Dealing with Difficult Anatomy

Samir B. Pancholy, MD, FAHA, FACC, FSCAI
Professor of Medicine, Geisinger Commonwealth School of Medicine,
Program Director, Cardiovascular Diseases,
The Wright Center for GME
The Commonwealth Medical College
Scranton, PA

Disclosures

• Consultant: Medtronic, Terumo
• Equity: Vasoinnovations Inc.
Counterpuncture

• More frequently successful on first attempt

• Faint pulse
Modified Counterpuncture technique

- Failed Puncture
  - Loss of Radial Pulse
    - Wait and Watch
    - IV or SL TNG
    - SQ TNG 200 mcg
Failed Puncture

Loss of Radial Pulse

Wait and Watch  IV or SL TNG  SQ TNG 200 mcg

Pancholy S et al, CCI 2006;68:389-91

SQ NTG

Fig. 1. Time to return of radial pulse (mean ± S.D.). Nitroglycerin administration leads to significantly faster re-establishment of radial pulse compared with observation alone, P < 0.001. Subcutaneous nitroglycerin administration leads to faster re-establishment of radial pulse compared with sublingual administration, P < 0.001.
Balloon-Assisted Tracking

- Difficult anatomy (tortuosity, plaque)
- Spasm
- Catheter transitions create increase in resistance
- Potential for vessel trauma ("Razor effect")

Guide balloon combo
Balloon-in-catheter

- Smooth transition
- 0.014” wire
- 2.5 mm balloon
- 7F launcher 0.081” I.D
- Hydrophilic coating

Razor Effect

(A) Razor effect
(B) Balloon-assisted tracking

How to relieve kink

Catheter kinking

- BP cuff technique
- Snare
Venous access

- Difficult intravenous access
- Ultrasound guided entry
  - No radiation
  - Needs equipment, training, time
Levophase venogram

Levophase venogram
Venous puncture

Sheath insertion
Trouble further up

• Due to RAE

• Tricuspid valve, instead of having a “funnel shaped” inflow, becomes a “volcano crater” like structure on a dilated RA base, making it difficult to cross with a soft catheter.

• PA catheter enters RAA, isthmus etc and loops

• Usually a guidewire is needed to “stiffen” and “straighten” the PA catheter.

Swan not entering RV from RA

• Due to RAE
Inject 10 ml of saline rapidly
I want my mommy

• The case went well......😊😊😊😊

• I bragged a lot........ 😊😊😊

• Sheath will not come out 😞😞😞😞

• Patient screams when I pull the sheath 😞😞😞:(

Consequences of Spasm and Eversion

RELAX

• More Sedation the patient (and staff+yourself)
• Warm up the room temperature
• If HR/BP allow, give additional vasodilators
• Time
SBP + 40 mmHg X 5 min

Need a Trick, Got a Trick!

- www.transradialworld.org
- pancholy8@gmail.com
- 570-840-9852 (Text first please)