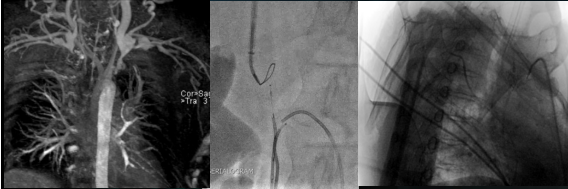


### Endovascular Brachiocephalic And IVC Bypass Graft Creation: Changing What Is (Im)Possible



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



### Disclosure

Consultant/speaker

- Guerbet
- Baylis Medical
- Terumo Interventional Systems

Research grant

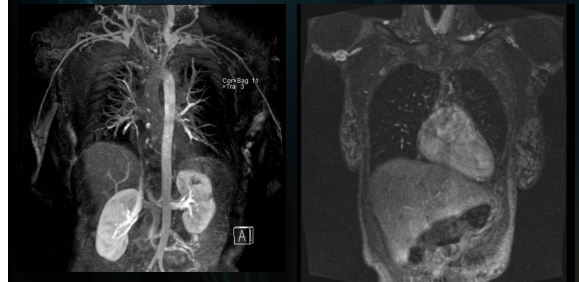
- Terumo Interventional Systems

### Sniper technique and Image Fusion

- Fem, 42 yo
- Sickle cell disease
- Multiple central lines in the torso and abdomen
- Painful varices in the torso and abdomen
- Port place in the right upper chest



### Dec 2016



### 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

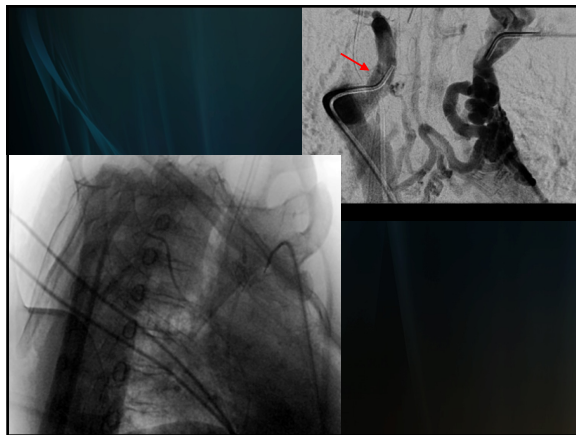
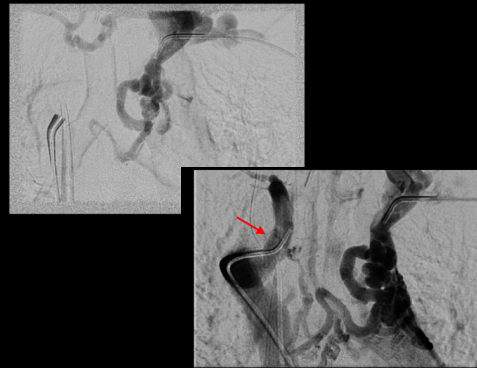
### Under general anesthesia



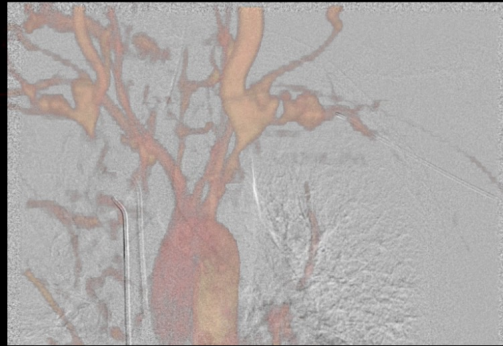
**Central venograms in AP, RAO, LAO  
to understand the anatomy**



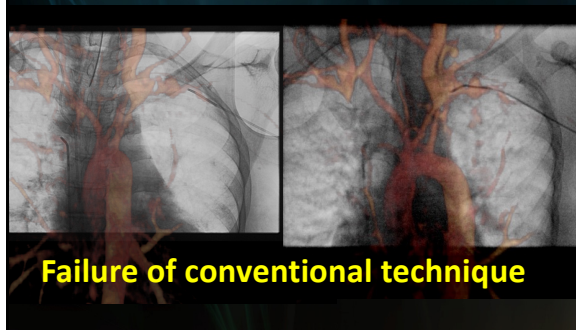
**Where should we start?**



**Central venogram with image  
fusion with coronal Chest CTA**

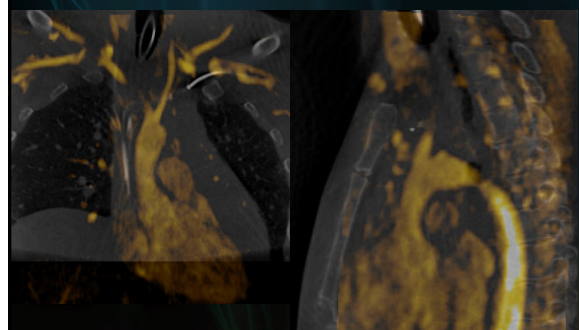


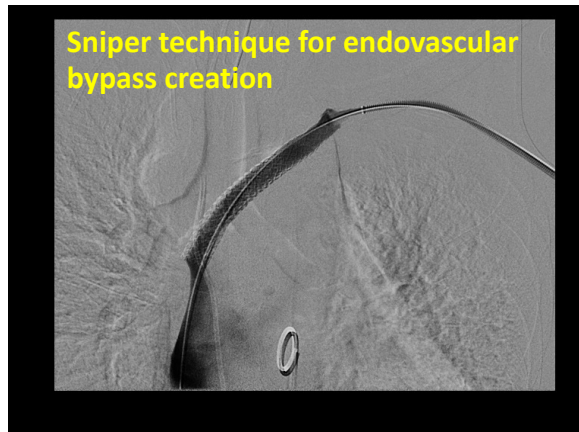
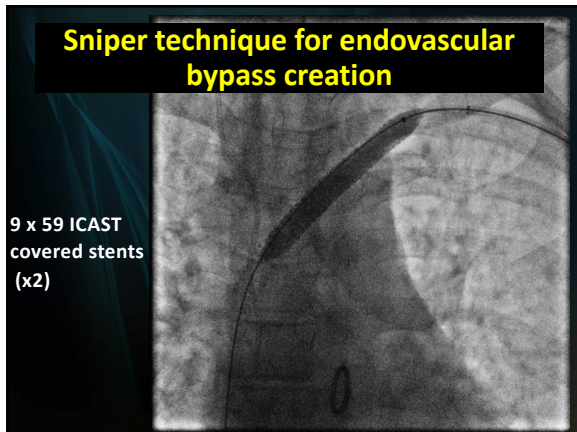
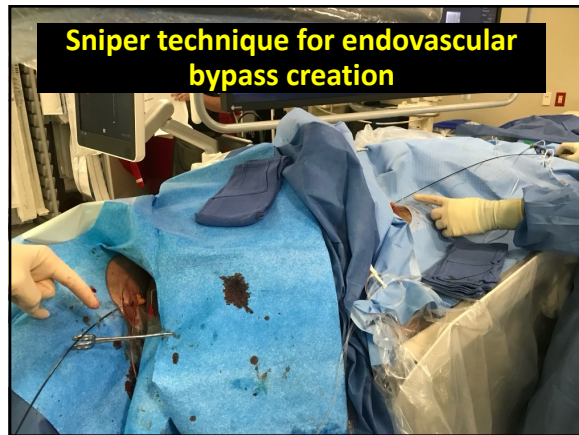
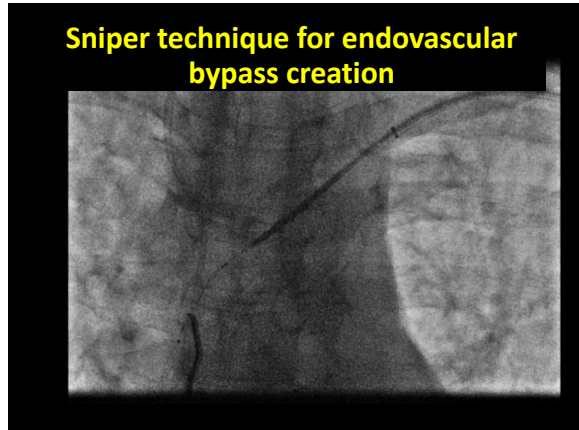
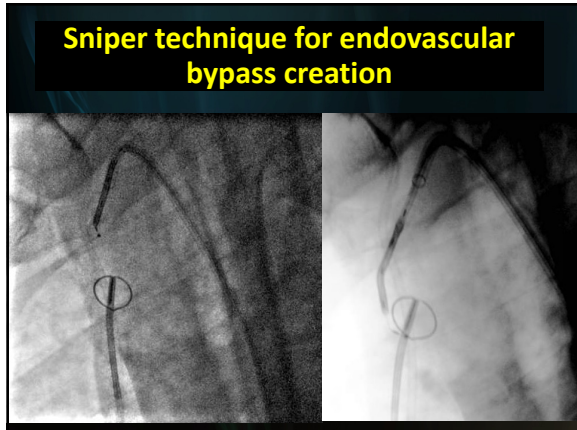
**Fluoroscopy with image fusion  
with coronal Chest CTA**

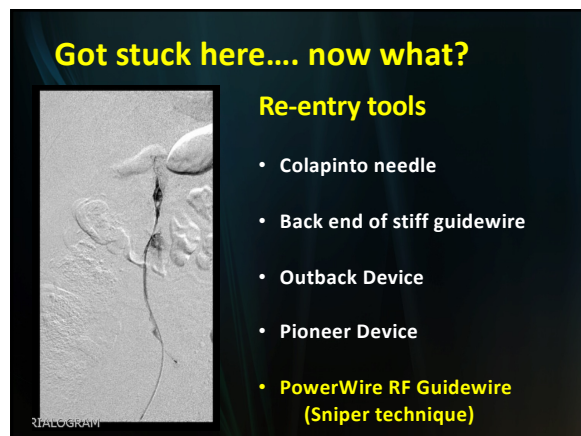
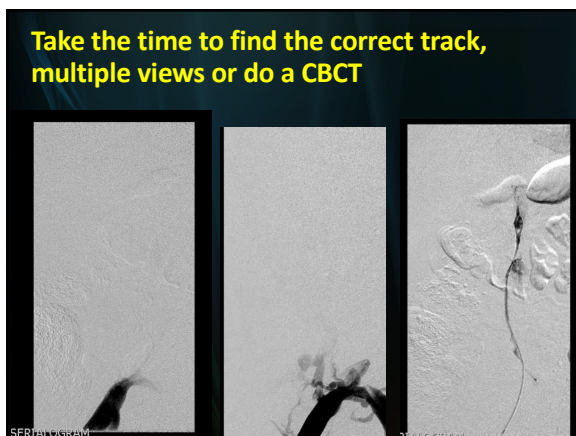
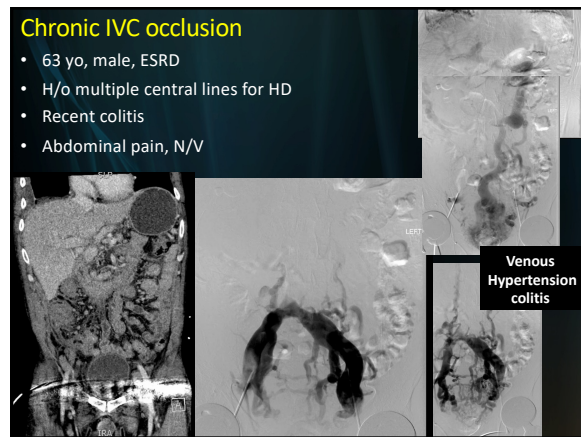
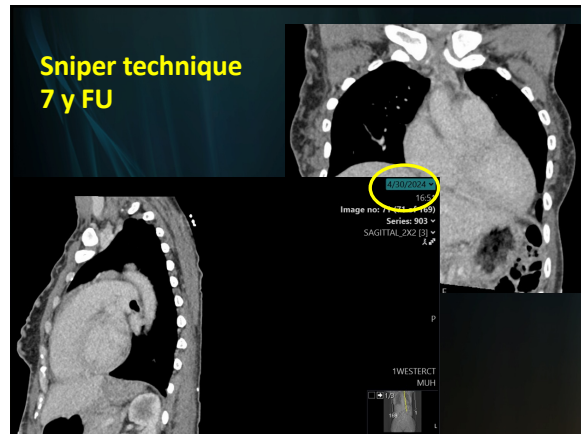
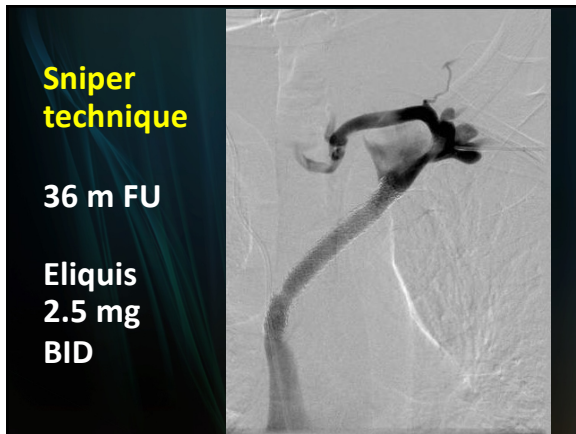


**Failure of conventional technique**

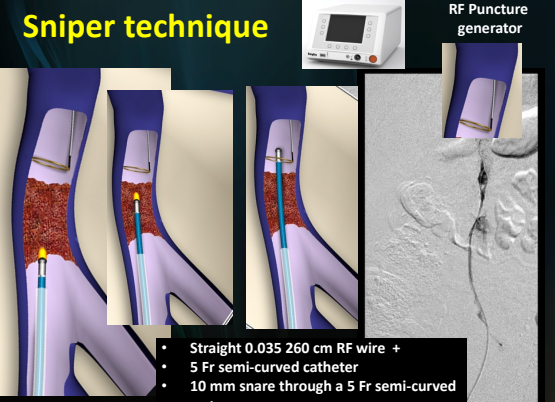
**Integrated registration  
Cone beam CT + Coronal Chest CTA**







### Sniper technique



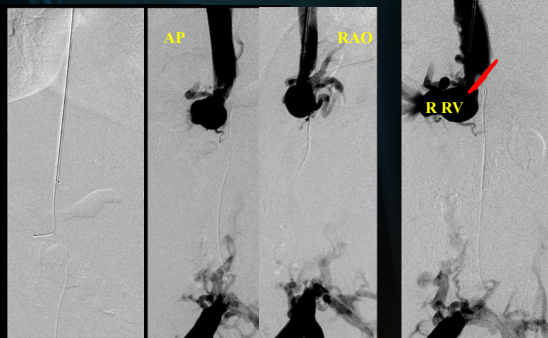
RF Puncture generator

- Straight 0.035 260 cm RF wire +
- 5 Fr semi-curved catheter
- 10 mm snare through a 5 Fr semi-curved catheter

This slide illustrates the sniper technique. It includes a diagram of the renal vein and a fluoroscopic image showing the catheter and snare in place. An RF Puncture generator is also shown.

### Sniper technique

Define the target, multiple views

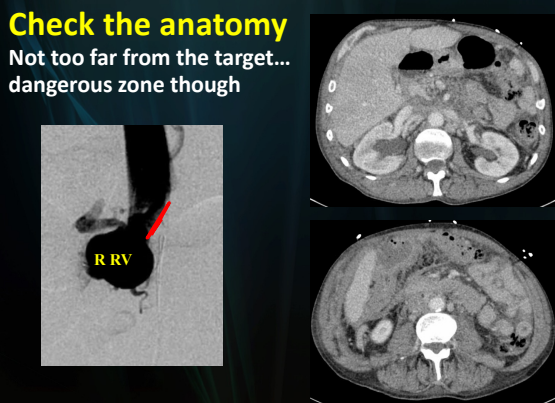


AP RAO R RV

This slide shows three fluoroscopic views: AP, RAO, and RRV. The RRV view shows the renal vein (R RV) with a red arrow pointing to the target area.

### Check the anatomy

Not too far from the target... dangerous zone though

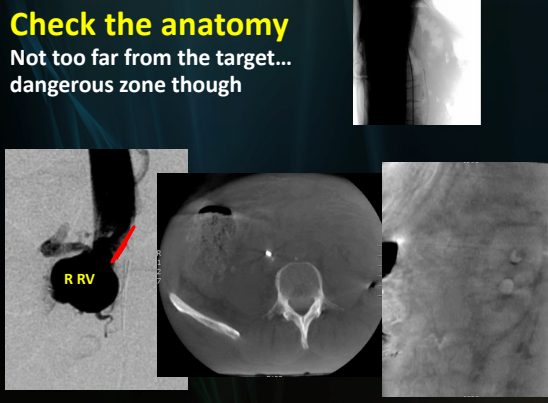


R RV

This slide shows a fluoroscopic image of the renal vein (R RV) with a red arrow, alongside two axial CT scans of the abdomen to check the anatomy.

### Check the anatomy

Not too far from the target... dangerous zone though



R RV

This slide shows a fluoroscopic image of the renal vein (R RV) with a red arrow, alongside two axial CT scans of the abdomen to check the anatomy.

### Sniper

Right renal




R RV

This slide shows a fluoroscopic image of the right renal vein (R RV) with a red arrow pointing to the target area.

### Sniper technique

0.035" 250 cm Powerwire  
10 mm snare in the supra-renal IVC

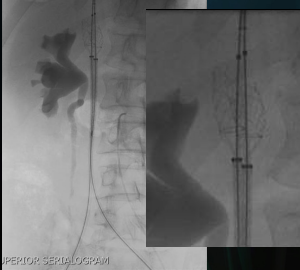


Check multiple views or do a CBCT

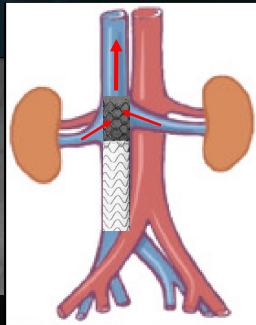
This slide shows fluoroscopic images of the Powerwire and snare in the supra-renal IVC. The text indicates to check multiple views or do a CBCT.

## Sniper technique

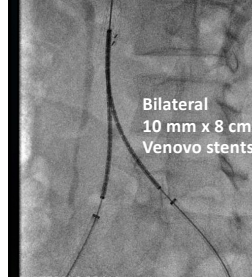
2 Introducer sheaths  
10 Fr, 40 cm long



Double Viatorr stent  
10 mm x 10cm



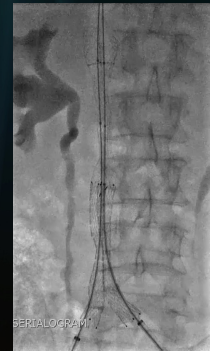
Double barrel!  
10 mm x 10cm  
Viatorr stents



IP SERIALOGRAM

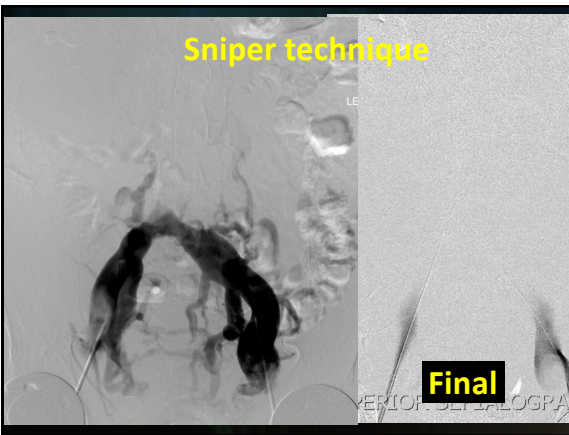
## Sniper technique

Bilateral  
10 mm x 8 cm  
Venovo stents



IP SERIALOGRAM

## Sniper technique

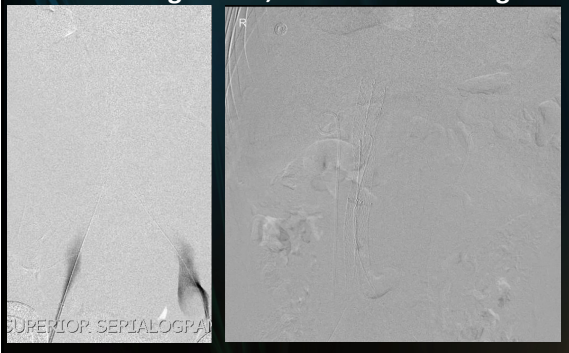


Final

## Post-op management

- Anticoagulation
- Compression hose
- Exercise (walks)
- FU in clinic

## 18 months FU venogram Anticoagulation, Venous remodeling



SUPERIOR SERIALOGRAM

**CLINICAL STUDY**

**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, Jane Shi, RN, and Baylie Seibler Jr, MD

**ABSTRACT**

**Objective:** To report the technique and some technical details associated with the PowerFlex Radiofrequency (RF) Catheter used for recanalization of central vein occlusions (CVOs) after the failure of conventional endovascular techniques.

**Methods and Materials:** A retrospective study was conducted from August 2008 to December 2011, which included all patients with CVOs who underwent treatment with a conventional guide wire. Forty-five symptomatic patients with venous stasis or segment vein occlusion (SVO) who underwent RF wire recanalization of CVOs who have been reported with death. The distribution of CVOs in central veins was as follows: 20 thrombotic, 20 thrombotic, and 5 hyperplastic. All patients had a history of central venous catheter placement. Patients were managed with medical, surgical, and/or endovascular treatment.

**Results:** All 45 patients had successful recanalization of CVOs facilitated by the RF wire technique. There was one complication, which was not directly related to the RF wire use: one case of catheter kinking, corrected by pulling the catheter out and reinserting it. The total procedural time was 100 minutes on average.

**Conclusions:** The present results suggest that the RF wire technique is a safe and efficient alternative in the recanalization of recanalized and chronic CVOs when conventional endovascular techniques have failed.

**EXTREME IR**

**Percutaneous Iliacaval Construction to Treat Symptomatic Chronic Lower Extremity Venous Insufficiency**

Patrick J. Gilman, MD, Kate W. Barlow, MD, Justin C. Scroggins, MD, Anthony Santoro, MD, and Marcelo S. Guimaraes, MD

**ABSTRACT**

**Objective:** To report the minimally-invasive approach for lower extremity venous insufficiency (LEVI) by recanalization of the common iliac vein and inferior vena cava (IVC) by recanalization of the common iliac vein and IVC.

**Methods and Materials:** A retrospective study was conducted from August 2008 to December 2011, which included all patients with LEVI who underwent percutaneous iliacaval construction (PIC) with the use of a radiofrequency wire and a catheter.

**Results:** All 15 patients had successful recanalization of CVOs facilitated by the RF wire technique. There was one complication, which was not directly related to the RF wire use: one case of catheter kinking, corrected by pulling the catheter out and reinserting it. The total procedural time was 100 minutes on average.

**Conclusions:** The present results suggest that the RF wire technique is a safe and efficient alternative in the recanalization of recanalized 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**

Marcelo Guimaraes, MD, Claudio Schonholz, MD, Christopher Hannagan MD, Michael Bret Anderson, MD, Jane Shi, RN, and Baylie Seibler Jr, MD

**ABSTRACT**

**Objective:** To report the technique and some technical details associated with the PowerFlex Radiofrequency (RF) Catheter used for recanalization of central vein occlusions (CVOs) after the failure of conventional endovascular techniques.

**Methods and Materials:** A retrospective study was conducted from August 2008 to December 2011, which included all patients with CVOs who underwent treatment with a conventional guide wire. Forty-five symptomatic patients with venous stasis or segment vein occlusion (SVO) who underwent RF wire recanalization of CVOs who have been reported with death. The distribution of CVOs in central veins was as follows: 20 thrombotic, 20 thrombotic, and 5 hyperplastic. All patients had a history of central venous catheter placement. Patients were managed with medical, surgical, and/or endovascular treatment.

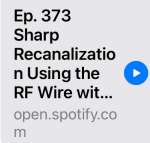
**Results:** All 45 patients had successful recanalization of CVOs facilitated by the RF wire technique. There was one complication, which was not directly related to the RF wire use: one case of catheter kinking, corrected by pulling the catheter out and reinserting it. The total procedural time was 100 minutes on average.

**Conclusions:** The present results suggest that the RF wire technique is a safe and efficient alternative in the recanalization of recanalized 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.



BACKTABLE PODCAST:  
EPISODE 373

## Thank you