Basic vascular suture and vascular anastomosis skills

Aim: to acquire and/or improve basic vascular suturing skills. Arteriotomy closing with running vascular suture, end-to-side anastomosis and end-to-end anastomosis. After acquiring these basic vascular skills, participant should be able to manage real life situations in general surgeon’s practice.

After completion of this hands-on training session, participants will be able to:

- Feel comfortable with vascular surgery instruments (Mayo-Hegar and Castroviejo needle holders, vascular clamps) and vascular suture (Prolene 5-0 and 6-0).
- Stop arterial blood flow with vascular clamps.
- Make vascular incision for anastomosis running suture, end-to-side and end-to-end anastomosis.

Running suture for arteriotomy closure

- Place vascular clamps proximal and distal from arteriotomy place.
- Make transverse vessel incision with 11th blade scalpel.
- Finish arteriotomy with angled scissors from one side to another.
- Make single suture from inside to outside with double needle Prolene 6-0 or 5-0.
- Place the knot.
- Continue with running suture until another side of arteriotomy.
- Place the knot at the end.
- Remove vascular clamps.

End-to-side anastomosis

- Place vascular clamps proximal and distal from arteriotomy.
- Make longitudinal vessel incision with 11th blade scalpel.
- Finish arteriotomy with angled scissors from one side and to another with a minimal length of 1.5 times graft diameter.
- Cut one side of vascular graft to match the length of anastomosis.
- Make single suture from inside to outside with double needle Prolene 6-0 or 5-0 at one side.
- Place the knot.
- Make another single suture at the opposite side of anastomosis for better graft positioning and length control.
- Continue with running suture around the anastomosis.
- Place the knot at the end.
- Remove vascular clamps.

End-to-end anastomosis

- Place vascular clamps proximal and distal.
- Cut vessel transversal between the clamps.
• Make single suture from inside to outside with double needle Prolene 6-0 or 5-0 at one side.
• Make another single Prolene suture at another side.
• Place the knots at both sides of vessel.
• Start suturing from sides to the center.
• Place the knot when sutures from both sides reach the center.
• Same at the opposite side.
• Remove vascular clamps

**Quality evaluation:**

**Technical faults:**

• Not hermetic suture.
• Deformation of vessel after closing arteriotomy with running suture or at the anastomosis site.

**Timing inaccuracy:**

• > than 10 min. for vascular arteriotomy closure with running suture.
• > than 20 min. for end-to-side anastomosis.
• > than 30 min. for side-to-side anastomosis.