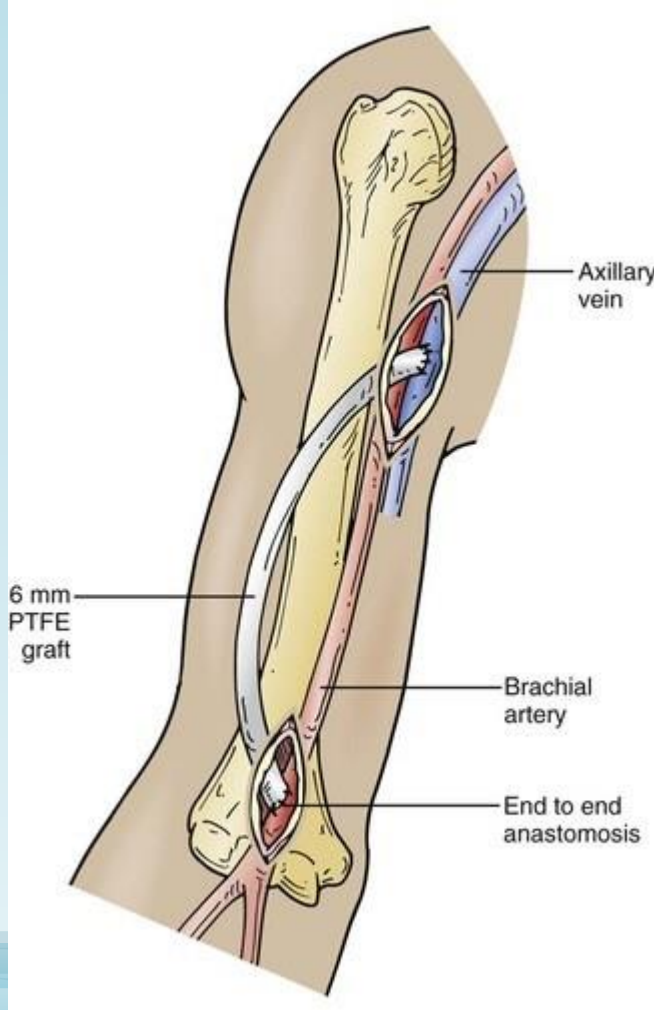
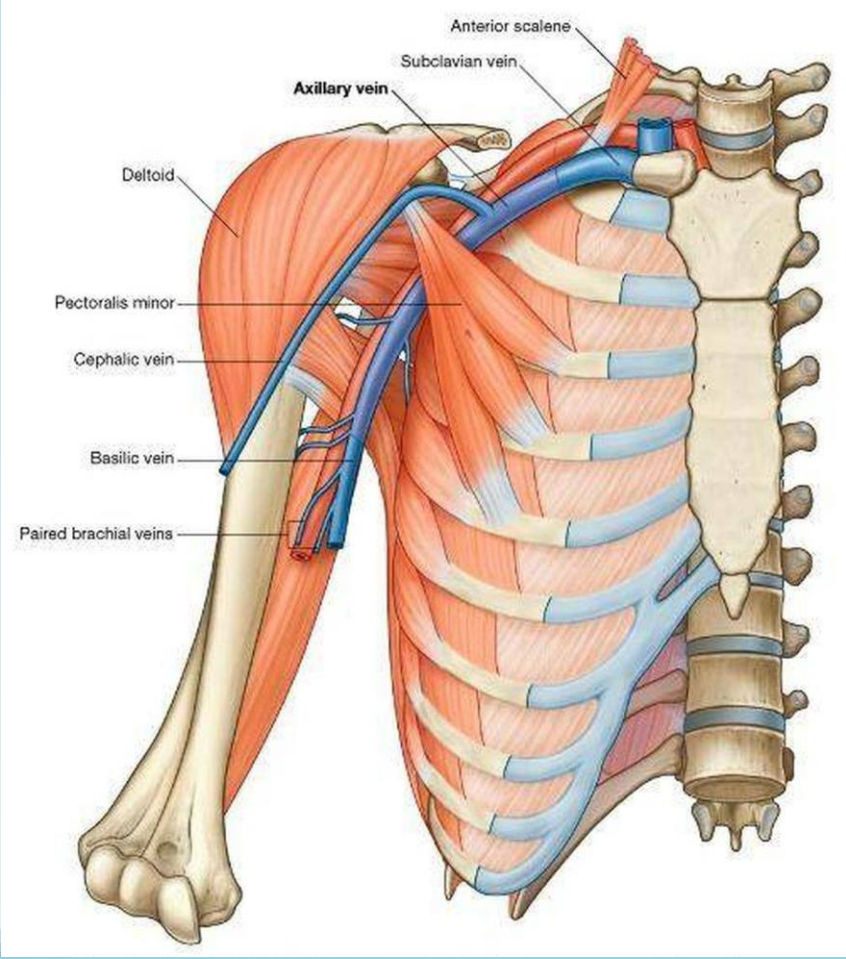
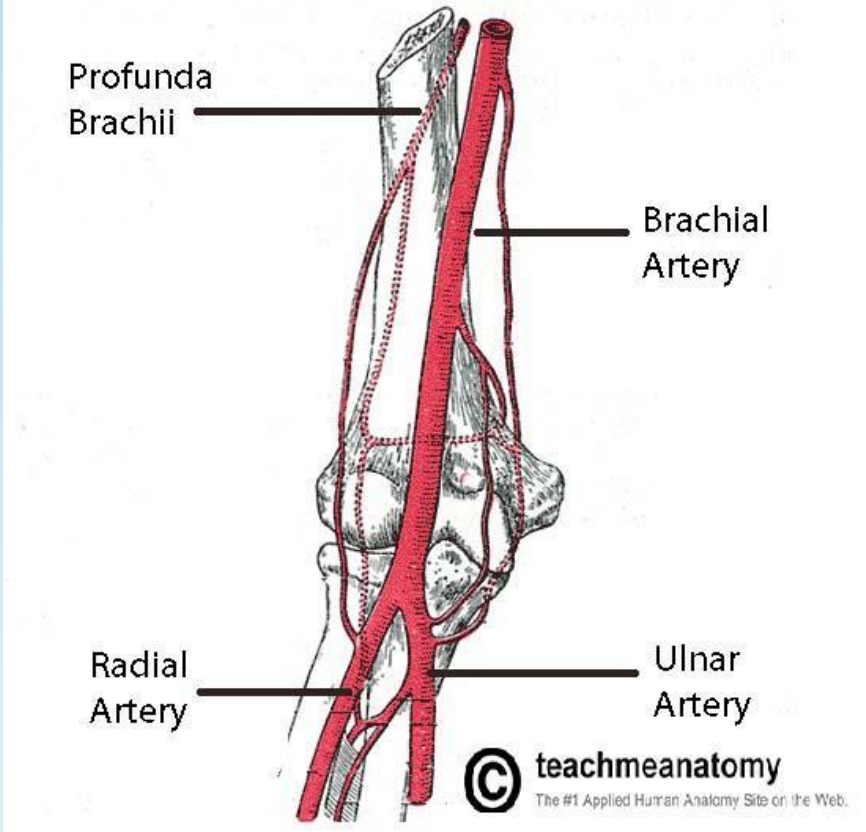


Venous anastomosis stenosis in Brachial-axillary AVG: is there any better option

DR. SUPACHOK MASPAKORN
CHIANG-RAI PRACHANUKROH HOSPITAL

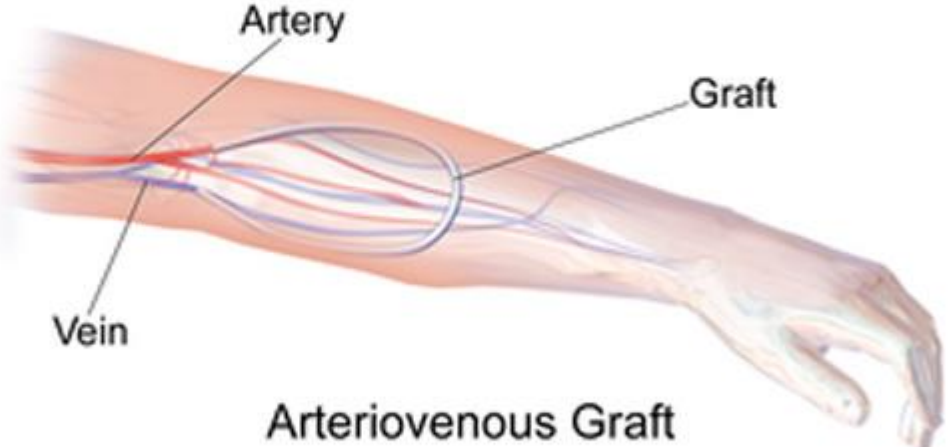
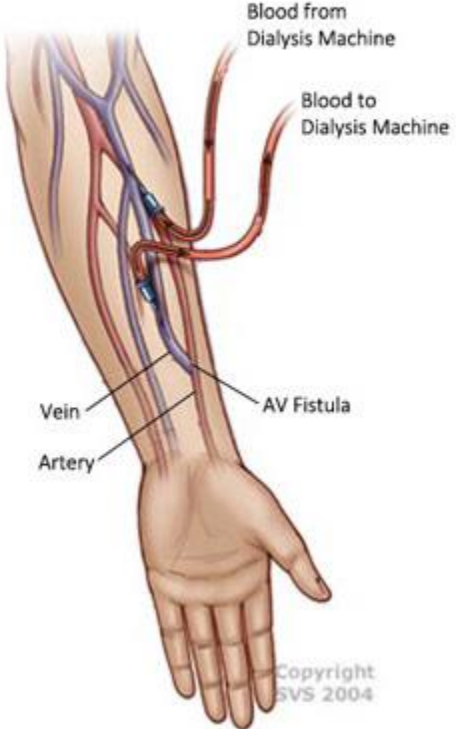
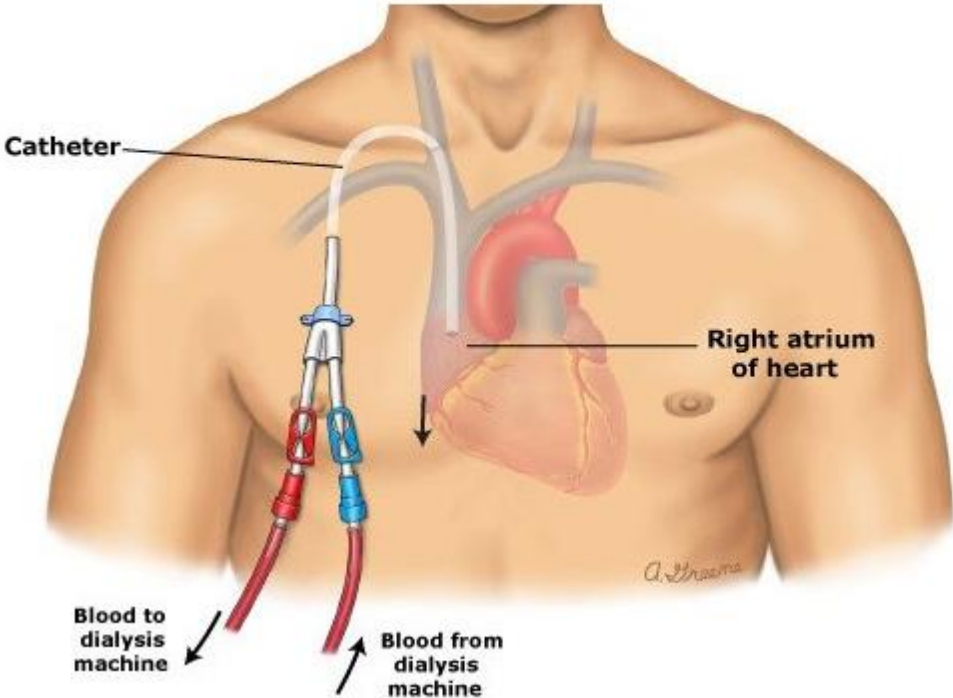
Brachial-Axillary AV graft

- Most common configuration



Because of "Nothing lasts forever"

AV Fistula For Dialysis



Copyright SVS 2004

The National Kidney Foundation Kidney Disease Outcomes Quality Initiative (KDOQI)

- These guidelines emphasize **autogenous AV access**.
- The patency rate for **AVF should be > 3 years** with thrombosis rates of <0.25 episodes/year and infectious <1% over the lifetime of the access.
- The patency rates for **AVBG should be > 2 years** with a thrombosis rate <0.5 episodes/year and an infection rate of <10% over the lifetime of the access.

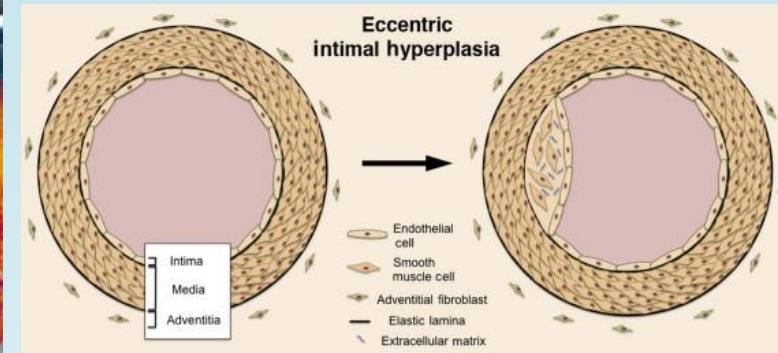
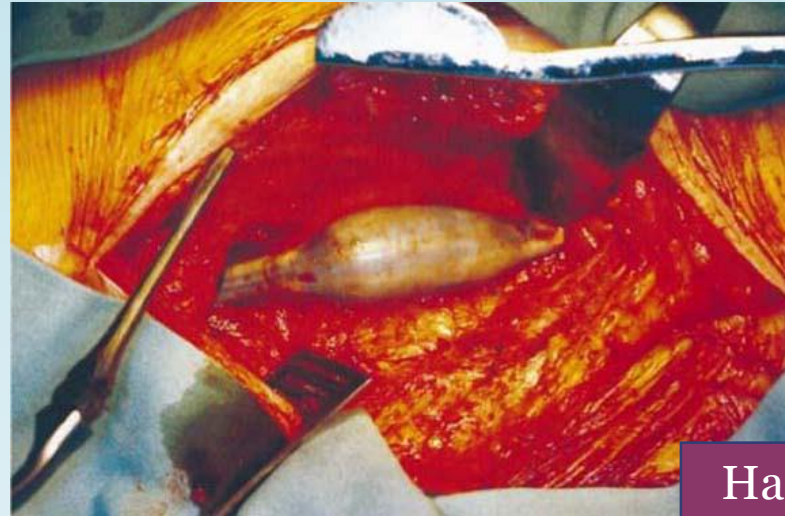
Study from Dixon BS, showed 77% develop graft thrombosis within 1 year
N J Med 2009

What are the causes?

Central vein stenosis (2%)

Graft infection (15%)

Neointimal hyperplasia

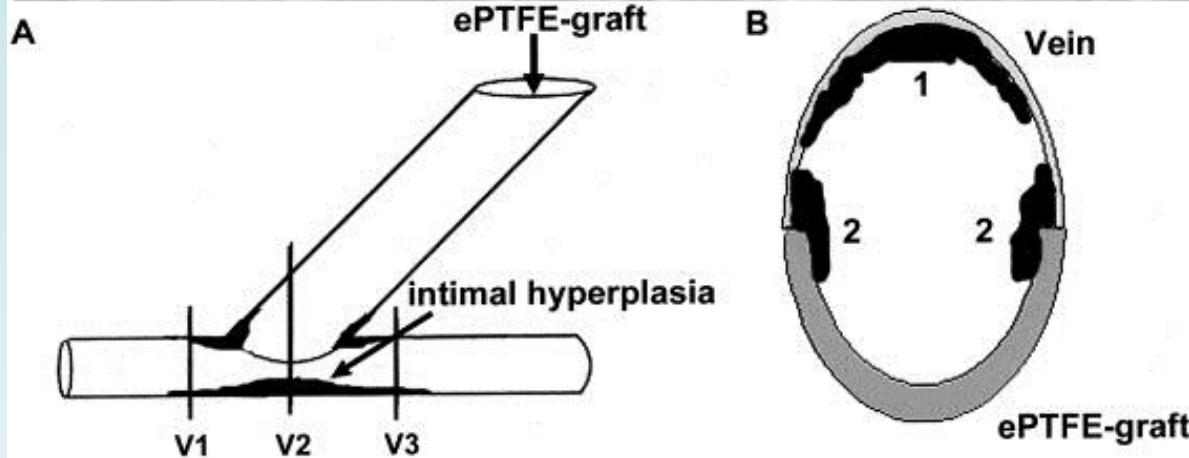
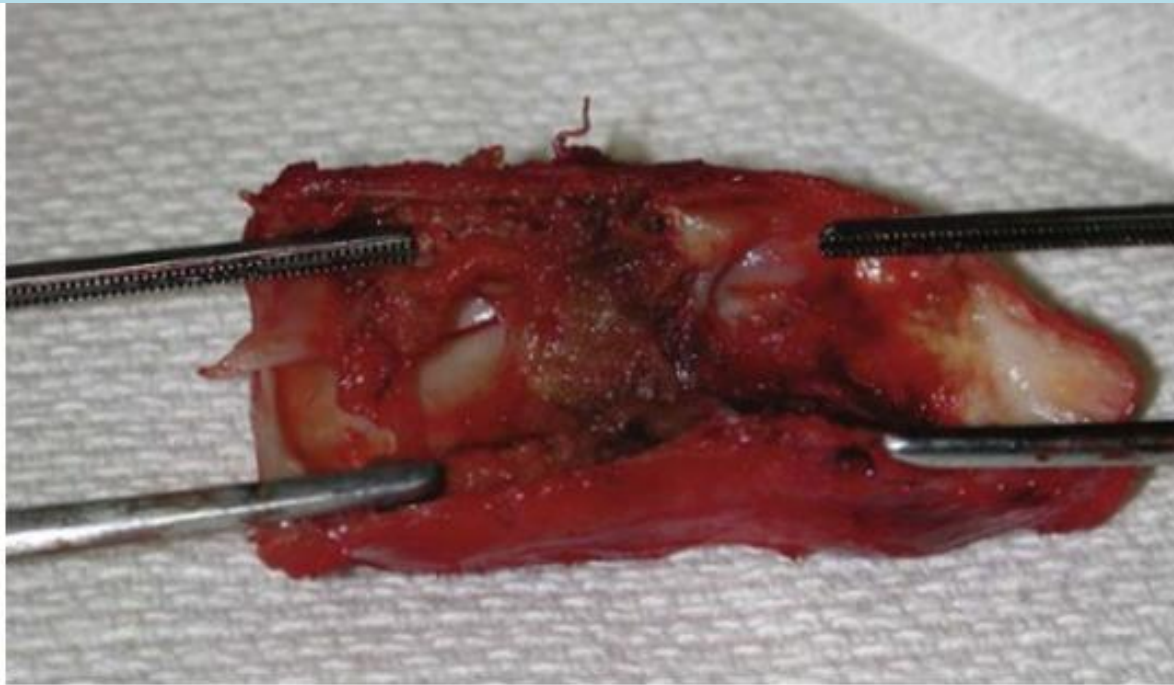


Harms JC et al; 90% of thrombosed AV graft are from stenotic vascular lesion, mostly from neointimal hyperplasia

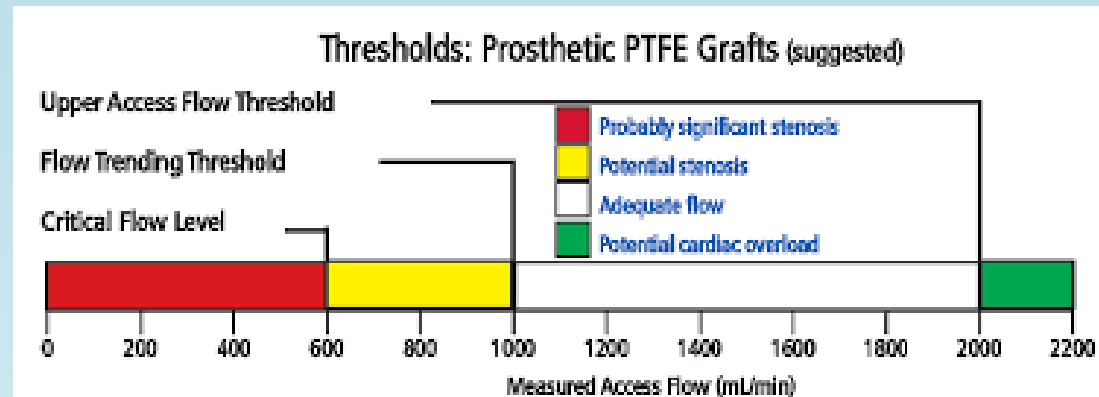
J Vas Surg 2016

Intimal hyperplasia (IH)

- The flow disturbances and hemodynamic changes associated with an AV access can initiate an IH response.
- IH occurs at **the venous outflow anastomosis of AVBG (60%)** and anywhere along the outflow vein in native AVF.
- IH can involve the distant, ipsilateral central veins (e.g., subclavian), even in the absence of previous indwelling catheters.



Clinical manifestation



- K/DOQI and European: critical level 600 cc/min
- Trending threshold: 1000 cc/min + decrease by > 25% over 4 months
- Potential for cardiac overload: > 2000 cc/min

1. Absence thrill
2. Edema distal to graft
3. Difficult cannulation
4. Increase pressure
5. Excessive access bleeding
6. Re-circulation
7. Decrease flow

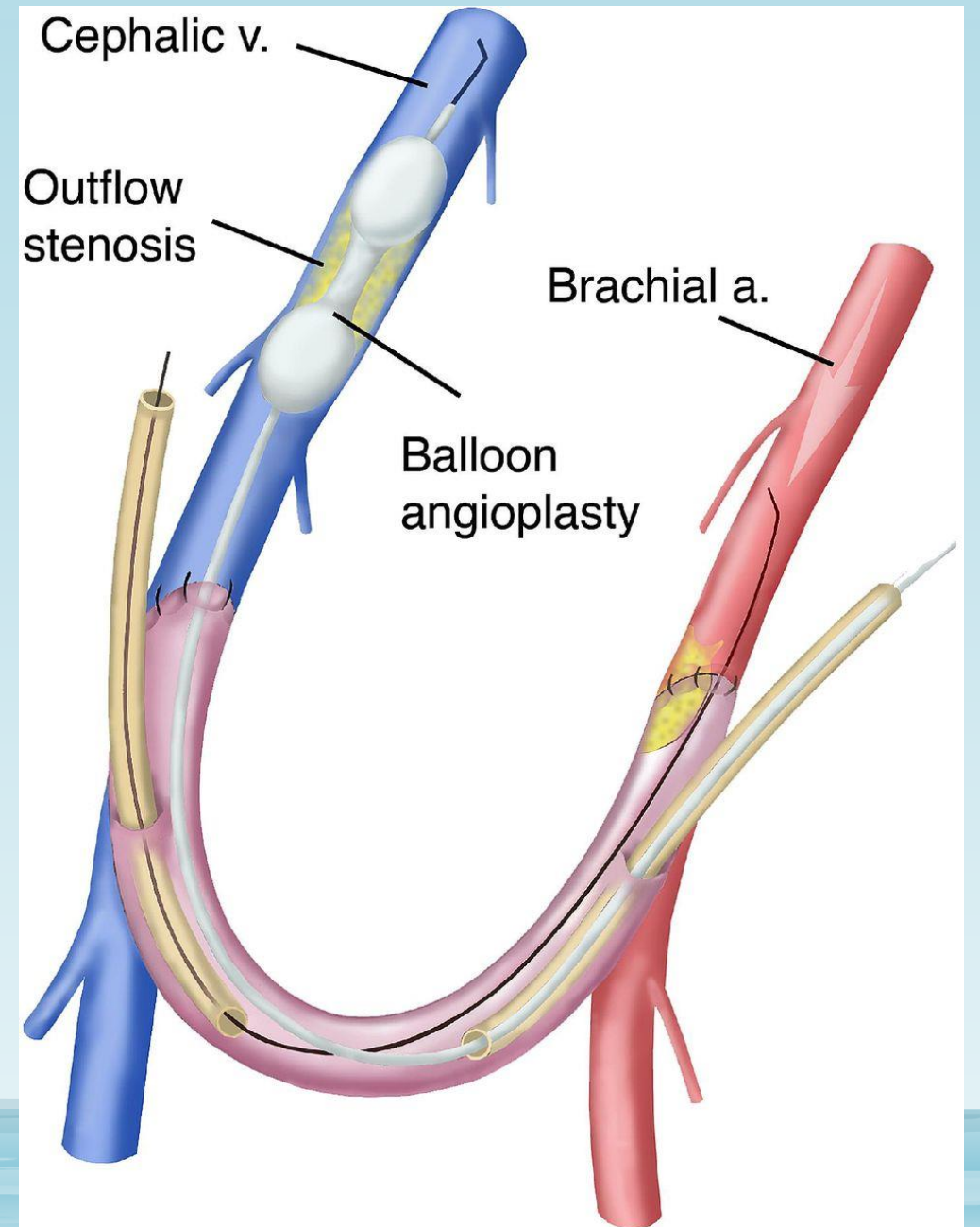
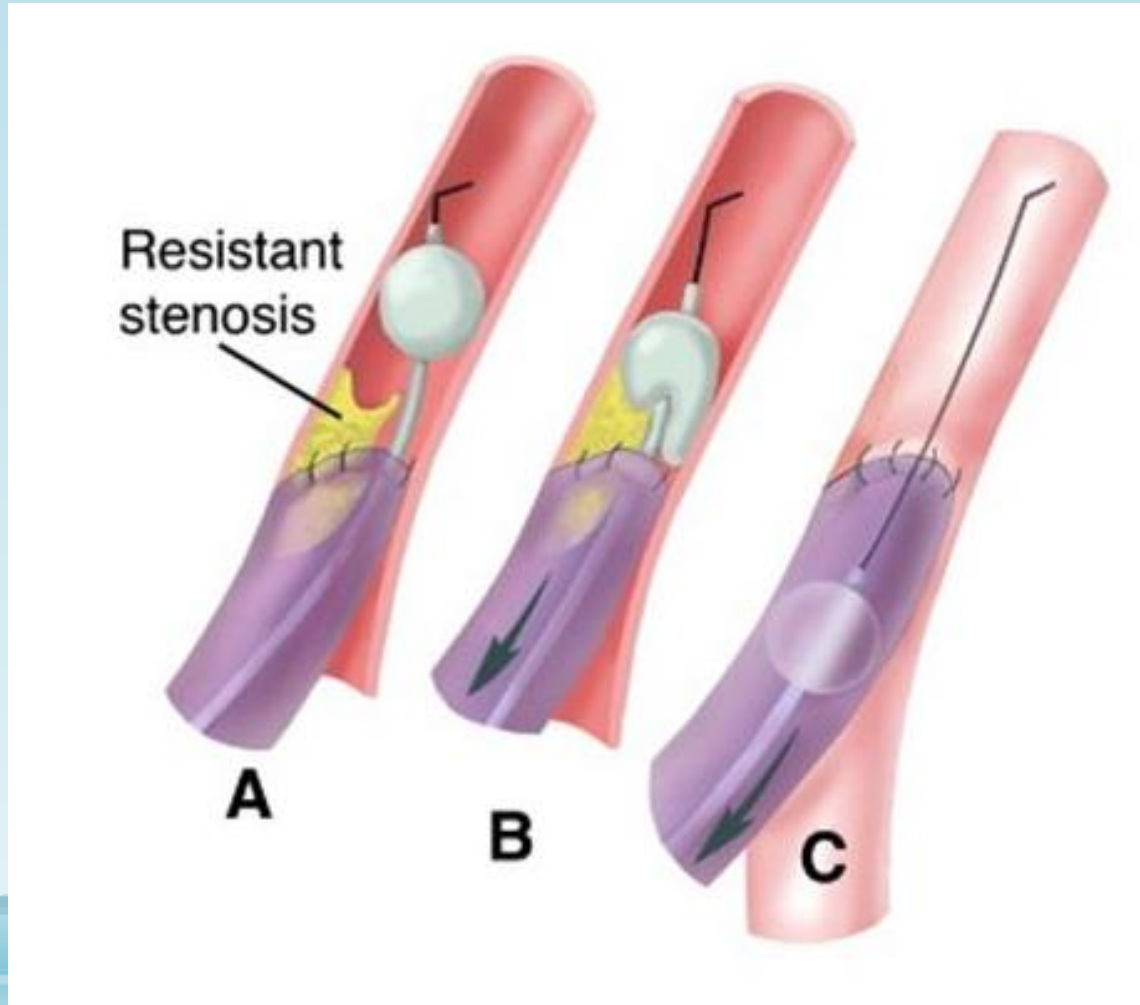
21% found abnormalities on physical examination and 49% showed during dialysis sessions
Kidney int 2006

Modalities of treatment

- Surgical revision
- Percutaneous angioplasty with or without stent
- Surgical thrombectomy
- Percutaneous thrombolysis

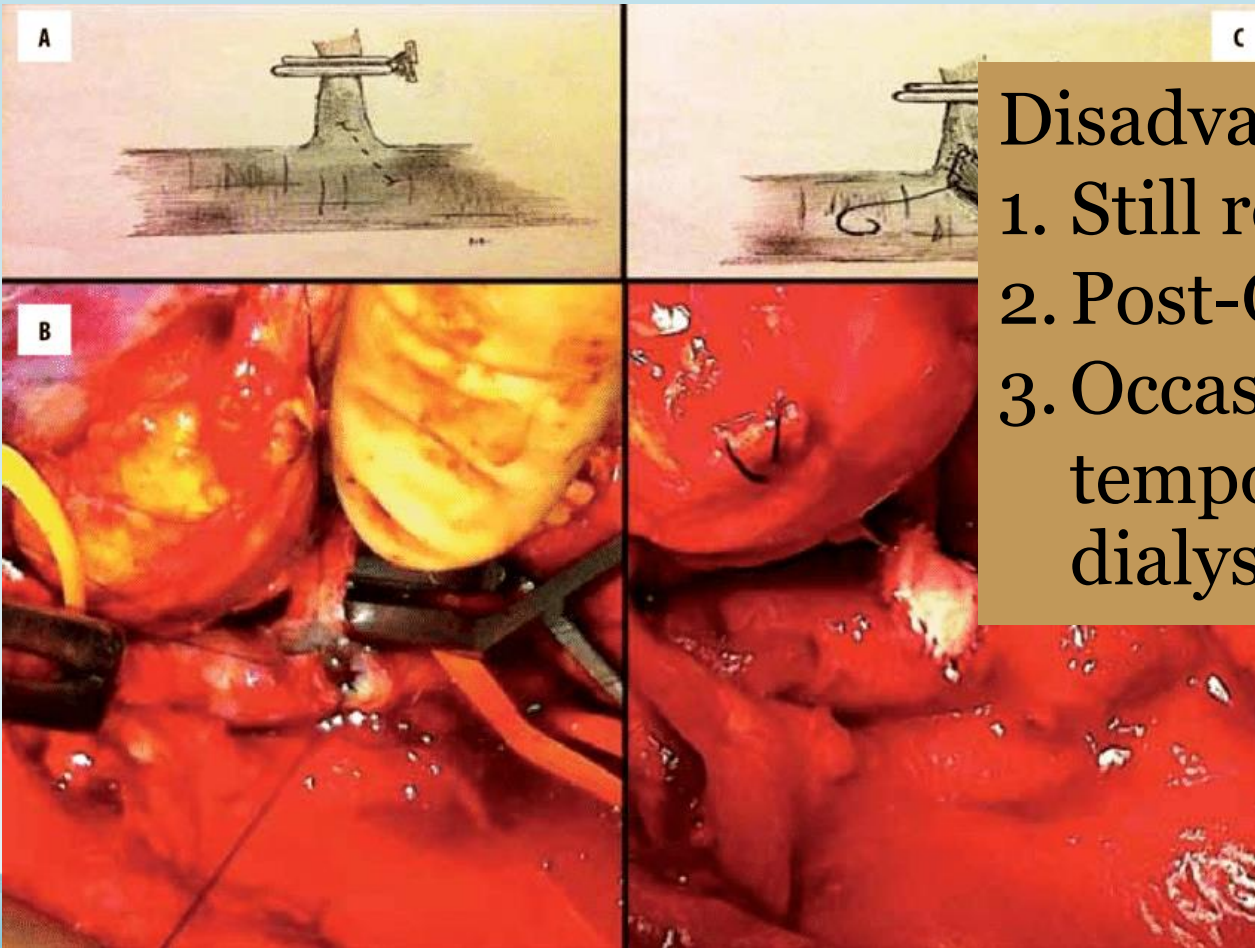


Management: balloon thrombectomy



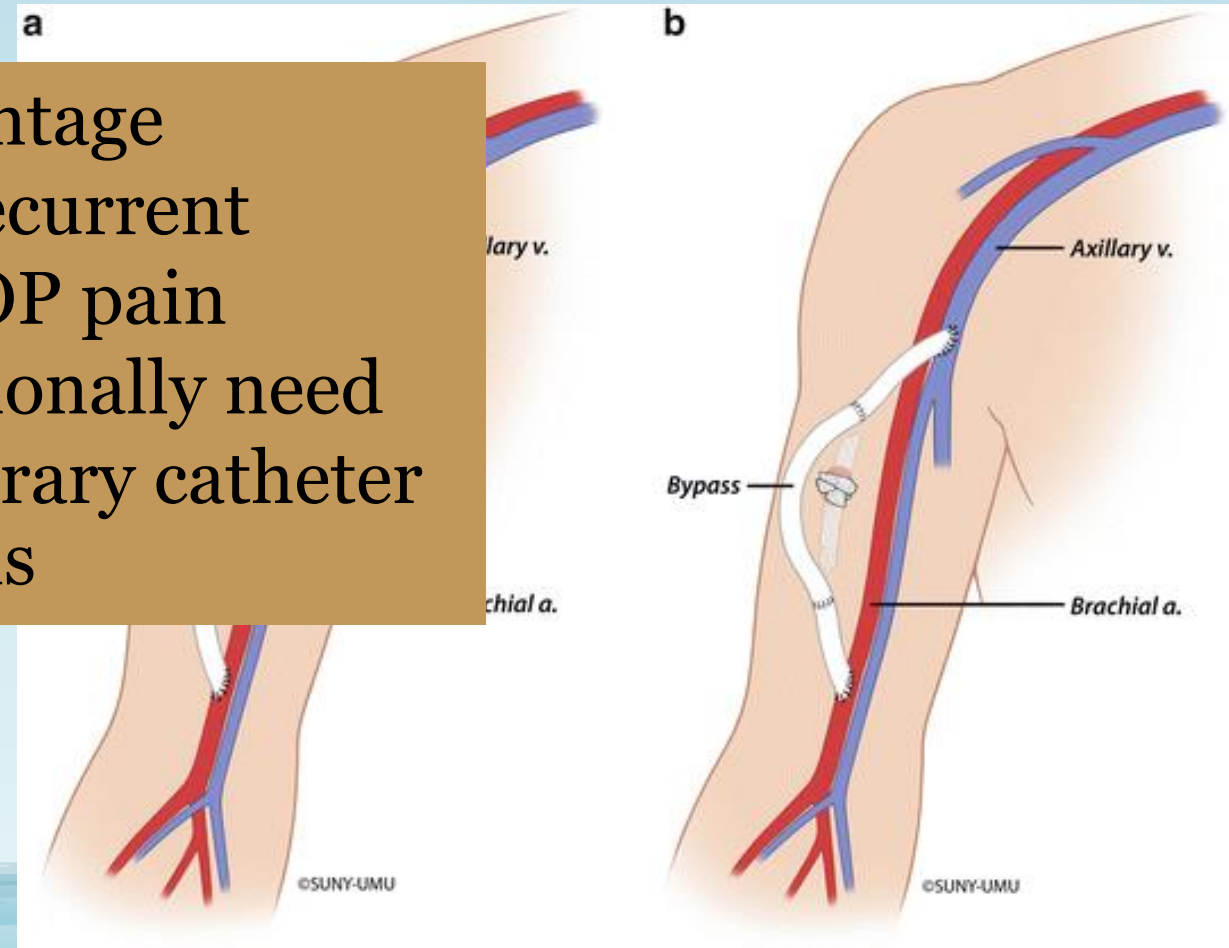
Management: revision to stenosis

- Patch angioplasty



Disadvantage

1. Still recurrent
2. Post-OP pain
3. Occasionally need temporary catheter dialysis



Clinical significant stenosis

> 50% OF DIAMETER NARROWING + ABNORMAL CLINICAL FINDING: DECREASE FLOW OR ELEVATED STATIC PRESSURE

Up to date: we suggest preemptive angioplasty for the treatment of clinically significant stenosis affecting AV grafts for the reasons it safe, effective and easily perform.

- *Over an eight-year period in one study, an intensive graft maintenance protocol using angioplasty reduced the thrombosis rate by 70 percent*
- *In another study, a graft surveillance program using angioplasty decreased the graft thrombosis rate from 48 to 17 percent over a six-year period*

Prevention

Conclusion

- AV graft dysfunction and failure beyond the post-operative period (delayed graft failure) is predominantly related to stenotic vascular lesions mostly at venous outflow anastomosis).
- Most cases of AV graft thrombosis can be documented by access surveillance or clinical monitoring.
- Stenotic vascular lesions can be treated percutaneously with angioplasty, or with surgery.
- For patients identified with stenosis of hemodialysis access grafts, we recommend preemptive percutaneous angioplasty rather than surgery **as the initial procedure**.
- Once thrombosis of an AV graft has occurred, treatment options include percutaneous or surgical thrombectomy, in conjunction with angioplasty (balloon, patch) of any identified underlying stenotic lesions.

Thank you for your
attention