

# How Can 3D Fusion And ASSIST Guidance (GE) Help In Type 2 Endoleak Treatment By Any Approach: How To Do It

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## DISCLOSURES

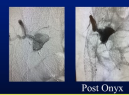
- NONE

## Type II Endoleak Treatment

### EMBOUZATION Techniques

- Transarterial-TAE
- Translumbar-TLE
- Transgraft-TGE
- Transcaval-TCE

Regardless of embolization technique



Obliteration of the "nidus" is key to sustained T2E repair  
**MUST GET TO THE NIDUS**

#### Onyx versus coil embolization for the treatment of type II endoleaks

George Skafidas MD<sup>1</sup>, James Smith MD<sup>2</sup>, Adam H Powell MD MRCR<sup>3</sup>, Guy DeWaal MD<sup>4</sup>,  
Audra Dunham MD<sup>5</sup> and Luc Dubois MD MSc<sup>6</sup> London Ontario, Canada

Journal of Vascular Surgery  
June 2012

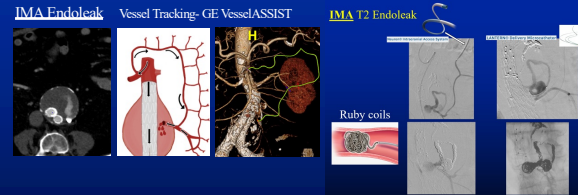
#### ARTICLE HIGHLIGHTS

Type of Research: A single-center, retrospective cohort study  
**Key Findings:** Onyx (Medtronic, Minneapolis, MN) embolization had a lower long-term rate of treatment failure and required fewer subsequent interventions (39% vs 58%, P = .03) compared with coil embolization.

In reality:  
Coils and Onyx

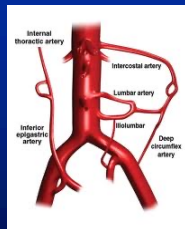
## TAE-Transarterial Embolization

- SMA branch (IMA leak)
- IIA branch (Lumbar leak)



Only attempt if definite catheter/wire path to the nidus!

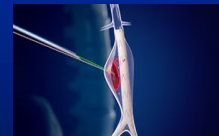
## Lumbar T2 endoleak TAE-Transarterial Embolization



Iliolumbar Artery

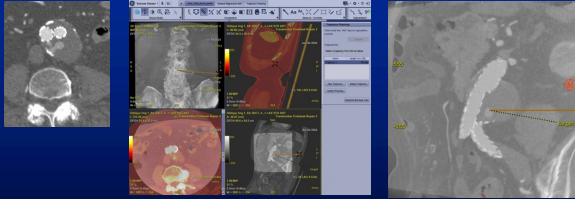
Not always technically possible to gain catheter access to the target

## TLE-Translumbar Embolization



### TLE-Translumbar Embolization

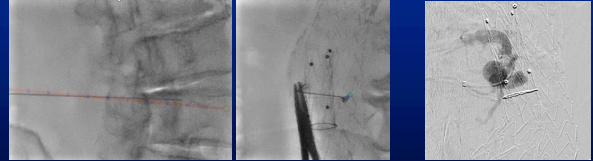
- Improved target reach with image-guided software
- Integrated registration with NeedleASSIST
  - CBCT/CTA registration



Trajectory of the needle can be planned for optimal guidance into the endoleak

### TLE-Translumbar Embolization

- NeedleASSIST
  - Real-time visualization in 3D
  - Fusion of live fluoro and trajectory lines that follow C-arm and table movements



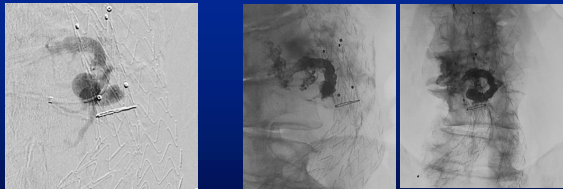
Progress view

Bullseye view

DSA

### TLE-Translumbar Embolization

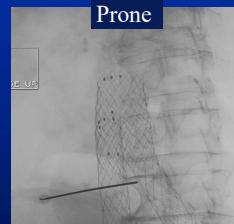
#### NeedleASSIST



DSA

Post Onyx

### TLE-Translumbar Embolization

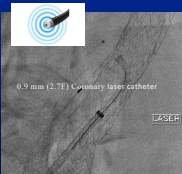


Safe needle access for TLE is not always anatomically feasible due to location of the endoleak relative to IVC, bowel loops, kidney, bony structures

### Laser-Assisted Transgraft Embolization: A Technique for the Treatment of Type II Endoleaks

Mark W. Mewissen, MD, M. Fuad Jan, MD, MBBS, David Kuten, MD, and Zvonimir Krajcer, MD

*J Vasc Interv Radiol* 2017; 28:1600-1603



#### The TGE technique

- Transfemoral arterial access
- Laser micro-puncture endograft limb
  - 0.9 mm (2.7F) Coronary laser catheter
- Aptus steerable 6F sheath

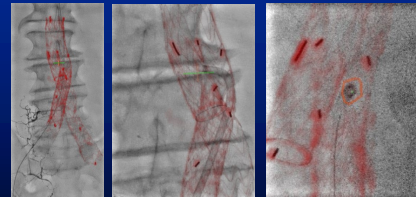
Precise access into endoleak nidus, irrespective of its location

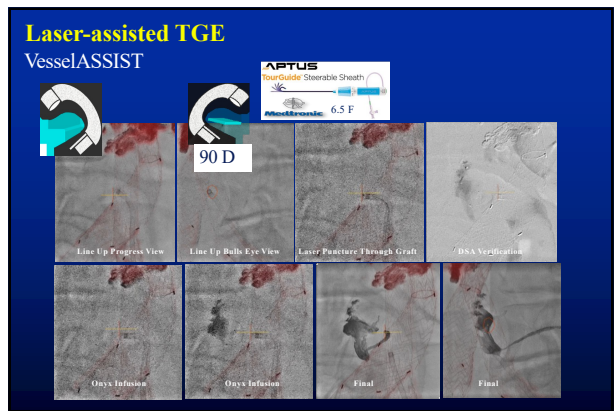
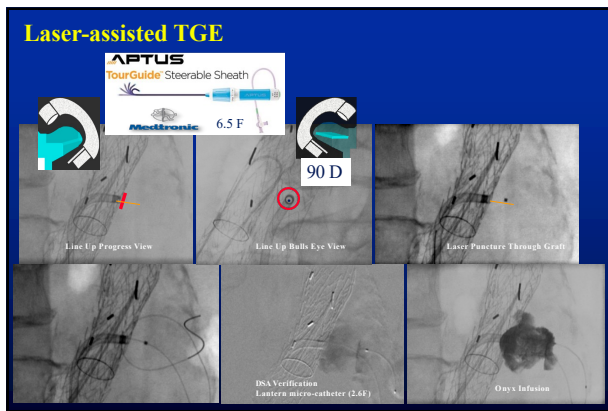
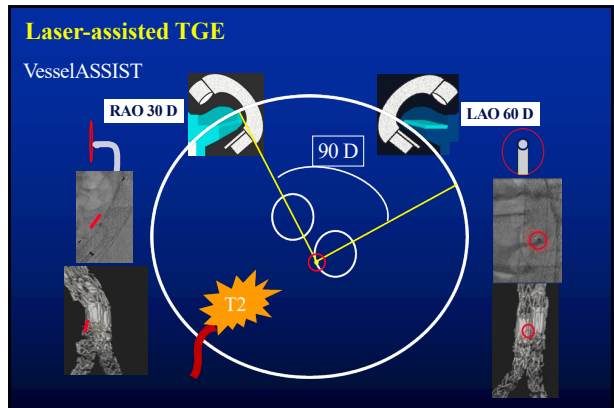
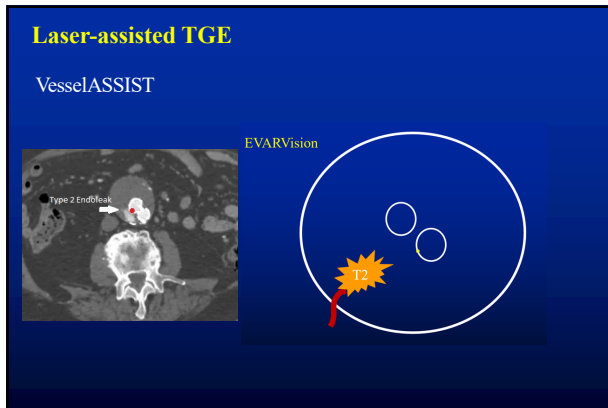
### Type II Endoleak treatment using transgraft approach guided with image fusion

A novel method to treat Type II Endoleak through a transgraft approach | ASSIST 11 | Dr. Mewissen



Leverage GE ASSIST software VesselASSIST with Planning lines





### Transgraft embolization by using long needle for the treatment of type II endoleaks after endovascular abdominal aortic repair

Hiroaki Matsumura, MD, Hiroyuki Nagata, MD, PhD, Hiroshi Teraishi, MD, Masu Arisaka, MD, PhD, Yoshiko Higashide, MD, and Norihiro Minematsu, MD, Akusaka, Japan | Journal of Vascular Surgery Cases and Innovative Techniques | December 2020

**Transgraft embolization**

Type II endoleak

Puncture the graft

Microcatheter insert through the needle

Microcatheter reach the lesion

Embolize with coils and embolic

long custom needle

**The TGE technique**

Graft puncture

0.9 mm (2.7F)

Pre-embol

1 year post TGE

7.4 cm

5.7 cm

- N=10
- No "sealing" of puncture site
- No T3 endoleak

### Tanscaval Embolization (TCE)

Ring needle (TIPS)

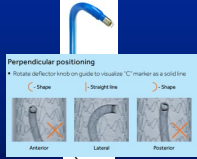
IVC puncture site is "fixed"

Good technique for right-sided endoleaks

## Laser-assisted TCE: Guide with 3D Fusion

### T1/T2 post ZFen

HeliFX 16 E steerable sheath

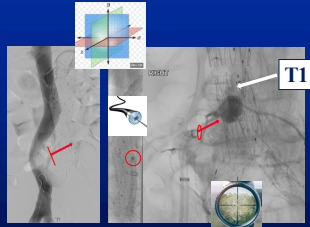


Perpendicular positioning

• Rotate deflector knob on guide for suitable "C" marker as a reference

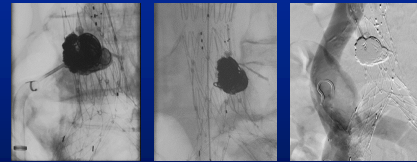


2.3-mm Turbo Elite laser catheter



VesselASSIST  
■ Planning lines

## Laser-assisted TCE: Guide with 3D Fusion



Coils + Onyx

## Management of Endoleaks post EVAR

### Conclusion

- Guide endoleak embolization with "2D-3D FUSION"
- T2E
  - Embolize the nidus, regardless of embolization technique
  - Onyx and/or coils
  - IMA T2E, use TAE if arcade is present, if not, TGE
  - Lumbar T2E, use TLE/TGE
- T1E: Consider TCE
  - Juxtarenal/Juxtavisceral/Type IV TAA