



CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE  
**CONTROVERSIES & UPDATES  
IN VASCULAR SURGERY**

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**MARRIOTT RIVE GAUCHE & CONFERENCE CENTER**

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# Costoclavicular Bypass

Sub title

## Disclosure

Speaker name:

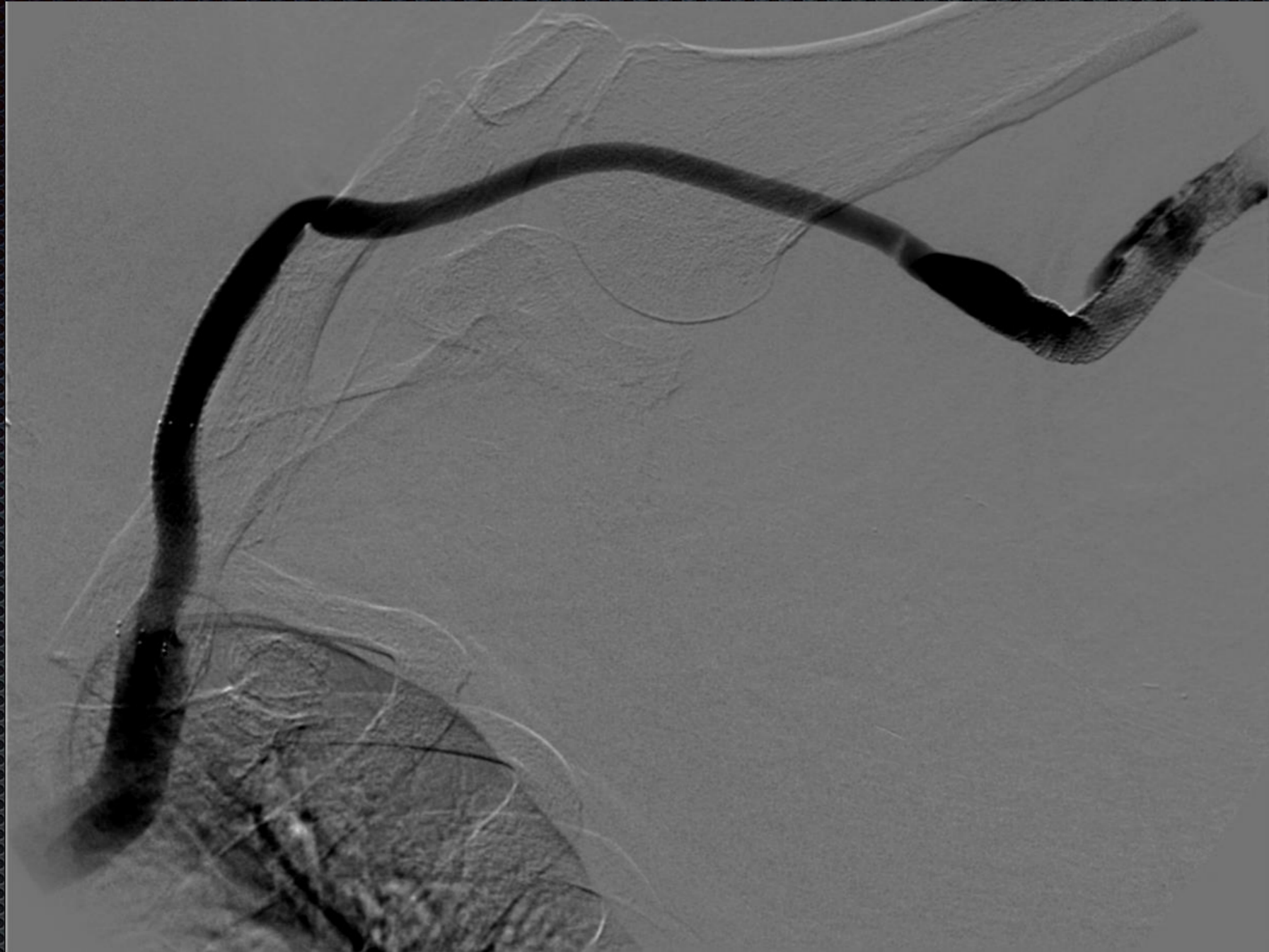
.....Jeffrey Hull.....

- I have the following potential conflicts of interest to report:
- Consulting
- Employment in industry
- Shareholder in a healthcare company
- Owner of a healthcare company
- Other(s)
- I do not have any potential conflict of interest

# Percutaneous Costoclavicular Bypass

Jeffrey Hull M.D.





# Percutaneous Costoclavicular Bypass

## Central Venous Stenosis Is More Often Symptomatic in Hemodialysis Patients with Grafts Compared with Fistulas

Scott O. Trerotola, MD, Shawn Kothari, BA, Therese E. Sammarco, BA, and Jesse L. Chittams, MA

### ABSTRACT

**Purpose:** To determine whether hemodialysis patients with central venous stenosis (CVS) are more frequently symptomatic if they have grafts versus fistulas.

**Materials and Methods:** A retrospective review was performed of 500 consecutive discrete patients, half with fistulas and half with grafts, who had fistulograms performed over a 4-year period. All fistulograms were evaluated for CVS, which was graded into quartiles. The presence of collaterals was noted and graded. Patient records were analyzed for symptoms of CVS, including face, neck, breast, or limb swelling. Statistical analysis was performed to determine the association between access type, degree of stenosis, location of stenosis, and symptoms.

**Results:** Of 500 fistulograms, 31 were excluded because of inadequate or absent central imaging. Of the remaining 469 patients, 235 had fistulas and 234 had grafts. CVS was present in 51% of patients with fistulas (119 of 237) and 51% of patients with grafts (118 of 237). When CVS was present, 29% (35 of 119) of patients with fistulas were symptomatic versus 52% (62 of 118) of patients with grafts ( $P = .0005$ ). Overall, only 15% of patients with fistulas in the entire cohort were symptomatic compared with 27% of patients with grafts ( $P = .002$ ). Sex, access side, and transposition did not influence symptoms; however, patients with upper arm access were more likely than patients with forearm access to be symptomatic ( $P < .0001$ ), independent of access type.

**Conclusions:** CVS is more likely to be symptomatic in patients with grafts versus fistulas, and patients with upper arm access are more likely than patients with forearm access to be symptomatic.

### ABBREVIATIONS

BCV = brachiocephalic vein, CIV = common iliac vein, CVS = central venous stenosis, EIV = external iliac vein, FFBI = Fistula First Breakthrough Initiative, FFCL = Fistula First Catheter Last, K/DOQI = Kidney Diseases/Outcomes Quality Initiative, SCV = subclavian vein, SVC = superior vena cava

# Central Venous Stenosis

Trerotola, S. O., et al. (2015). "Central venous stenosis is more often symptomatic in hemodialysis patients with grafts compared with fistulas." *J Vasc Interv Radiol* 26(2): 240-246.

# Indications

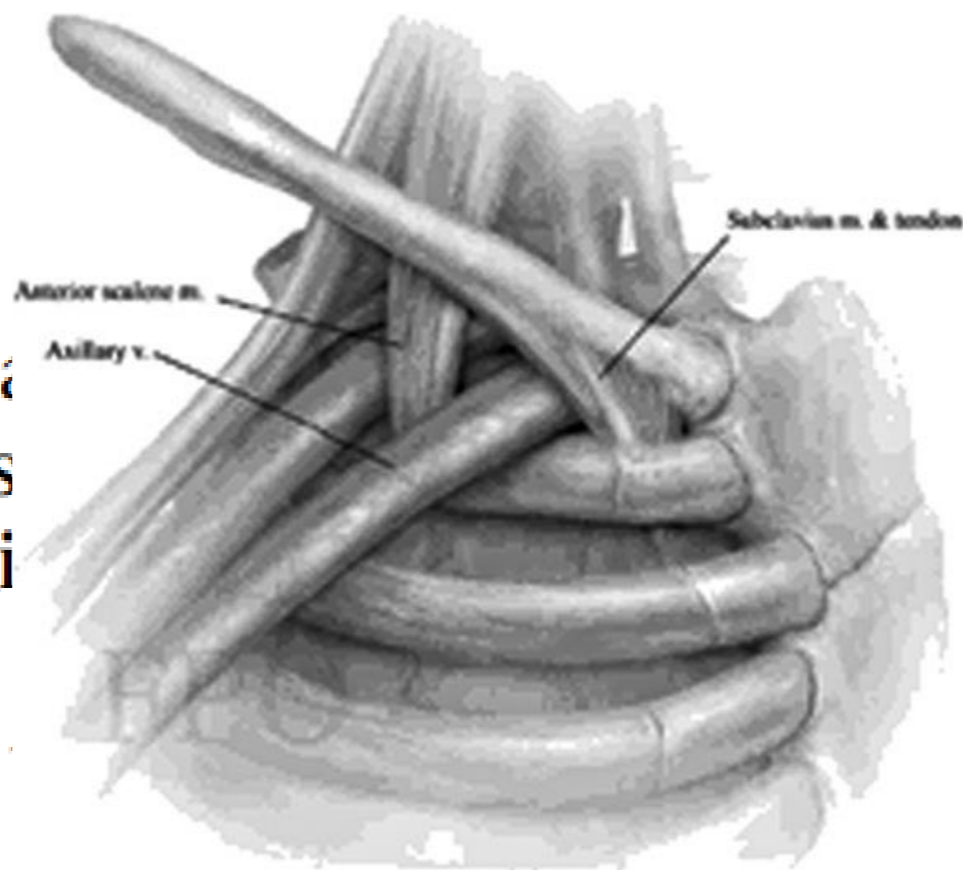
- Cephalic Arch Occlusion
- Thoracic Outlet
- Pacemaker with Occlusion



ELSEVIER

Costoclavicular  
Patients  
Hemodialysis

*Carolyn Glass,  
New York*

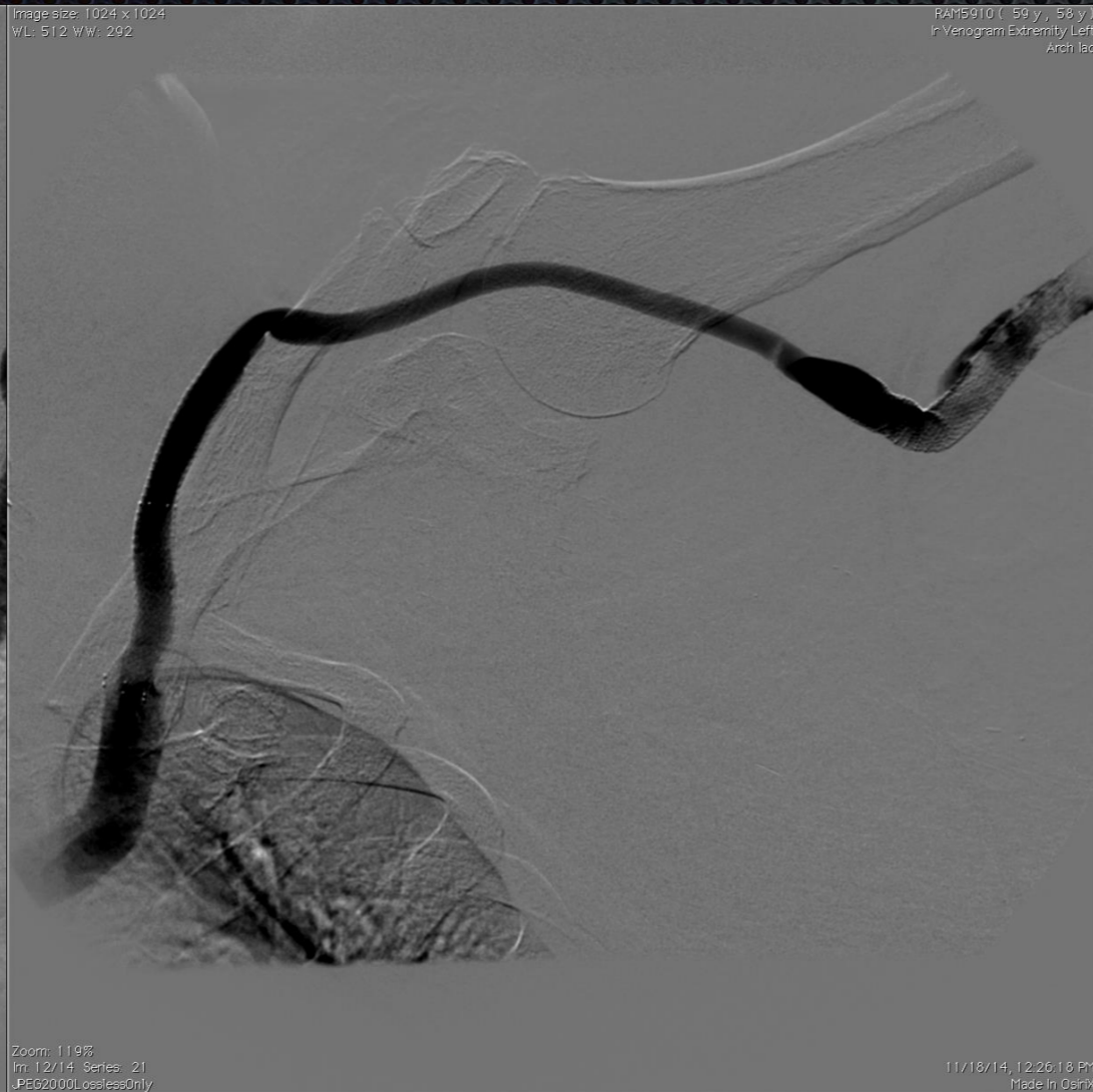
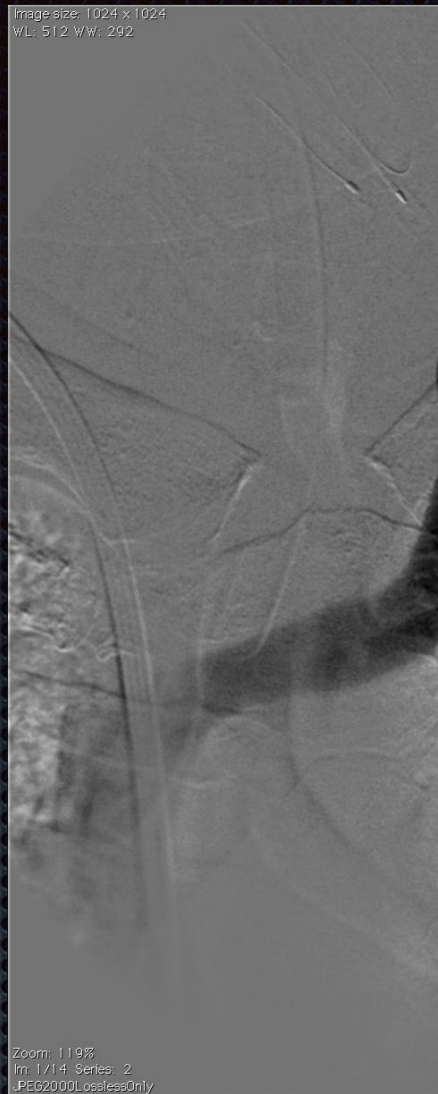


decompression in  
thoracic outlet

*and Karl Illig, Rochester,*

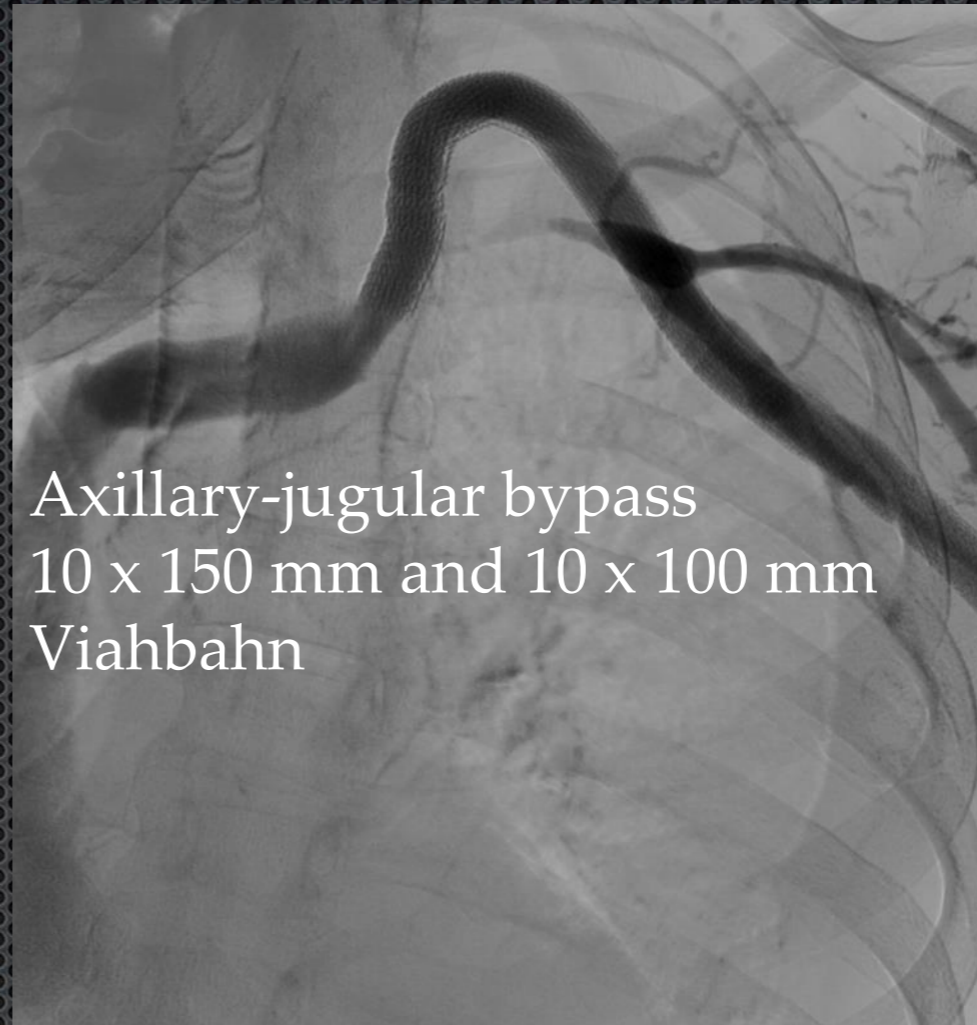
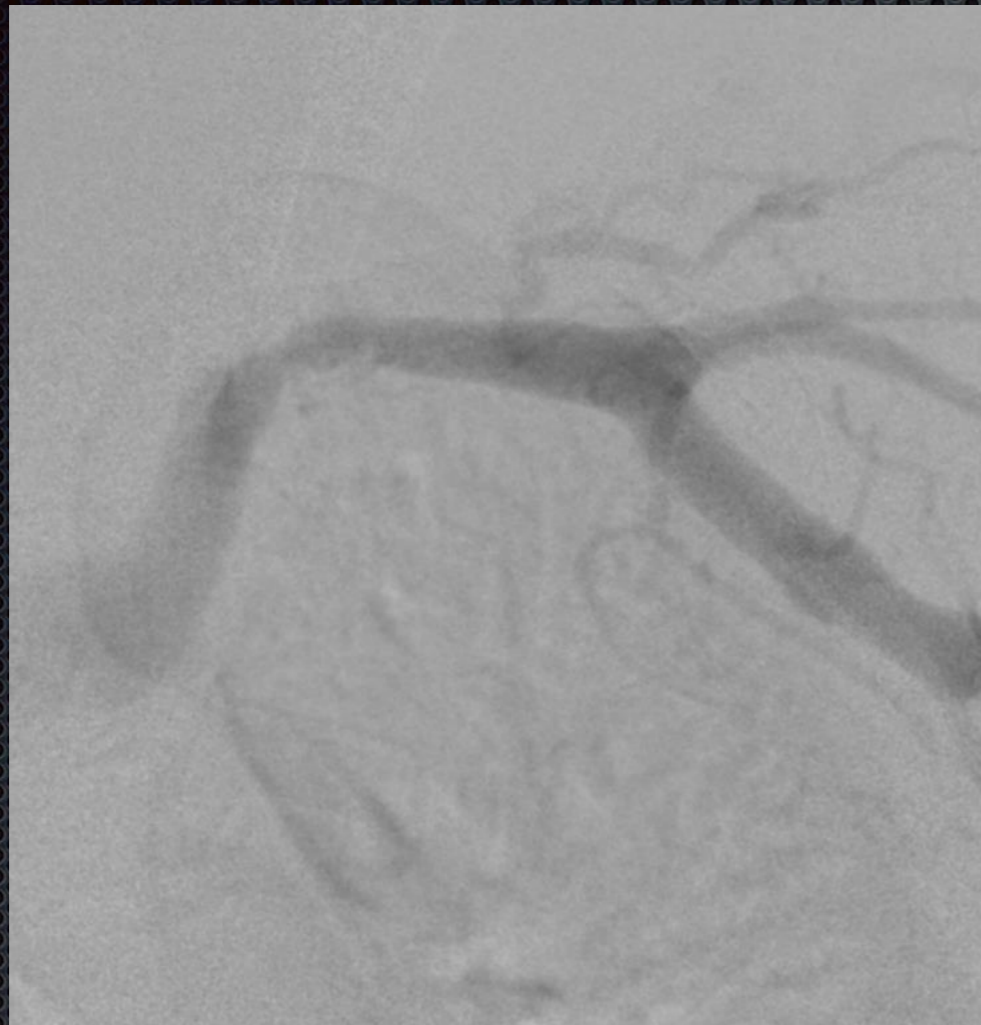
# Thoracic Outlet Stenosis

Glass, C., et al. (2011). "Costoclavicular venous decompression in patients with threatened arteriovenous hemodialysis access." *Ann Vasc Surg* 25(5): 640-645.



# Thoracic Outlet





Axillary-jugular bypass  
10 x 150 mm and 10 x 100 mm  
Viahbahn

# Subclavian Vein Occlusion



Cephalic Arch Occlusion

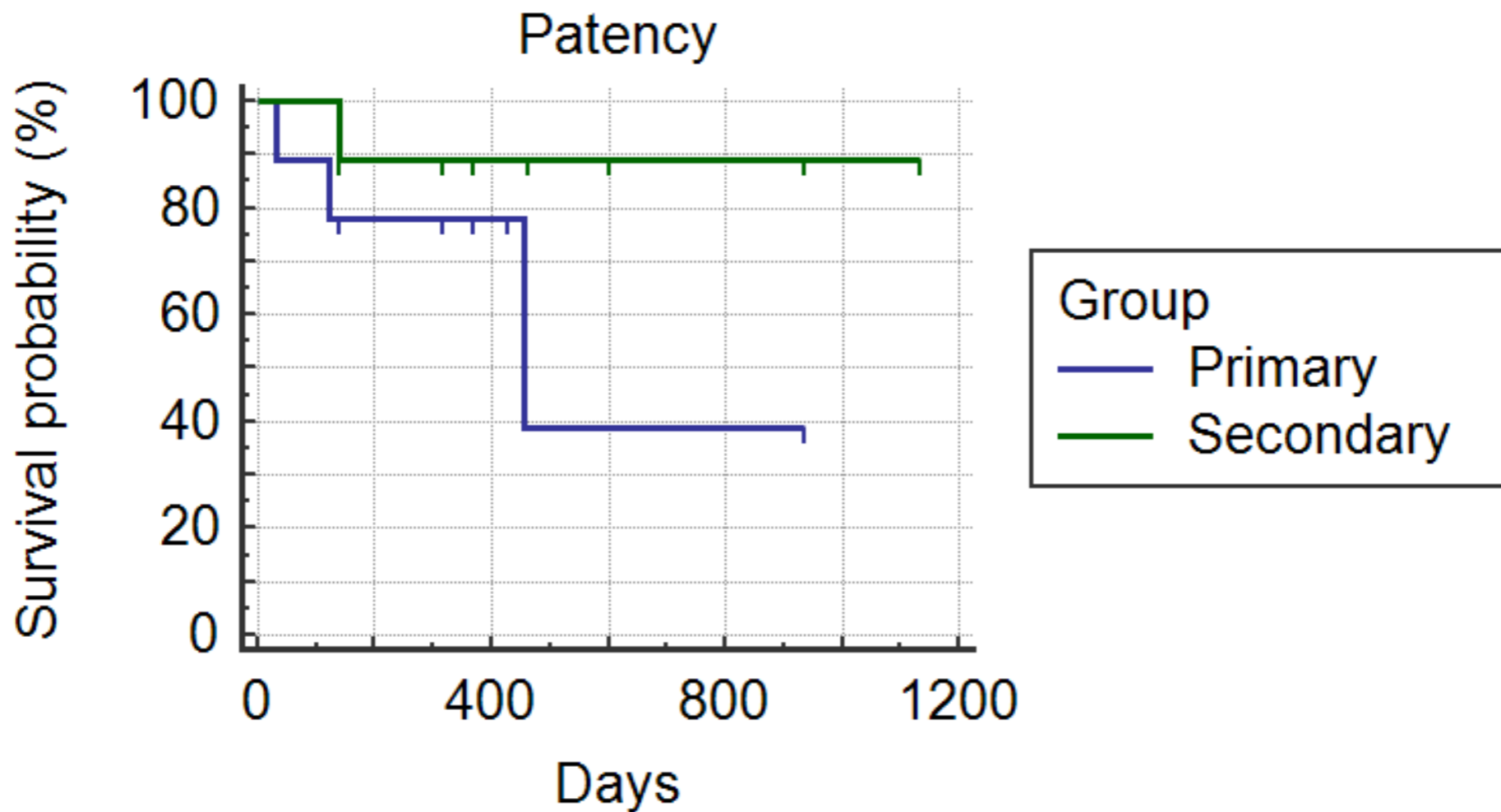
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Arch and TOS

# Procedures

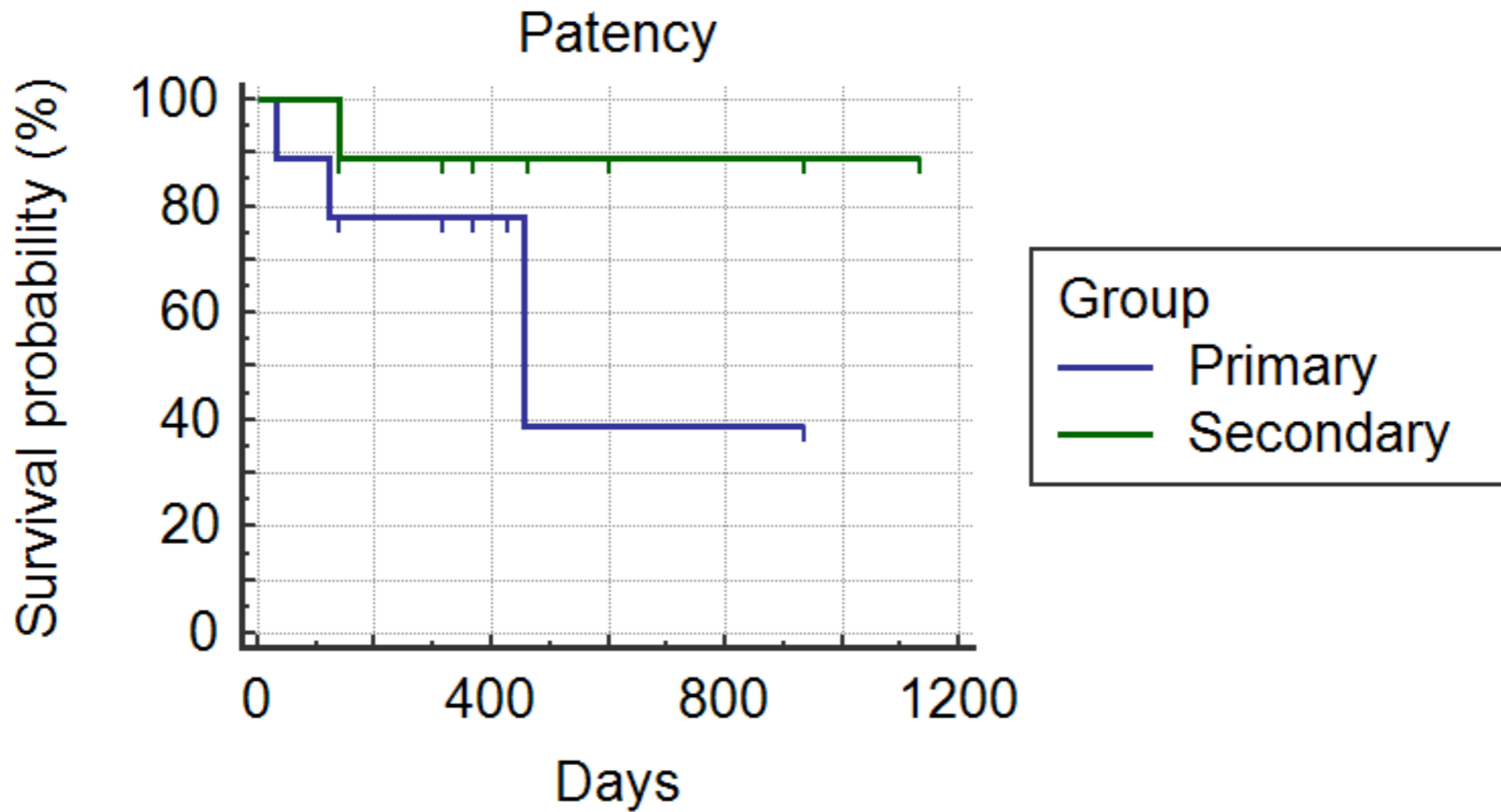
Site	Fistula Outflow	Central Vein	Diameter	Length
TOS	Axillary	External Jugular	9,9	
CV stented into collateral	Cephalic	External Jugular	11,11,13	100
SCV occlusion	Axillary	External Jugular	10	150
SCV Pacemaker	Axillary	Internal Jugular branch	10,11	150,100
Cephalic arch, pacer	Cephalic	External Jugular	10,10	150,80
Bifurcated cephalic arch	Cephalic	External Jugular	10,10	100,150
Cephalic arch	Cephalic	External Jugular	10,10	100,150
TOS	cephalic	Internal Jugular	9,9	150,75
Cephalic arch, pacer	Cephalic	External Jugular	9,9	150,150



Number at risk

Days	0	200	400	600	800	1000	1200
Group: Primary	9	5	3	1	1	0	0
Group: Secondary	9	6	4	2	2	1	0

# Kaplan-Meier



Number at risk

Group: Primary

9 5 3 1 1 0 0

Group: Secondary

9 6 4 2 2 1 0

# Kaplan-Meier

# Conclusion

- Great outflow
- Maintains native fistula
- Durability