



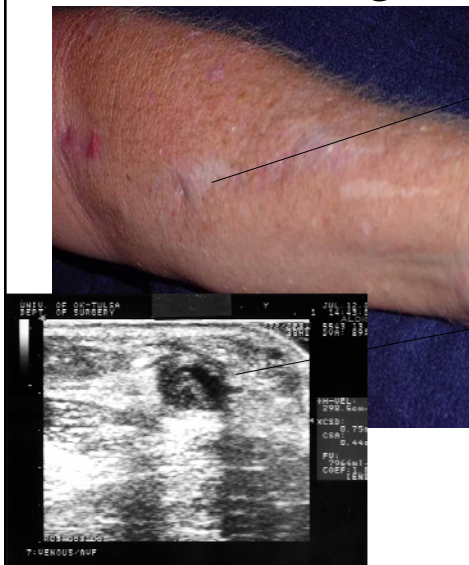
Long Term Use of Sharp Needles into Buttonhole Sites Can Lead to AVF Damage

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**Reviewed and approved by the AV Fistula First Practitioner
Education Task Group**

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Damaged Buttonhole



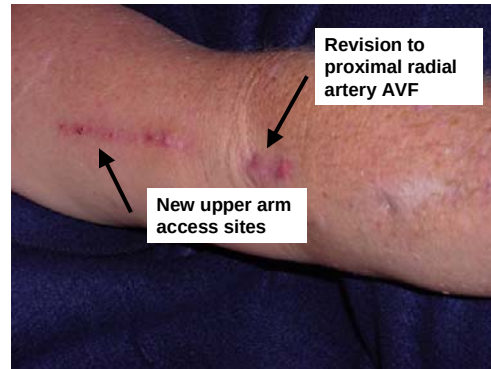
**Buttonhole sites
where sharp
needles were used
long term**

**Ultrasound shows
thrombus and
stenosis at site.**

Images courtesy of Dr. William C. Jennings, MD,
University of Oklahoma

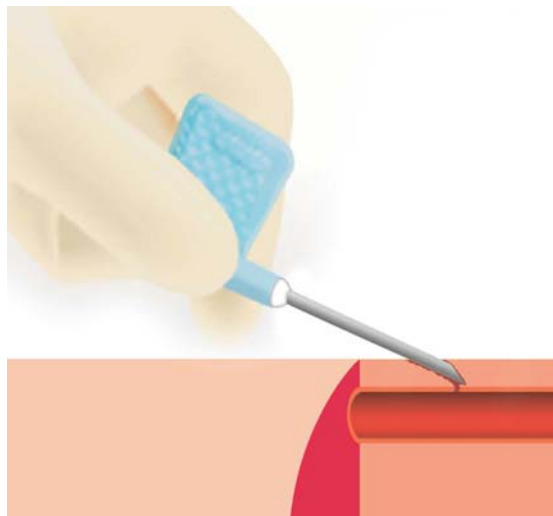
Sharp Needles in the Buttonhole Site Lead to AVF Failure

- New AVF had to be created due to damage from the long term use of sharp needles into buttonhole cannulation sites



Images courtesy of
Dr. William C. Jennings, MD,
University of Oklahoma ³

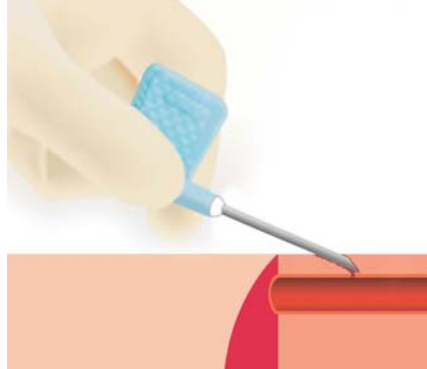
Buttonhole Wrong Angle



- Needle inserted into the buttonhole tunnel track- but the angle is not in alignment with the vessel flap
- The needle can bounce on the vein and not displace the vessel flap

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Buttonhole Wrong Angle



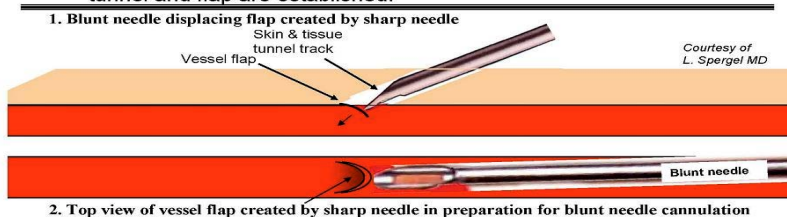
- Adjust angle to find the flap
- Lift up or down on the needle to readjust the angle (10° until the needle drops into the vessel flap)
- Causes: moving needle from angle used to enter the skin, arm positioning not in routine place, fluid status change with edema or patient body weight gain or loss

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Skin/Tissue Tunnel Track + Vessel Flap = Buttonhole Site

Skin / tissue buttonhole tunnel track forms like the scar tissue track from a pierced earring.

Vessel flap is created by repeated punctures with the sharp needle at the same site. Vessel flap will then be displaced by the blunt buttonhole needle at each cannulation after the tunnel and flap are established.



Skin/tissue tunnel track + vessel flap = Buttonhole Site

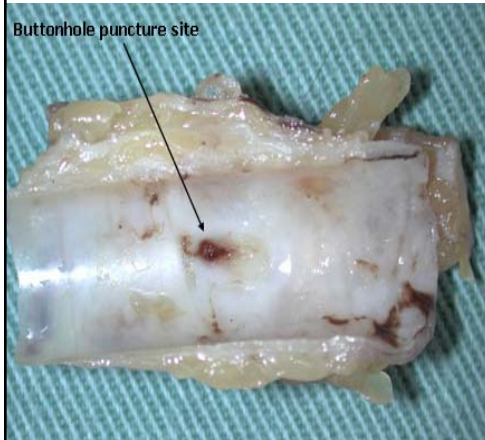
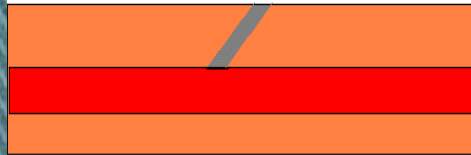


Image courtesy of Dr. Toma

Skin/tissue buttonhole tunnel track forms like the scar tissue track from a pierced earring.
Vessel flap is the vessel segment that is displaced by the dull needle when cannulated with the needle.

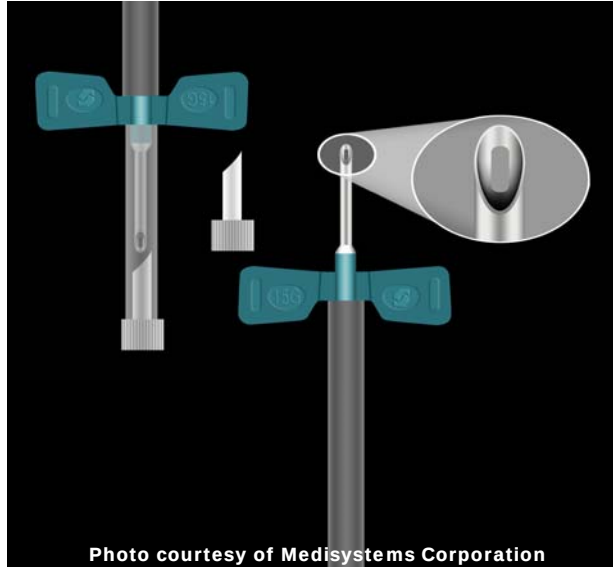


Sharp vs. Buttonhole Needles



Photo courtesy of Medisystems Corporation

Medisystems Buttonhole Needles with Steri-Pik



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Do's & Don'ts of Scab Removal

- Don't flip the scab off with the needle you will use for cannulation—this contaminates the needle
- Don't use a sterile needle—you could cut the patient's skin and you would also need a sharps container nearby
- Don't allow patients to pick at their scabs
- Do use aseptic tweezers, or
 - Soak two 2" x 2"s with sterile saline and apply over the scabs; or
 - Moisten 2" x 2"s with alcohol-based gel; or
 - Have patient tape an alcohol square over sites prior to dialysis
 - Have patient apply moist, warm washcloth to scab site prior to arriving at dialysis to facilitate scab removal

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Summary

- Limit use of sharp needles to buttonhole site creation only
- Transition as soon as possible to the dull needles to prevent damage to the vessel flap and prevent creating of multiple vessel flaps and potential aneurysm formation

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Summary

- The angle of the skin tunnel track *and* vessel flap must be aligned for the dull needle to displace the vessel flap
- Re-adjust the needle angle to find the vessel flap—*don't just remove the needle and re-cannulate with a sharp needle*
- If the vessel flap is not aligned with the tunnel tract, to find a solution evaluate the arm position, edema status or body weight changes
- Patients are the ideal people to create *and* use buttonhole sites, since they are less likely to change the needle insertion angle

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