Interventional Radiology

Solutions in the

Primary Care Setting

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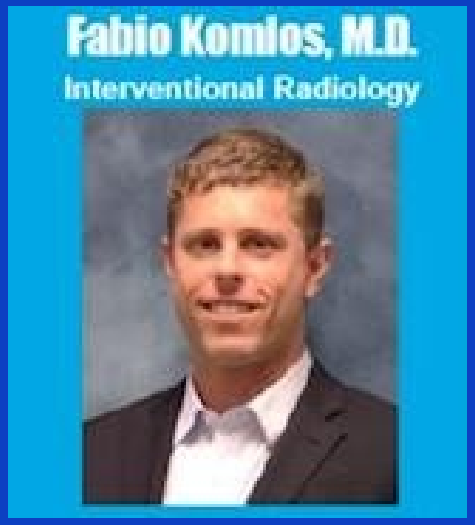
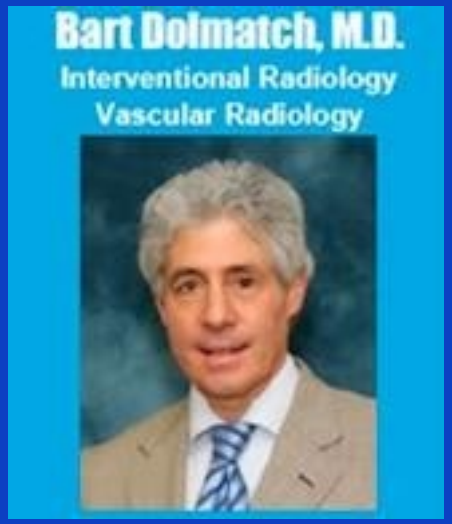
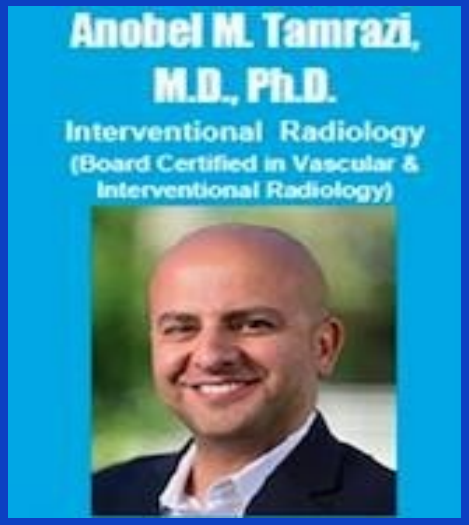
Our IR Group







- 100% IR Practice
- Consults in Clinic < 1 week
- General and Advanced IR Techniques
- Admitting Privileges
- Available for ED/Inpatient Call
  - Sequoia Hospital
  - El Camino Hospital

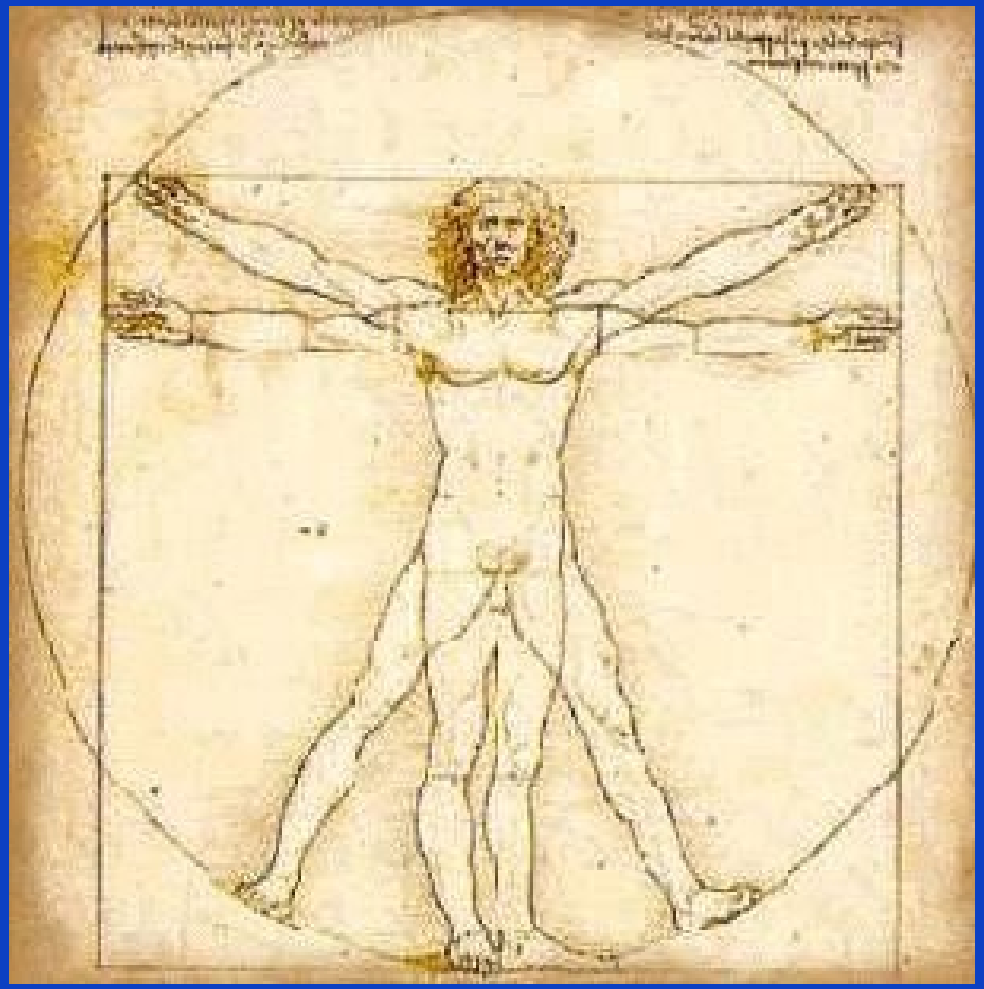
Interventional Radiology

Personalized Care
General and Advanced IR Care Clinic Consults and Follow Up

What is Interventional Radiology (IR)?

Image Guided

ACCESS



1. TREAT
2. SAMPLE

We make Nicks, not Incisions

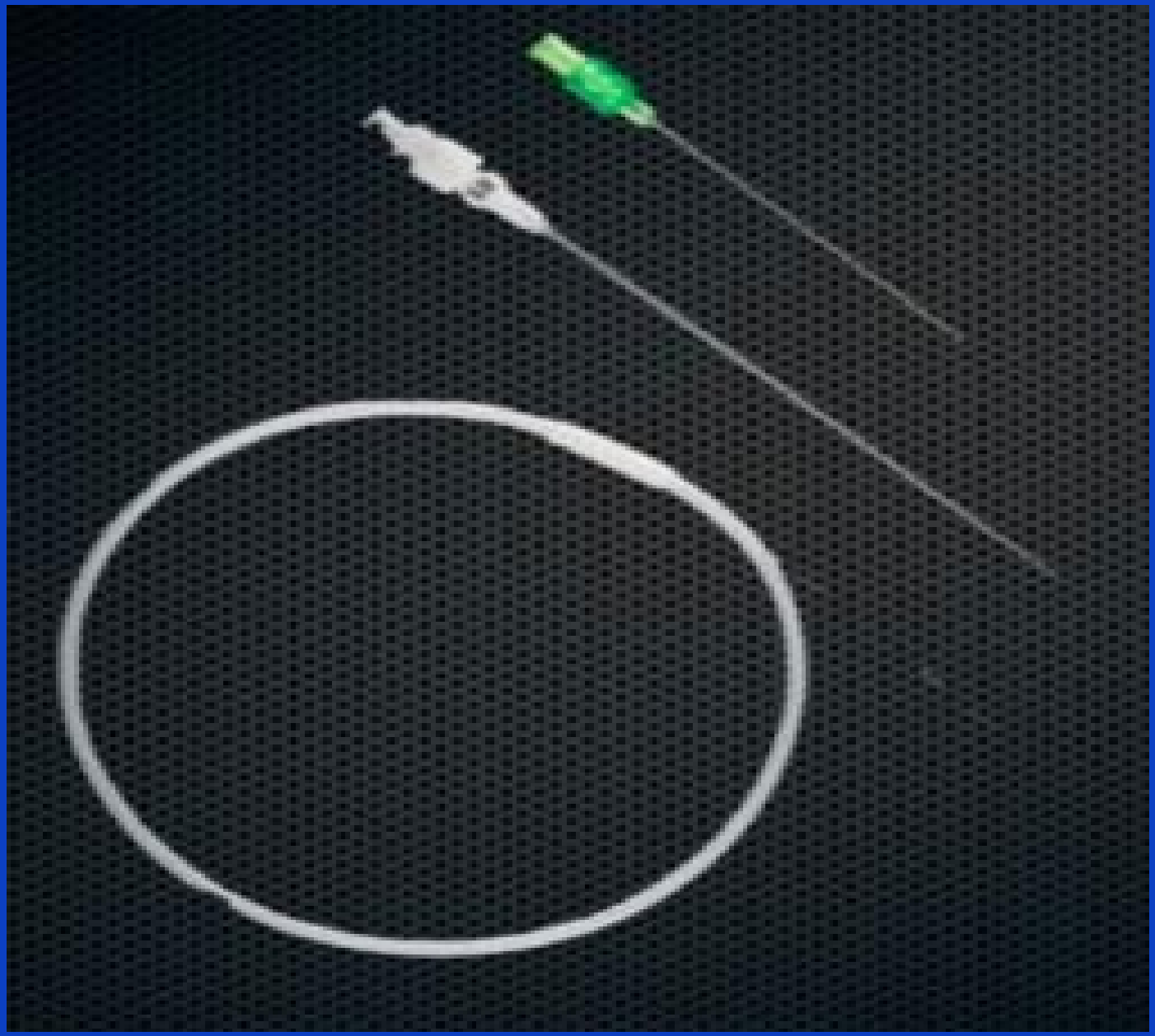


Image Guided

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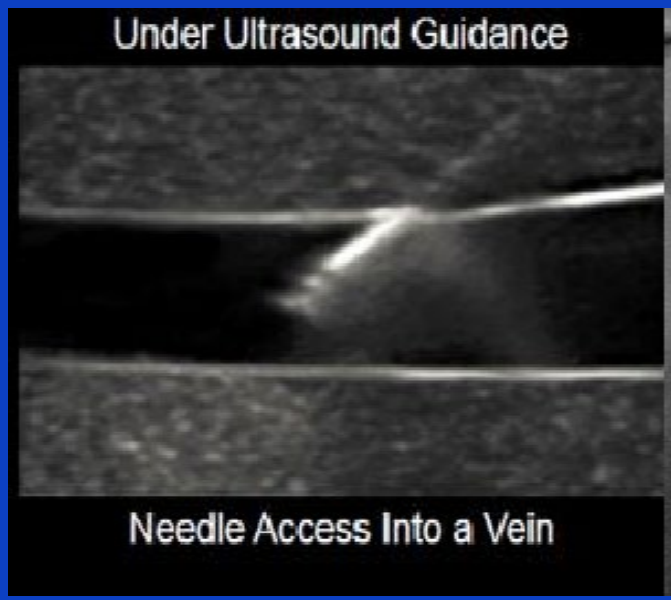

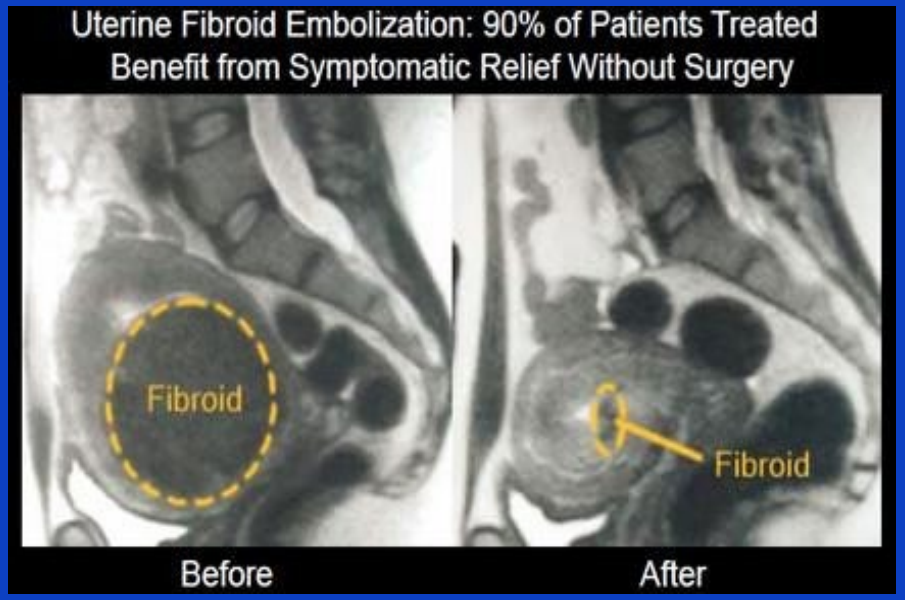

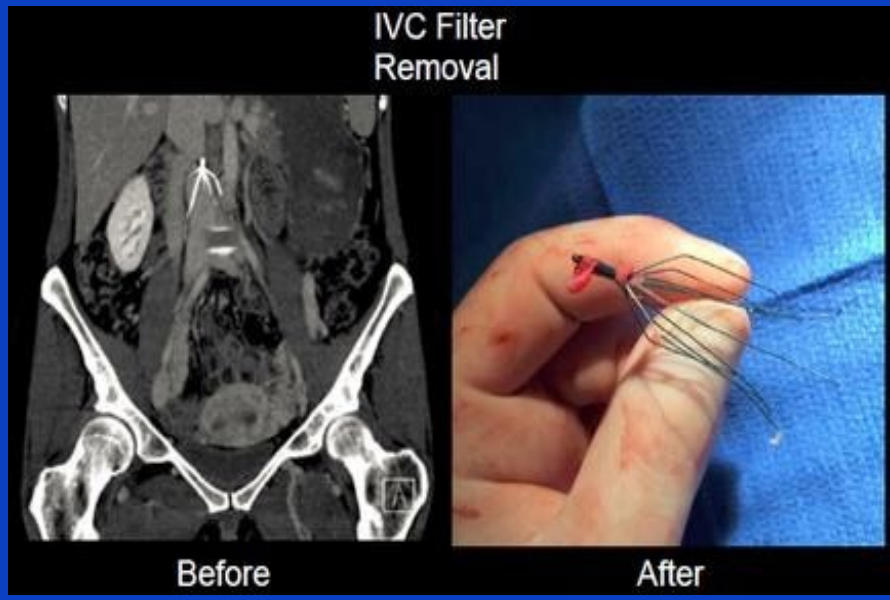

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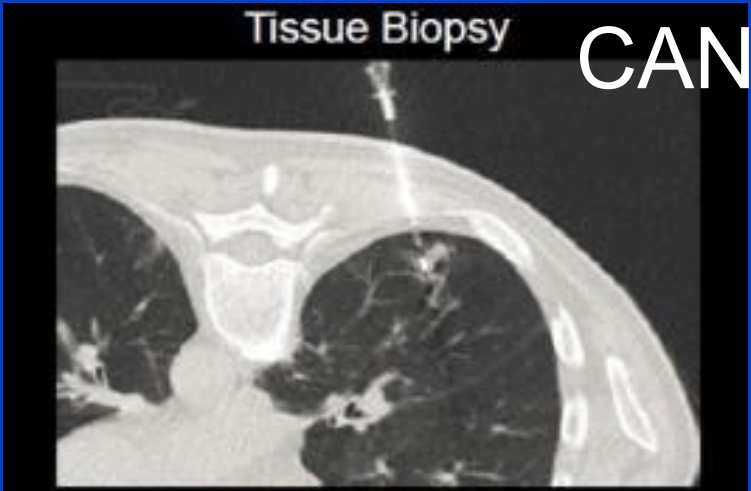
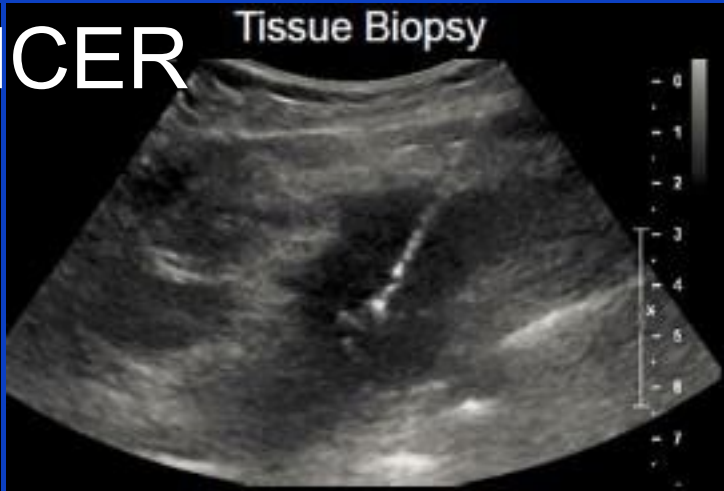
SAMPLING

TREATMENT



CT Guided
Needle Tissue Biopsy of Lung Tumor



Ultrasound Guided
Needle Tissue Biopsy of Liver Tumor

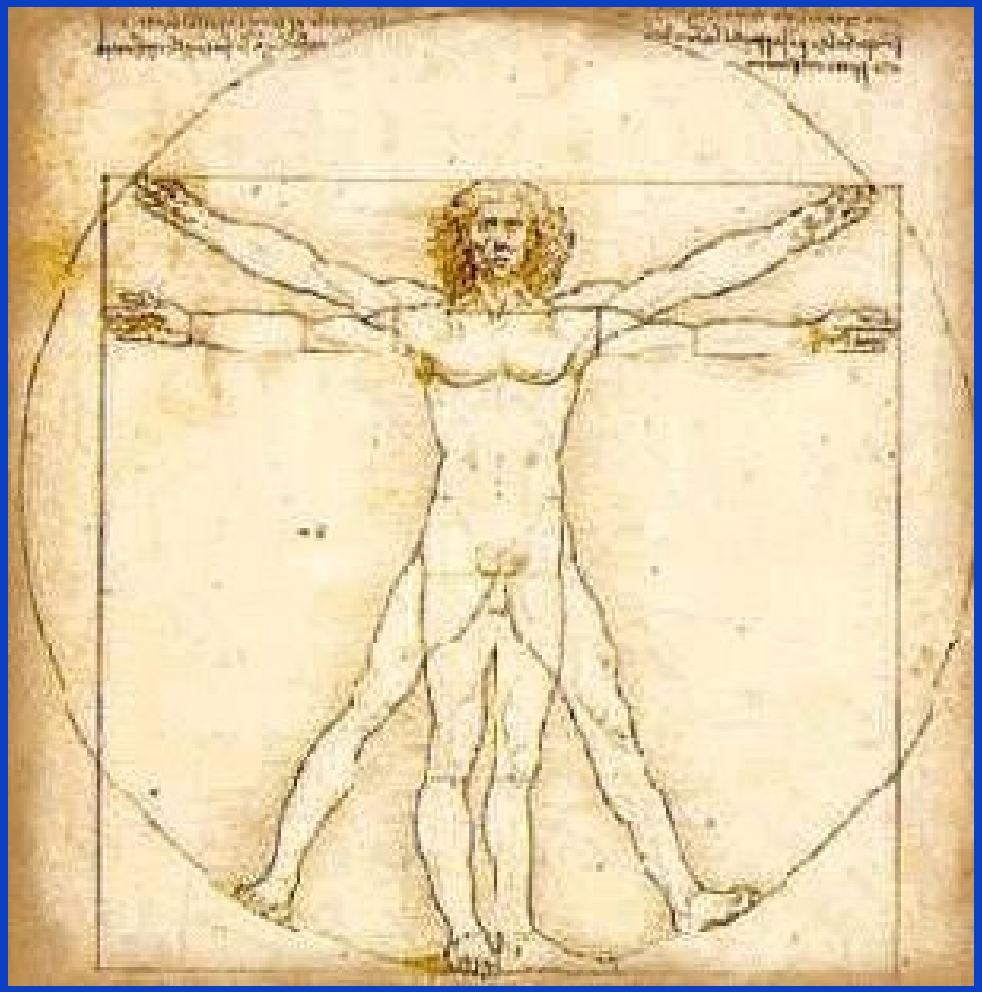
Freezing of Kidney Tumor with Probe
Placed Directly Inside the Tumor

Delivery of Chemo Agents to Liver
Tumor Via Artery Feeding the Tumor

My View of Interventional Radiology

Image Guided

ACCESS



1. TREAT
2. SAMPLE

Treating: Routine IR Stuff

- Placement of Venous Catheters, Ports for Chemotherapy, PICC, and Tunneled Lines for TPN
- Thyroid Nodule / Lymph Node FNA
- Fluid Drainage: Abscess, Ascites, Pleural Effusion.
- Gastrostomy and Gastrojejunostomy Tube
- Biliary Drains and Stents
- Nephrostomy / Nephroureteral Stents/ Double J

JOHNS HOPKINS MEDICINE

Physician Update

NEWS FOR PHYSICIANS FROM JOHNS HOPKINS MEDICINE

SPRING 2014

Removing Embedded Inferior Vena Cava Filters

Until now, a patient with an inferior vena cava (IVC) filter that's become trapped in the vessel might have had no option for its removal and faced a lifetime of health risks and anticoagulant therapy. Finally, a few physicians, including Johns Hopkins interventional radiologists **Mark Lessne** and **Anobel Tamrazi**, are performing laser sheath tissue ablation to remove the adhesions that hold the IVC filter fast. This novel technique was introduced at Stanford University, where Tamrazi trained.

The usual patient receiving IVC filter is at high risk for venous thromboembolism and a poor candidate for anticoagulation therapy. In 2012, in the U.S., about 250,000 IVC filters were implanted—supposedly temporarily.

Ideally, these filters are removed when the risk of thromboembolism has passed. The FDA recommends that efforts to remove IVC filters be made as soon as possible, saying that, "If a patient has a retrievable IVC filter that should be removed based on his or her individual risk/benefit profile, the primary care physician and/or those providing ongoing patient care should refer the patient for IVC removal when feasible and clinically indicated."

The standard approach for retrieving an IVC filter is to snare it with a dedicated filter grasping device and ease it out through the jugular or femoral vein. "This can be easier said than done," says Lessne. "Connective tissue can grow into the filter and hold it tight." Although lodged IVC filters are not always problematic, they can fracture, migrate or penetrate the IVC or bowel, or cause acute IVC thrombosis or chronic IVC occlusion. Some patients want the filter removed so they can stop the anticoagulant medications that they're required to take.

The laser sheath tissue ablation technique is an option when the standard approach and progressively more aggressive tension fails, but can still be done minimally invasively through small skin nicks. "We know from the literature that 40 to 60 percent of retrievable filters cannot be removed by standard methods," says Tamrazi. "This is especially true of filters that have been in place for over a year."

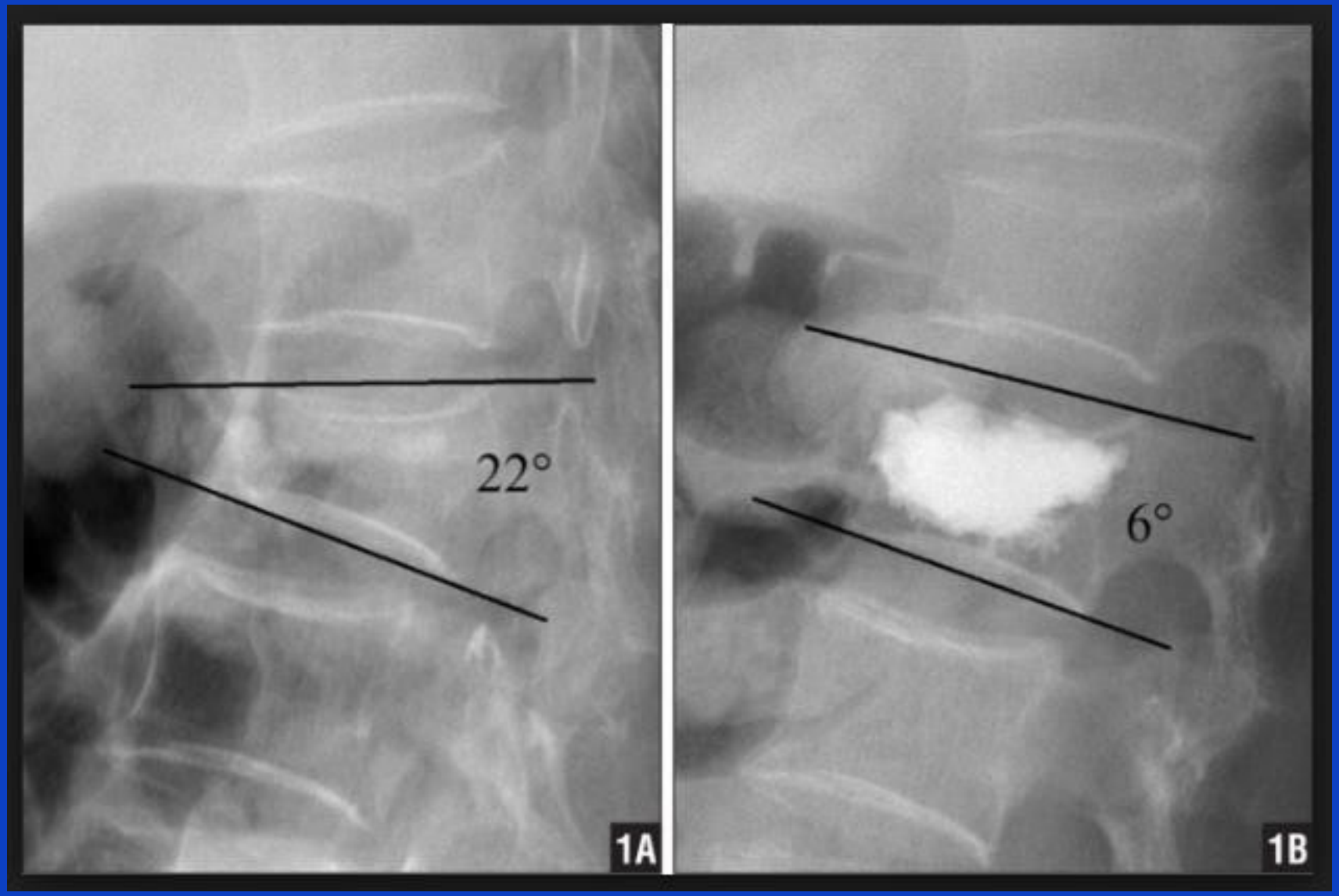
With the patient under light sedation, Lessne and Tamrazi enter the vessel and ablate adhesions by means of photothermal energy from the laser sheath. Using measured tension, they guide the laser sheath progressively along the filter, free it and capture it for removal. The technique may also work on IVC filters of an earlier, permanent design.

"We want physicians in the community to know that the procedure is available. It may eliminate the risk of complications associated with long-term IVC implantation, and it eliminates the burden of filter-related lifelong anticoagulation," says Lessne. "We like hearing from patients that with the filter removed, their life has returned to normal."

For more information or to refer a patient, call 410-502-6611.

Anobel Tamrazi, left, and Mark Lessne are using laser sheath tissue ablation to remove IVC filters, like the one pictured here, that have become trapped in the blood vessel.

Treating: Compression Fractures



Treating: Uterine Fibroid Embolization

Cardiovasc Intervent Radiol (2008) 31:73–85
DOI 10.1007/s00270-007-9195-2

CLINICAL INVESTIGATION

Midterm Clinical and First Reproductive Results of a Randomized Controlled Trial Comparing Uterine Fibroid Embolization and Myomectomy

Michal Mara · Jana Maskova · Zuzana Fucikova · David Kuzel · Tomas Belsan · Ondrej Sosna

Treating: Prostate Artery Embolization (BPH)

ELSEVIER

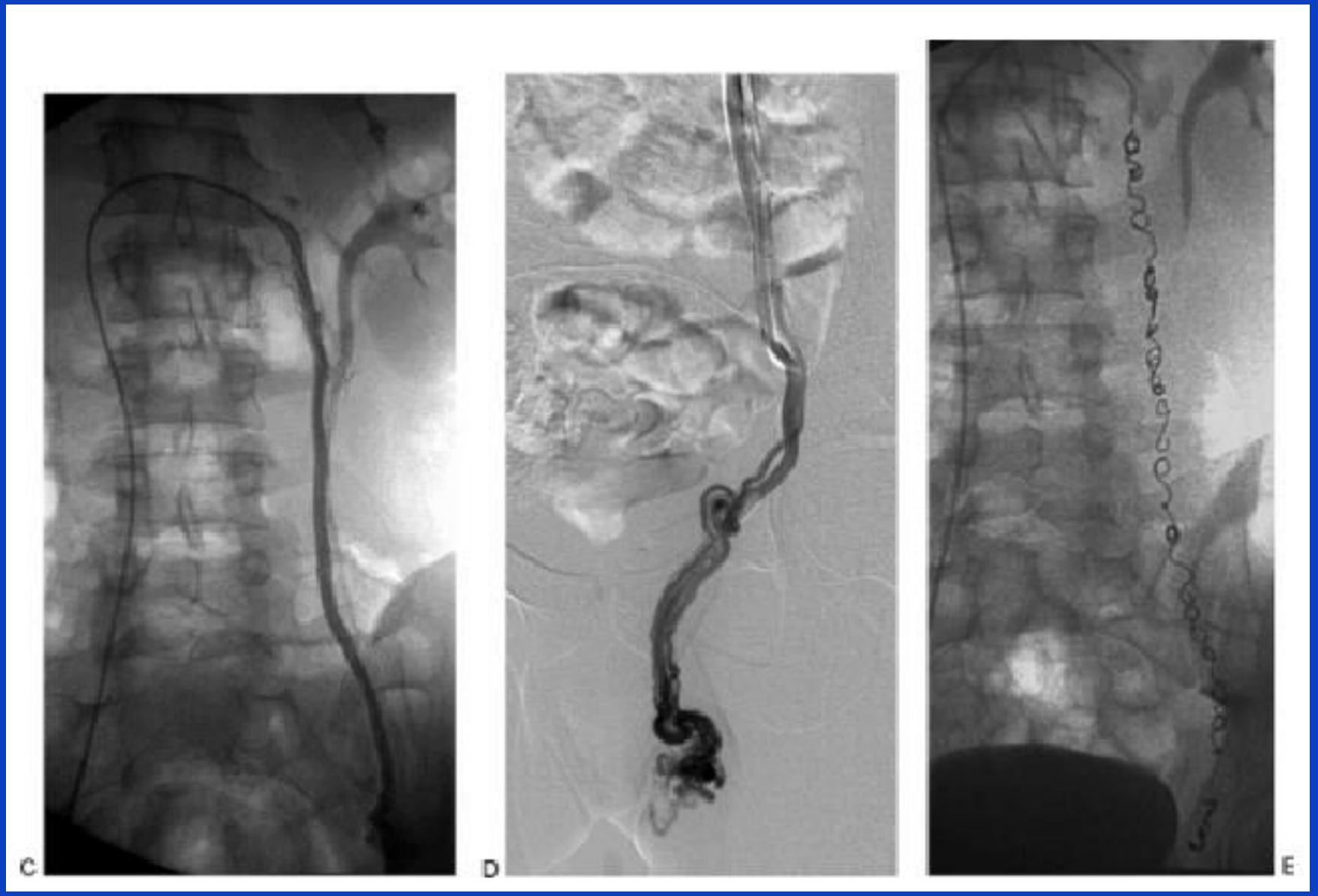
Techniques in Vascular and Interventional Radiology

Prostatic Artery Embolization in the Treatment of Benign Prostatic Hyperplasia: Short and Medium Follow-up

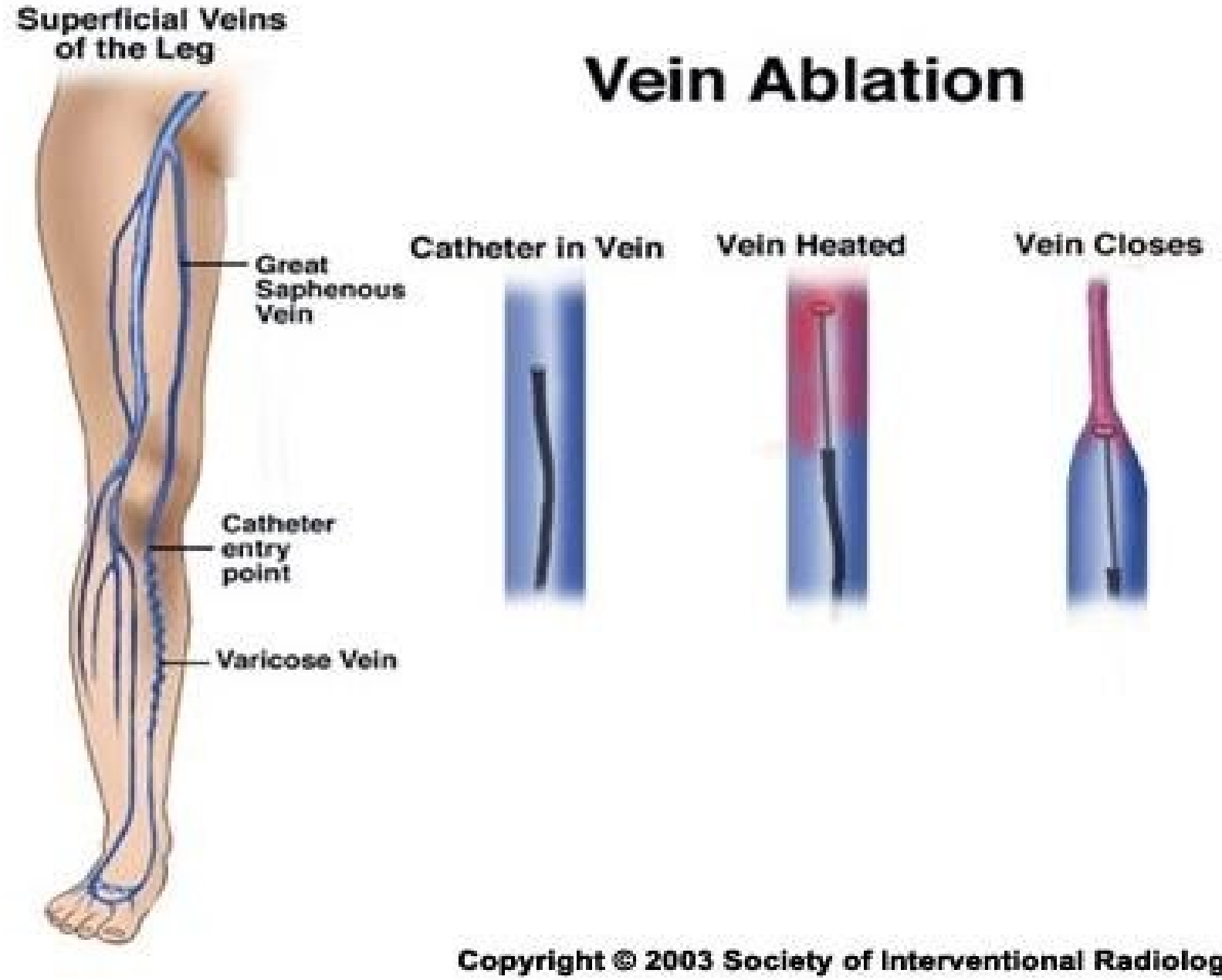
Hugo Rio Tinto, MD,* João Martins Pisco, MD, PhD,* Tiago Bilhim, MD, PhD,* Marisa Duarte, MD,† Lúcia Fernandes, MD,† José Pereira, MD,† and L. Campos Pinheiro, MD, PhD‡

To evaluate the short and mid-term results of prostatic artery embolization in patients with benign prostatic embolization. Retrospective study between March 2009 and June 2011 with 103 patients (mean age 66.8 years, 50-85) that met our inclusion criteria with symptomatic benign prostatic hyperplasia. The clinical outcome was evaluated by the International Prostate Symptom Score (IPSS), quality of life (QoL), International Index of Erectile Function, prostate volume (PV), prostate-specific antigen (PSA), peak urinary flow (Q_{max}), and post-void residual volume (PVR) measurements at 3 and 6 months, 1 year, 18 months, and 2 years after PAE and comparison with baseline values was made. Technical and clinical successes, as well as poor clinical outcome definitions, were previously defined. In this review, we evaluate the short and mid-term clinical outcomes and morbidity of patients treated only with non-spherical polyvinyl alcohol. Six months after the procedure, the PV decreased about 23%, IPSS changed to a mean value of 11.95 (almost 50% reduction), the QoL improved slightly more than 2 points, the Q_{max} changed to a mean value of 12.63 mL/s, the PVR underwent a change of almost half of the baseline value, and the PSA decreased about 2.3 ng/mL. In the mid-term follow-up and comparing to the baseline values, we still assisted to a reduction in PV, IPSS, QoL, PVR, and PSA, and an increase in Q_{max}. Prostatic Artery Embolization is a safe procedure with low morbidity that shows good short- and mid-term clinical outcome in our institution.
Tech Vasc Interventional Rad 15:290-293

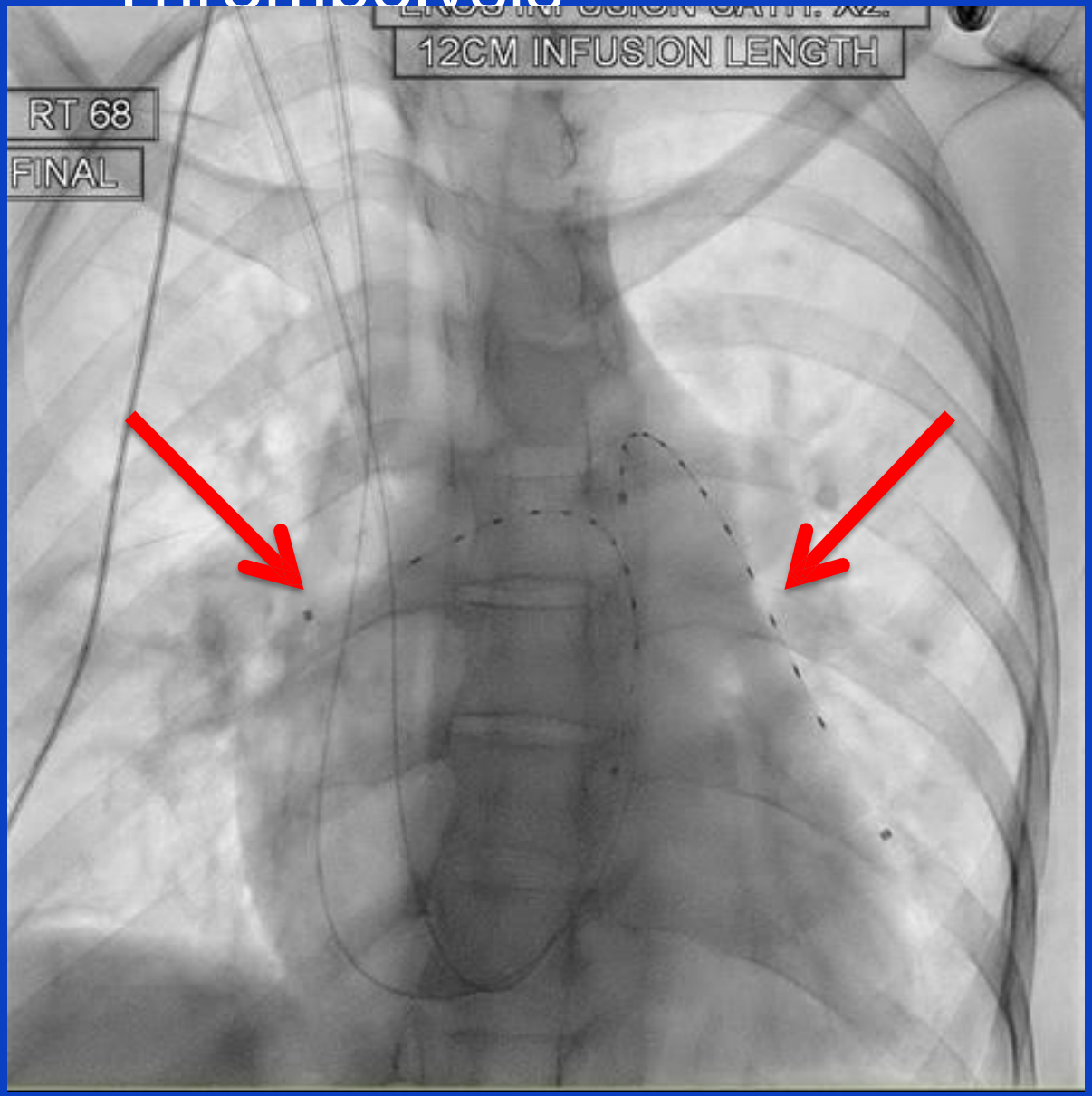
Treating: Varicocele Vein



Treating: LEG Vericose



Treating: PE
Thrombolysis



OPTALYSE PE study explored optimal duration and dose using EKOS®

Patients

Acute PE with RV/LV ratio ≥0.9
(n= 101; 17 centers)

Objectives

Evaluate the optimal duration and dose of ultrasound-facilitated, catheter-directed thrombolysis (USCDT) using r-tPA administered via the EKOS® system:

- **Efficacy - Change in RV/LV ratio on CTA at 48hrs**
- **Safety – As measured by major bleeding within 72hrs**

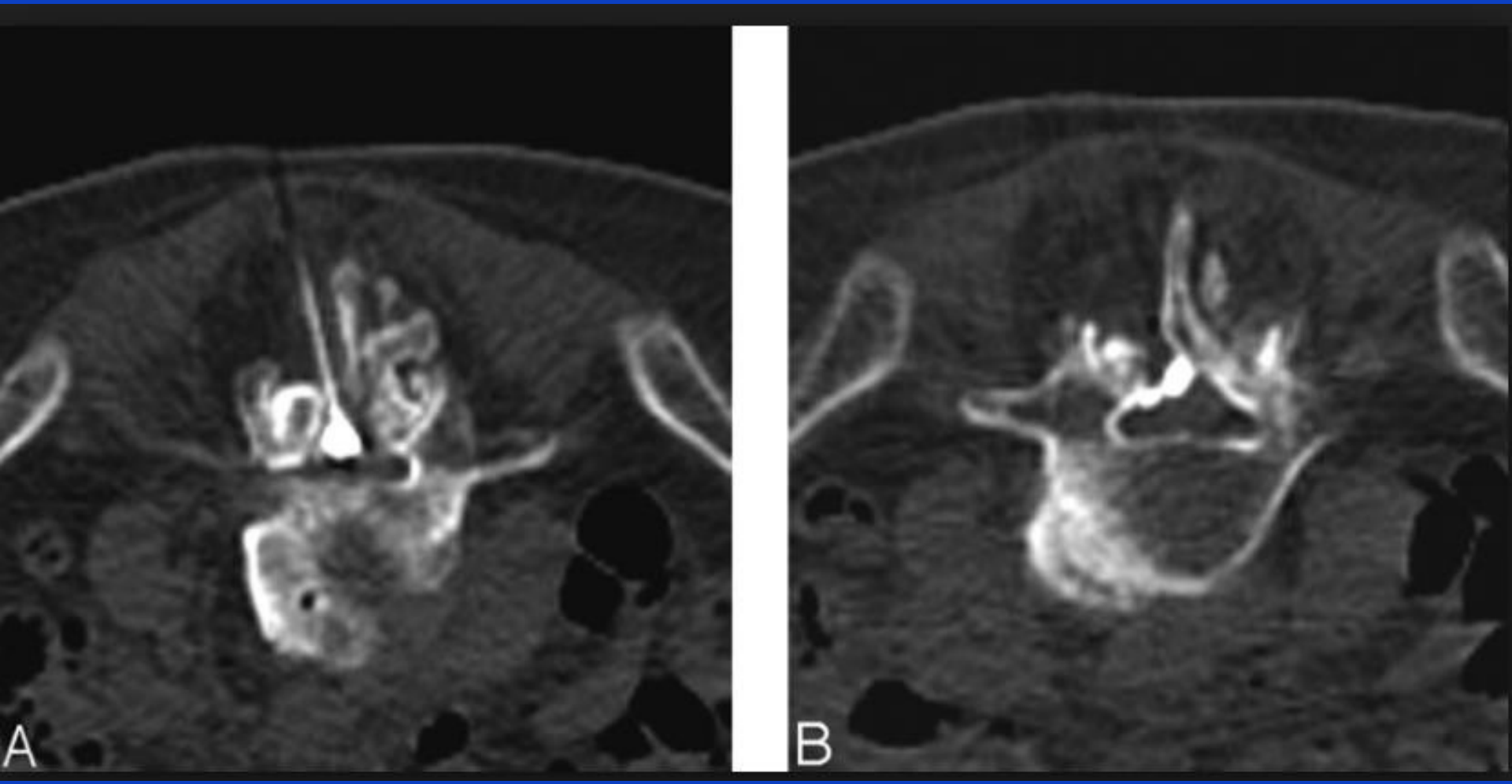
Randomization

Cohort 1	Cohort 2	Cohort 3	Cohort 4
26 Patients	26 Patients	27 Patients	18 Patients
2 (h) EKOS®	4 (h) EKOS®	6 (h) EKOS®	6 (h) EKOS®
4/8 mg r-tPA*	4/8 mg r-tPA*	6/12 mg r-tPA*	12/24 mg r-tPA*

Tapson V et al., American Thoracic Society (ATS) meeting, Washington, DC, May 2017.

Treating: Hip Injection

Treating: Epidural Injection



My View of Interventional Radiology

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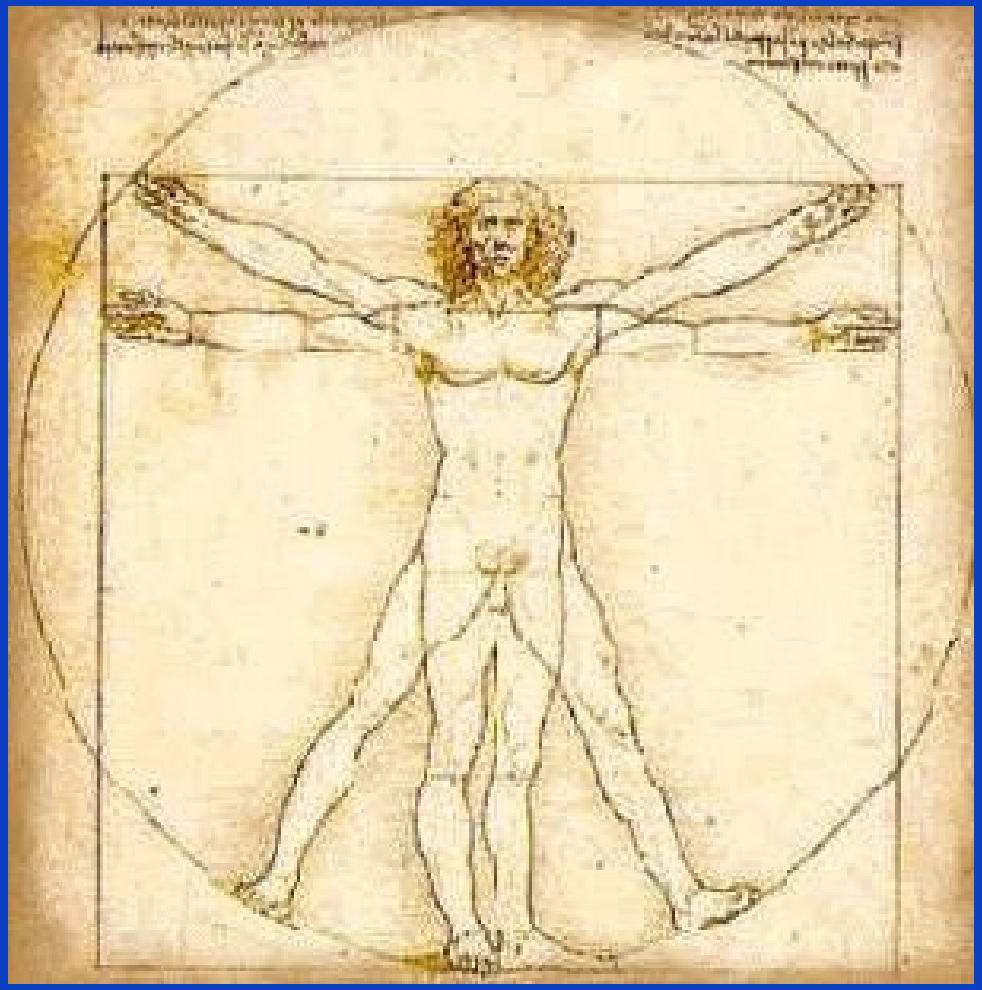


1. TREAT
2. SAMPLE

IR's Stance:
Get Ready for More Tissue Biopsy!

SPECIAL COMMUNICATION

Image-Guided Biopsy in the Era of Personalized Cancer Care: Proceedings from the Society of Interventional Radiology Research Consensus Panel

Alda L. Tam, MD, Howard J. Lim, MD, Ignacio I. Wistuba, MD, Anobel Tamrazi, MD, PhD, Michael D. Kuo, MD, Etay Ziv, MD, PhD, Stephen Wong, PhD, Albert J. Shih, PhD, Robert J. Webster, III, PhD, Gregory S. Fischer, PhD, Sunitha Nagrath, PhD, Suzanne E. Davis, MMS, MBA, Sarah B. White, MD, and Kamran Ahrar, MD

IR Biopsy and Personalized Medicine

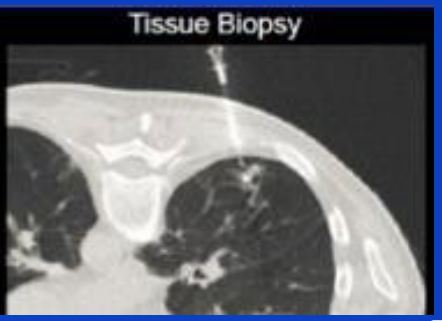
Image-guided Needle Biopsies and Personalized Medicine

Authors: A. Tamrazi MD, PhD[1], A. Gulati MD[1], and V. Wadhwa MD[2]

1. Palo Alto Medical Foundation. Sequoia Hospital Vascular and Interventional Radiology. Redwood City, CA. USA.

2. University of Arkansas Medical Sciences, Department of Radiology. Little Rock, AR. USA.

Precision Cancer Care Today: Lung Cancer



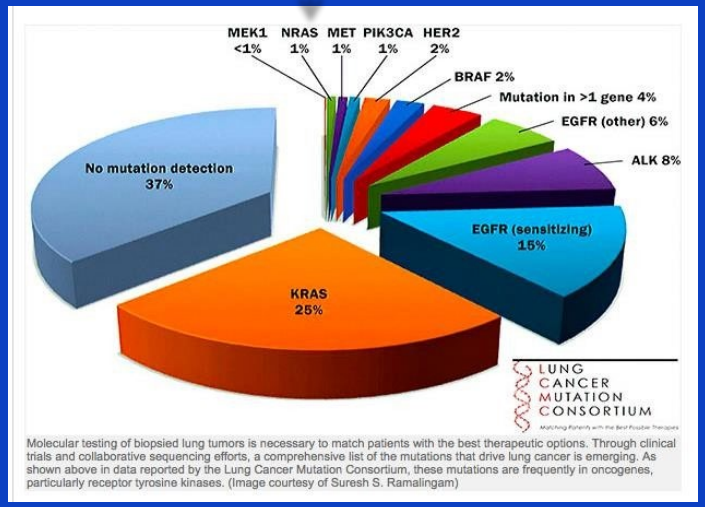
IR Biopsy

Pathology

- **Small Cell**
- **Non-Small Cell**

Chemotherapy

Molecular



Molecular testing of biopsied lung tumors is necessary to match patients with the best therapeutic options. Through clinical trials and collaborative sequencing efforts, a comprehensive list of the mutations that drive lung cancer is emerging. As shown above in data reported by the Lung Cancer Mutation Consortium, these mutations are frequently in oncogenes, particularly receptor tyrosine kinases. (Image courtesy of Suresh S. Ramalingam)

- **Targeted Therapy**
- **Immuno-Oncology**

Delayed Care and Exclusion from

STAT

Shoddy biopsies deny cancer patients a shot at personalized treatment

By Elie Dolgin

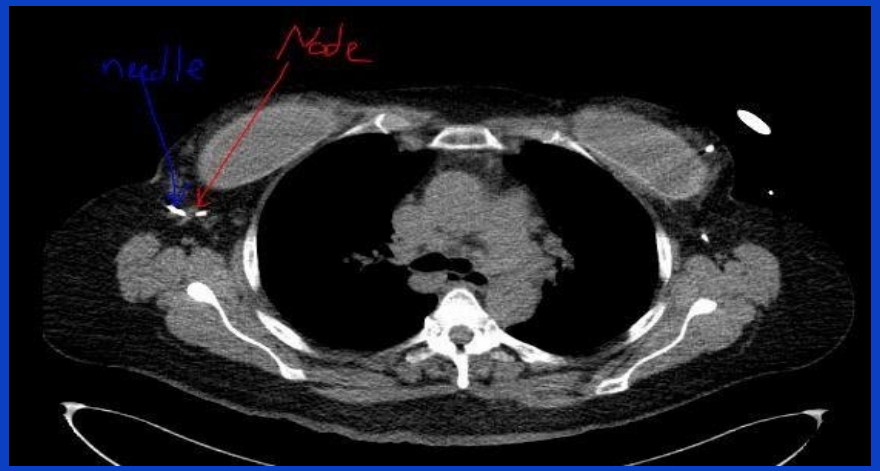
January 22, 2016

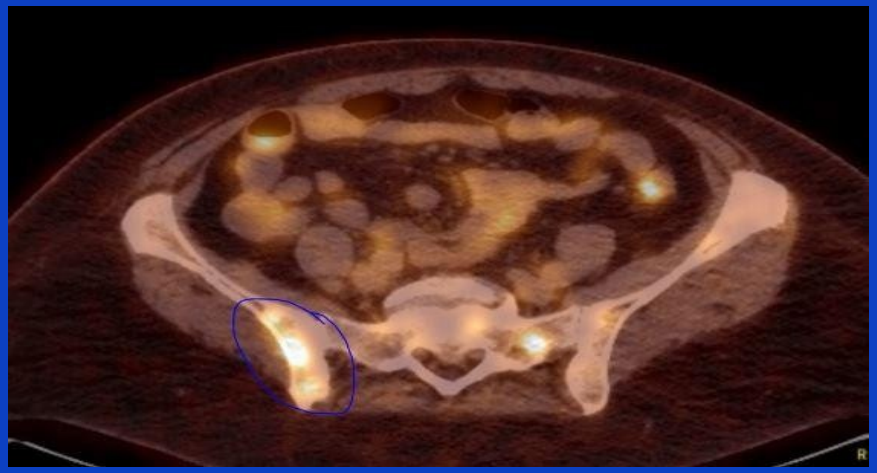
Shoddy tumor biopsies are preventing cancer patients from receiving personalized therapies. *Dan Kitwood/Getty Images/Cancer Research UK*

1 in 5 Biopsy Samples Inadequate for Molecular Analysis

COMPREHENSIVE Sampling

PET/CT Biopsy





Fiducial Marker Placement

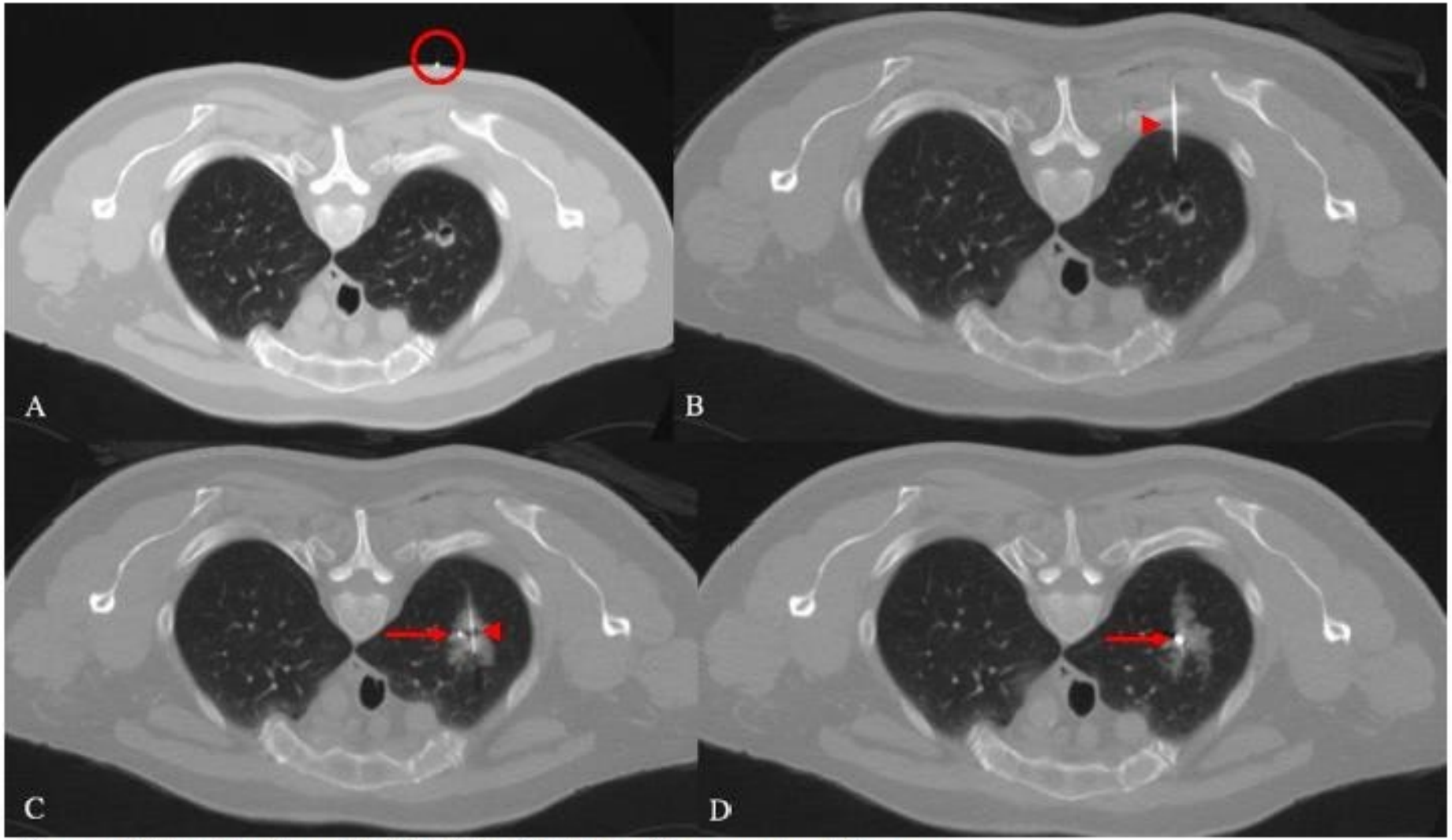


Figure 4: CT-guided Lung Nodule Fiducial Marker Placement and Biopsy

Thank You!

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