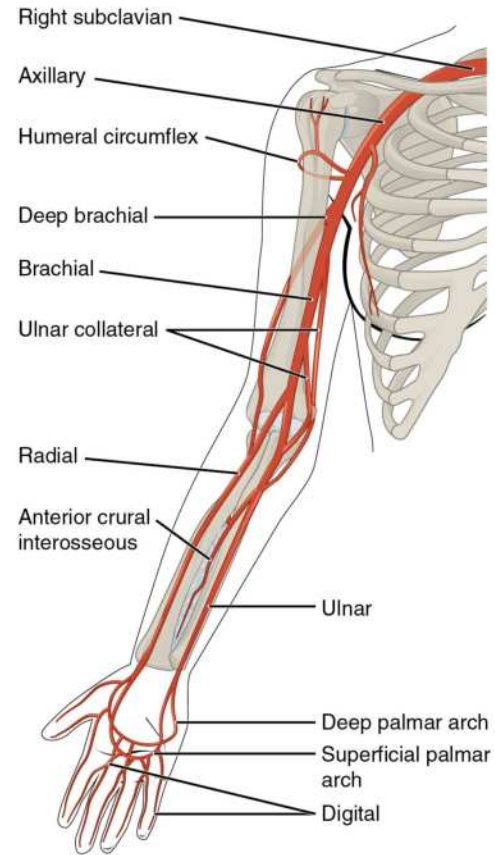
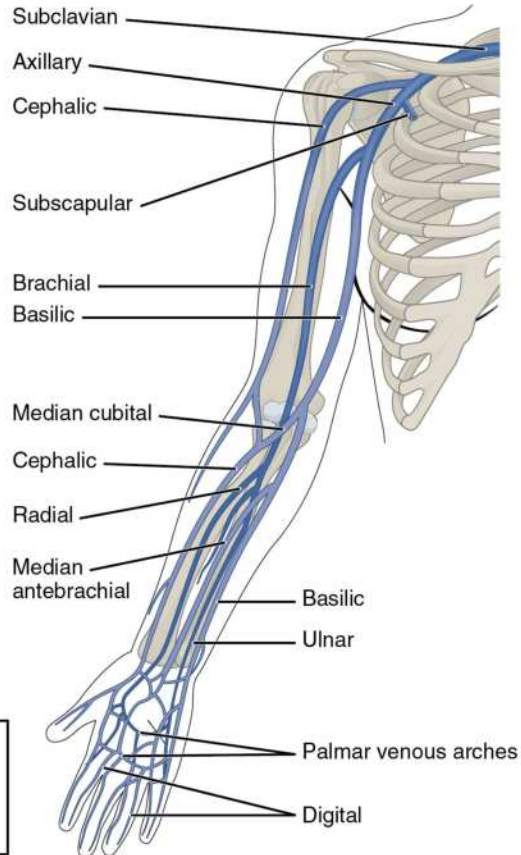


Hemodialüüsi AV fistli ultraheli

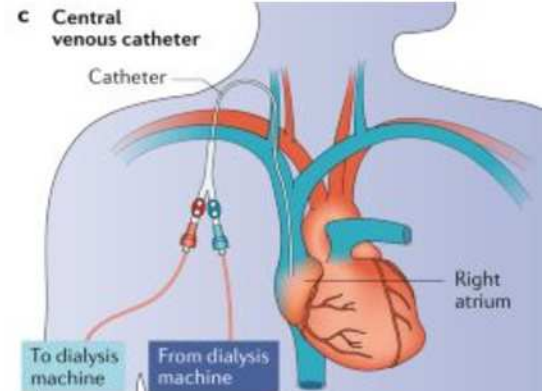
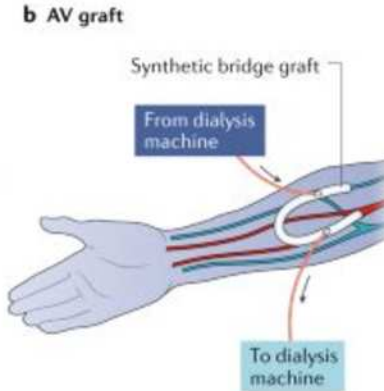
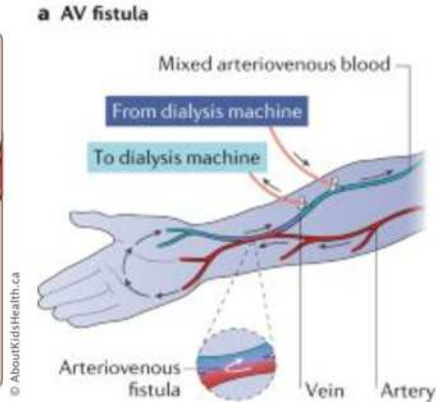
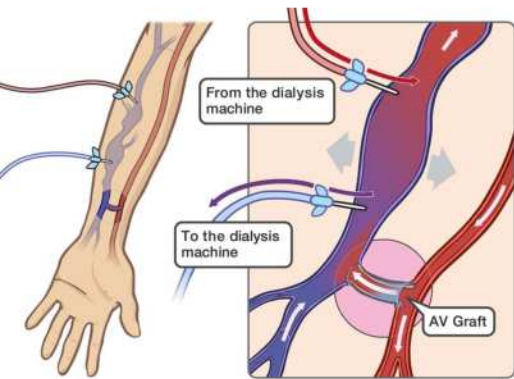
Maria Vorobjova
I aasta resident
Kolmapäevaseminar, 04.05.2022

Anatomia



AV natiivfistel

AV graft

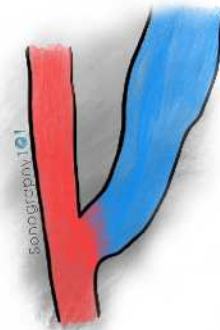


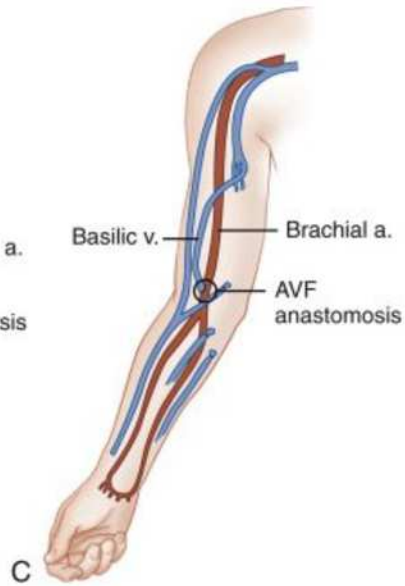
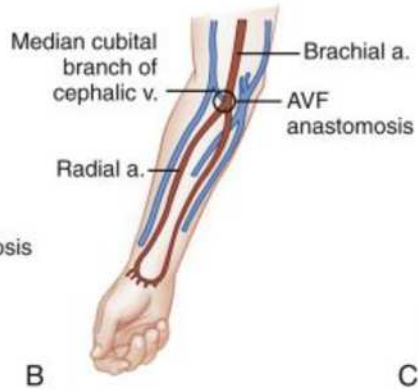
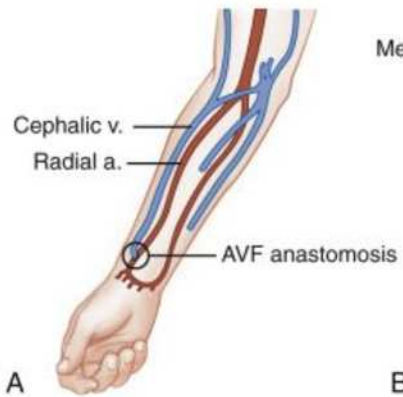
AV natiivfistli anastomoosi tüübid

- Veeni külg arteri küljega
- Veeni ots arteri küljega
- Arteri ots veeni küljega
- Veeni ots arteri otsaga

Kõige sagedasem tüüp

Brescia-Cimono



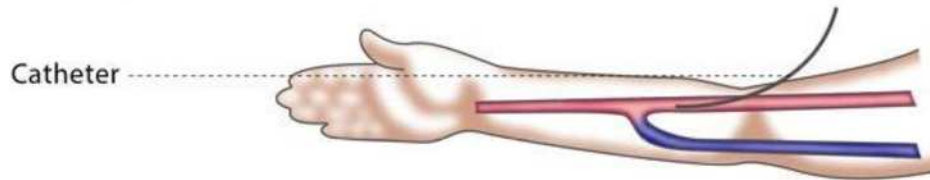


- **Radiotsefaalne**
- **Brahiotsefaalne**
- **Brahiobasilaarne veeni transpositsiooniga**

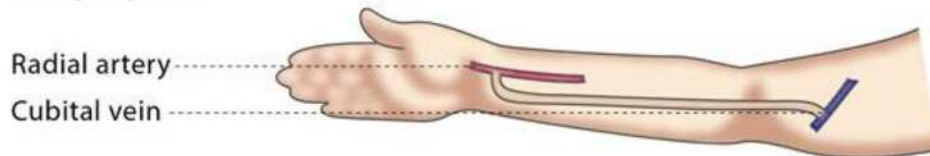
AV graft'id

Kõige sagedamini kasutatakse polütetrafluoroetüleenist (PTFE) kui ei ole võimalik AV fistli rajada.

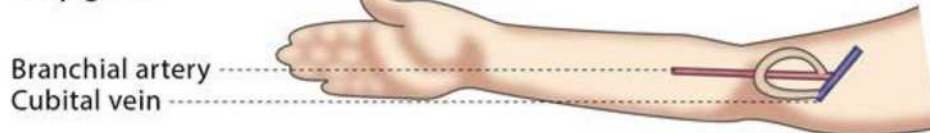
AV Fistula

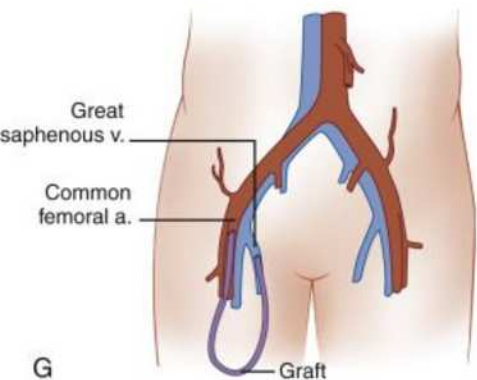
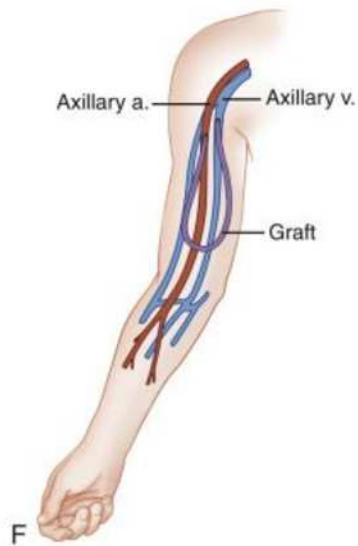
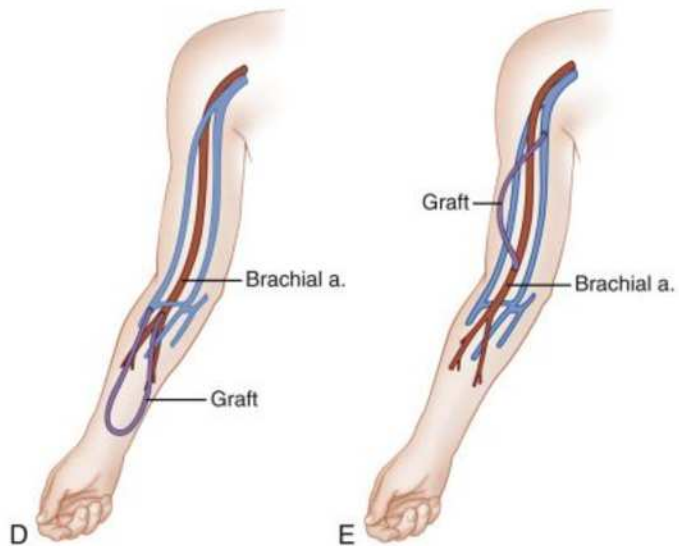


Straight graft



Loop graft





- **Küünarvarre loop graft**
- Õlavarre otsene graft
- Aksillaarne loop graft
- Reie loop graft

UH veresoontest enne AV fistli rajamist

Mittedominantne käsi, vastaspoolel kui dominanttsel käel veresooned ei sobi.

Kriteeriumid:

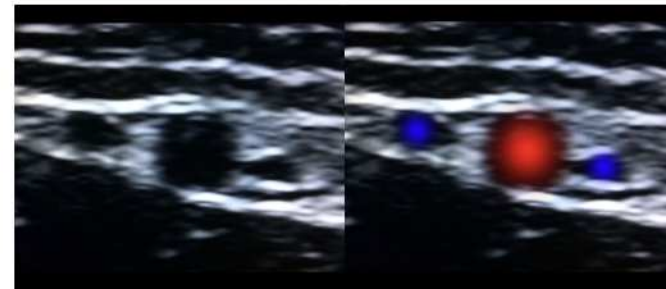
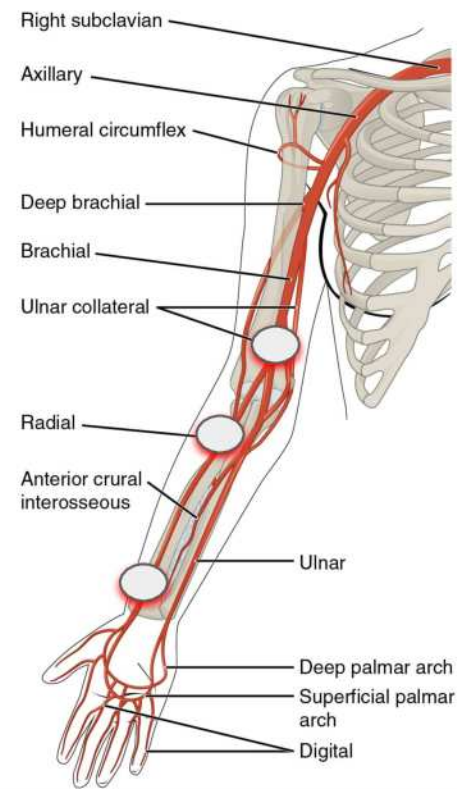
- veeni sisediameeter $\geq 2,5$ mm AV fistli puhul
- veeni sisediameeter ≥ 4 mm AV graft'i puhul
- arteri sisediameeter ≥ 2 mm

Arterite uurimine

Alates *a. axillaris*'e distaalosast kuni randmeni.

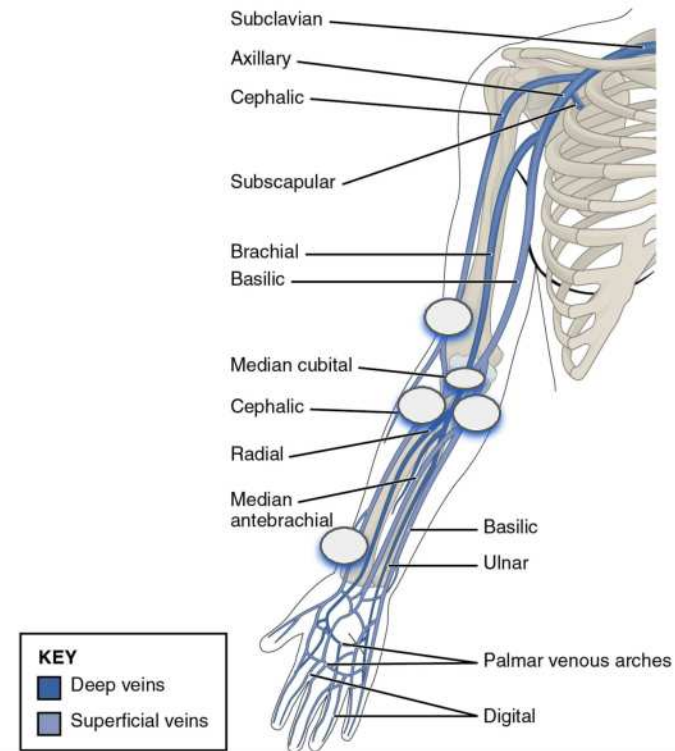
Hinnata:

- *a. radialis*'e sisediameetrit küünarvarre proksimaalosas ja distaalosas
- *a. brachialis*'e distaalosa sisediameeter
- stenoos?



Veenide uurimine

- *v. cephalica* sisediameeter: õlavarre distaalosa, küünarvarre proksimaalosa, randme piirkond
- *v. basilica* sisediameeter: küünarvarre proksimaalosa
- *v. mediana cubiti* sisediameeter
- tromboos?



HEA AV FISTEL “the Rule of 6”

> 6 mm veeni sisediameeter

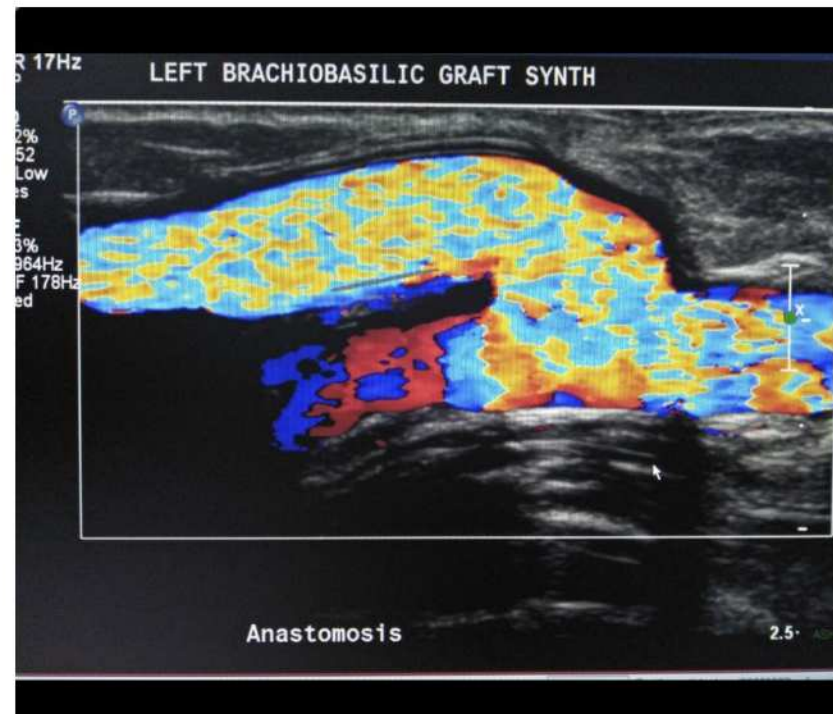
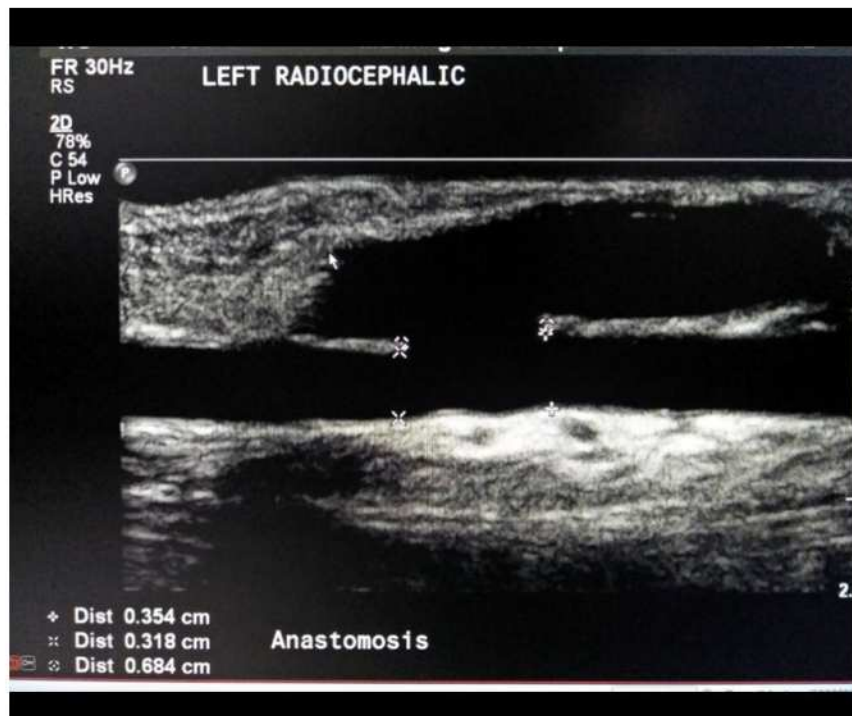
> 600 ml/min

< 6 mm nahast sügavamal

AV natiivfistli hindamine alates 6 nädalat
peale rajamist

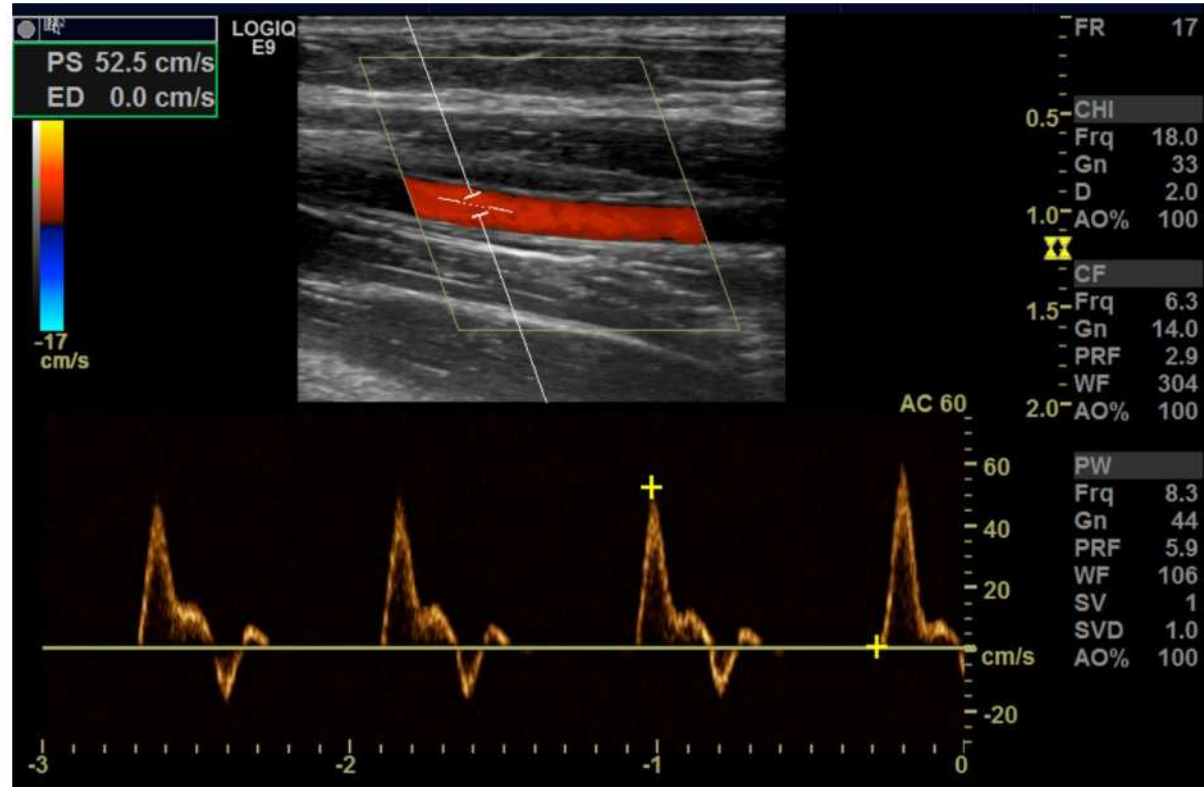


Kuidas UHs näeb välja?



Normaalne voolugraafik. Arter

Trifaasiline verevool

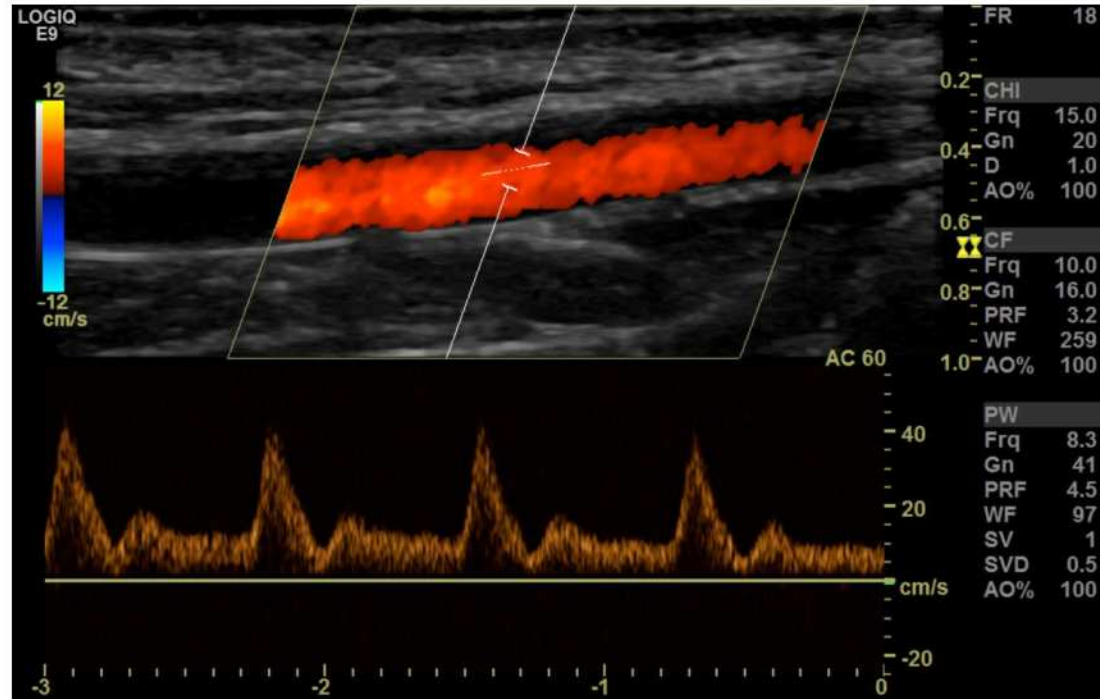


Normaalne trifaasiline verevool
a. radialis'es

Normaalne voolugraafik. Arter, reaktiivne hüperemia

Patsient hoiab käsi rusikas 2 min jooksul, siis laseb lahti

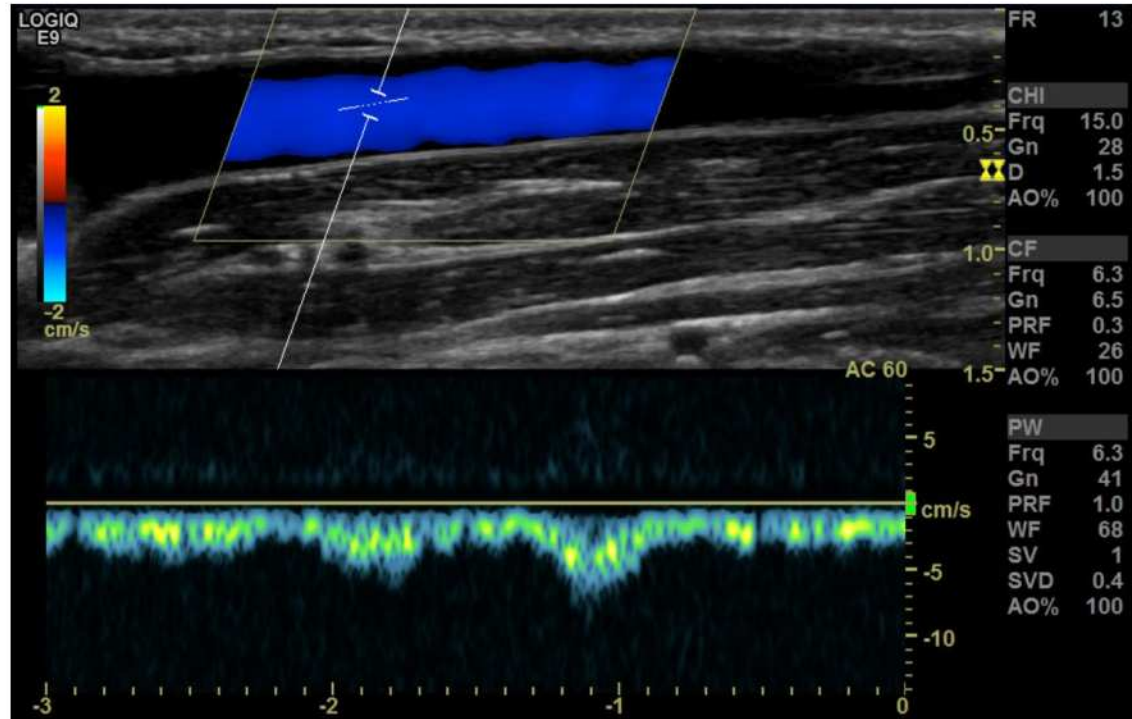
Bifaasiline verevool



a. *radialis*'e hüperemia

Normaalne voolugraafik. **Veen**

Monofaasiline

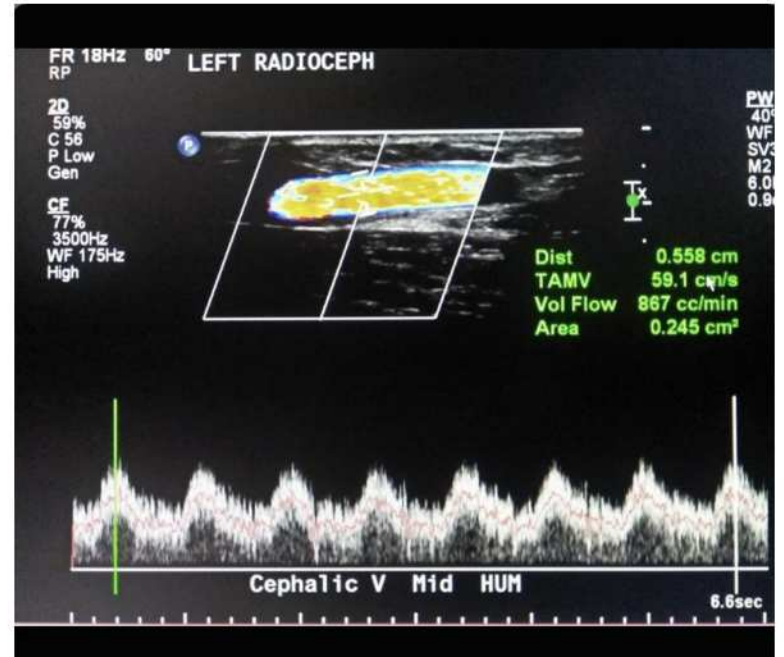
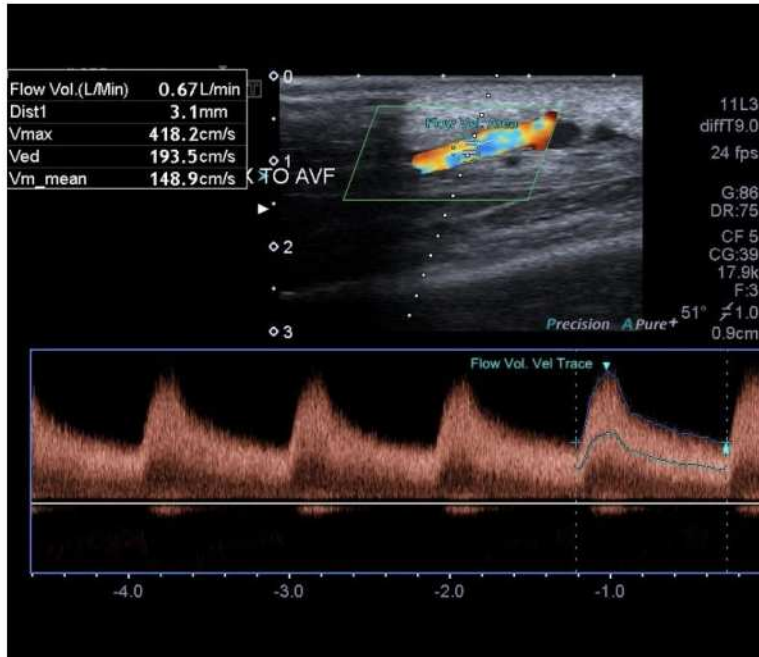


Normaalne voolugraafik v. *cephalica*'s

AV fistli voolugraafikud

Toitev arter (ka AV graft'is) - monofaasiline

Äravoolu veenid - pulseeriv, turbulentne



Tüsistused

- Stenoos
- Tromboos
- Aneurüsm
- Pseudoaneurüsm

Ka:

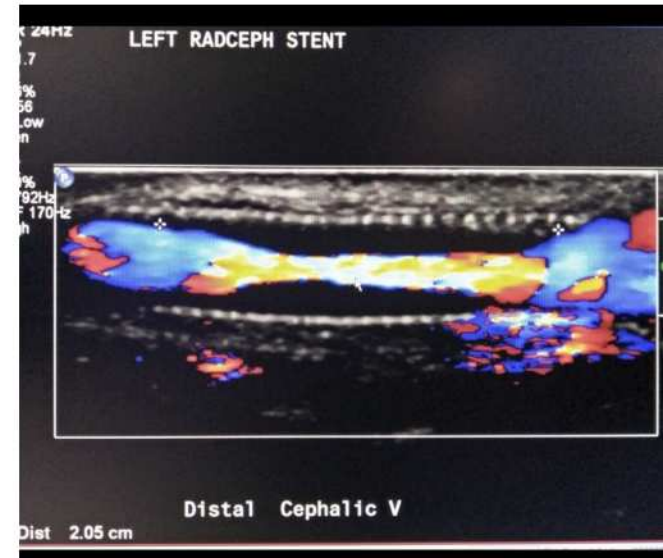
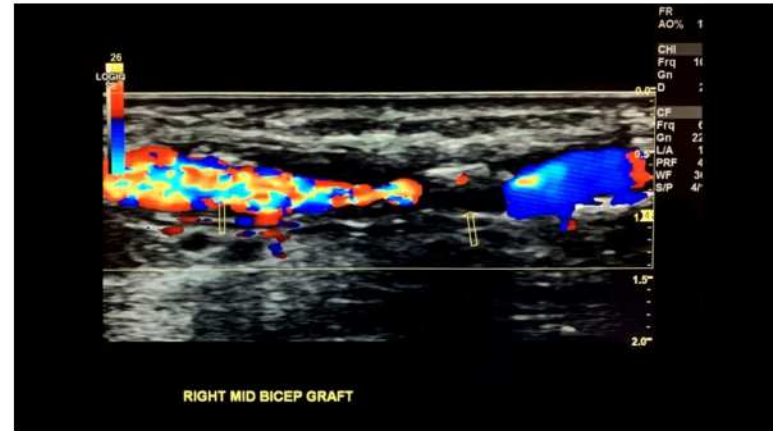
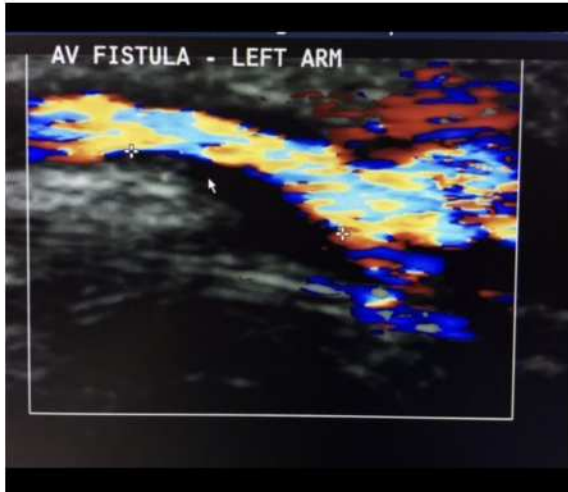
- Hematoom
- Infektsioon

Stenoos

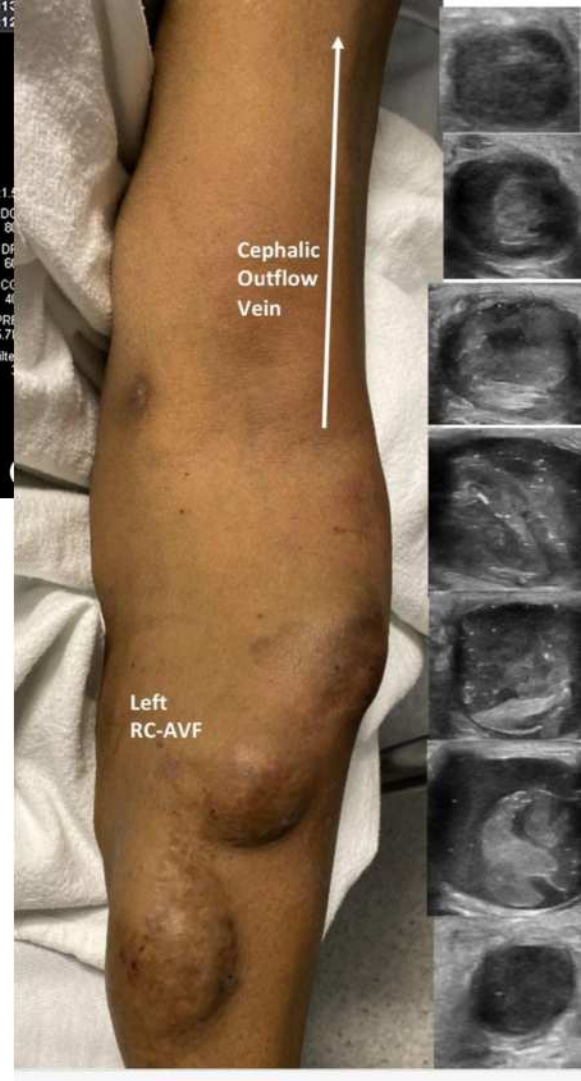
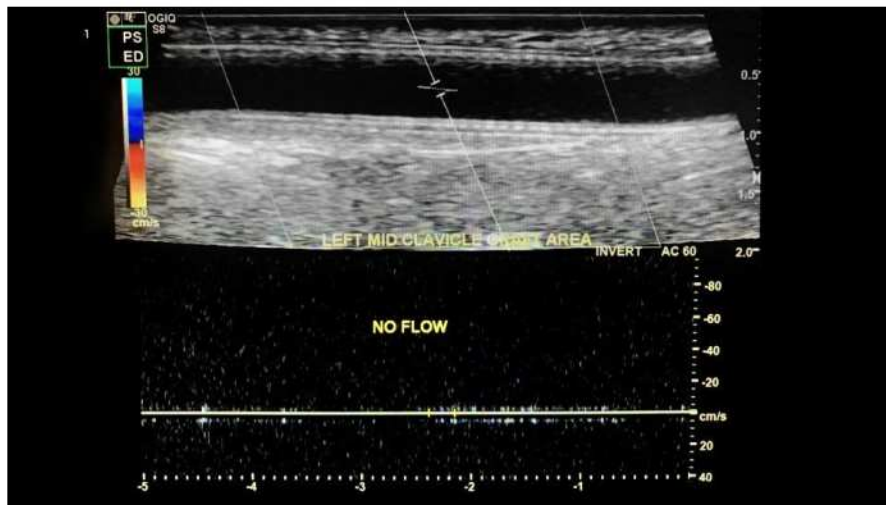
Radiotsefaalse fistli puhul tavaliselt ~2 cm
anastomoosist proksimaalsele

Intima hüperpaasiast, korduvast kanüleerimisest

AV graft - tavaliselt graft'i ja veeni anastomoosi kohal



Tromboos

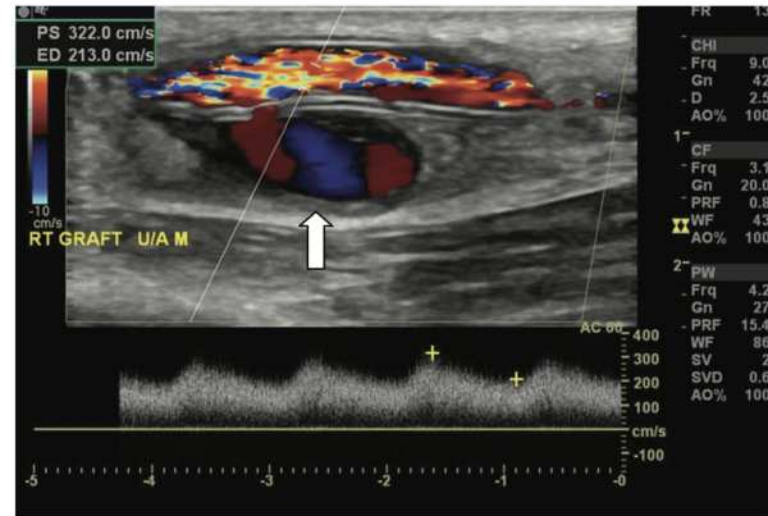
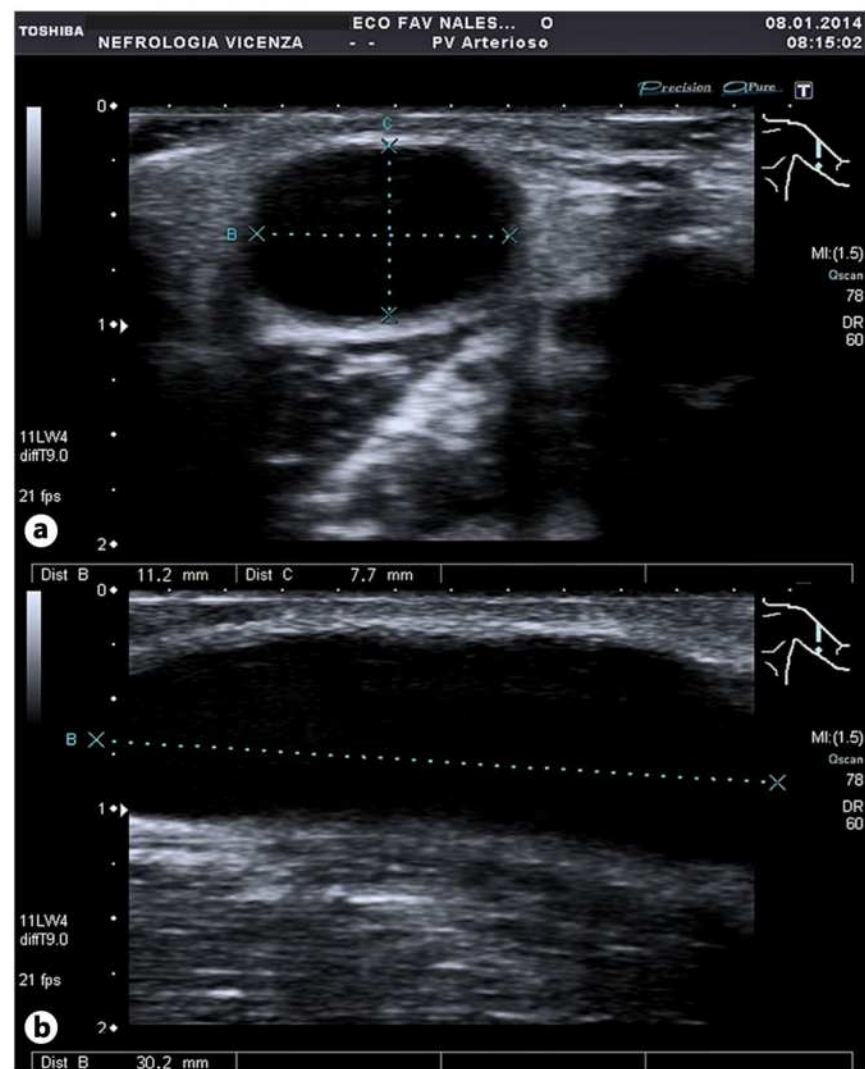


Aneurüsm ja pseudoaneurüsm

Korduvatest punktsioonidest

Aneurüsm - AV fistel, veenis

Pseudoaneurüsm - AV graft



Täna tähelepanu eest!

Kasutatud kirjandus

Ultrasoundpaedia

D. E. Finlay, D. G. Longley, M. C. Foshager, J. G. Letourneau. Duplex and Color Doppler Sonography of Hemodialysis Arteriovenous Fistulas and Grafts. Radiographics

P. Zamboli, F. Fiorini, A. D'Amelio, P. Fatuzzo, A. Granata. Color Doppler Ultrasound and Arteriovenous Fistulas for Hemodialysis.

K. Seer ja G. Vanakesa poolt koostatud PERHi juhend (UH käe arteritest ja veenidest enne AV fistli rajamist)