Single-site puncture technique for lateral internal jugular vein tunneled hemodialysis catheter placement

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Objectives: Review the technique of placement of tunneled hemodialysis catheter into the lateral internal jugular vein.

Normally a two puncture site technique is used, one for neck IJ vein access and one for the lateral “over the clavicle” approach for the HD catheter exit site.
Use of only one lateral puncture site to avoid the tracheostomy site, or in morbidly obese patients. The technique is discussed in pictorial essay form.
Statement of the problem:
Morbidly obese ICU patients in renal failure or with an infected tracheostomy tube.
Methods: Nineteen patients underwent placement of a tunneled HD catheter, all of whom had difficult neck access. Indications were:
1) morbid obesity ICU patients;
2) hard cervical spine collars in place to stabilize fractures;
3) infected ventilator tracheal tube sites,
4) cosmetic appeal in thin young patients.
The catheters were tunneled over the lateral clavicle into the internal jugular(IJ) vein using ultrasound guidance and manual manipulation with reversal of the catheter direction downward within the IJ vein lumen.
Single site lateral puncture

- Access the I.J. from lateral approach (18ga Turner needle)
- 6 fr. dilator sheath
- Advance cobra catheter up the I.J.V.
Single site lateral approach

• Reverse direction within the IJV by twisting catheter

• Advance stiff glidewire down IJV - walking down by alternating wire/cath advancements
Single site lateral approach

- Advance dilator sheath into IJV
- Pull-up for IJ catheter sheath advancement
Single site lateral approach

- Thread catheter down IJ into place
Results: All catheters were successfully placed and achieved hemodialysis flow rates (400-600 ml/min). No complications, fractures, or site infections were encountered.

Conclusions: Laterally tunneled placement of HD catheters is safe and feasible in difficult neck access cases using only a single puncture lateral site tunneling technique.