

Subcutaneous “Figure-of-Eight” Stitch to Achieve Hemostasis After Removal of Large-Caliber Femoral Venous Sheaths

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Structural heart interventions (patent foramen ovale/atrial septal defect closures, percutaneous balloon valvuloplasty, and closure of perivalvular leaks) and percutaneous left ventricular assist devices (TandemHeart, CardiacAssist Inc., Pittsburgh, PA) require insertion of large-caliber sheath(s) in the femoral vein(s). The sheaths for these procedures vary in size from 8 F to 21 F and are typically removed after the procedure once coagulation parameters are in an acceptable range. Arterial sheaths can be safely removed by using two Perclose Proglide (Abbott Vascular Inc.,

Redwood City, CA) devices using the so-called preclose technique. However, closure devices are not approved for removal of large-caliber venous sheaths. We have developed a figure-of-eight subcutaneous stitch that can be used to remove such large-caliber venous sheaths in the cath lab while the patient is still on the table and without waiting to reverse anticoagulation. This technique offers the advantage of removing both arterial and venous sheaths at the same time, thereby reducing the time the patient spends in the holding room waiting for sheath removal. This technique has

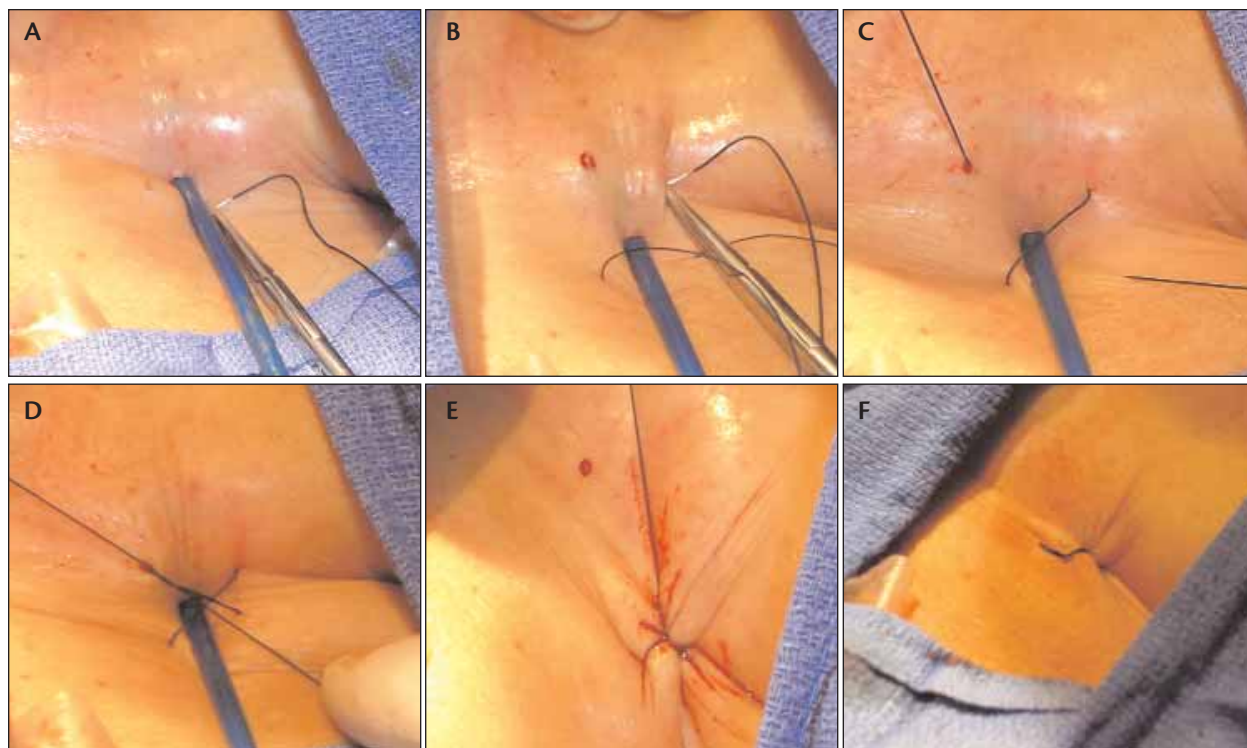


Figure 1. A 0-0 silk suture is passed under the 11-F Mullin sheath and through the subcutaneous tissue. A generous amount of subcutaneous tissue is included, although without going deep to the femoral vein (A). The needle is then passed over the sheath (B). The suture is now ready for the figure-of-eight knot (C). A figure-of-eight knot is prepared while the sheath is removed (D). As the sheath is pulled out, the suture is tightened so that the subcutaneous tissue is bunched up for hemostasis (E). Achieving complete hemostasis (F).

been used to safely remove sheaths ranging from 8 F (typically used for patent foramen ovale closures) to 21 F (used for placement of the TandemHeart venous cannula) in fully anticoagulated patients. The steps in this technique are illustrated in Figure 1A through F.

“This technique has been used to safely remove sheaths ranging from 8 F to 21 F in fully anticoagulated patients.”

The site is observed for a few minutes, and 2 hours of bed rest is implemented. The suture can be removed later in the day or the following morning. This method is usually successful in achieving satisfactory hemostasis, but close observation is still required for the next few hours to ensure a hematoma does not develop. Patients with elevated venous pressures and postprocedure anticoagulation require closer monitoring. In our

experience, this figure-of-eight stitch has been safely and effectively used in a large number of cases with large-caliber venous sheaths, including the 21-F TandemHeart venous cannula. ■

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