

The Ultra-rapidly Acting Cyanoacrylate Embolization Compared with Micro-Pulsed Laser ablation

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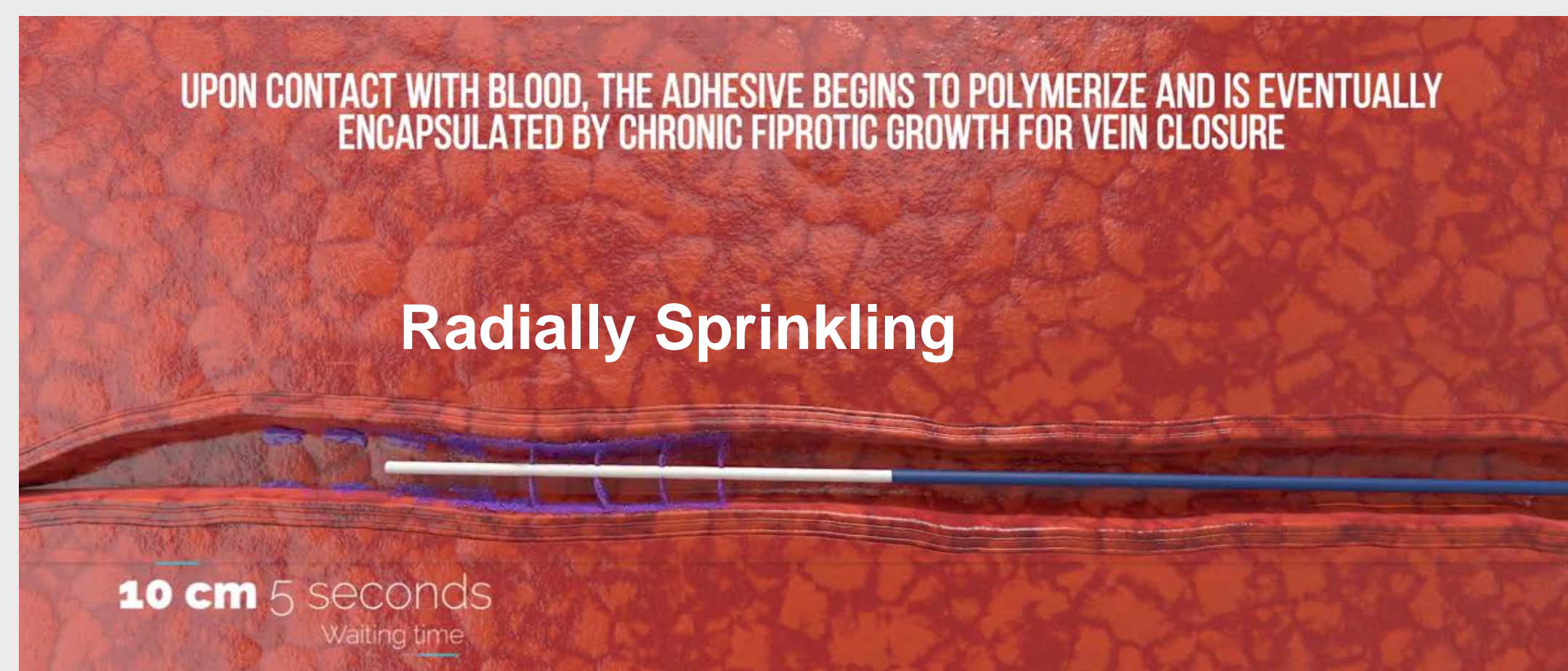
INTRODUCTION

The ultra-rapidly acting n-butyl cyanoacrylate (uNBCA) has been introduced as a new non-thermal and non-tumescent endovenous ablation modality. The second generation of uNBCA kit (VariClose®) uses the radial delivery catheter by dispersing uNBCA evenly at the same time.

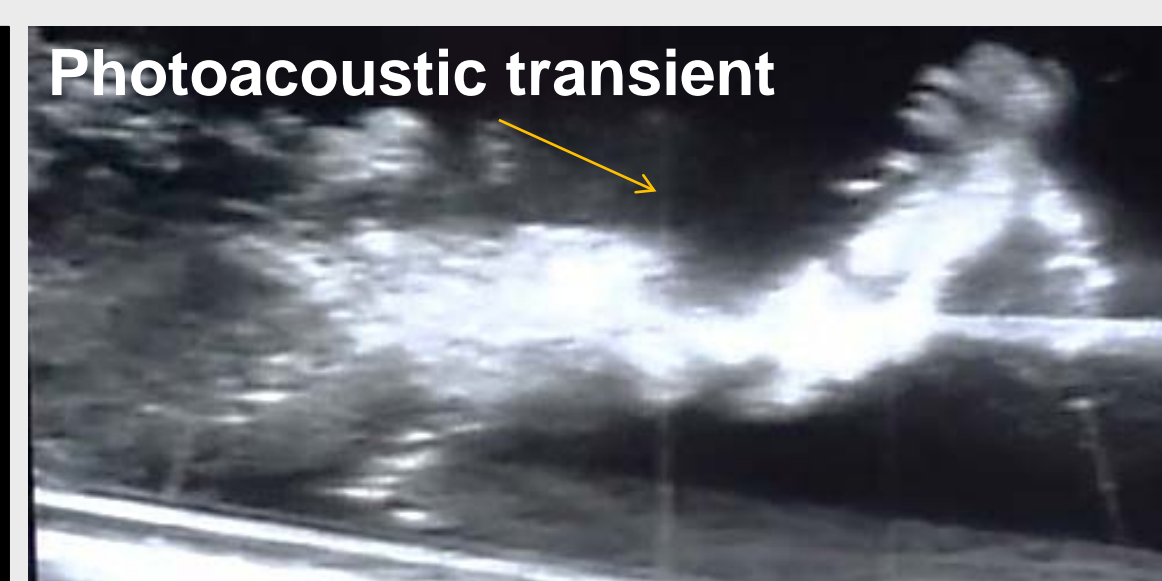
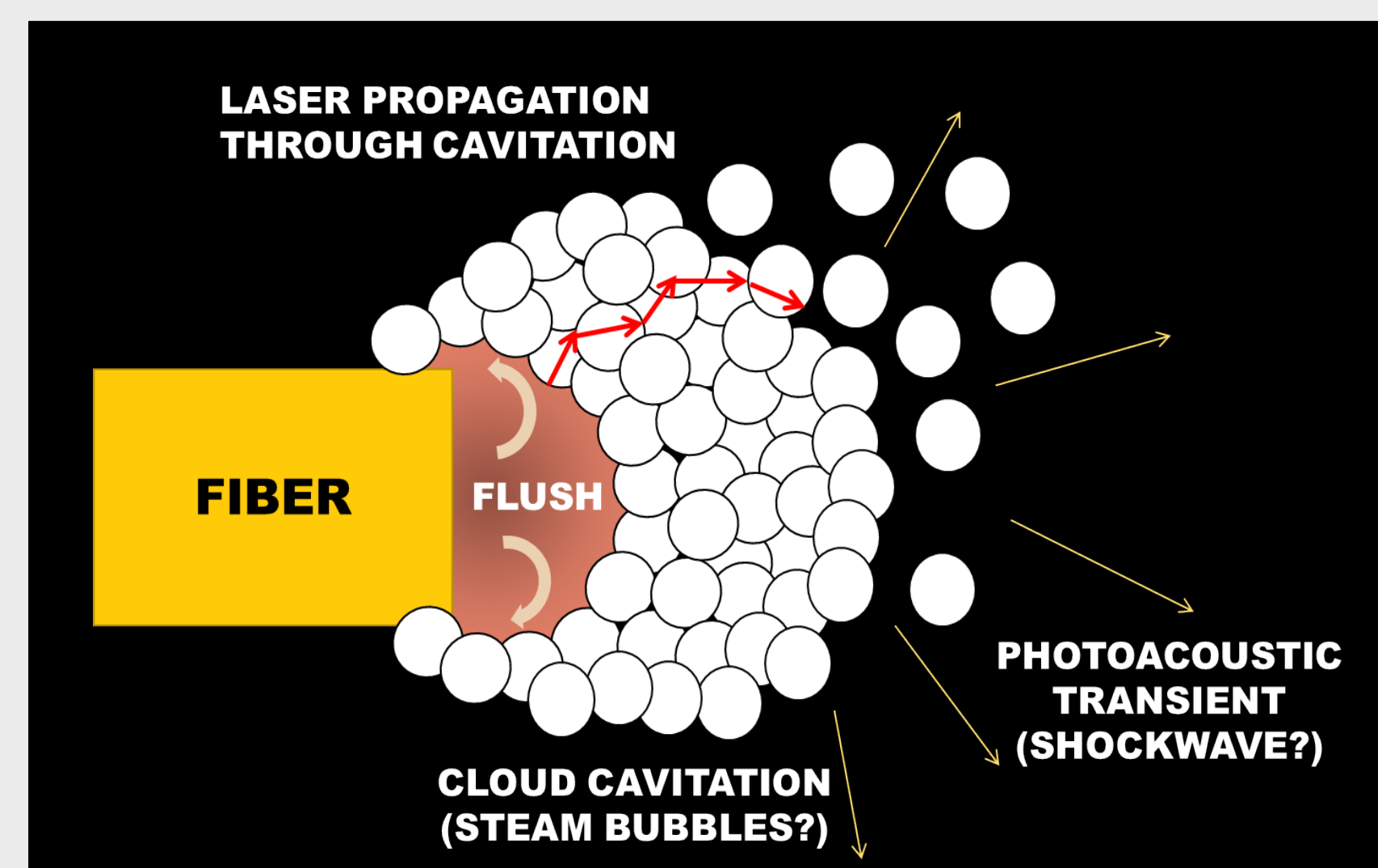
The micro-pulsed YAG laser (1320nm, 100 microseconds pulse duration) has also provided a more advanced thermal modality that allows for painless ablation using a bare fiber.

The aim of this study is to retrospectively compare uNBCA based ablation with endovenous micro-pulsed laser ablation (EMPLA).

Ultra-rapidly acting n-butyl cyanoacrylate (uNBCA) using the radial delivery catheter



Micro-Pulsed YAG Laser: Basic concept



Advantages of EMPLA

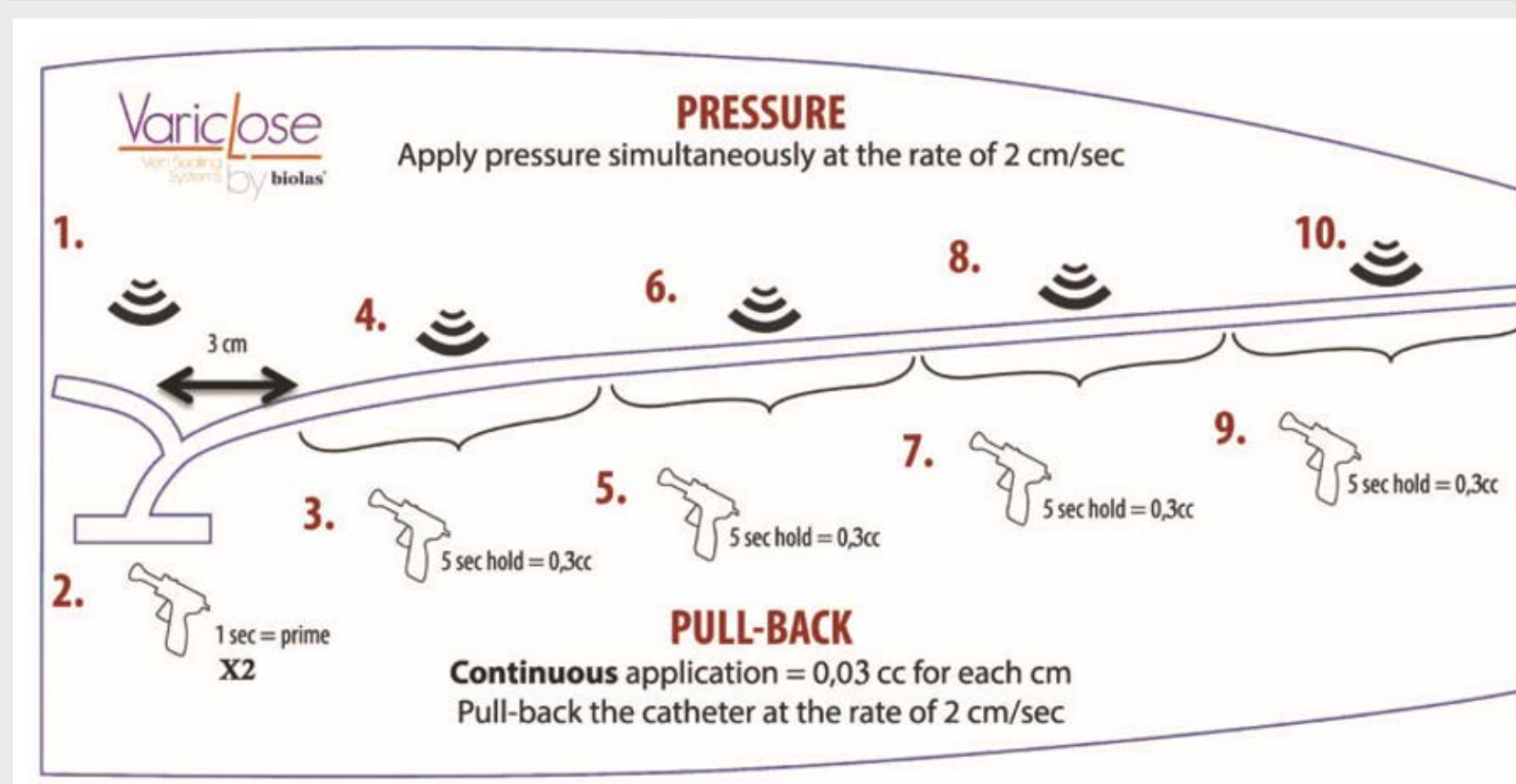
- Minimal heat accumulation in the blood
- Minimal EHIT
- Bare fiber provides the best result.
- No postoperative pain without use of analgesics
- No bruising after procedure

METHODS

Since June 2016, there have been 140 patients with incompetent varicose veins who were treated with an endovenous embolization of uNBCA (n=70) or EMPLA (n=70).

Tumescent anesthesia and compression stockings were only used in the EMPLA group.

The preprocedural, intraoperative, postoperative and follow-up data of the patients were collected and retrospectively compared.



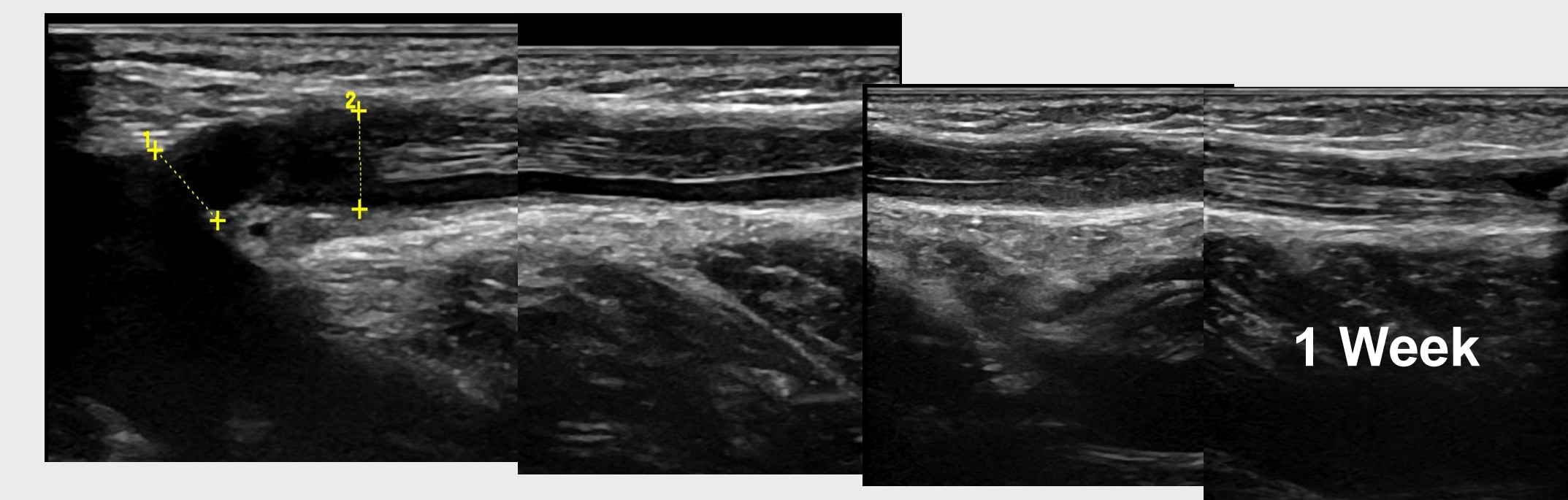
Characteristics of uNBCA (VariClose®)

- Viscosity : More like water, harder after polymerization
- Catheter positioning: 3cm back from junction
- Pullback: Continuous pull back at 2cm/seconds
- Squeeze trigger: Every 5 seconds/10cm
- Amount of NBCA delivery: 0.03cc for each cm
- Worldwide total cases: 50,000 patients

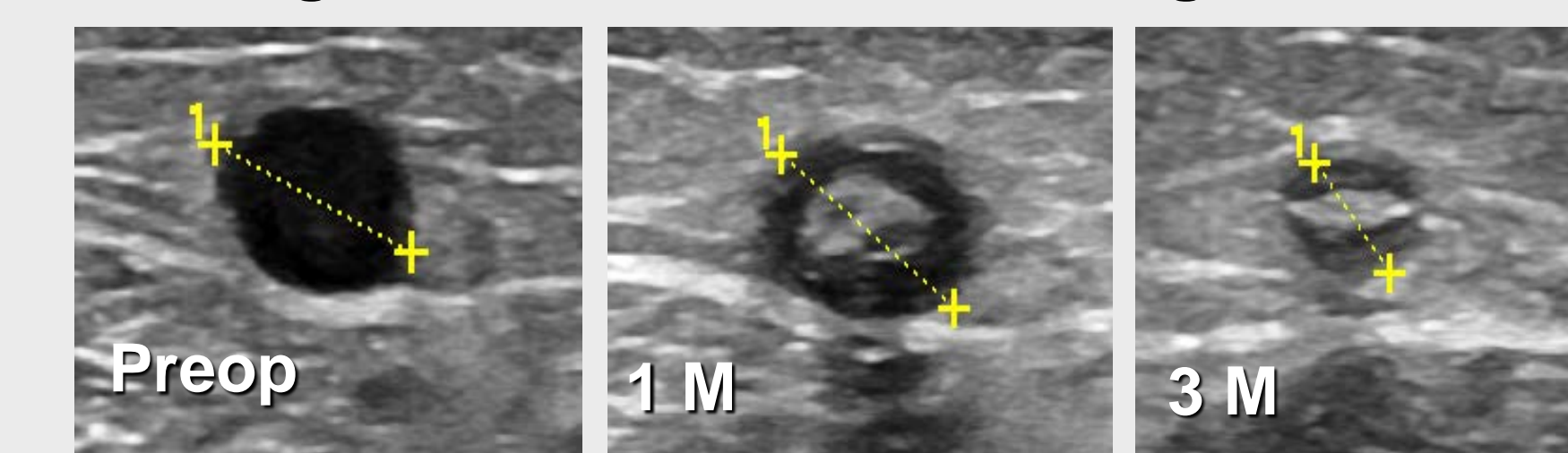
RESULTS

- The mean age was 63±11 in the uNBCA group and 68±10 in the EMPLA group.
- The average length of the veins treated were 32.4±10.7 cm and 27.0±9.8 cm respectively, while 472±147 mL of tumescent anesthesia was used only for EMPLA.
- The average procedure times, including concomitant procedures, were 27.3±10.8 and 32.6±11.2 minutes.
- uNBCA delivery was accomplished within 20 seconds during the target vein embolization, whereas it took much longer (258±89 seconds) in the EMPLA group.
- By the end of the treatment, all procedures were successfully occluded in both groups, with the total occlusion rate being 96 % and 100 % at 6 and 12 months.
- The venous clinical severity score improved significantly with no quantifiable difference between groups.
- **Postprocedural phlebitis** was observed early on in 7 patients (10 %) only in the uNBCA group. However it disappeared after prophylactic anti-inflammatory medication. Those patients returned to normal daily life immediately following the procedure.

Longitudinal Ultrasound Image of uNBCA after 1 Week



Change of Cross Section US Image of uNBCA



CONCLUSIONS

The uNBCA is more likely to provide a faster and safer procedure than EMPLA, without any risk of tumescent, thermal damage, or use of compression stockings.