How to Recognize and Safely Manage an Inadvertent Large Sheath Placement in the Subclavian Artery During CVP Line Insertion

Neal S Cayne, MD
Director of Endovascular Surgery
Division of Vascular Surgery
New York University Langone Medical Center
New York, NY

DISCLOSURES –
None

Iatrogenic SCA Injury
• Often occurs - Critically ill patients
  • Limited Reserve
  • ↑ Coagulopathy
  • Poor Wound Healing
  • Extensive Edema

Iatrogenic SCA Injury
• Options:
  • Blind Line Pull
    - 50% Major Morbidity, 12% Mortality
  • Open Surgery
    - Supra/infra clavicular incision
    - General Anesthesia
    - Can be difficult

Simplified Endovascular Approach
• Local Anesthesia
• Minimal Morbidity

Procedure
• 4F catheter (ultrasound, micropuncture)
Procedure

Arteriography performed, catheter entry site located, and catheter removed.

Prior to Removal of Catheter

• Bi-manual pressure - 20 minutes, repeat arteriogram

Procedure

If continued extravasation -

• Balloon control
• Covered stent graft - via brachial artery

NYU Experience (8 Years)

• 20 ICU patients with inadvertent subclavian artery cannulation
  • 9 TLC (7 Fr)
  • 11 Swan introducer (8.5 Fr)

Results

• 18/20 - occluded with pressure alone
• 2/20 - continued extravasation
  - 7 Fr Sheath, covered stent
• All patients had duplex U/S 24-48 hrs post-procedure
• No major complications
Summary

• Minimally invasive, endovascular approach to iatrogenic subclavian artery line placement that is a safe alternative to blind removal or direct open repair.

• This endovascular alternative may be especially beneficial in the obese or critically ill patient.