

Steps To Minimize Complications During Central Venous Recanalization



Marcelo Guimaraes, MD MBA FSIR
 Vascular Interventional Radiology
 Professor of Radiology and Surgery
 Medical University of South Carolina



Disclosures

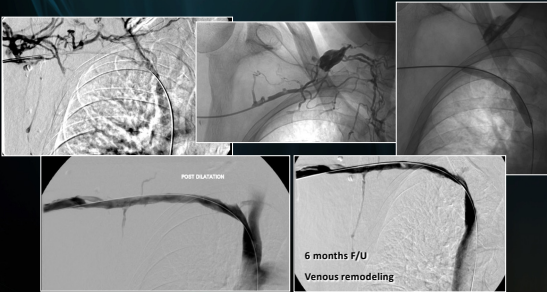
Consultant/speaker

- Guerbet
- Baylis Medical
- Terumo Interventional Systems

Research grant

- Terumo Interventional Systems

Chronic Venous Recanalization with conventional technique



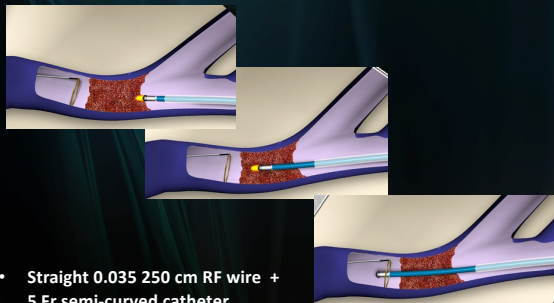
Up to 25% of cases may fail with conventional techniques

FAILURE OF CONVENTIONAL TECHNIQUES? Sharp recanalization to manage CVO

Crossing tools:

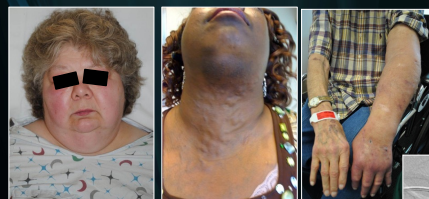
- Colapinto needle/TIPS kits
- Back end of stiff guidewire
- Outback Device
- Coaxial needle systems
- **Sniper technique:** Power (RF) wire

Chronic Venous Recanalization with Sniper Technique

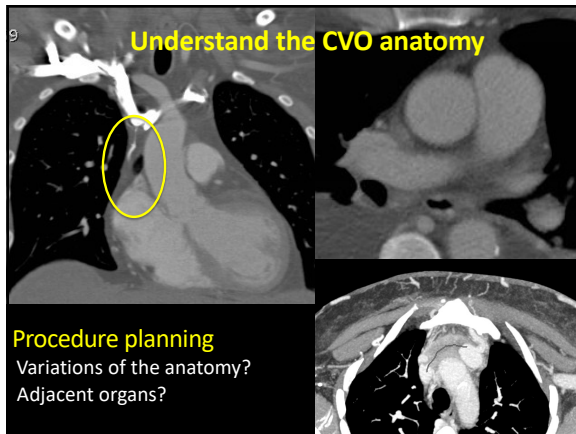


- Straight 0.035 250 cm RF wire + 5 Fr semi-curved catheter
- 10 mm snare through a 5 Fr semi-curved catheter

Sniper Technique - Indications



- ✓ Symptomatic patients
- ✓ Malfunctional HD access
- ✓ After failed attempt to use conventional technique



Sniper Technique
Plan ahead of the game...
Anticipating potential complications

- All cases under general anesthesia
- Blood type and cross
- Blood reservation

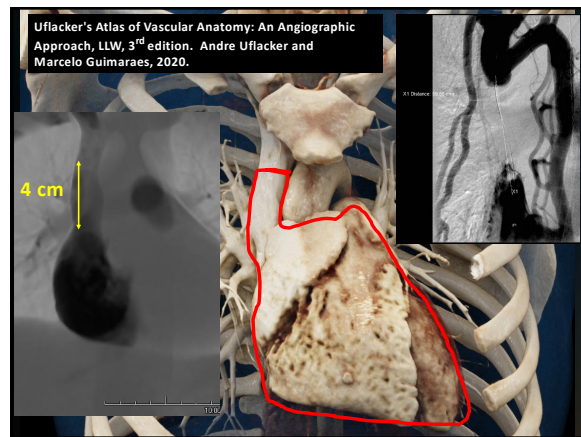
✓ **SNIPER TECHNIQUE IN OBLs: NOT RECOMMENDED**

Sniper Technique:

BEFORE GETTING ACCESS:
Mark Subxiphoid window
Prep and draped

Take a Baseline Cardiac US image

- ✓ Pericardium drainage tray handy
- ✓ Chest drain handy
- ✓ Assign personnel tasks



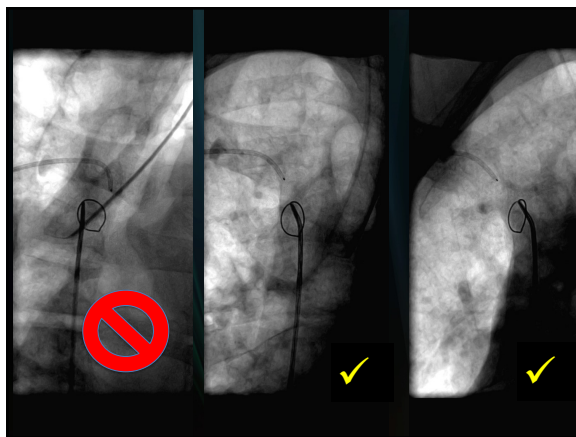
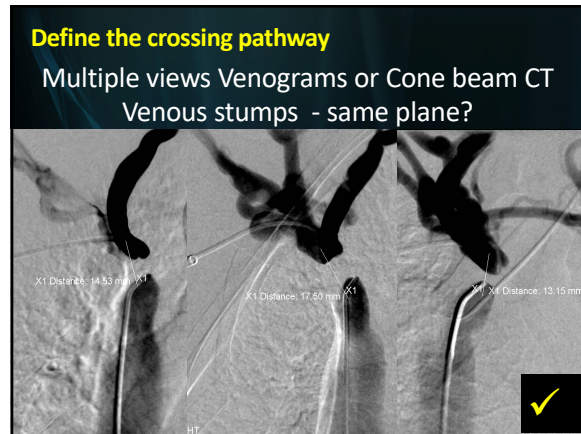
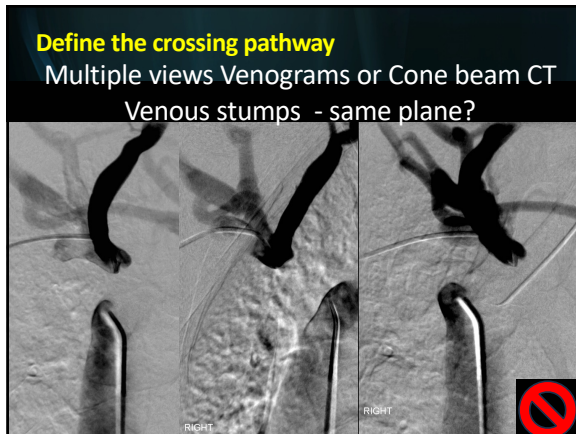
Sniper Technique
Simultaneous injections for a central venogram

Central venograms in multiple views (AP, RAO, LAO)
or
Cone beam CT

Central venogram:

- Collaterals
- Length of the occlusion
- Diameter of the venous stumps

Simultaneous central venograms through the brachial and femoral accesses = DEFINE THE CENTRAL VENOUS OCCLUSION



Sniper technique in chronic occlusions, not venous stenosis

Stents selection

- 10 mm (not always bigger is better...)

SVC

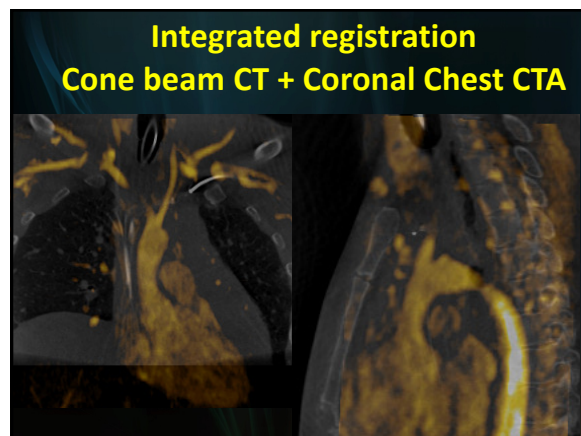
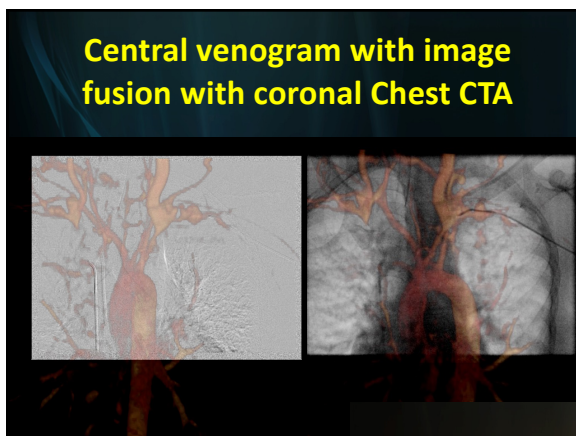
- Balloon expandable COVERED stent (V12/Atrium, VBX/Gore)

Brachiocephalic Vein

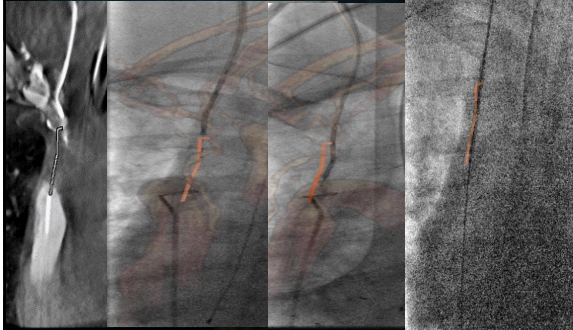
- BARE metal balloon expandable stent (Express/Bsci)
- Balloon expandable COVERED stent

Subclavian Vein

- Self-expandable stent (Protege or Abre/Medtronic)



Sniper Technique with Image fusion

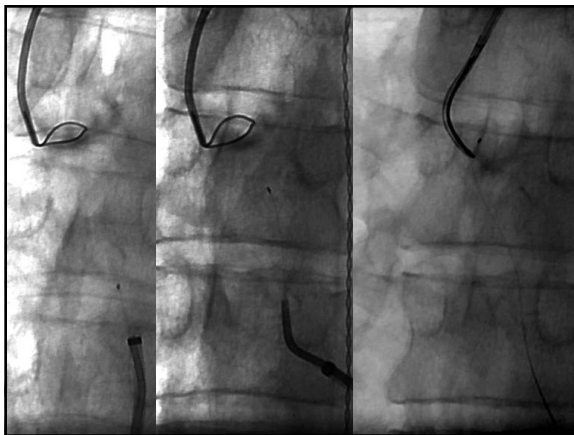
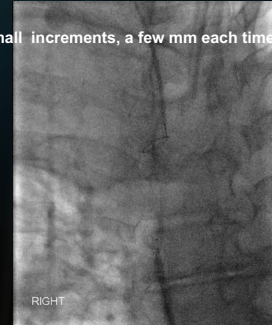
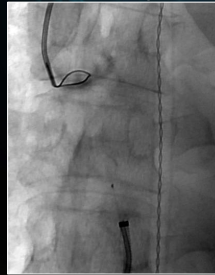


Sniper Technique

Set your target:

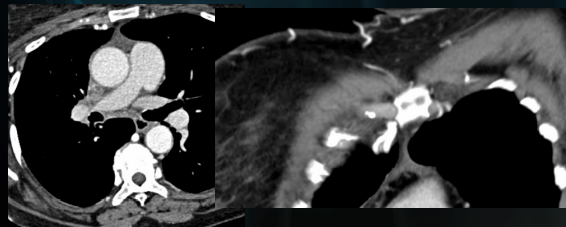
10mm snare (avoid big target)

Advance the sharp rec tool in small increments, a few mm each time



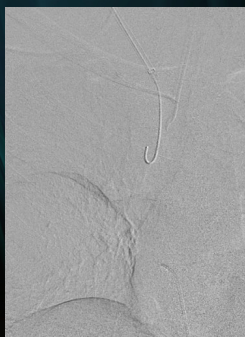
Understand the CVO anatomy

Diagnostic CT venogram

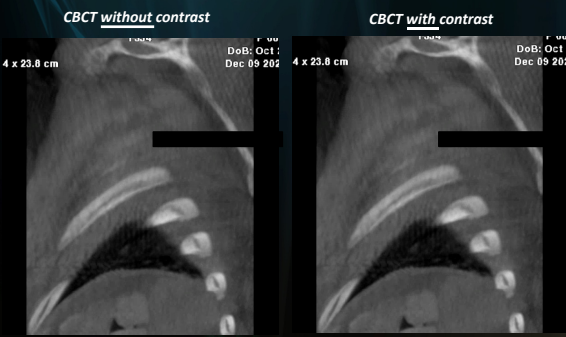


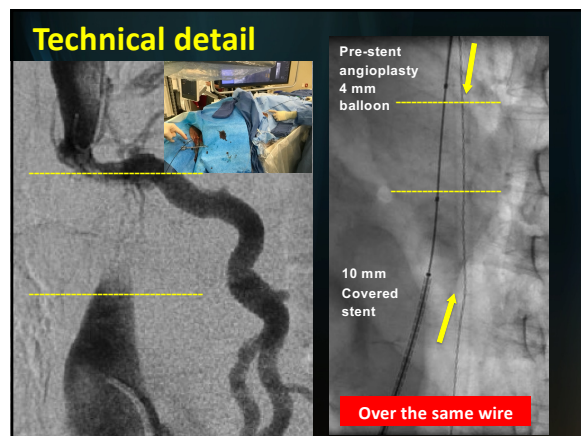
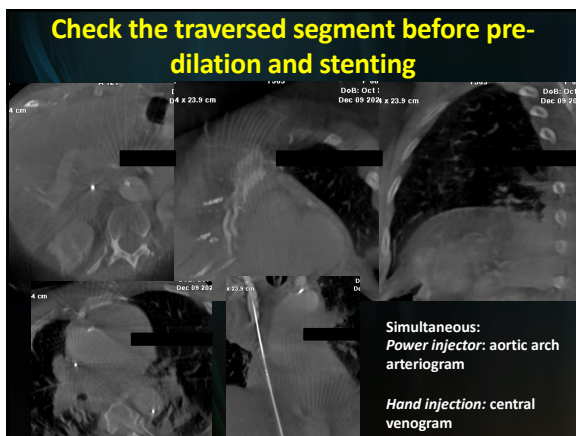
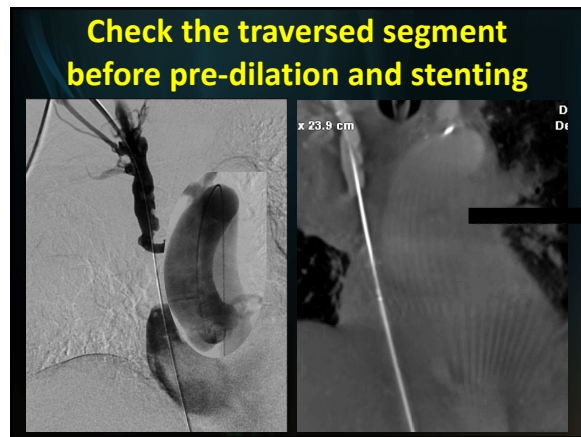
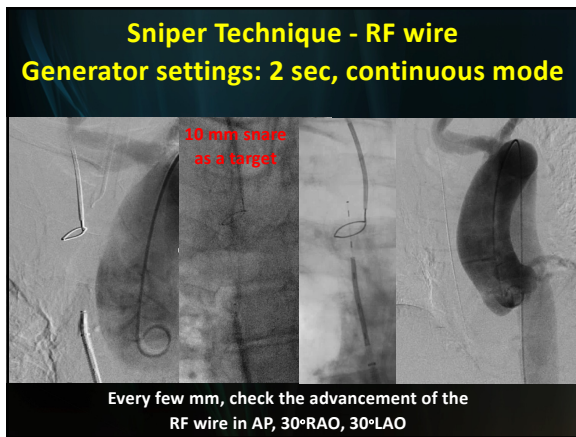
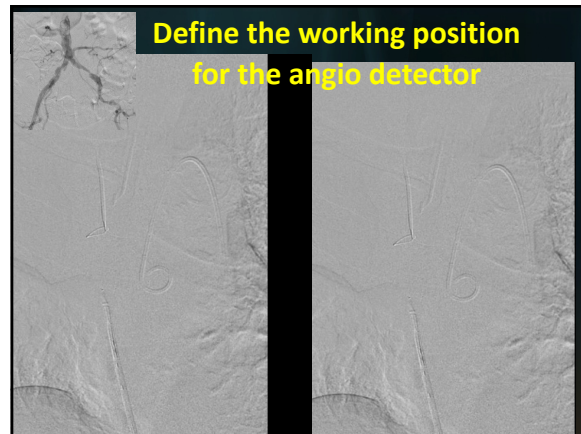
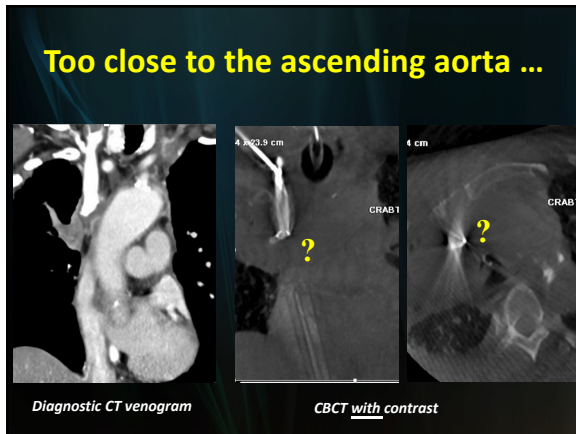
- Chest CT w contrast: understand the anatomy, venous stump location
- Good pre-op images can be used for image fusion during the case

First, always attempt to recanalize using conventional technique



CBCT to check the alignment of the RF wire and the 10 mm snare





SVC recanalization: covered stents

- Decrease the risk of cardiac tamponade
- Avoid jailing out important collaterals

10x59 mm V12 balloon expandable covered stent

Final

Sniper Technique for SVC recanalization 6 months FU

CLINICAL STUDY EXTREME IR

Radiofrequency Wire for the Recanalization of Central Vein Occlusions that Have Failed Conventional Endovascular Techniques

Marcelo Guimaraes, MD, Claudio Schonholz, MD, Christopher Hannagan, MD, Michael Bret Anderson, MD, June Shi, RN, and Bayne Salvey Jr, MD

Abstract: To report the technique and acute technical results associated with the PowerFlex Radiofrequency (RF) Catheters used to recanalize central vein occlusions (CVOs) after the failure of conventional endovascular techniques.

Methods and Results: A retrospective study was conducted from January 2008 to December 2011, which identified all patients with CVOs who underwent recanalization with conventional techniques. For every recanalization attempt with conventional techniques, a PowerFlex RF wire was used for recanalization. Technical success was defined as the ability to recanalize the CVO with the RF wire. The primary endpoint was the ability to recanalize the CVO with the RF wire. The secondary endpoint was the ability to recanalize the CVO with the RF wire without the need for a second procedure. Technical success was defined as the ability to recanalize the CVO with the RF wire. The primary endpoint was the ability to recanalize the CVO with the RF wire. The secondary endpoint was the ability to recanalize the CVO with the RF wire without the need for a second procedure.

Conclusion: The present study suggests that the RF wire technique is a safe and effective alternative in the recanalization of symptomatic and chronic CVOs when conventional endovascular techniques have failed.

JVIR August, 2012 J Vasc Interv Radiol 2016; 27:116-1169

Radiofrequency wire technique and image fusion in the creation of an endovascular bypass to treat chronic central venous occlusion

Ricardo Vazquez, MD, Daniel Sosa, MD, Clark Wain, BS, Laura Barrios, MD, Navee Gokhale, MD, and Marlene Gutierrez, MD, PhD, Francisco R.

Abstract: The purpose of this study was to describe the feasibility, safety, and efficacy of image fusion in the creation of an endovascular bypass to treat chronic central venous occlusion. The primary endpoint was the ability to create an endovascular bypass. The secondary endpoint was the ability to create an endovascular bypass without the need for a second procedure. Technical success was defined as the ability to create an endovascular bypass. The primary endpoint was the ability to create an endovascular bypass. The secondary endpoint was the ability to create an endovascular bypass without the need for a second procedure.

Conclusion: The present study suggests that the RF wire technique is a safe and effective alternative in the recanalization of symptomatic and chronic CVOs when conventional endovascular techniques have failed.

J Vasc Surg Cases and Innovative Techniques 2019;5:356-9.

Tips to take home

- Sniper technique is an effective and safe alternative after failed attempt to recanalize CVOs with conventional techniques
- Take all measures to protect your patients.

Ep. 373
Sharp
Recanalization
Using the
RF Wire wit...

open.spotify.com

BACKTABLE PODCAST:
EPISODE 373

Thank you