The occasional umbilical venous line

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As an obstetrician in a community hospital, I have found that assisting at neonatal resuscitation is often necessary, especially when human resources are limited. Our family physicians do an excellent job in these situations, and I can be most helpful by starting an umbilical line in the newborn. Most pediatricians and neonatologists transect the cord and insert the catheter into the cut end of the umbilical vein. Traction on the vein is usually necessary to pass the catheter through the umbilicus, and this can be difficult

Fig. 1. Rotate the cord until the umbilical vein is visible.

Fig. 3. After the vein is entered with scissors, stretch the opening with the lacrimal dilator.

Fig. 2. Excise the amniotic membrane over the vein.

Fig. 4. Advance the umbilical catheter into the umbilical vein.

I have found an alternative method for inserting the umbilical line. As physicians, we are usually more accustomed to starting an intravenous line or taking blood from an intact rather than a severed vein. I suggest the following technique for inserting an umbilical line.

EQUIPMENT

- 3.5- or 5.0-Fr umbilical catheter
- 10 mL syringe
- 3-way stopcock
- Scalpel
- Hemostat
- Iris scissors
- Lacrimal probe
- Needle driver
- 3-0 black silk suture
- Suture scissors

PROCEDURE

1. Flush out a 3.5- or 5.0-Fr umbilical catheter with a 10 mL syringe of saline, leaving the syringe attached to a 3-way stopcock (Fig. 1). Cleanse the cord between the cord clamp and the umbilicus. Rotate the cord until the umbilical vein is visible.
2. Make a cut through the amniotic membrane (that covers the cord) over the vein (Fig. 2). With a hemostat, bluntly remove any Wharton jelly away from the vein.
3. Take small bites using the iris scissors to make a small cut into the superficial wall of the vein (Fig. 3). Once the lumen has been penetrated, there is usually a small leakage of blood. Using a lacrimal probe, stretch the opening.
4. Pass the gastric tube through the opening into the vein (Fig. 4). Through application of traction on the cord clamp, the catheter will pass through the abdominal wall into the intra-abdominal portion of the umbilical vein. Advance the catheter into the umbilical vein 3–5 cm from the skin surface.
5. Draw back on the syringe. A venous flush ensures that the line is within the vein (Figs. 5 and 6). Secure the tube within the vein by passing a suture (3-0 black silk) through the cord around the vein and tie the tube in place.
6. Pass the suture around the tube above the entry point into the vein (Fig. 7).
7. Tape the tube to the cord clamp to ensure that it will not be dislodged.

An occasional umbilical venous line can readily be achieved within 5 minutes.

Competing interests: None declared.

Fig. 5. Prepare the 3-0 black silk suture to anchor the line.

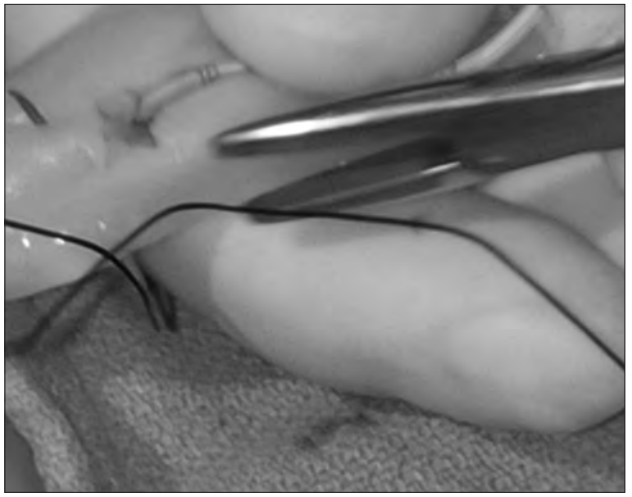

Fig. 6. Pass the suture through the cord around the umbilical vein (with catheter).

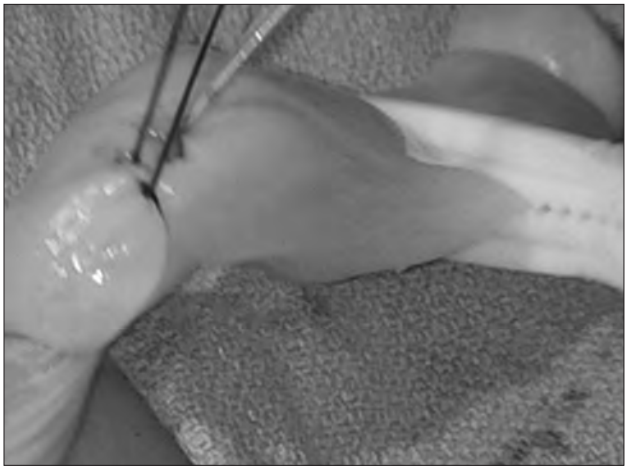

Fig. 7. Tie a knot though the cord holding the catheter in place. Tie an additional knot around the catheter above the entry point (similar to anchoring a drain).