AV-Fistel Workshop

221025

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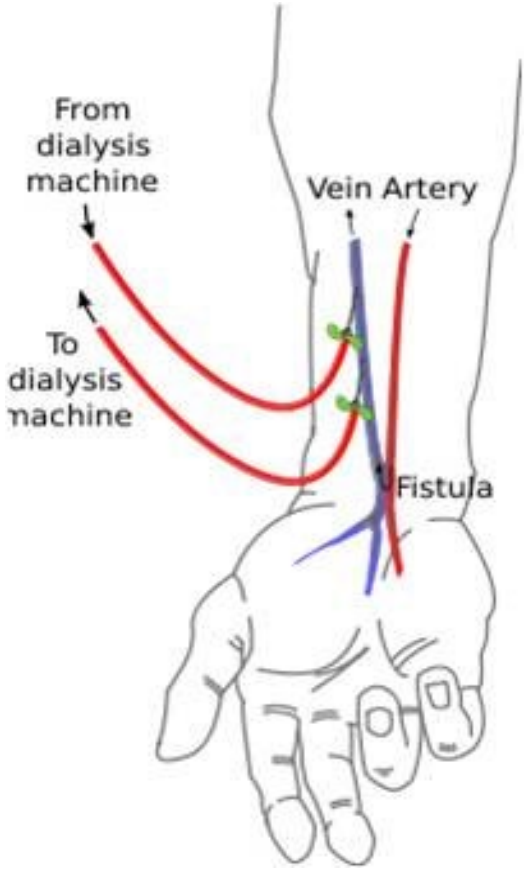
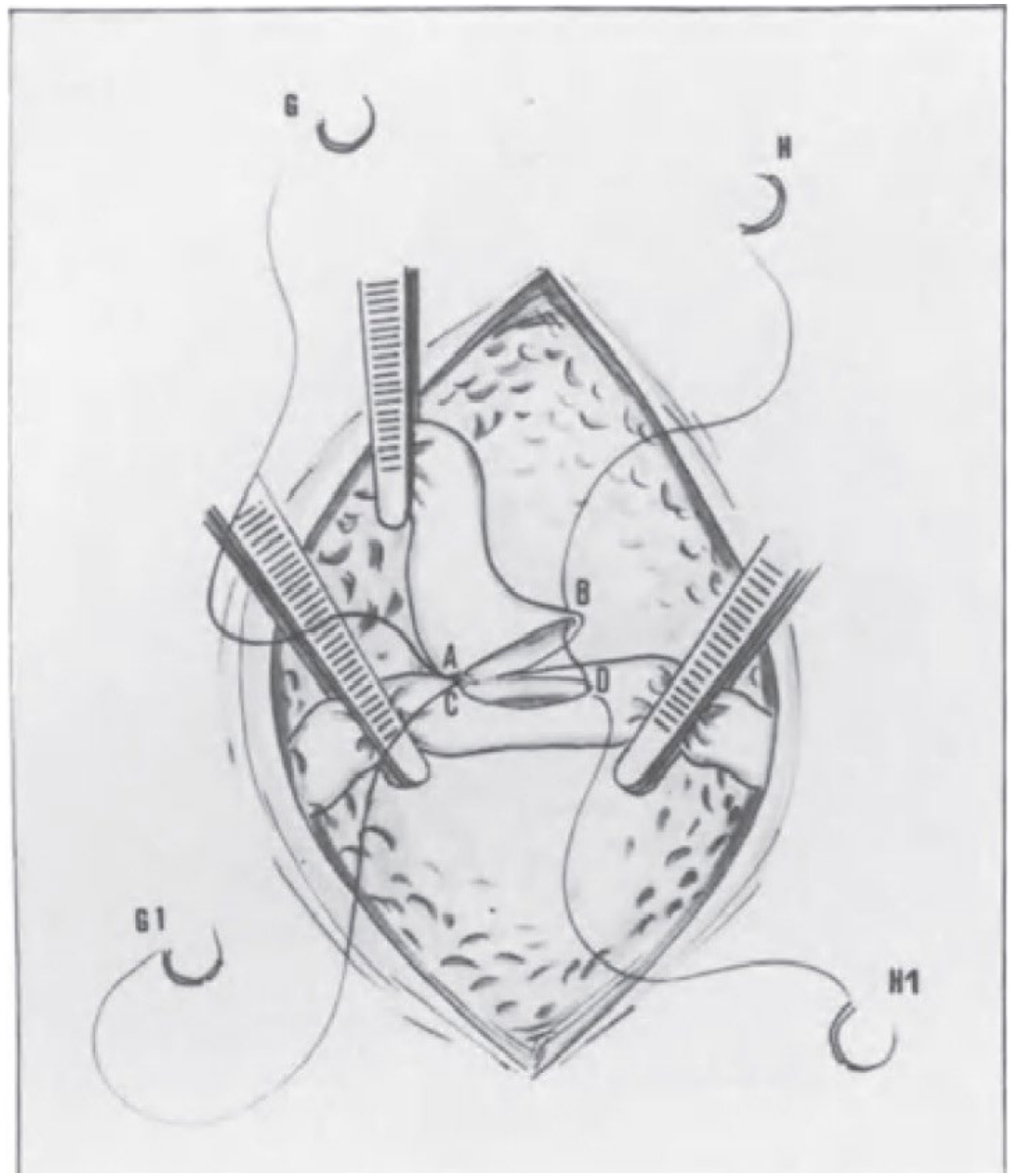
AV fistel: Översikt

- Fysiologi (Rheologi)
- Planering
- Kirurgi
- Uppföljning




G
H
B
A
C
D
G1
H1

Fysiologi

- Cardiac Output (CO=HR x SV)

- Poiseuille's law (F= $\triangle$P / R)

$$\text{Volume Flowrate} = \mathcal{F} = \frac{P_1 - P_2}{\mathcal{R}} = \frac{\pi(\text{Pressure difference})(\text{radius})^4}{8(\text{viscosity})(\text{length})}$$

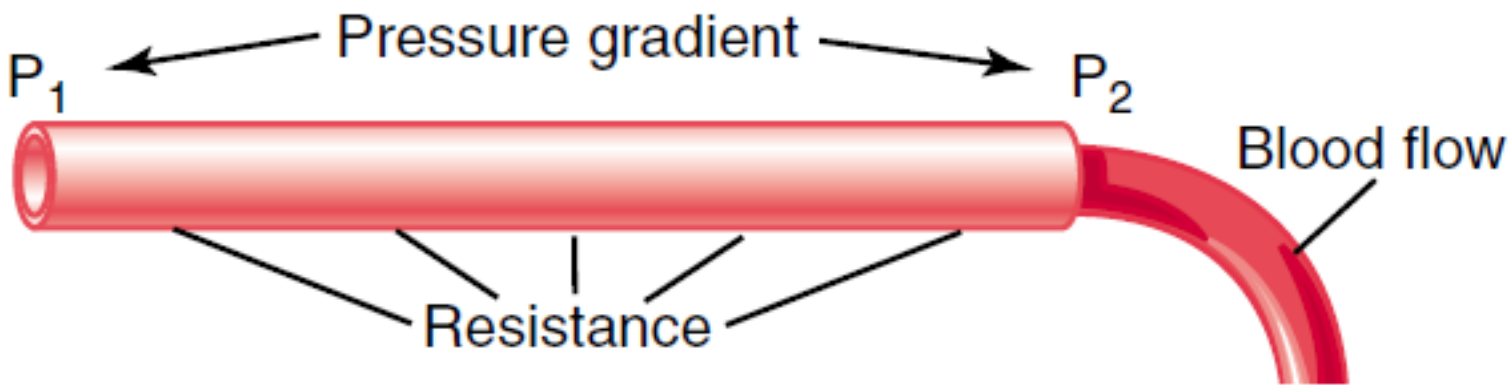
$$\text{Resistance to Flow} \quad \mathcal{R} = \frac{8\eta L}{\pi r^4}$$

CO = HR X SV

CARDIAC OUTPUT		HEART RATE		STROKE VOLUME
The amount of blood pumped by each ventricle in 1 minute	=	The number of contractions of the ventricles each minute	X	The amount of blood ejected from each ventricle with each contraction

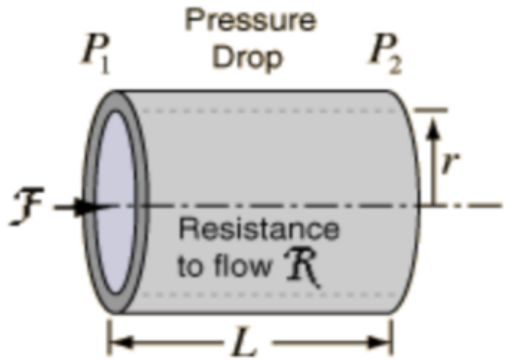
Poiseuille's law

$$F = \frac{\Delta P}{R}$$



Poiseuille's law

In the case of smooth flow (laminar flow), the volume flowrate is given by the pressure difference divided by the viscous resistance.
This resistance depends linearly upon the viscosity and the length, but the fourth power dependence upon the radius is dramatically different.



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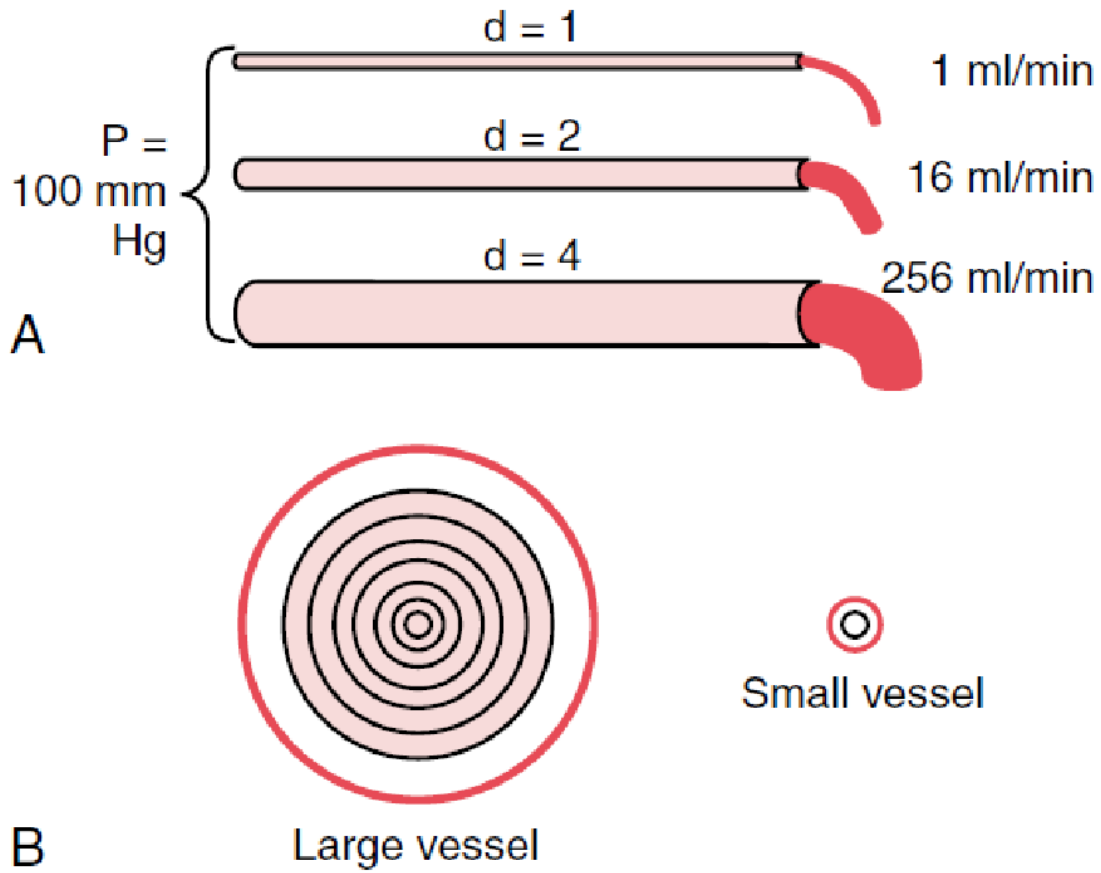


Figure 14-8 *A*, Demonstration of the effect of vessel diameter on blood flow. *B*, Concentric rings of blood flowing at different velocities; the farther away from the vessel wall, the faster the flow.

Planering

Internationella Riktlinjer

- www.vascularaccesssociety.com

- KDOQI

American Journal of Kidney Diseases
Volume 75, Issue 4, Supplement 2, April 2020, Pages S1-S164

KDOQI Clinical Practice Guideline for Vascular Access: 2019 Update

Eur J Vasc Endovasc Surg (2018) 55, 757–818

Editor's Choice — Vascular Access: 2018 Clinical Practice Guidelines of the European Society for Vascular Surgery (ESVS)☆

Riktlinjer

- “A fistula should be placed at least 6 months before the anticipated start of HD treatments. This timing allows for access evaluation and additional time for revision to ensure a working fistula is available at initiation of dialysis therapy.” *KDOQI 2006, 2020*

Tidiga problem med AV fisteln

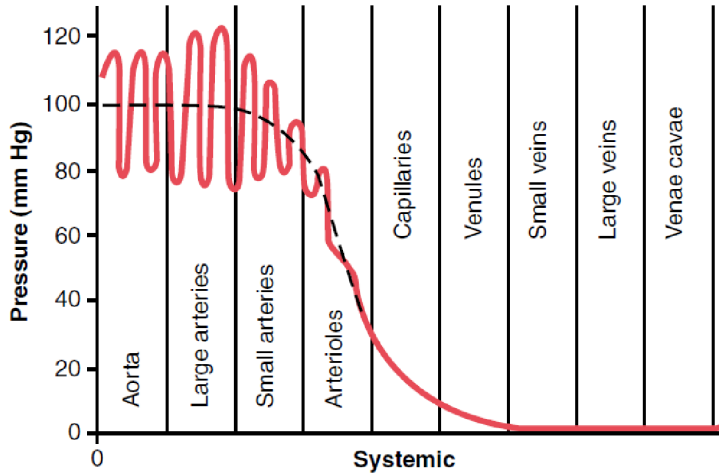
28-53% utvecklas aldrig:

- Tekniska fel
- För klen ven/för dåligt avflöde
- Hypovolemi vid dialys kan ge trombos
- Tidig stenos

- Fisteln bör skapas god tid innan första dialysen
- Nativ AV fistel behöver mogna
- Tid ska finnas för att korrigera tidiga problem (KDOQI rek 6 mndr)
- Venmappning – god kvalitet.

Mognad av AV fistel

- Kärlen svarar på ökad flöde genom att öka diametern och öka längden.
- Artären måste öka påflödet.
- Vensidan måste hantera det ökade avflödet.



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