

Accessing AV Fistulas That Have Buttonhole Sites

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Background:

The Buttonhole Technique involves the creation of two tunnels, one for each needle, from the surface of the skin to the surface of the AV fistula vein wall, and a “doorway” into the AV fistula vein wall, which accesses the blood stream for the purposes of hemodialysis. These tunnels are created using sharp dialysis needles over a period of three to four weeks, using the same angle of insertion in the same exact location with each cannulation. Once the sites are well-healed, and there is little resistance down the tunnel, the dialysis staff will then transition to the use of blunt needles.

The uniqueness of the Buttonhole Technique:

The uniqueness of using this technique allows multiple staff to enter these tunnels exactly the same way, preserving the vessel from the repeated damage due to different staff cannulation skill sets. Now, for the first time, needle sites have a predetermined angle of insertion as well as specific direction of the tunnels.

If you are not familiar with the technique:

Entering a buttonhole site incorrectly can permanently damage the tunnels, and make it impossible for dialysis staff to utilize these buttonhole sites once patients return to their dialysis unit. Using needles or other devices that are larger than the diameter of the specific needle gauge size used by hemodialysis staff can cause the sites to ooze once the patient is heparinized for treatment.

Puncturing through the epithelial lining of the tunnels can allow bacteria to get a foothold in the tunnels, causing tunnel infections – a problem once only seen in the use of central venous catheters. This can also lead to misalignment of the tunnel with the entranceway into the AV fistula vein wall, which will prevent the use of the blunt needles.

What should you do?

If you are not familiar with this technique, or do not have access to blunt needles, the buttonhole sites and the tunnels should be avoided. Ask the patient which direction their buttonhole sites go. Then place one finger over the scab – this is the entrance to the buttonhole tunnel, and the finger next to it over the tunnel. We utilize 1-inch needles, and when you cover the entrance site and place one finger next to that site, you have effectively covered the entire tunnel area. You can now utilize a sharp needle anywhere along the AV fistula, except where your two sets of fingers are placed. This will ensure that you will not puncture through the tunnels, and preserve the sites for future hemodialysis treatments.