WELCOME *To the*

2026 SYMPOSIUM

Declotting AV Grafts How I Do It Interventional Radiology

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University of Utah

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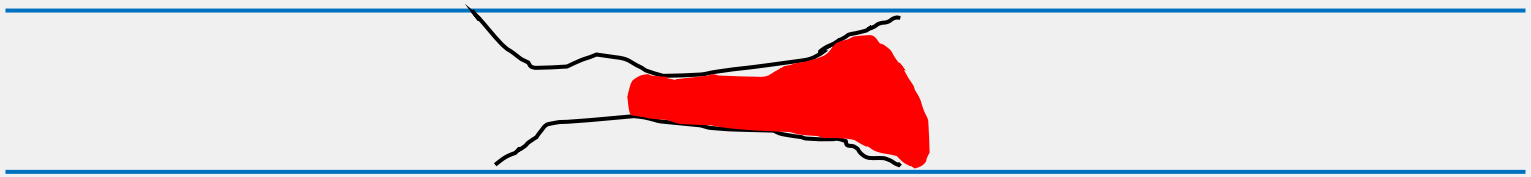
Stepwise approach

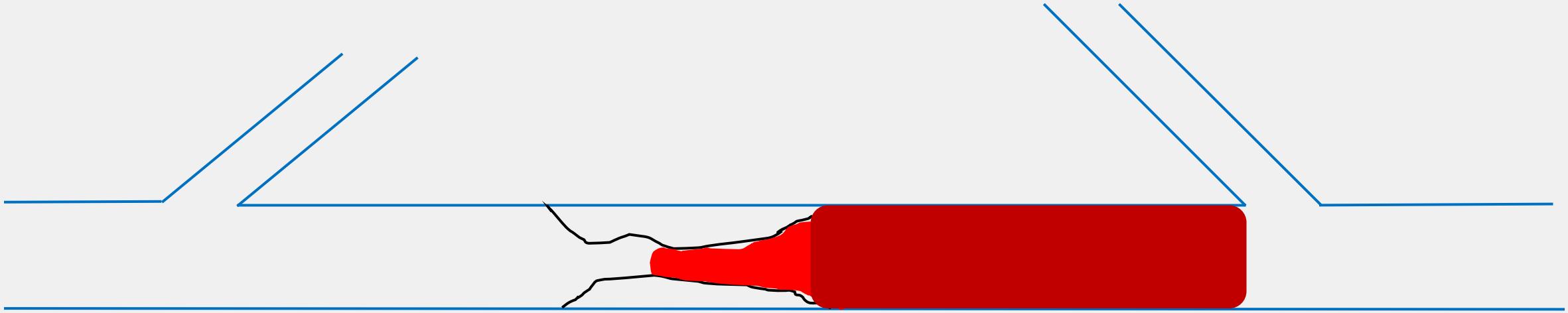
- Define clot burden
- Eliminate clot
- Determine and treat anatomic cause of thrombosis

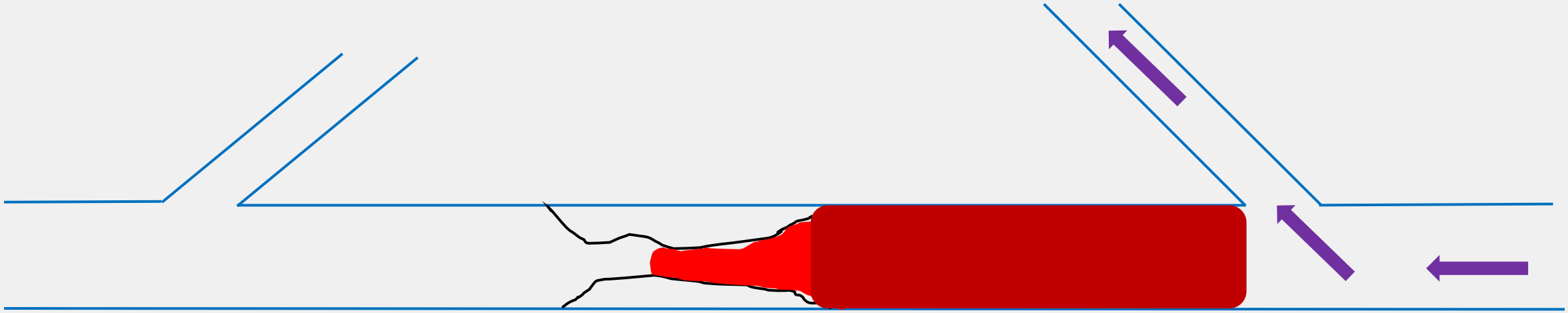
Clot burden

- Clot may START at area of narrowing, but it rarely ENDS there











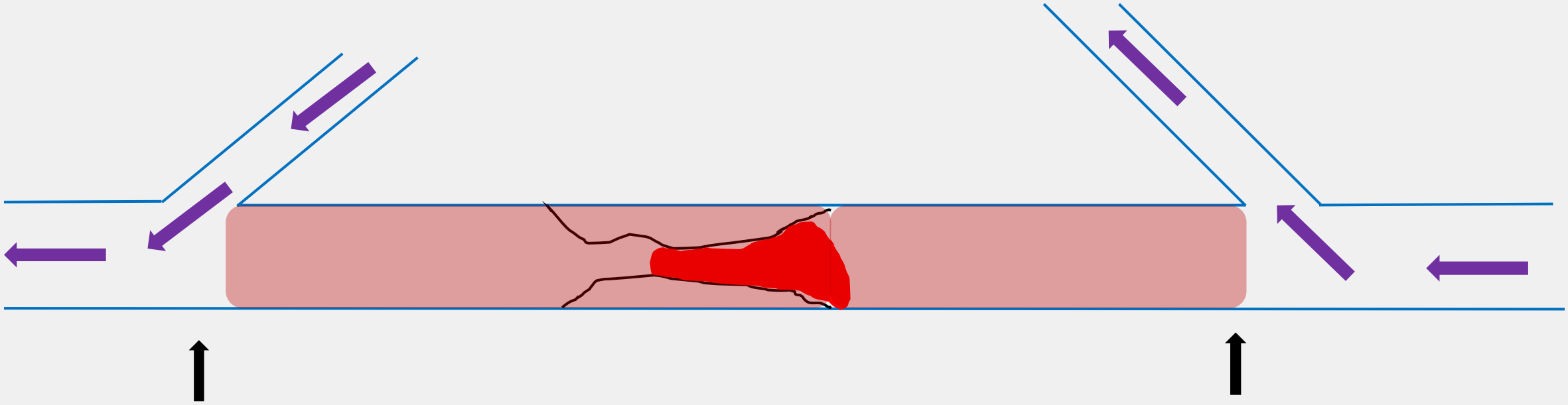






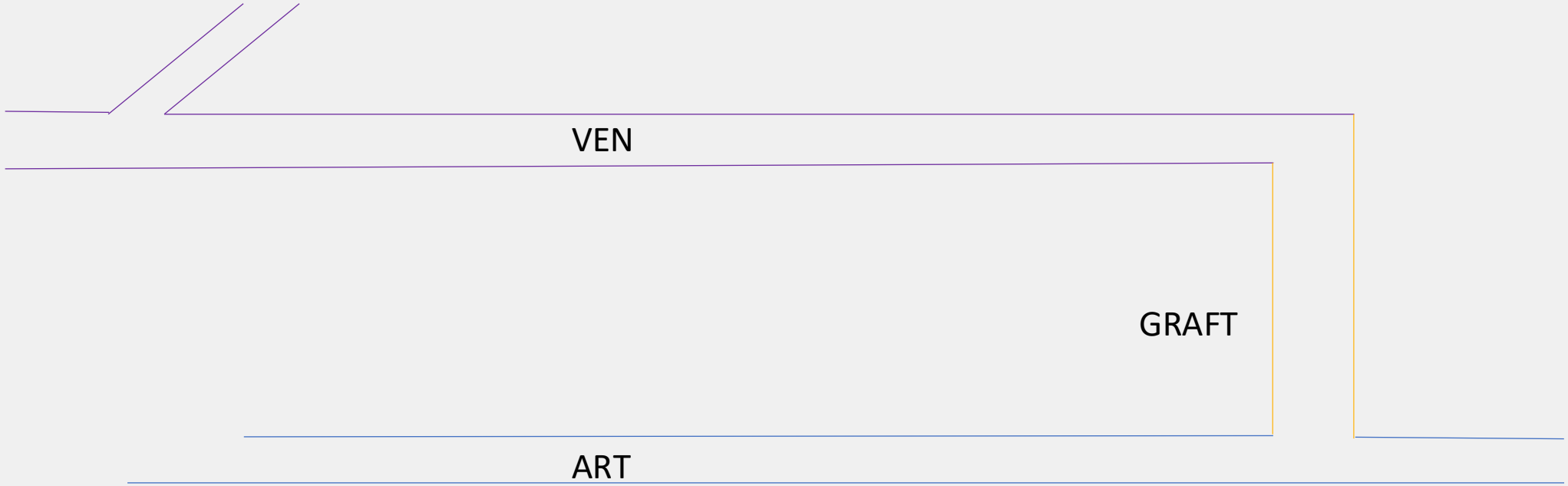
AVG:
Native venous
inflow

AVG:
Arterial
anastomosis



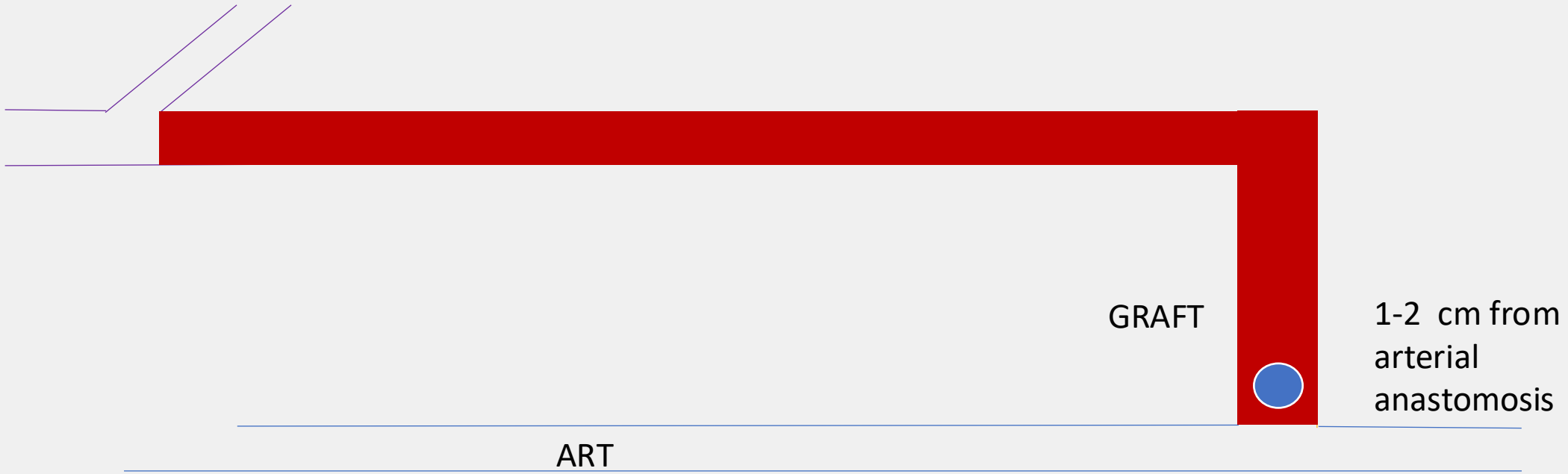
AVG:
Native venous
inflow

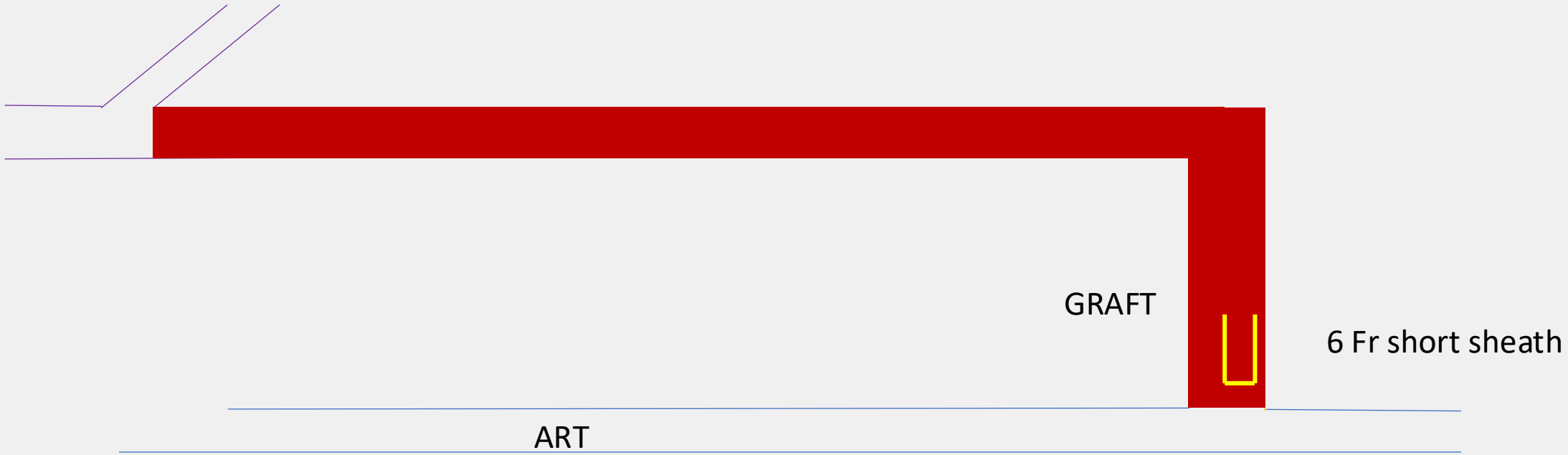
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Arterial
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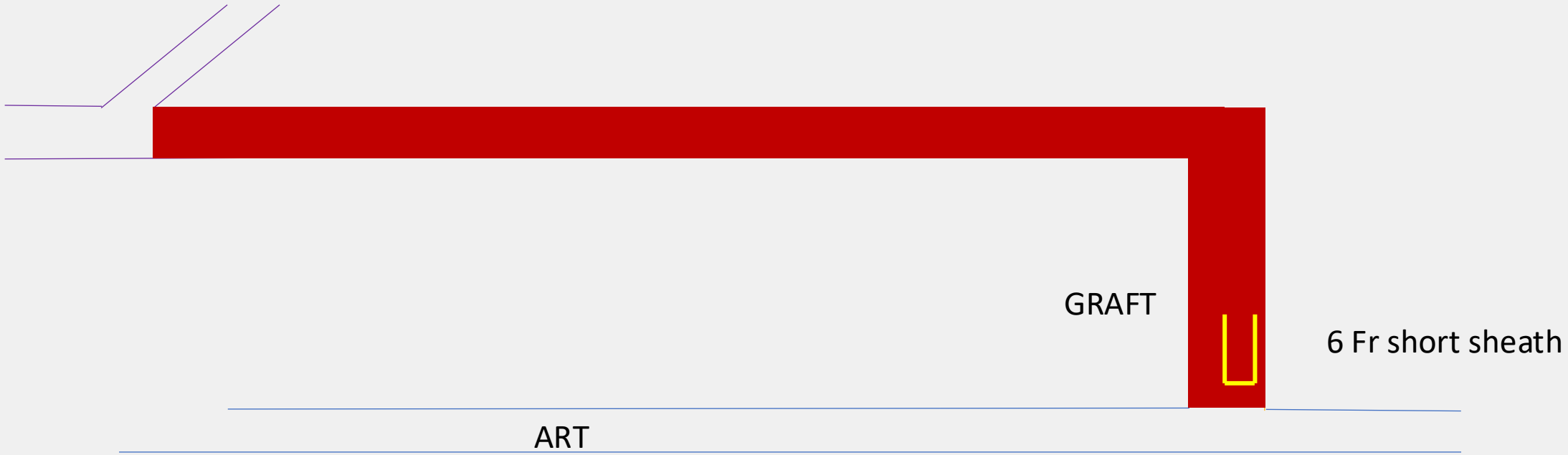

VEN
GRAFT
ART

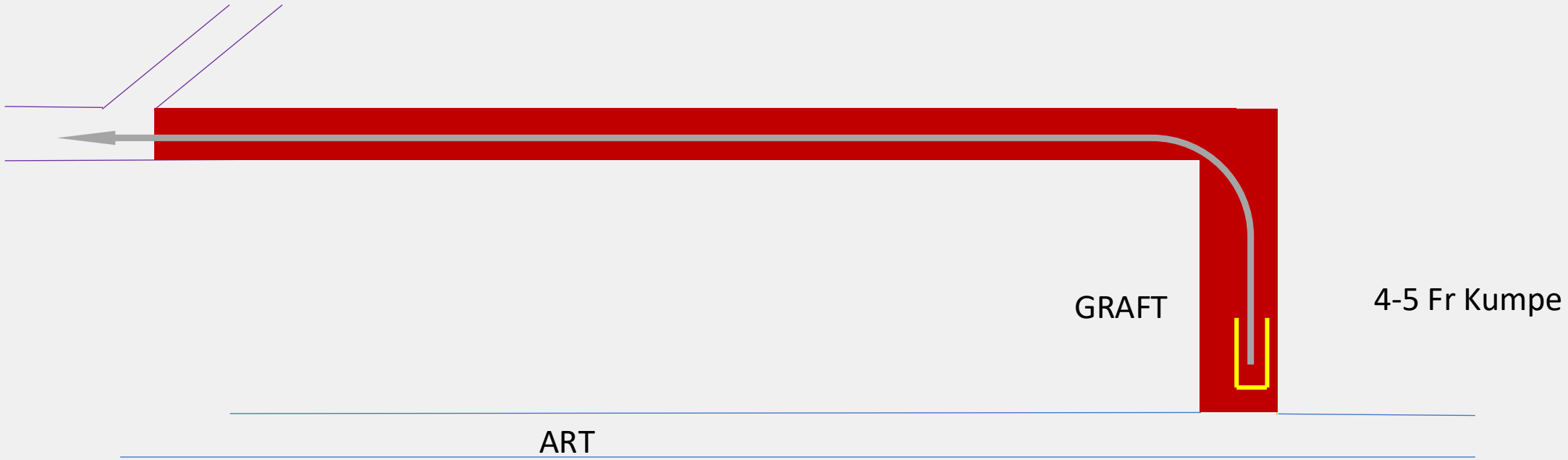
Stepwise approach

- Define clot burden
- Eliminate clot
- Determine and treat anatomic cause of thrombosis


GRAFT
1-2 cm from arterial anastomosis
ART

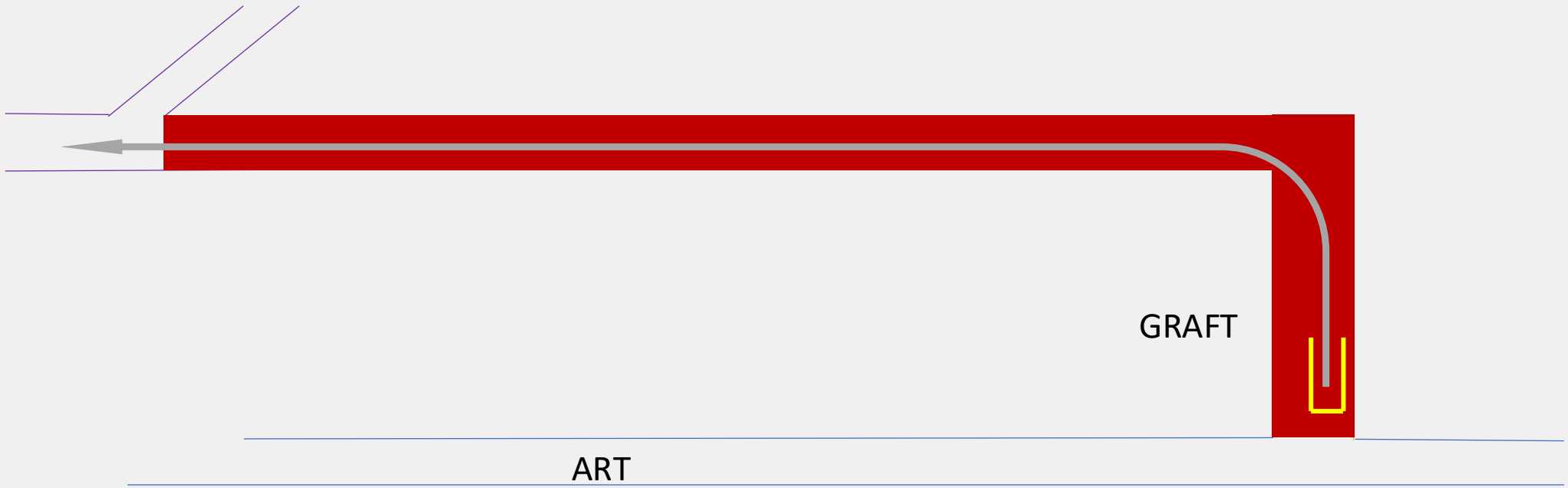

GRAFT
6 Fr short sheath
ART

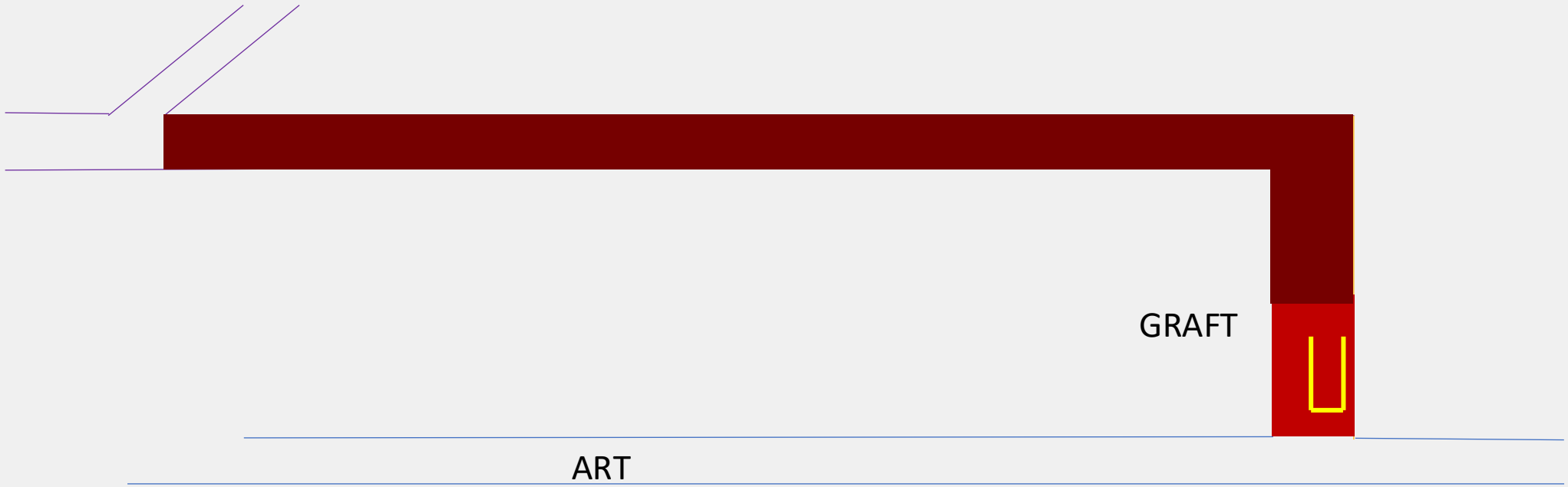

GRAFT
6 Fr short sheath
ART

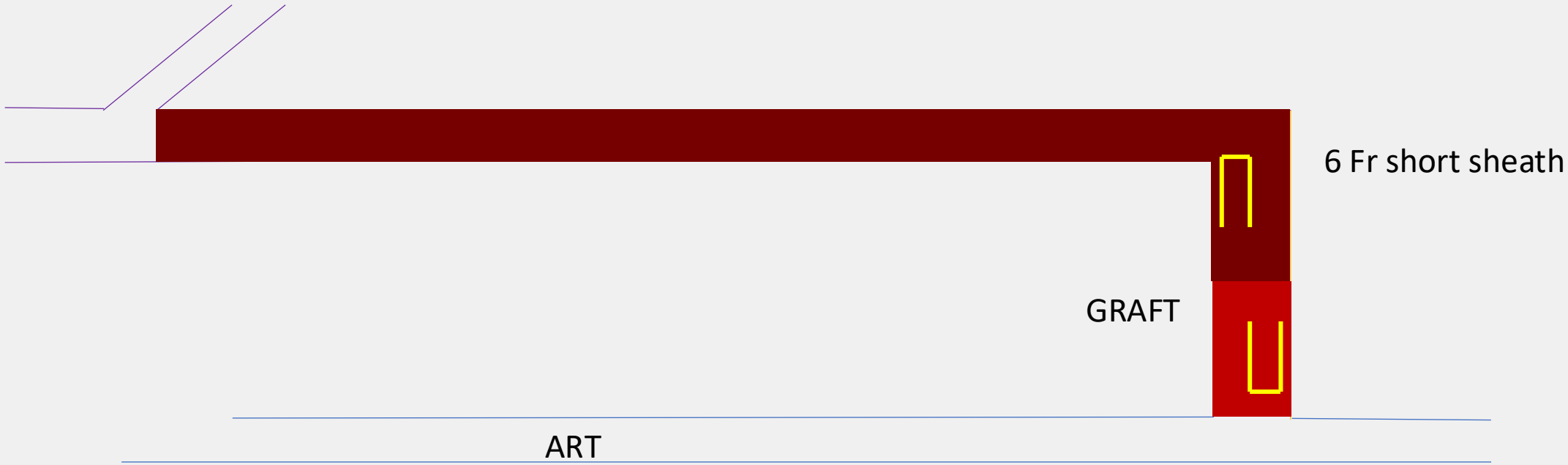

GRAFT
4-5 Fr Kumpe
ART

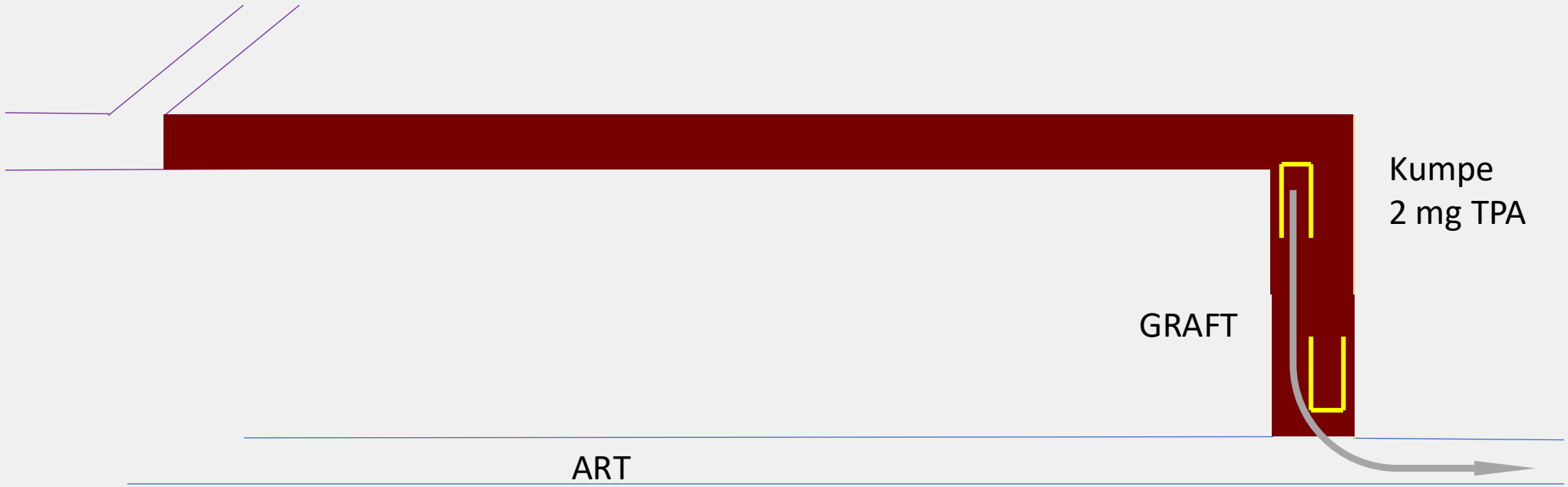
Stepwise approach

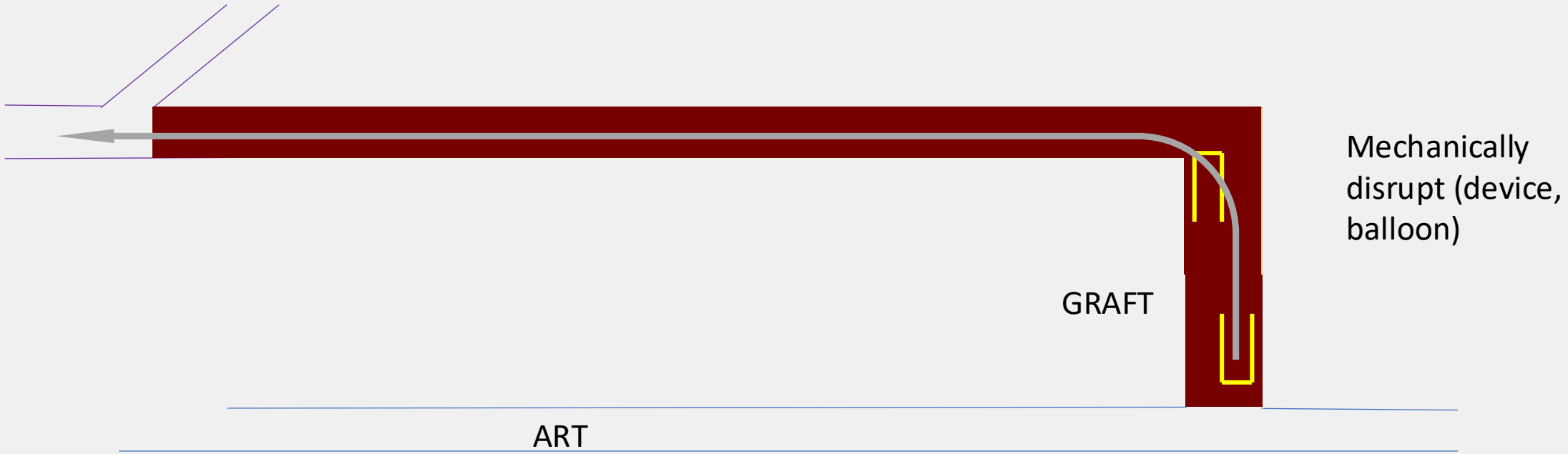
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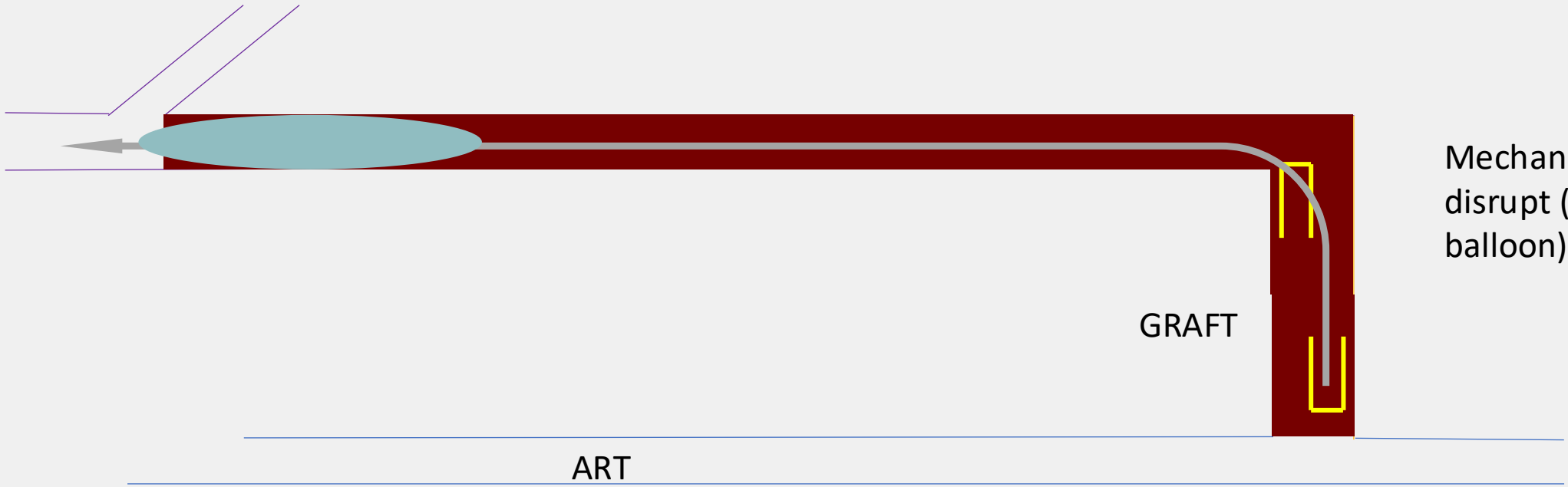

Lace with 4 mg TPA
GRAFT
ART

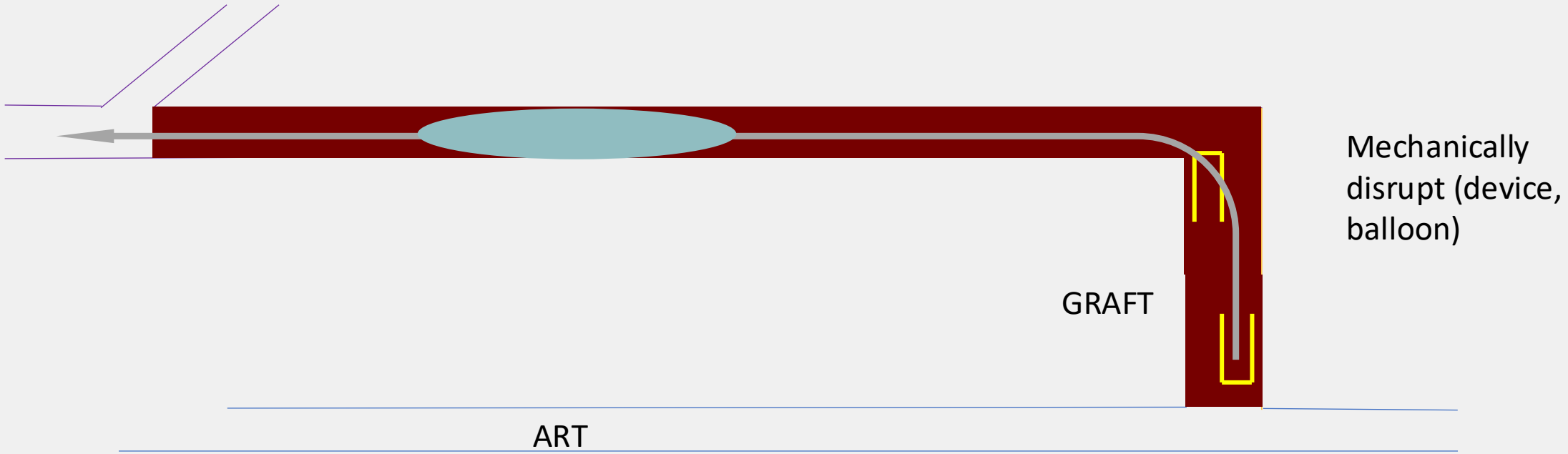

GRAFT
ART

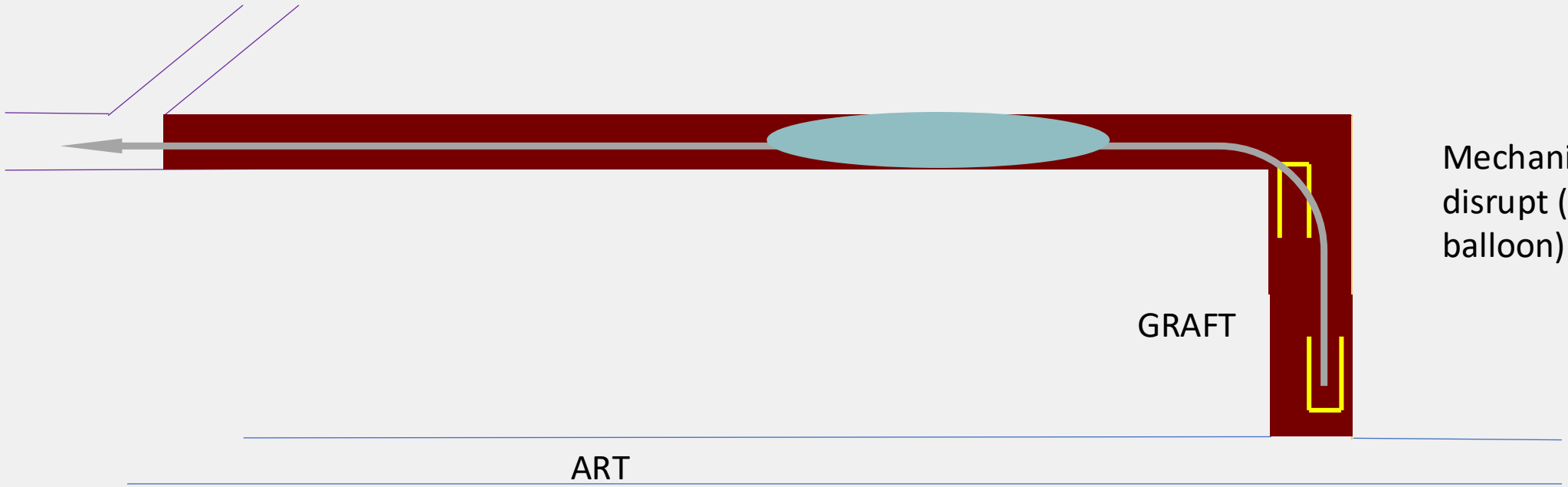

6 Fr short sheath
GRAFT
ART

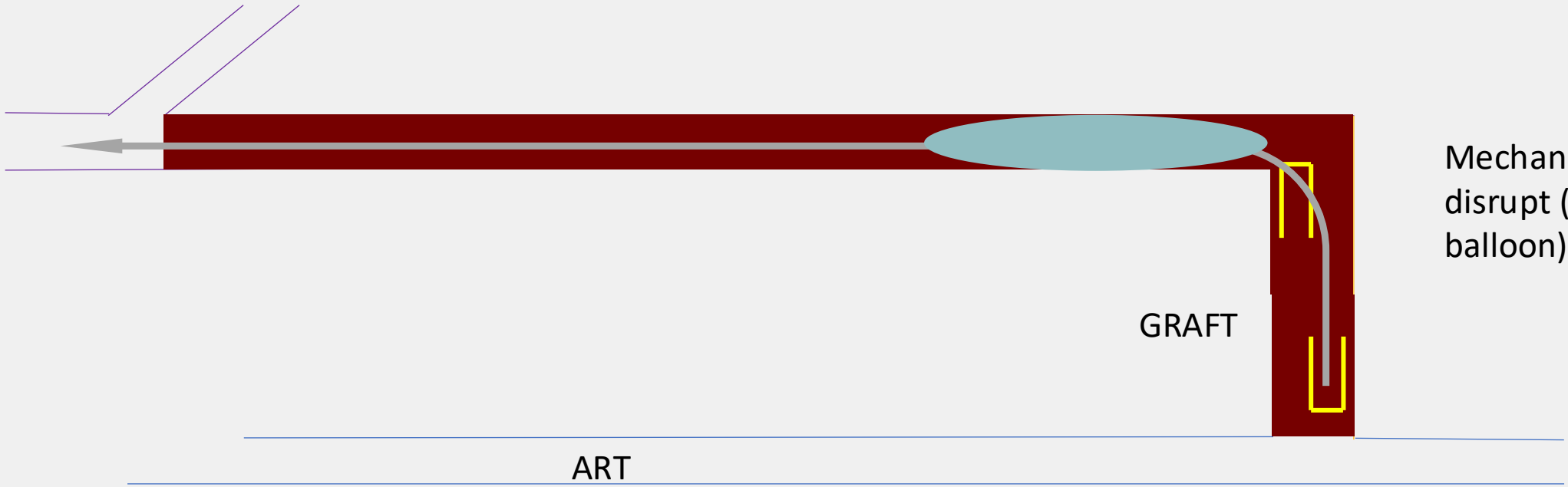

Kumpe
2 mg TPA
GRAFT
ART

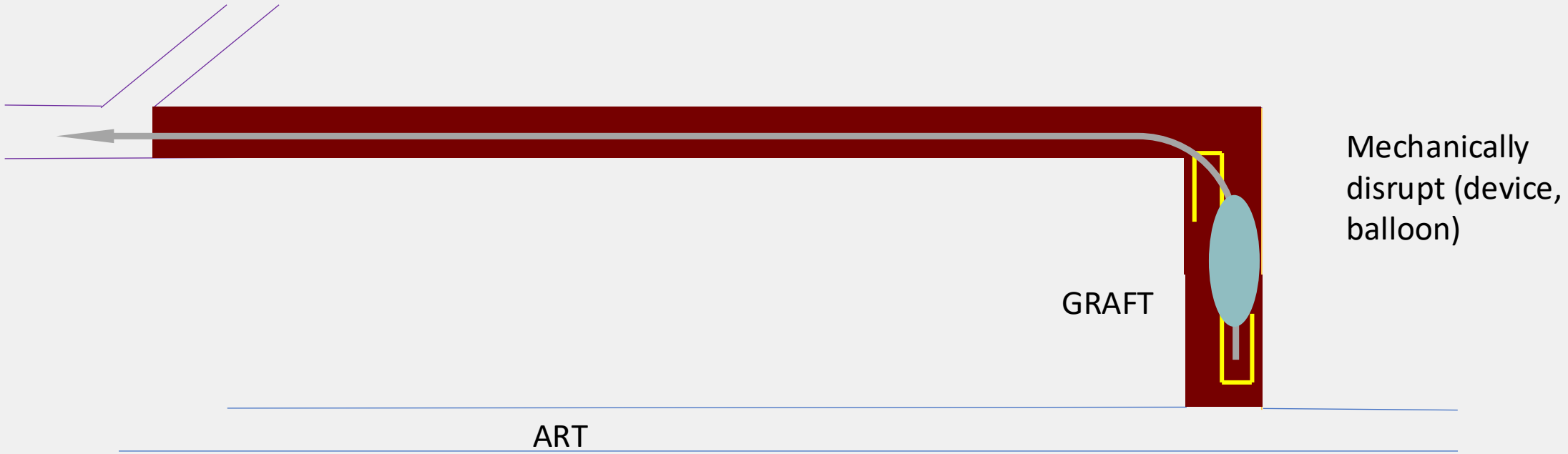

Mechanically disrupt (device, balloon)
GRAFT
ART

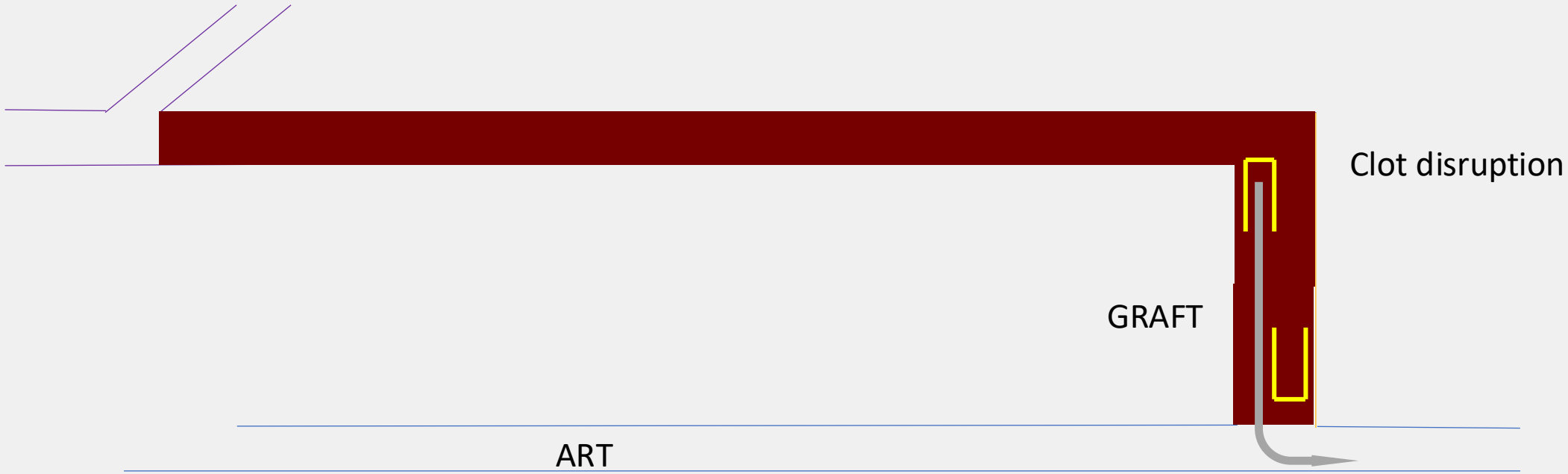

Mechanically disrupt (device, balloon)
GRAFT
ART

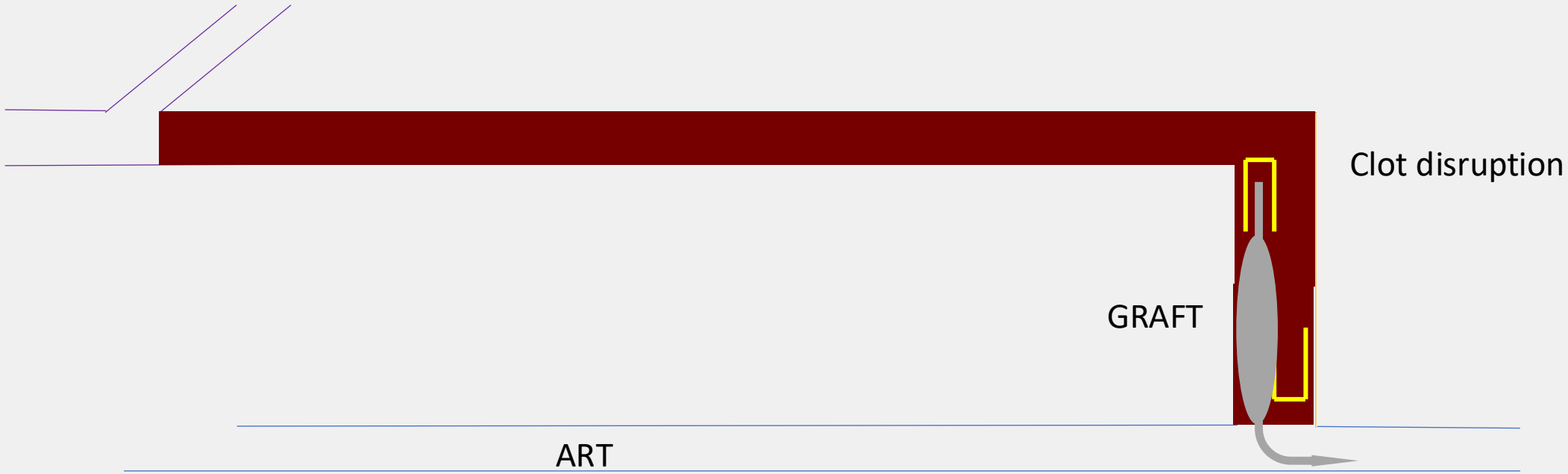

Mechanically disrupt (device, balloon)
GRAFT
ART

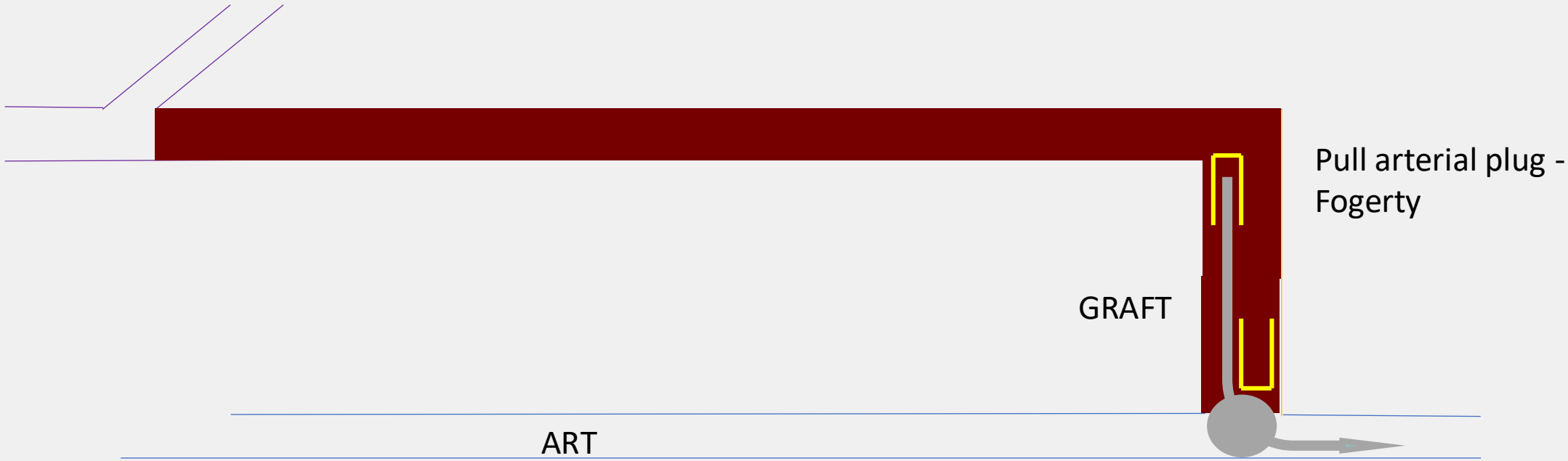

Mechanically disrupt (device, balloon)
GRAFT
ART

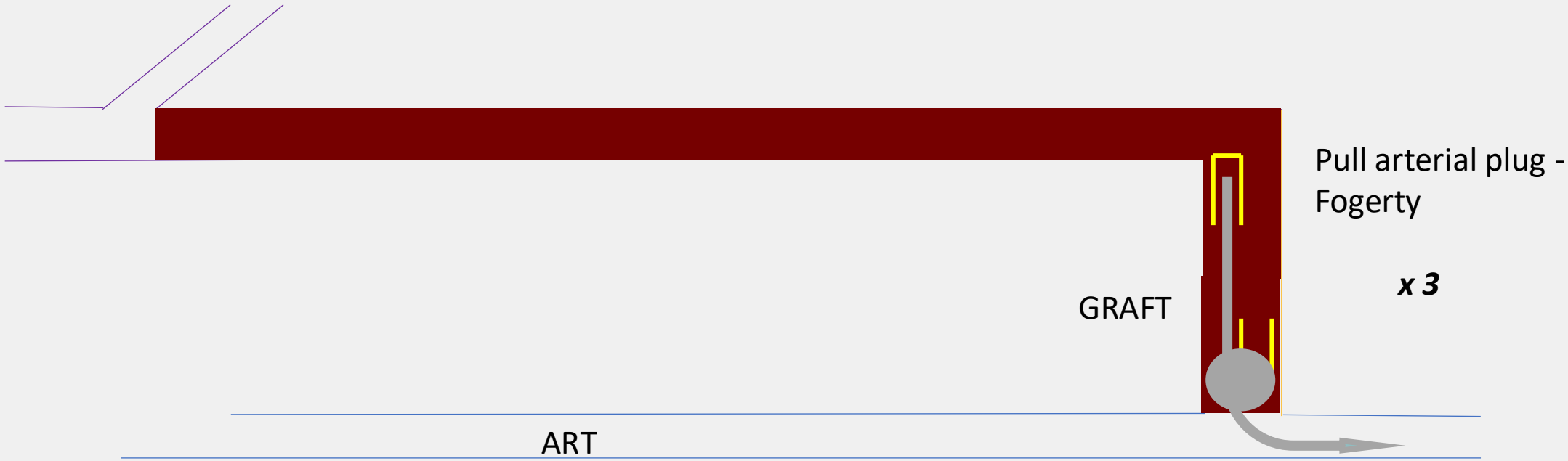

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ART

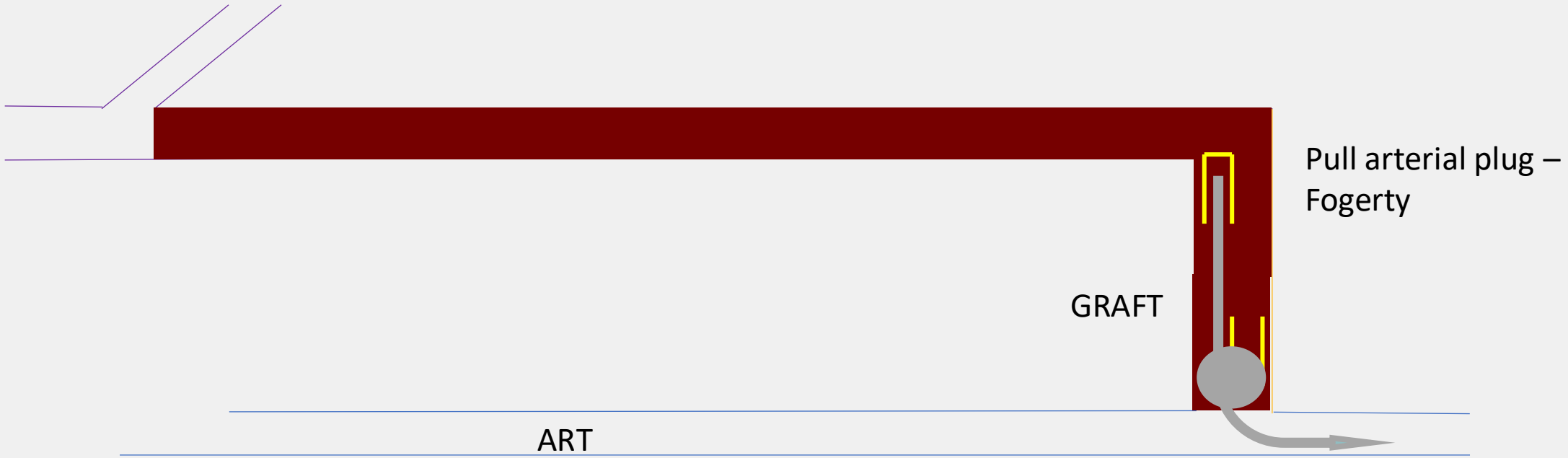

Mechanically disrupt (device, balloon)
GRAFT
ART

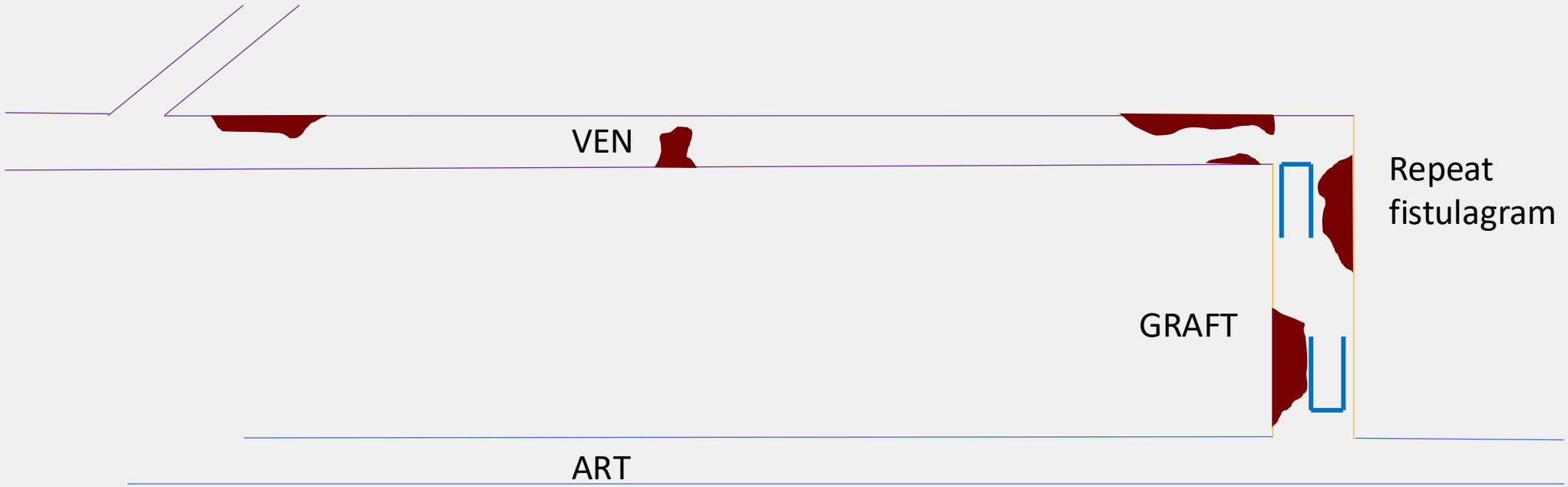

Clot disruption
GRAFT
ART

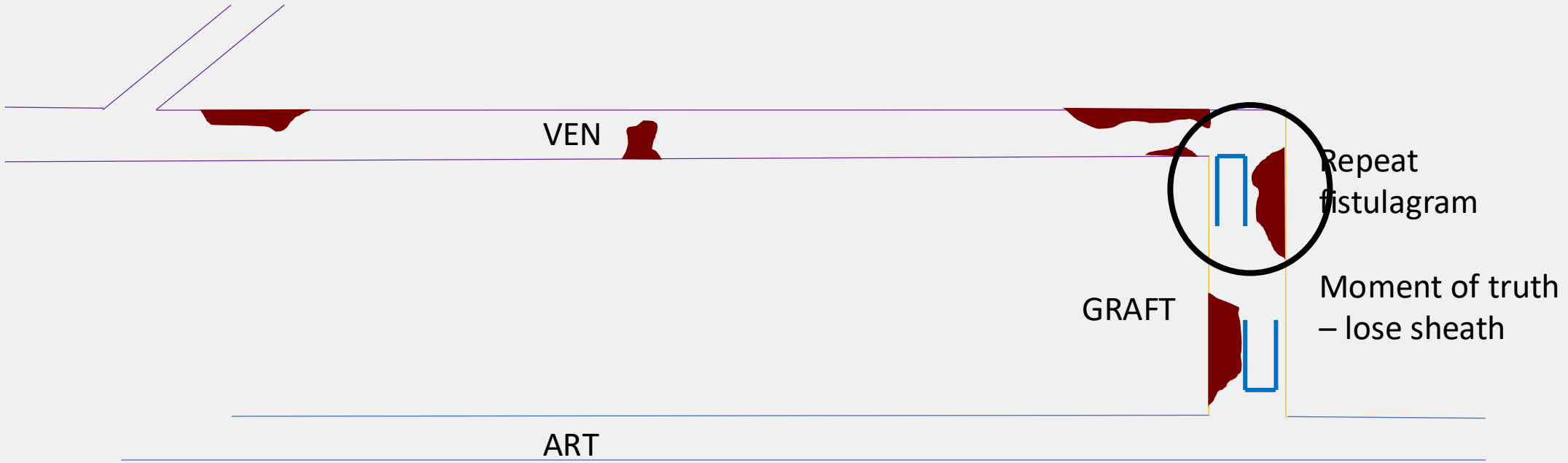

Clot disruption
GRAFT
ART

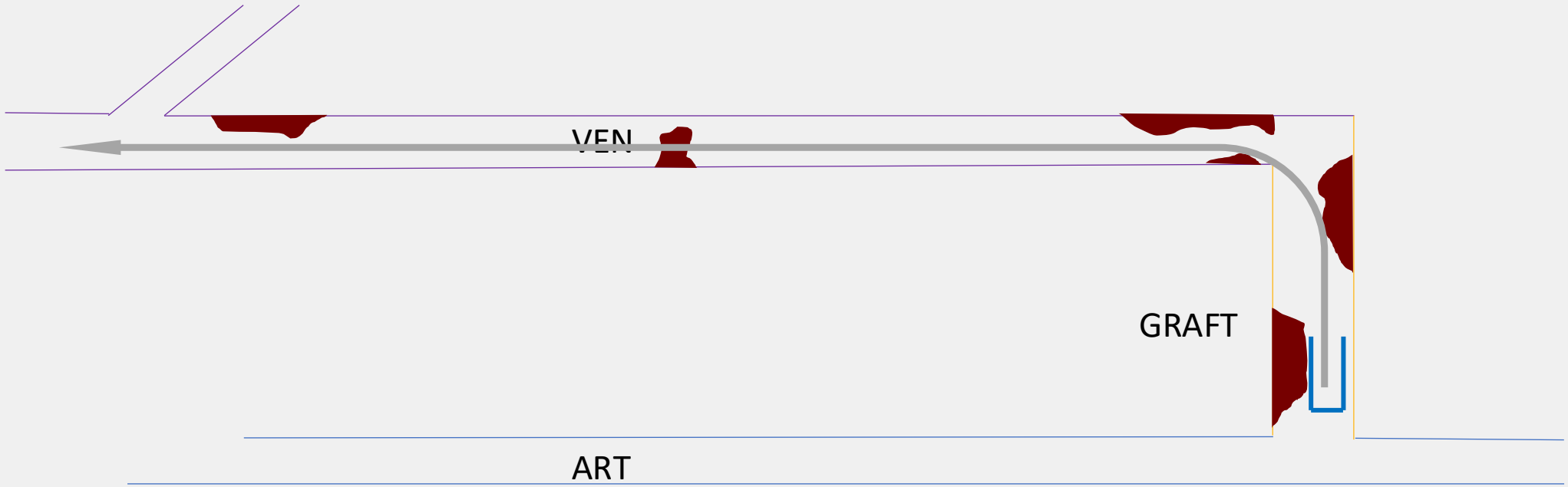

Pull arterial plug -
Fogerty
GRAFT
ART

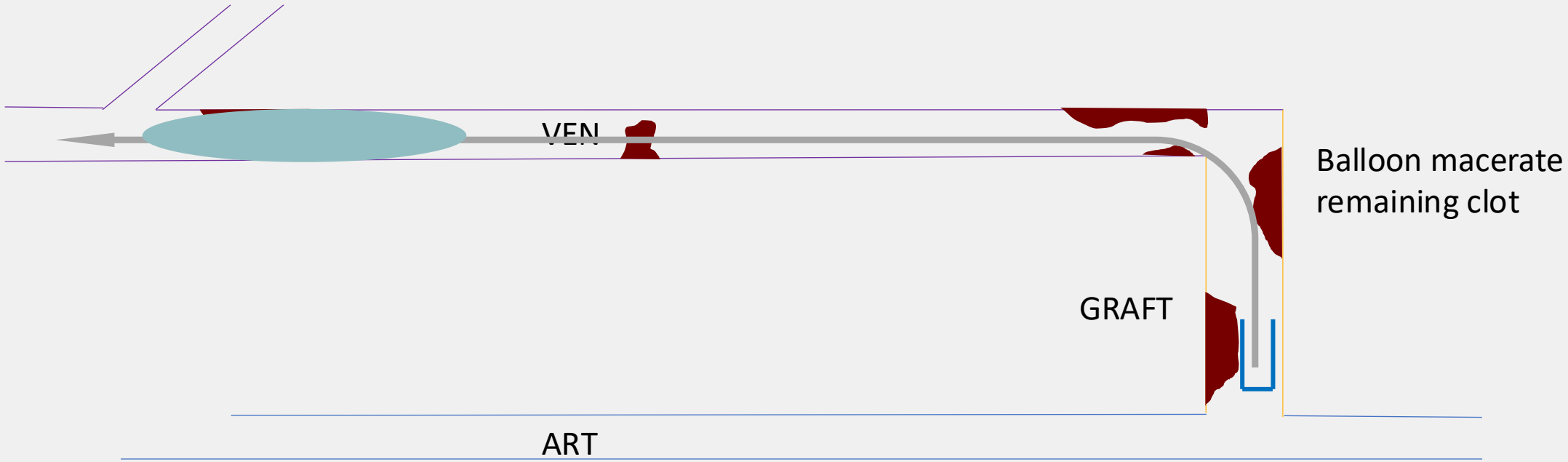

Pull arterial plug - Fogerty
x 3
GRAFT
ART

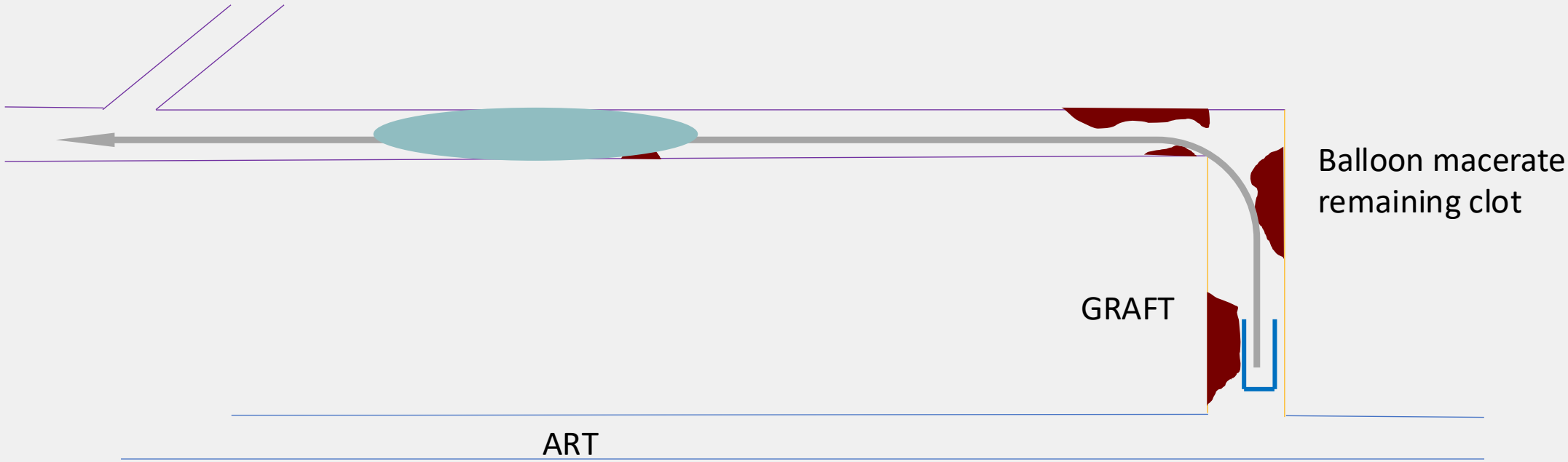

Pull arterial plug –
Fogerty
GRAFT
ART

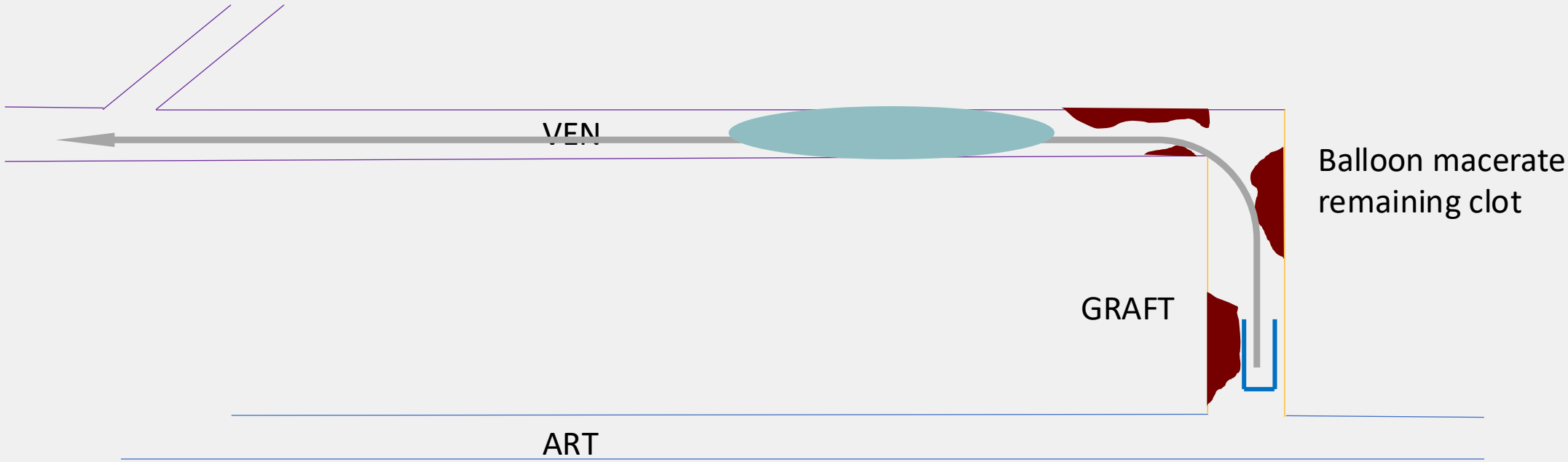

VEN
Repeat
fistulagram
GRAFT
ART

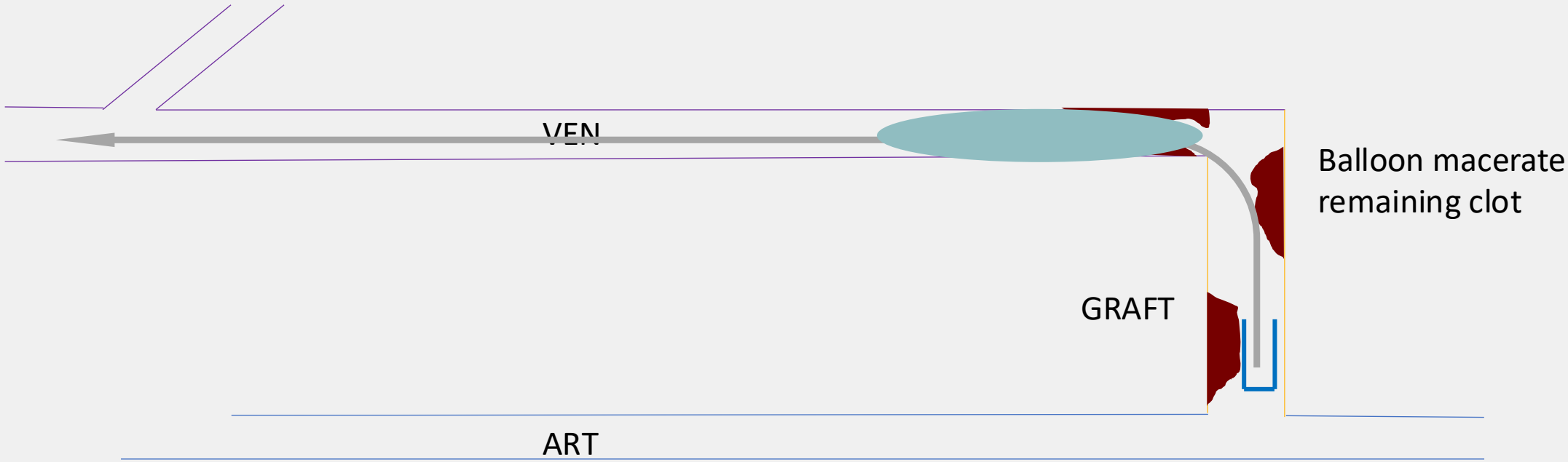

VEN
Repeat fistulagram
Moment of truth – lose sheath
GRAFT
ART

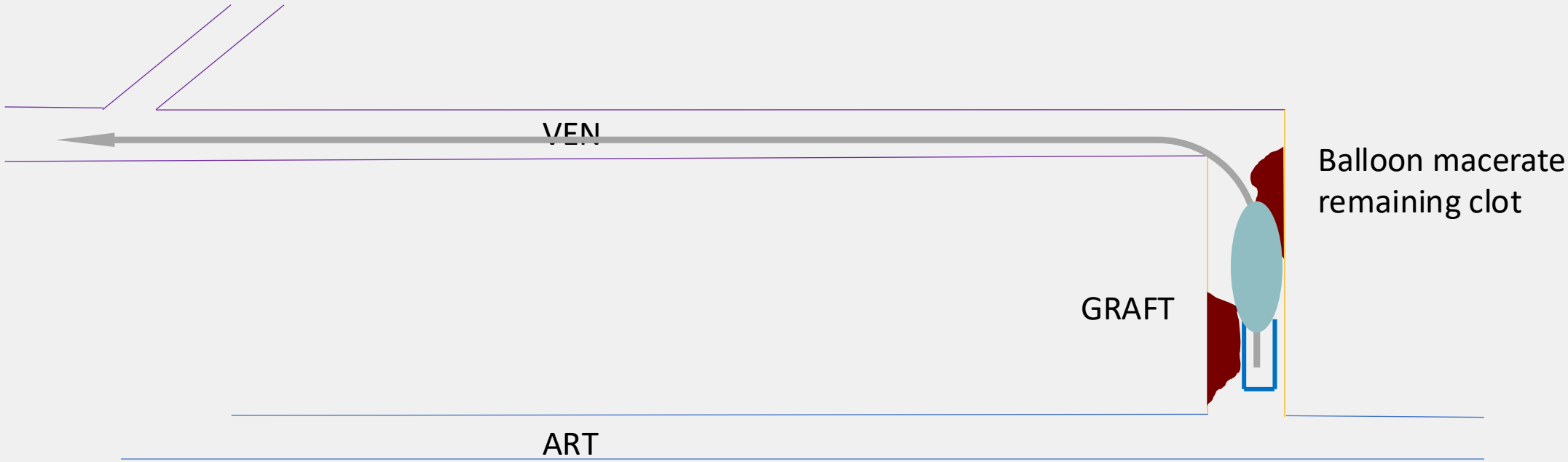

VEN
GRAFT
ART

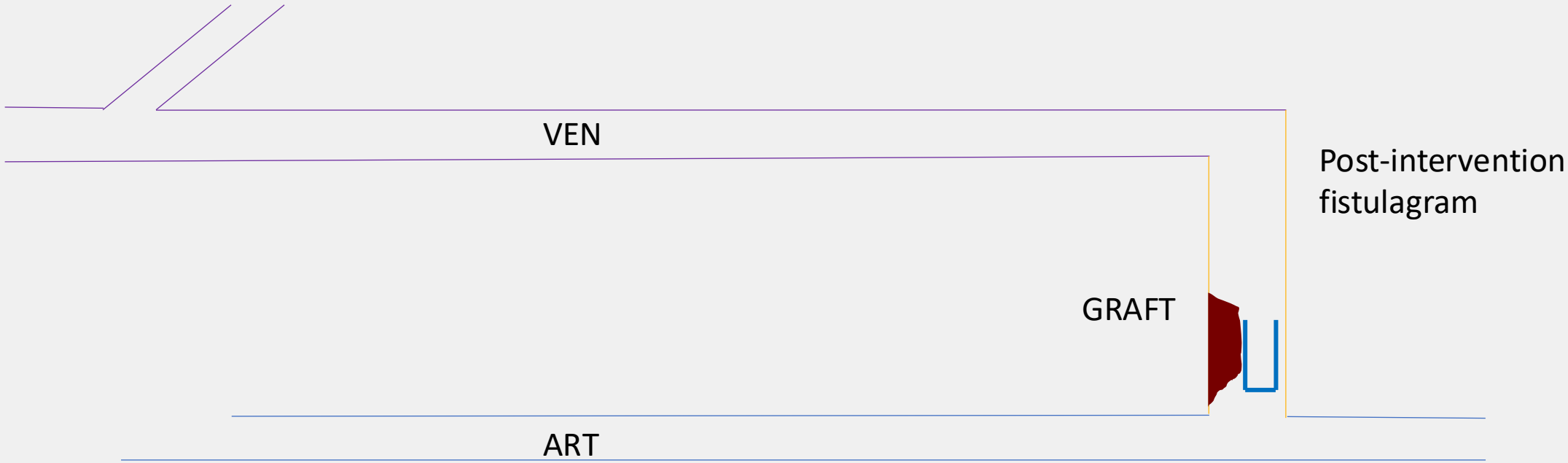

VEN
Balloon macerate
remaining clot
GRAFT
ART


Balloon macerate
remaining clot
GRAFT
ART


VEN
Balloon macerate
remaining clot
GRAFT
ART

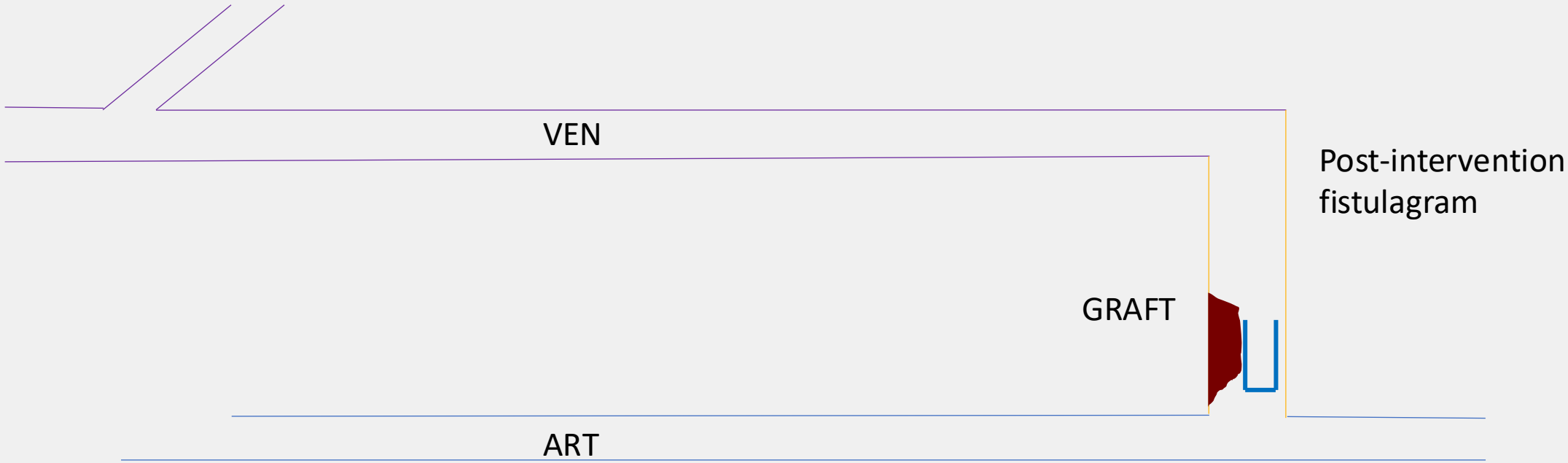

VEN
Balloon macerate
remaining clot
GRAFT
ART

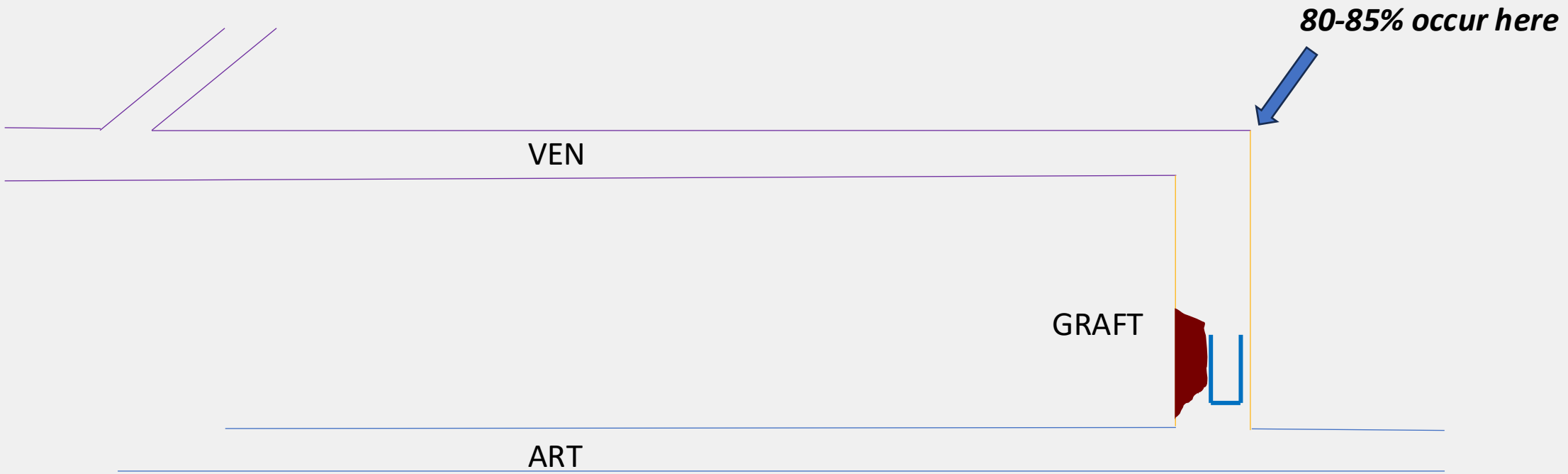

VEN
Balloon macerate
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GRAFT
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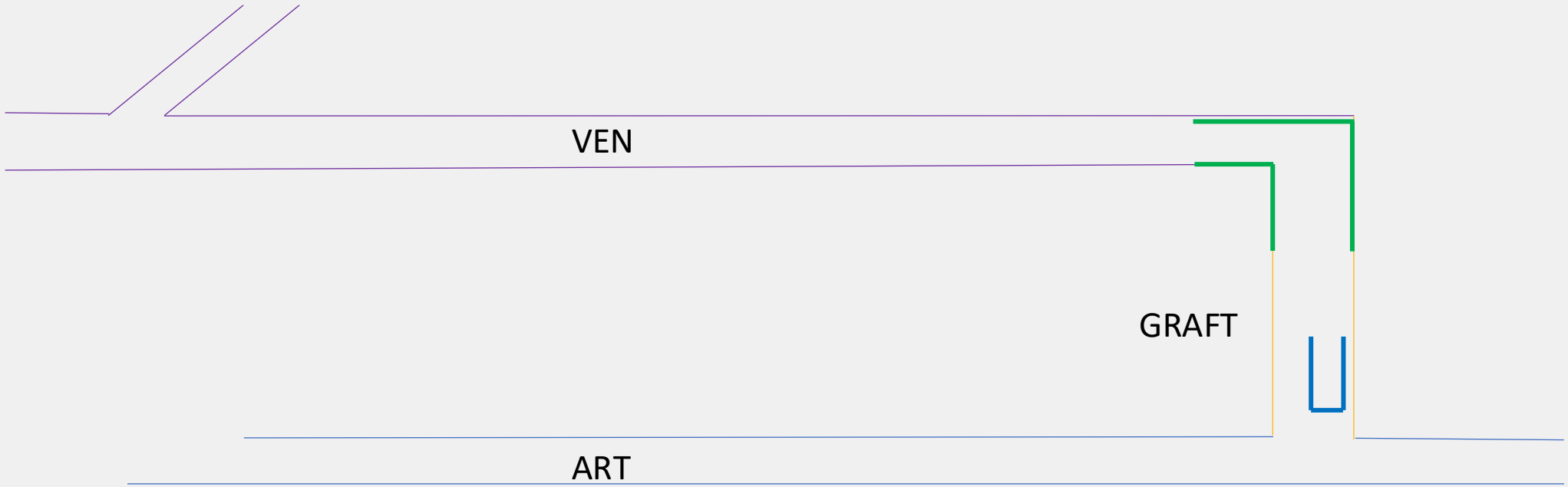

VEN
Post-intervention
fistulagram
GRAFT
ART

Stepwise approach

- Define clot burden
- Eliminate clot
- Determine and treat anatomic cause of thrombosis

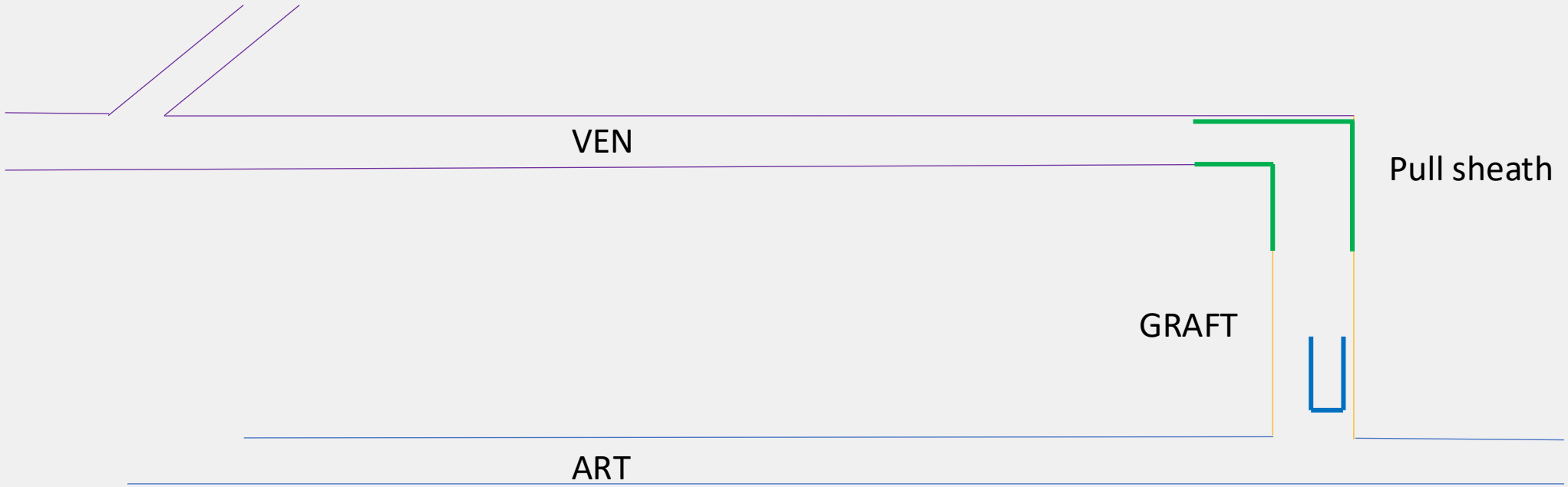

VEN
Post-intervention
fistulagram
GRAFT
ART

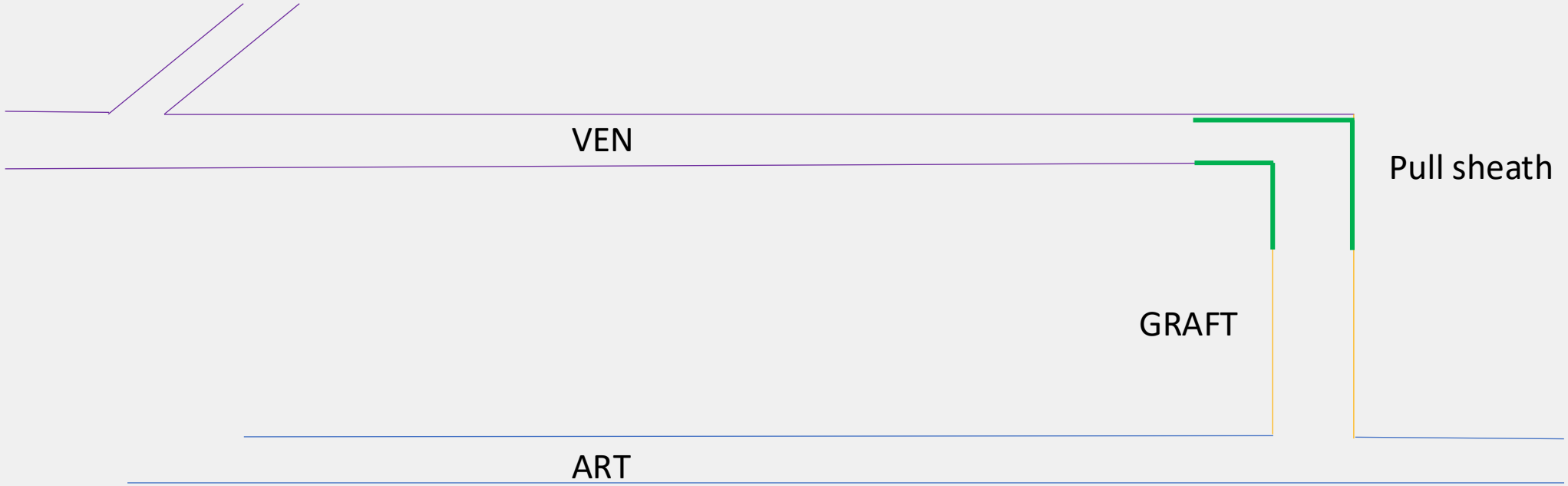

80-85% occur here
VEN
GRAFT
ART


VEN
GRAFT
ART

Vein graft anastomosis

- 80+% of AVG fail due to stenosis at venous anastomosis
  - Neointimal hyperplasia
- Options include angioplasty, cutting balloons, drug-coated balloons, stent grafts


VEN
Pull sheath
GRAFT
ART


VEN
Pull sheath
GRAFT
ART

Stepwise approach

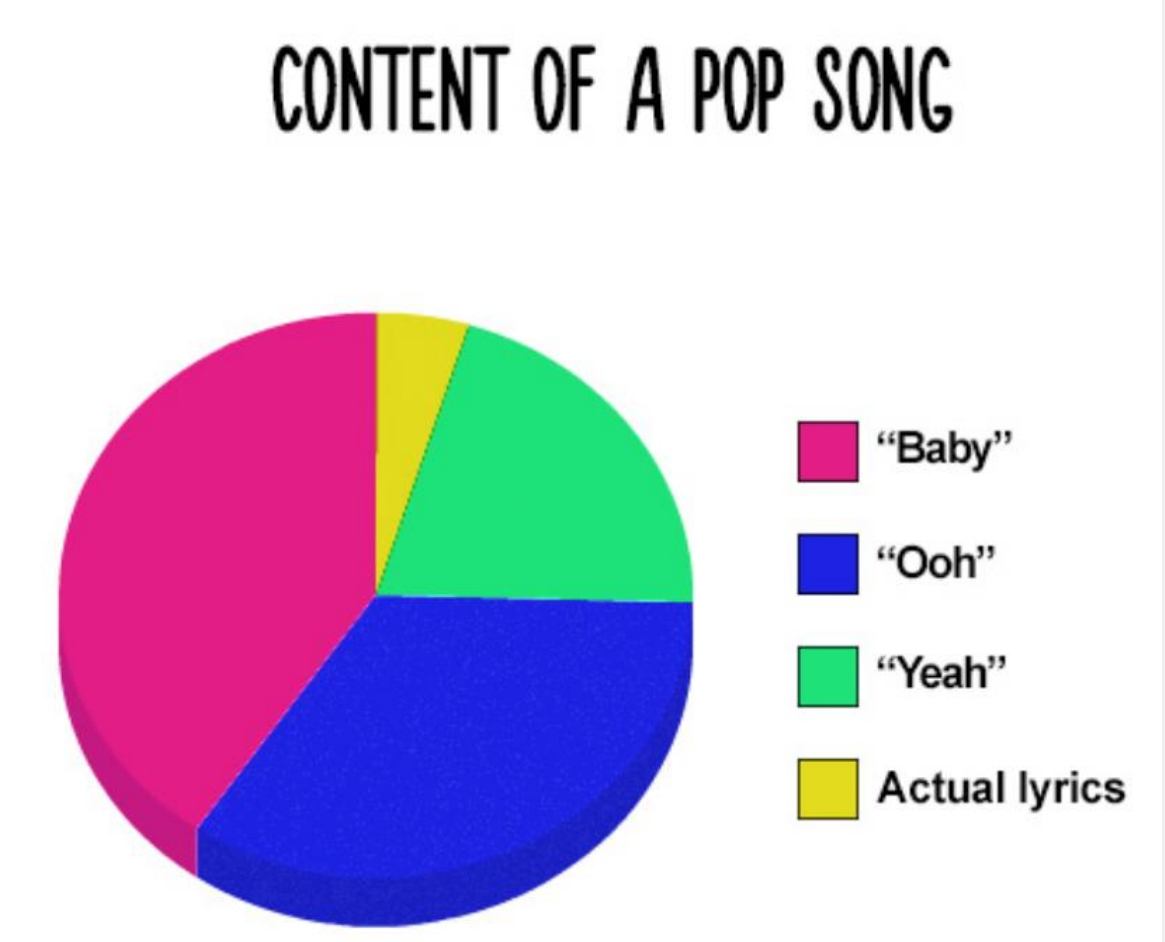
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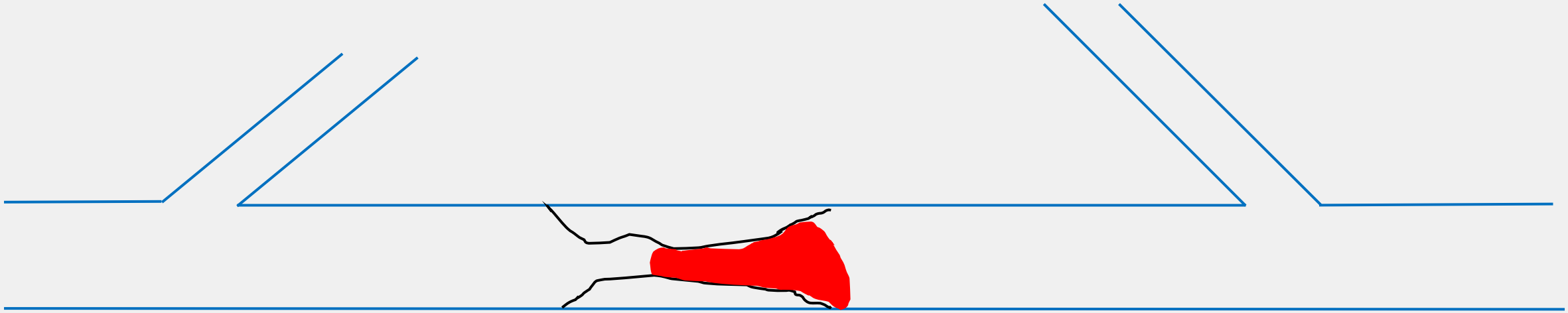
Pitfalls to avoid

- Not visualizing to the heart
- The enemy of good is perfect
- Inadequately pulling the plug
- Take. Your. Time.

Thank you for your attention

- Charles.Ray@utah.edu





Balloon angioplasty versus Viabahn stent graft for treatment of failing or thrombosed prosthetic hemodialysis grafts

Thomas Vesely, MD,[a] William DaVanzo, MD,[b] Terry Behrend, MD,[c] Amy Dwyer, MD,[d] and John Aruny, MD,[e] *Saint Louis, Mo; St. Simons Island, Ga; San Diego, Calif; Louisville, Ky; and New Haven, Conn*

Journal of Vascular Surgery

CLINICAL STUDY

A Prospective, Randomized Study of an Expanded Polytetrafluoroethylene Stent Graft versus Balloon Angioplasty for In-Stent Restenosis in Arteriovenous Grafts and Fistulae: Two-Year Results of the RESCUE Study

Abigail Falk, MD, Ivan D. Maya, MD, and Alexander S. Yevzlin, MD, for the RESCUE Investigators

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ORIGINAL ARTICLE

Stent Graft versus Balloon Angioplasty for Failing Dialysis-Access Grafts

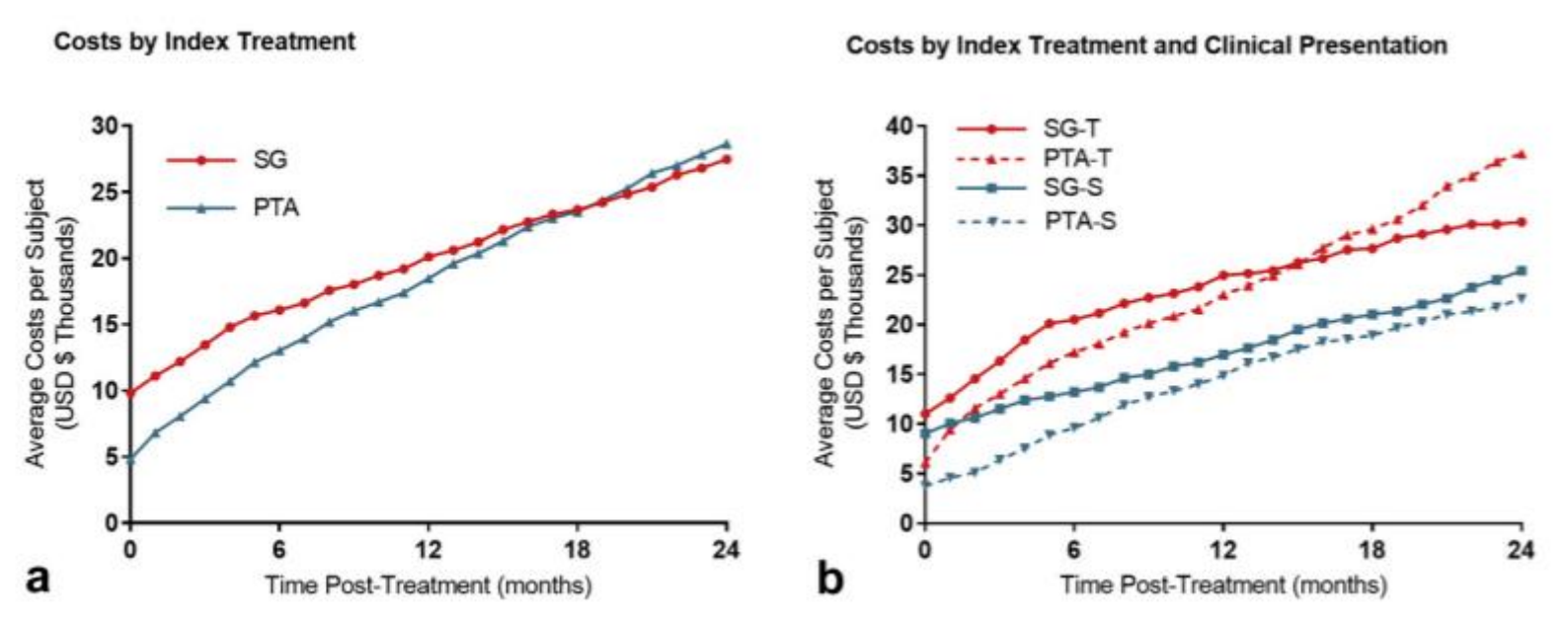
Ziv J. Haskal, M.D., Scott Trerotola, M.D., Bart Dolmatch, M.D., Earl Schuman, M.D., Sanford Altman, M.D., Samuel Mietling, M.D., Scott Berman, M.D., Gordon McLennan, M.D., Clayton Trimmer, D.O., John Ross, M.D., and Thomas Vesely, M.D.



Early stenting vs POBA

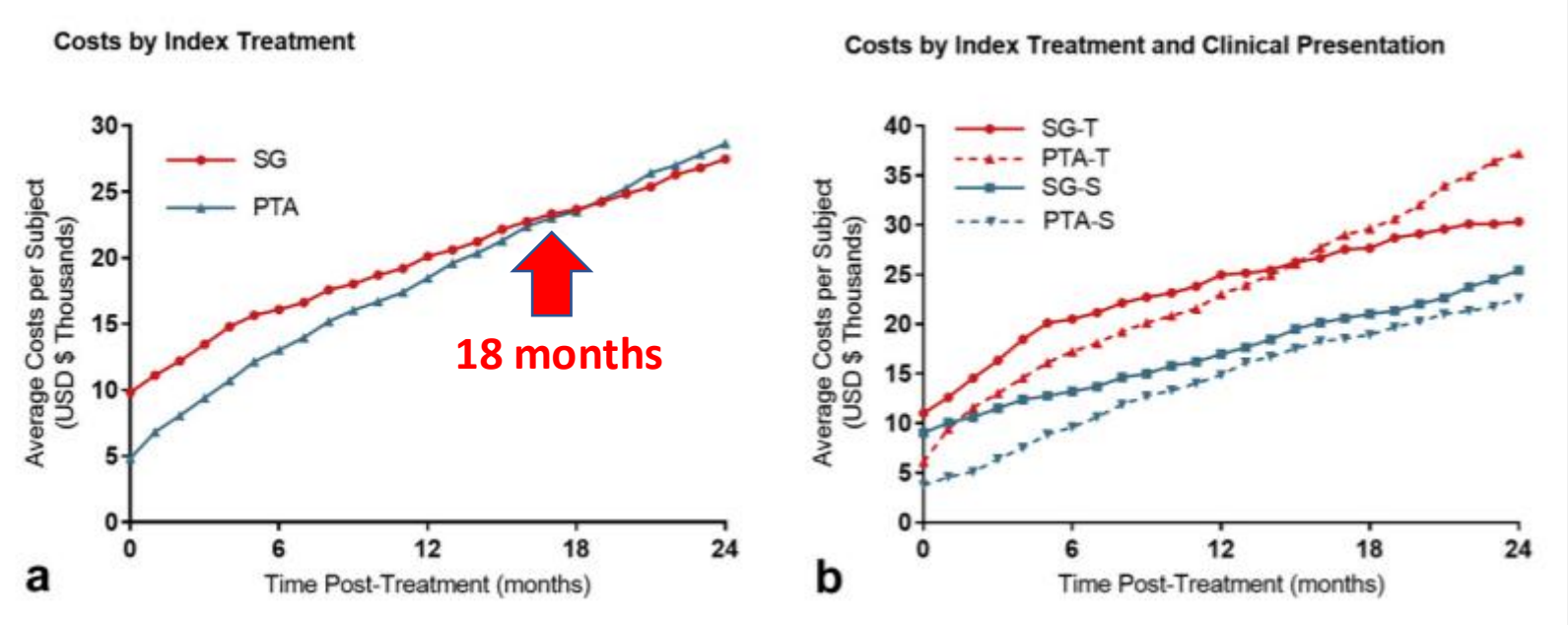
- Why stenting?
  - Better short and intermediate term results
  - Fewer repeat procedures
- Why POBA or DCB?
  - Don’t lose real estate
  - Cost?

Early stenting vs POBA - cost



JVIR 2019;30(2);203-211

Early stenting vs POBA - cost



JVIR 2019;30(2);203-211