels-Stensen-Kliniken
Marienhospital Osnabrück

25. Norddeutsche GEFÄßTAGE

Prothesenінfekte Bein
Stellenwert Homo(Allo)graft?

Jörg Heckenkamp

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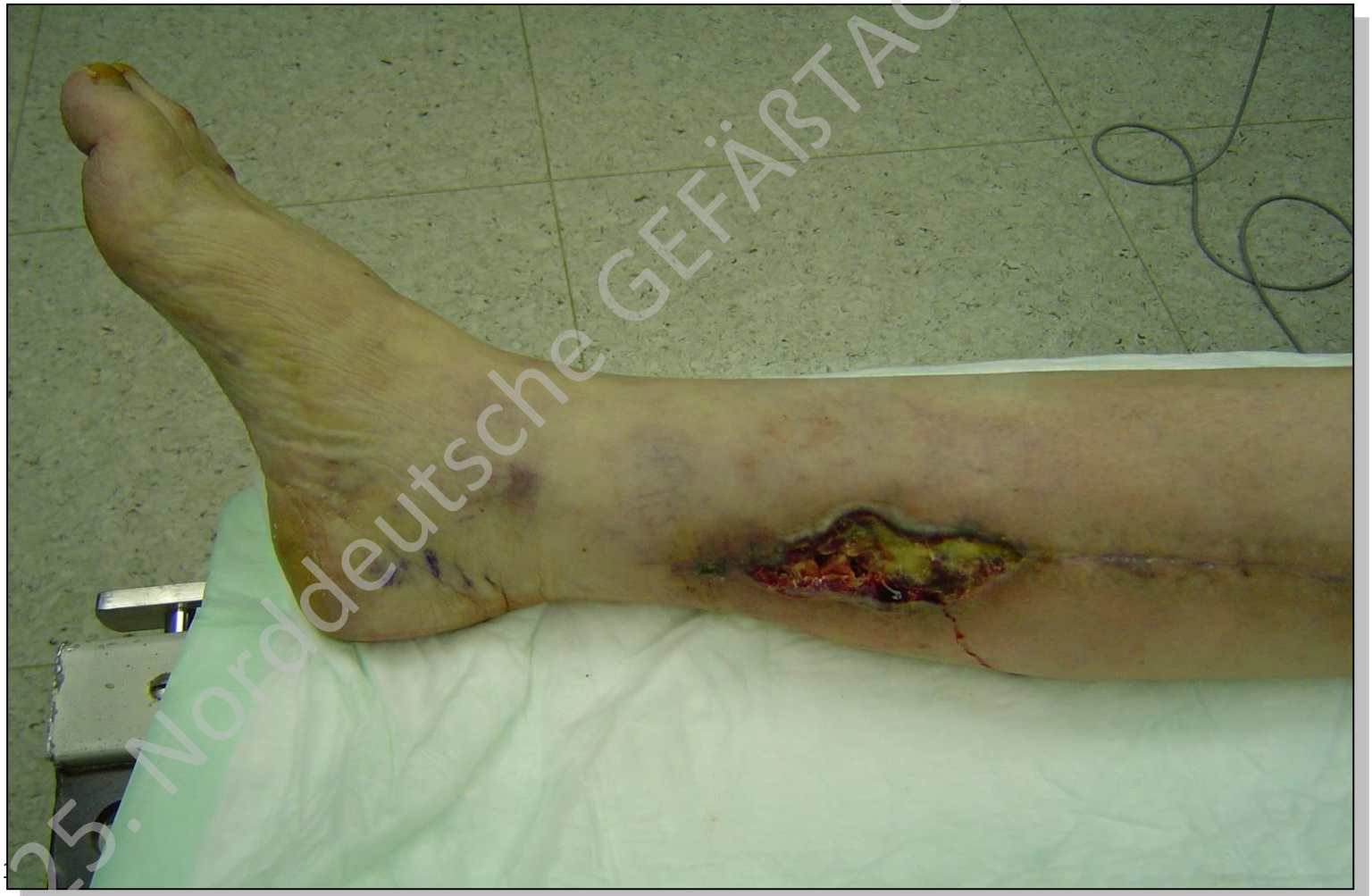
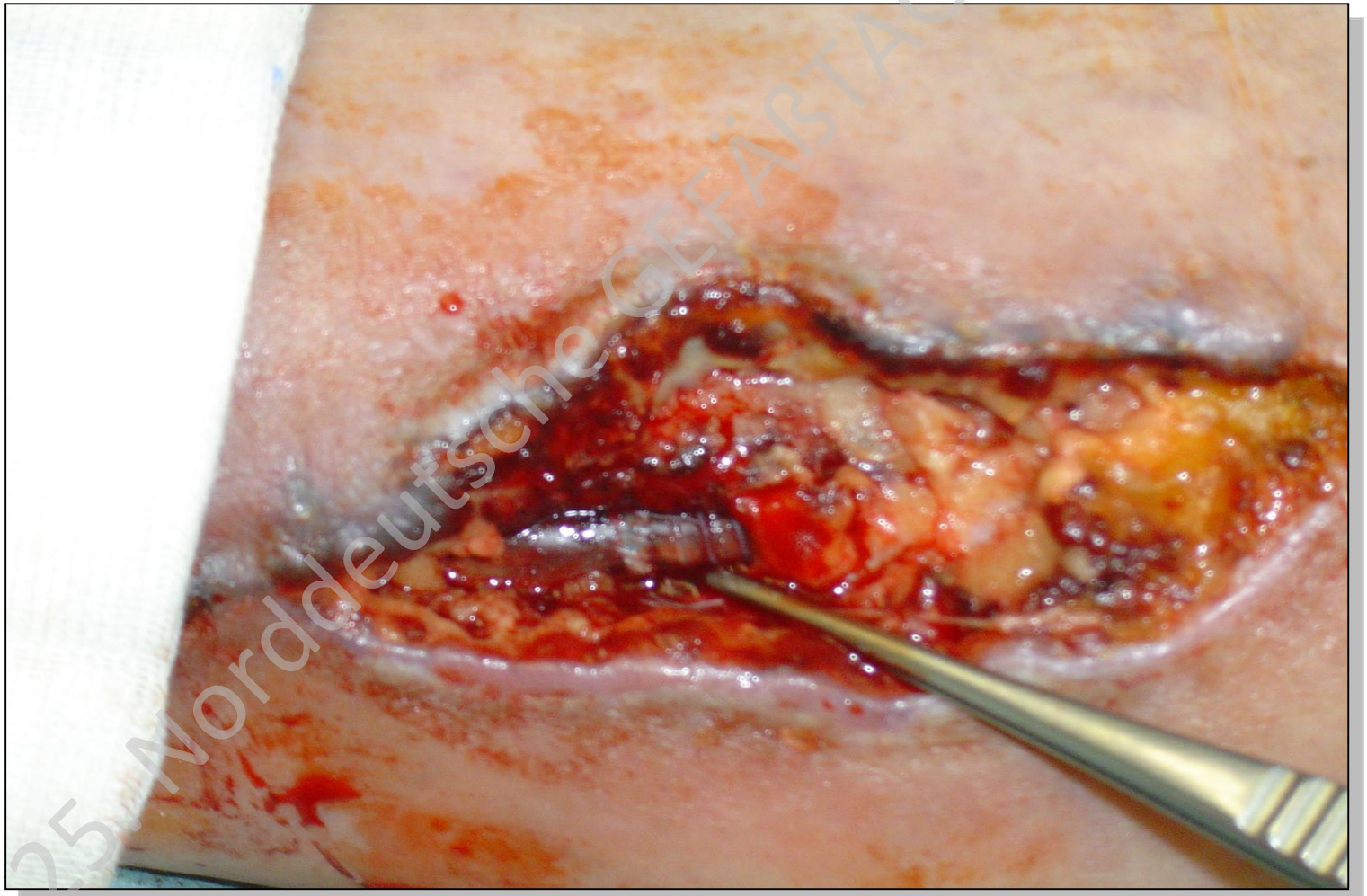
Niels-Stensen-Kliniken
Marienhospital Osnabrück

Protheseninfekt



Cruraler ePTFE Bypass



Hintergrund

- Gesamtinzidenz von Wundinfekten nach gefäßchirurgischen Rekonstruktionen ~5-10%
- Tiefe Wundinfekte 0,2-6%
- Letalität 10-20%
- Amputationsrate 10-50%
- Verschiedene Therapiekonzepte

Bandyk DF. Infection in prosthetic vascular grafts, In: Rutherford, 733-51, 2000
Edwards WJ. J Vasc Surg, 235-9, 1987

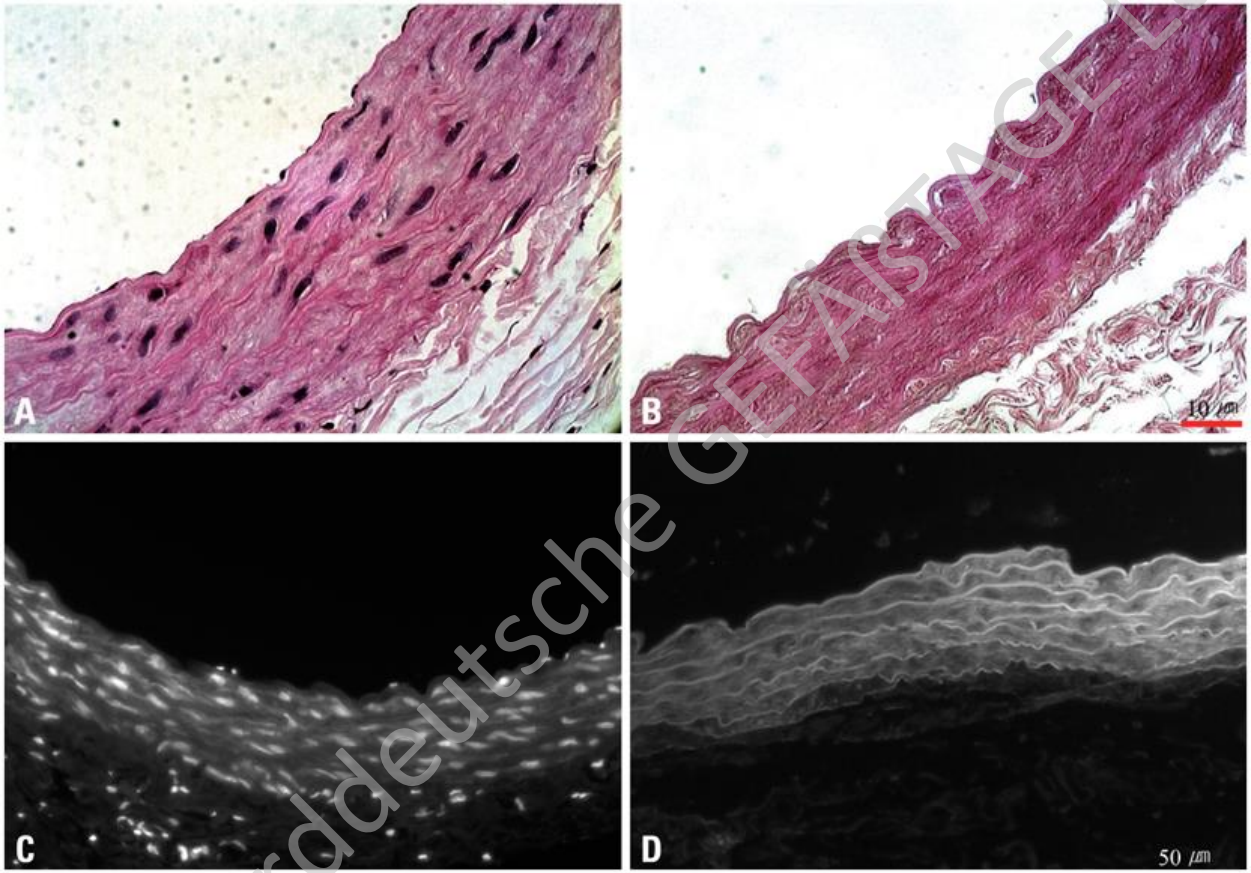
Klassifikationen

	Szilagyi	van Dongen	**Zühlke/Harnoss**
Grad I	Oberflächlich	Oberflächlich	**Prothesenbeteiligung ohne Anastomose**
Grad II	Subkutis	Subkutis	**Protheseninfekt mit Beteiligung einer Anastomose**
Grad III	Tiefe postOP Infektion mit Befall des Gefäßes	Befall des Implanates A,B,C	**Protheseninfekt mit Komplikation (Blutung, Verschluss)**

Bypassinfekt

- Bypassexplantation, Debridement, Antibiose, biologische Deckung
- In-situ-Rekonstruktion
  - Silberbeschichtete Prothesen
  - Antibiotika getränkte Prothesen
  - Autolog
  - Xenograft
  - **Homograft/Allograft**
- Extraanatomische Umleitung
- VAC

Biofilm



Yonsei Med J. 2011 Mar;52(2):227-233. English.
Published online Jan 29, 2011. https://doi.org/10.3349/ymj.2011.52.2.227

The Decellularized Vascular Allograft as an Experimental Platform for Developing a Biocompatible Small-Diameter Graft Conduit in a Rat Surgical Model

CryoLife®
Life Restoring Technologies®

Ordering Information

CryoVein	Diameter	Length	Catalog Number
Saphenous Vein	3mm-6mm*	10cm – 80+cm*	V010
Femoral Vein	6mm-15mm	10cm – 30+cm	V060

*Pressurized

CryoArtery	Diameter	Length	Catalog Number
Femoral Artery	4mm-5+mm	10cm – 30+cm	R020
Aortoiliac Artery	Aorta: 8mm-15mm[α] Iliac: 4mm – 5+mm[ß]	6cm – 11+cm 4cm-11+cm	R010

*Pressurized, [α]Diameter distends up to approximately 39% at 120mmHg, [ß]Diameter distends up to approximately 60% at 120mmHg

Die DGFG ist die Nachfolgegesellschaft der gemeinnützigen Gesellschaft für Gewebetransplantation (DSO-G), einer Tochter der Deutschen Stiftung Organtransplantation (DSO). Der Sitz der Gesellschaft wurde 2005 nach Hannover verlegt. Durch das Inkrafttreten des Gewebegesetzes im Jahr 2007 kam es zu einer Trennung von DSO und DGFG. 2007 übernahmen die drei Gesellschafter Medizinische Hochschule Hannover, Universitätsklinikum Leipzig und Universitätsklinikum Carl Gustav Carus Dresden die DGFG als gemeinnütziges Unternehmen. 2015 kam die Universitätsmedizin Rostock und 2017 das Dietrich-Bonhoeffer-Klinikum Neubrandenburg als weitere Gesellschafter hinzu.

Kardiovaskuläre Gewebe

Wir benötigen auf dem Formular „Anforderung von Homografts“ die genaue Größenangabe der benötigten Transplantate sowie das gewünschte OP-Datum. Die Allokation erfolgt nach Warteliste und Verfügbarkeit. Die Blutgruppe zwischen Spender und Empfänger ist nicht relevant. Die Anlieferung erfolgt am Tag vor der geplanten Transplantation oder in dringenden Fällen am gleichen Tag. Bitte sprechen Sie uns an!

Clinical Outcomes

High Limb Salvage Rates

Author	1 YR	2 YR	3 YR
Castier, et al[2]	NR	NR	87%*
Castier, et al[3]	100%	80%	NR
St. Lebes, et al[4]	92%	92%	NR

*Cumulative

Primary Patency

- Up to 72% Primary Patency at 2 years[2-5]

Key Benefits

- Natural Suturability[6]
- Natural Pulsatile Flow[7]

Clinical Benefit

- 100% Freedom from Infection at 3 years[2]

Tissue	Diameter	Length	Catalog Number
Femoral Artery	4 mm – 5+ mm	10 cm – 30+ cm	R020

Learn more at: www.cryolife.com/vascular
For more information or to place an order call 1-888-944-8610

1. Randon C, et al J Vasc Surg 2010.
2. Castier Y, et al. Ann Vasc Surg 2010.
3. Castier Y, et al. Ann Vasc Surg 2005.
4. St. Lebes B, et al. Ann Vasc Surg 2015.
5. Vardanian A, et al. Ann Surg 2009.
6. Martin R, et al. Ann Surg 1994
7. Bia D, et al. Artif Organs 2007.

ACCREDITED AATB INSTITUTION

LLOYD'S REGISTER · LRQA ISO 13485

The use of cryopreserved aortoiliac allograft for aortic reconstruction in the United States

Michael P. Harlander-Locke, BS,[a] Liv K. Harmon, MD,[a] Peter F. Lawrence, MD,[a] Gustavo S. Oderich, MD,[b] Robert A. McCready, MD,[c] Mark D. Morasch, MD,[d] and Robert J. Feezor, MD,[e] for The Vascular Low-Frequency Disease Consortium, *Los Angeles, Calif; Rochester, Minn; Indianapolis, Ind; Billings, Mont; and Gainesville, Fla*

Conclusions: **This largest study of CAA indicates that CAA allows aortic reconstruction in the setting of infection or those at high risk for infection with lower early and long-term morbidity and mortality than other previously reported treatment options. Repair with CAA is associated with low rates of aneurysm formation, recurrent infection, aortic blowout, and limb loss. We believe that CAA should be considered a first line treatment of aortic infections. (J Vasc Surg 2014;59:669-74.)**

Cryopreserved saphenous vein graft in infrainguinal bypass

Charles A. Hartranft, DO, Seth Noland, MD, Aaron Kulwicki, MD, Charles R. Holden, MD, and Thomas Hartranft, MD, *Columbus, Ohio*

Conclusions: Cryopreserved vein allografts displayed poor short-term and long-term patency, whereas limb salvage rates at 1 and 2 years remained acceptable. However, >25% of patients required additional ipsilateral operations with use of synthetic conduits after previous failed cryopreserved allograft use. Our data indicate that cryopreserved vein graft is a suboptimal choice of conduit in a noninfected field. (J Vasc Surg 2014;60:1291-6.)

Literaturrecherche PubMed: allograft, arterial, peripheral, bypass, infection

	N	Prim Patency	Zeitraum	Mortalität/Amputation
Nagy, MagySeb, 2017	144	63%	6 Monate	
Wang, AnnVascSurg, 2018	24	50%	1 Jahr	4% (30 Tage) Reinterv. 38% (30 Tage)
Lejay, EJVES, 2017	28	59%	5 Jahre	32% (5 Jahre)
Castier, AnnVascSurg, 2010	36	57%	3 Jahre	40% (3 Jahre)
Furlough JVS 2019	57		27 Monate	9% (30 Tage)
Elens, VascEndovSurg, 2018	42			9% (30 Tage), 30% (2 Jahre)
Brown, JVS, 2009	39			7,5% (30 Tage)

Eur J Vasc Endovasc Surg (2017) 54, 636–644

Cryopreserved Cadaveric Arterial Allograft for Arterial Reconstruction in Patients with Prosthetic Infection

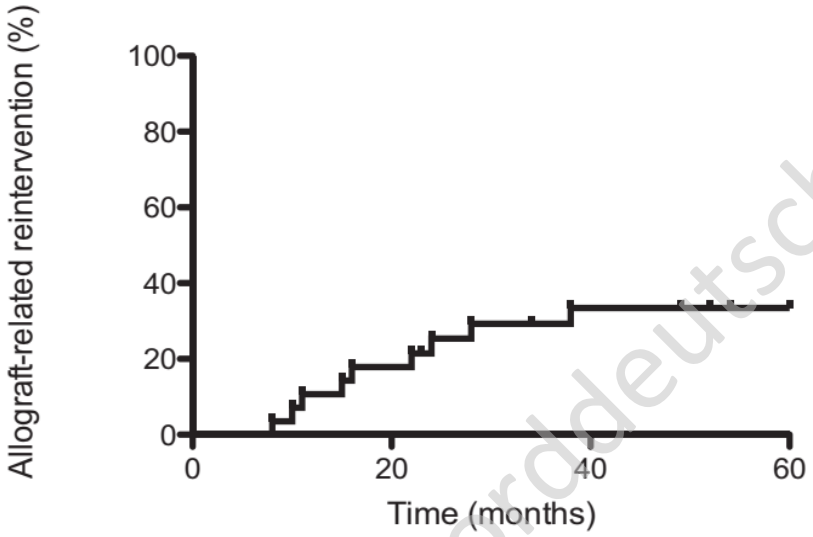
Anne Lejay [a,*], Charline Delay [a], Elie Girsowicz [a], Bettina Chenesseau [a], Emilie Bonnin [a], Mohamed-Zied Ghariani [a], Fabien Thaveau [a], Yannick Georg [a], Bernard Geny [b], Nabil Chakfe [a]

[a] Department of Vascular Surgery and Kidney Transplantation, University Hospital, Strasbourg, France
[b] Department of Physiology and Functional Explorations, University Hospital, Strasbourg, France

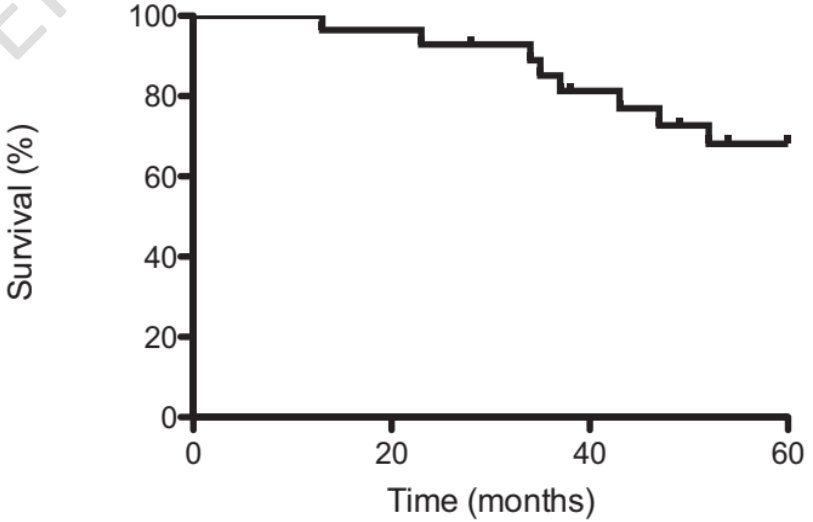
WHAT THIS STUDY ADDS

The study shows that the use of cryopreserved arterial allografts for vascular reconstruction in the setting of infection is tempered by suboptimal 5 year outcomes with high re-intervention rates. Multidisciplinary care is mandatory in order to reach better outcomes, since malnutrition or *Candida* species infection are risk factors for bad outcomes.

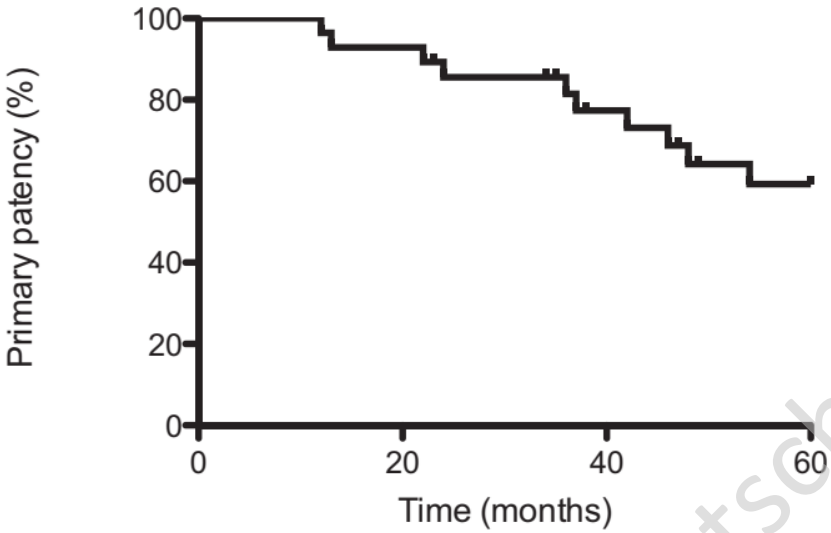
Results: Fifty-three procedures were performed using cryopreserved allografts for vascular prosthetic infection: 25 procedures (47%) were performed at aorto-iliac level (Group 1) and 28 procedures (53%) at peripheral level (Group 2). The mean follow-up was 52 months. Five year allograft related re-intervention was 55% in Group 1 (6 allograft ruptures and 5 allograft aneurysm degenerations) and 33% in Group 2 (2 allograft ruptures and 7 allograft aneurysm degenerations). Five year survival was 40% and 68%, primary patency was 89% and 59% and limb salvage was 100% and 89% for Group 1 and 2 respectively.



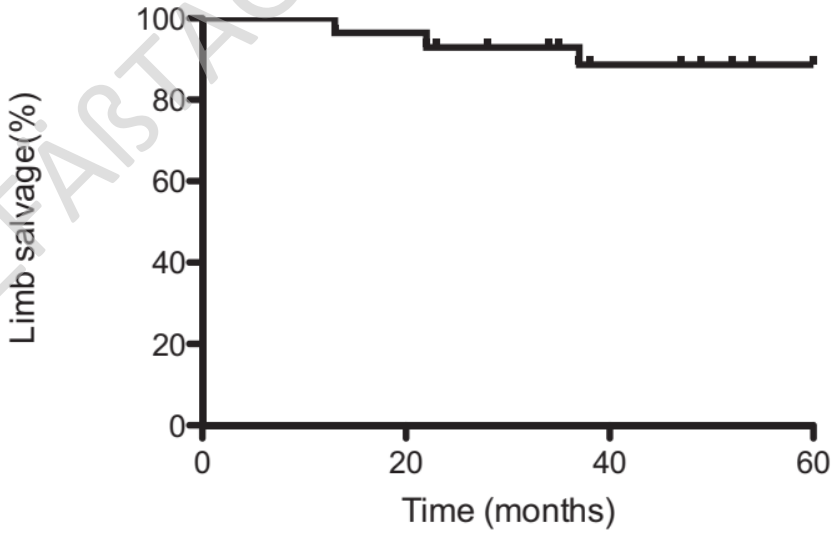
Time (months)	12	24	60
Number at risk	26	20	10
Reintervention	11%	25%	33%



Time (months)	12	24	60
Number at risk	28	27	13
Survival	100%	93%	68%



Time (months)	12	24	60
Number at risk	28	24	10
Primary patency	96%	86%	59%



Time (months)	12	24	60
Number at risk	28	26	13
Primary patency	100%	93%	89%

Ann Vasc Surg. 2018 May;49:24-29. doi: 10.1016/j.avsg.2017.10.032. Epub 2018 Feb 5.

Cryopreserved Homografts in Infected Infrainguinal Fields Are Associated with Frequent Reinterventions and Poor Amputation-Free Survival.

Wang SK[1], Gutwein AR[2], Drucker NA[2], Murphy MP[2], Fajardo A[2], Dalsing MC[2], Motaganahalli RL[2], Lemmon GW[2].

CONCLUSIONS: CHs remain a marginal salvage conduit in the setting of **infection** and no autogenous choices. Therefore, clinicians should individualize usage of this high-cost product in highly selected patients only.

Magy Seb. 2017 Mar;70(1):5-12. doi: 10.1556/1046.70.2017.1.1.

[Role of the homograft bypass in extremity inferior's reconstructions].

[Article in Hungarian]

Nagy Z[1], Oláh Z[1], Kókai J[1], Molnár AB[1], Laczkó Á[1], Szabó GV[1], Juhász V[1], Garbaisz D[1], Berczeli M[1], Sztupinszky Z[1], Szeberin Z[1].

CONCLUSION: The reconstructive surgical procedures in septic area mean serious challenge for the vascular surgeons. The AB0 compatibility of the **graft** and the recipient did not result better long-term outcomes compared to the non-compatible grafts. According to our data the ideal choice of homogenous **graft** is an arterial **homograft** which was not cryopreserved longer than 6 months.

Schlußfolgerungen

- Datenlage inkongruent
  - Niedriges Evidenzniveau
- Individualisiertes Therapiekonzept
- In Einzelfällen gute Alternative