For this week's pearl, let's go through the management of a bleeding AV dialysis access. These can be very difficult to manage - an AV access site has high blood flow by definition, you can't apply a tourniquet, and often these patients are anticoagulated. The area of bleeding may not necessarily be large; the needle holes from a dialysis session may be sufficient to cause significant bleeding. Usually, these patients will present directly from dialysis, but trauma can cause bleeding as well.

Initial management should always include the ABCs.

Considerations with consent:

- This procedure will likely be emergent; risks depend on what you need to do to stop the bleeding
- General risks: bleeding, infection, pain, failure to control bleeding, damage to the fistula, clotting of the fistula

Things to start with:

- Send CBC, BMP, TEG, type and screen if significant bleeding
- Determine circumstance of bleeding – is this a needle stick or a rupture? Was there trauma involved? If more than just a needle stick/access bleed, you may want to get vascular/IR/some kind of surgeon involved much earlier.
- Is this an AV fistula or a graft? Grafts may be made of a material that is very difficult to suture through, which can limit your options.
- If the patient is uremic, consider ordering DDAVP. Uremia causes decreased platelet adhesion (basically a functional von Willebrand), desmopressin can help increase platelet function. Dose is 0.3mg/kg IV x 1

Techniques:

There are multiple ways to approach a bleeding fistula but remember – tourniquet is NOT one of them unless everything else fails.

1. If the patient is presenting from a dialysis center with a bulky dressing in place, you will need to remove it to assess the bleed. Large dressings can hide a large bleed- more dressings = longer time to saturate = more blood lost before you see it.
2. Once the culprit site is identified, apply direct pressure with a finger directly on the site of the bleed.
    a. Do not use coban or an ace wrap – this will likely be insufficient to control bleeding.
    b. Consider applying surgicel/gelfoam, tranexamic acid (TXA) to the area of bleeding prior to holding pressure.
    c. Elevate the arm while holding pressure
    d. Hold pressure for 15-20 min

Heidi Alvey, MD. MPH
Indiana University Emergency Medicine
9/25/2025

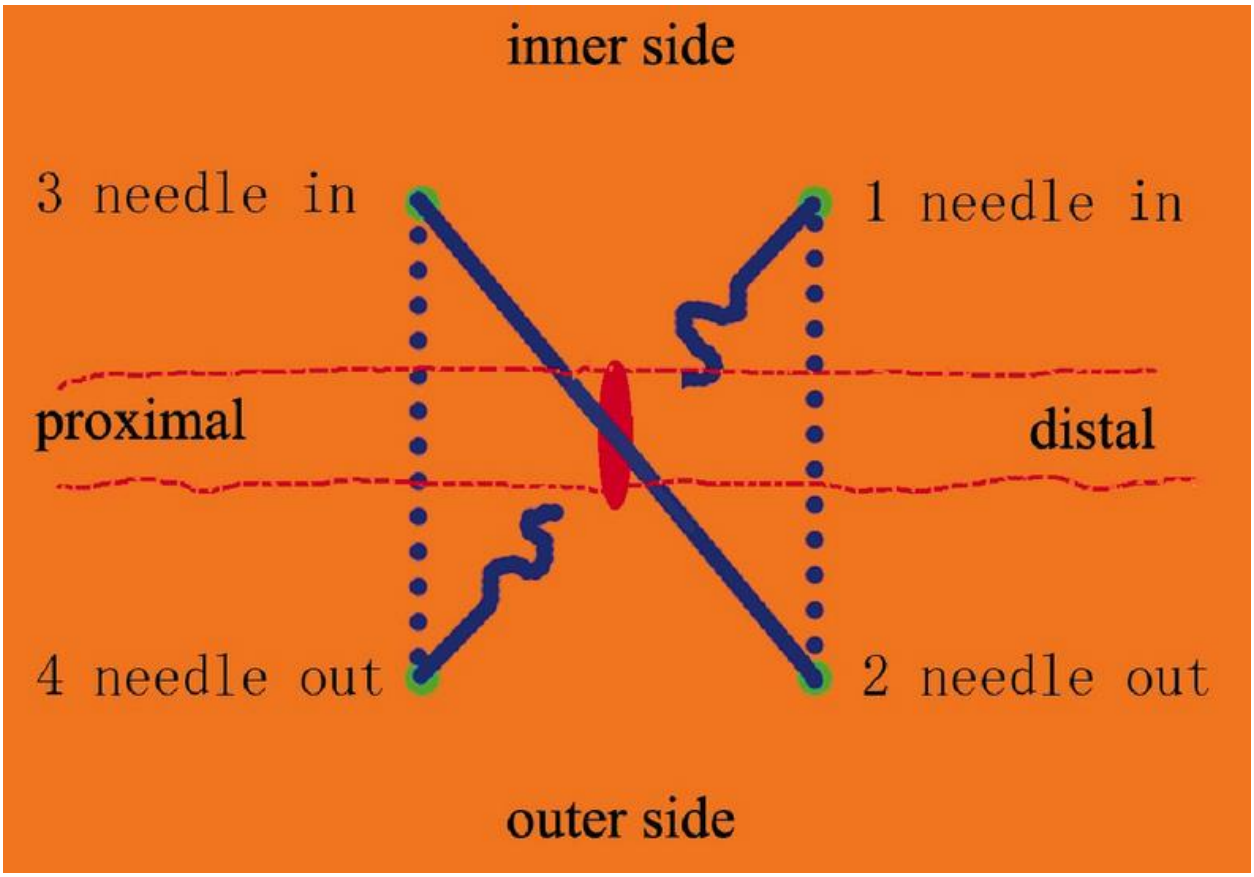
3. If direct pressure with a finger is insufficient, get someone to help place pressure on the fistula/graft just proximal AND distal to the site of bleeding



    a. While your assistant is applying pressure around the bleed, apply topical medications (gelfoam/surgicel or TXA soaked gauze) to the site of bleeding and reapply direct pressure to the culprit area
4. If proximal/distal pressure and topical agents are insufficient, place a figure of eight stitch.
    a. May be harder to do if the patient has a graft – these are often stiffer than an AV fistula (which uses the patient's own vessels)
    b. Most references call for a NONcutting needle, but this may be hard to find in the ED.

How to place a figure of eight stitch:

Heidi Alvey, MD. MPH
Indiana University Emergency Medicine
9/25/2025



5. Bottle cap technique – this may be an alternative to suture
    a. Find a bottle cap – soda bottle or otherwise. Some dialysis patients may carry their own bottlecap on a keychain
    b. Apply the cap with the bottom/hollow over the bleeding site and apply pressure.

Heidi Alvey, MD. MPH
Indiana University Emergency Medicine
9/25/2025



c. The cap can be taped/coban/Ace wrapped into place



d. If no bottle cap available, you can use any small, convex object like the top of a saline irrigation bottle, a small bowl, medicine/pill cup

Heidi Alvey, MD. MPH
Indiana University Emergency Medicine
9/25/2025

e. Leave the cap in place for at least 20 min before checking to see if bleeding controlled.

Interesting aside - the bottle cap has been heavily endorsed by multiple kidney associations in Great Britain ("Put a lid on it!"). HD centers there hand out bottle cap key chains to their patients in case they ever have a bleed.

https://kidneycareuk.org/kidney-disease-information/treatments/vascular-access-for-dialysis/controlling-bleeds-from-a-fistula-or-graft/ (website is aimed at the general public)

With any of the bleeding control methods, the patient should be watched in the ED for at least 2 hours prior to considering discharge. The patient should also get up and move around before discharge to ensure that the access site won't start to bleed again when the patient is moving around at home.

If all these techniques have been tried without success, vascular surgery should be consulted. At this point, a tourniquet can be considered but discuss with specialist first prior to sacrificing the dialysis access.

Videos:

- https://www.youtube.com/watch?v=toFiGSfesZk – figure of eight stitch technique, also shows proximal/distal pressure. Also explains the rationale for the non-cutting needle.
    - https://www.youtube.com/watch?v=VJEoSpUfAvQ – how to do a figure of eight stitch
- https://www.youtube.com/watch?v=MZIQlPWr1GI – the only video I could find with the bottlecap technique, but the EMT put the cap on the WRONG way ☹. The hollow side should be toward the patient and the gauze is unnecessary. You can see how pressure is applied with a single finger prior to the placement of the bottle cap.

Other resources:

- https://rushem.org/2019/03/07/bleeding-av-access/
- https://internetbookofemergencymedicine.com/wp-content/uploads/2022/10/bleeding-av-shunt.pdf
- https://academic.oup.com/ckj/article/17/5/sfae089/7636493 - scoping review of different techniques

Heidi Alvey, MD. MPH
Indiana University Emergency Medicine
9/25/2025