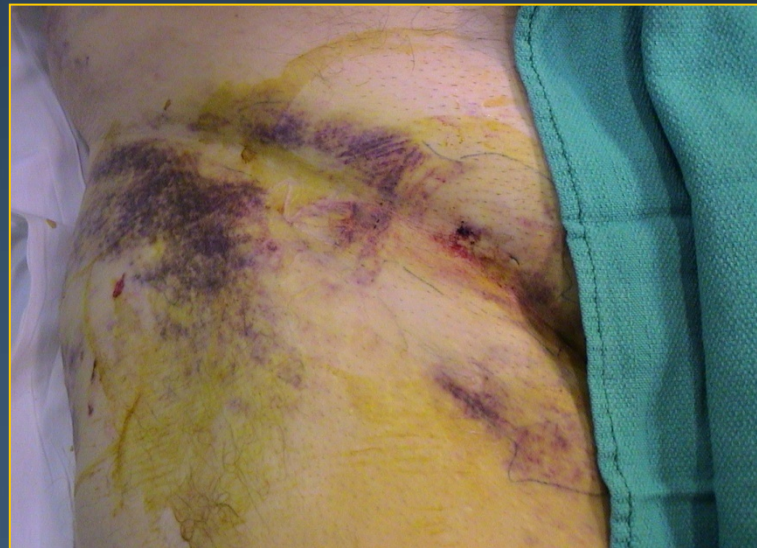


The Target Zone for Vascular Access – An Evidence Based Approach



Zoltan G. Turi, M.D.

Professor of Medicine

University of Medicine and Dentistry of New Jersey

**Femoral Artery Access in the New
Percutaneous Technologies Era:**

Under-appreciated

Under-investigated

but

Over-represented in Complications

Conflict of Interest Statement

Abbott Vascular

Scientific Advisory Board

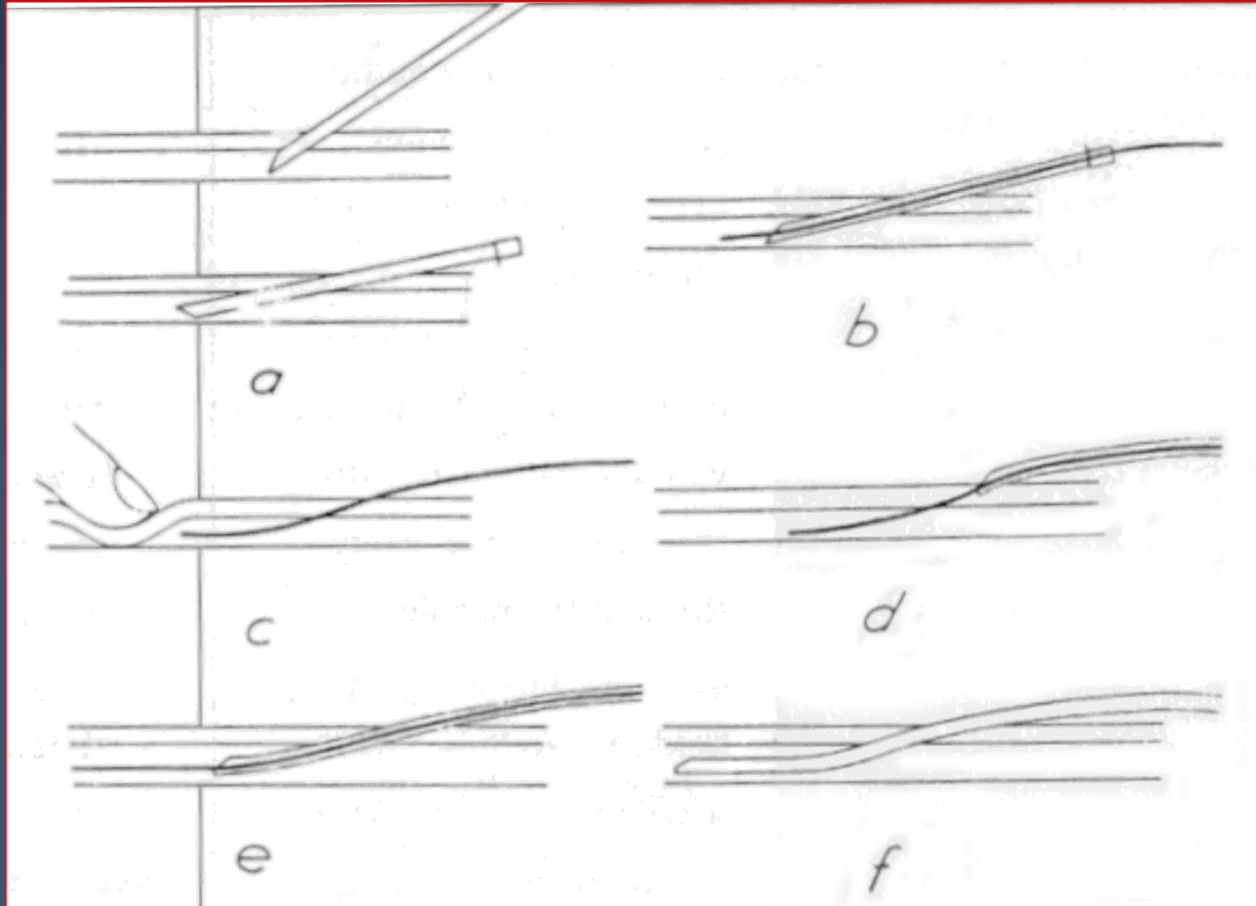
Research Grant Support

Lecture Honoraria

St. Jude Medical

Lecture Honoraria

Seldinger technique - 1953



Sven-Ivar Seldinger

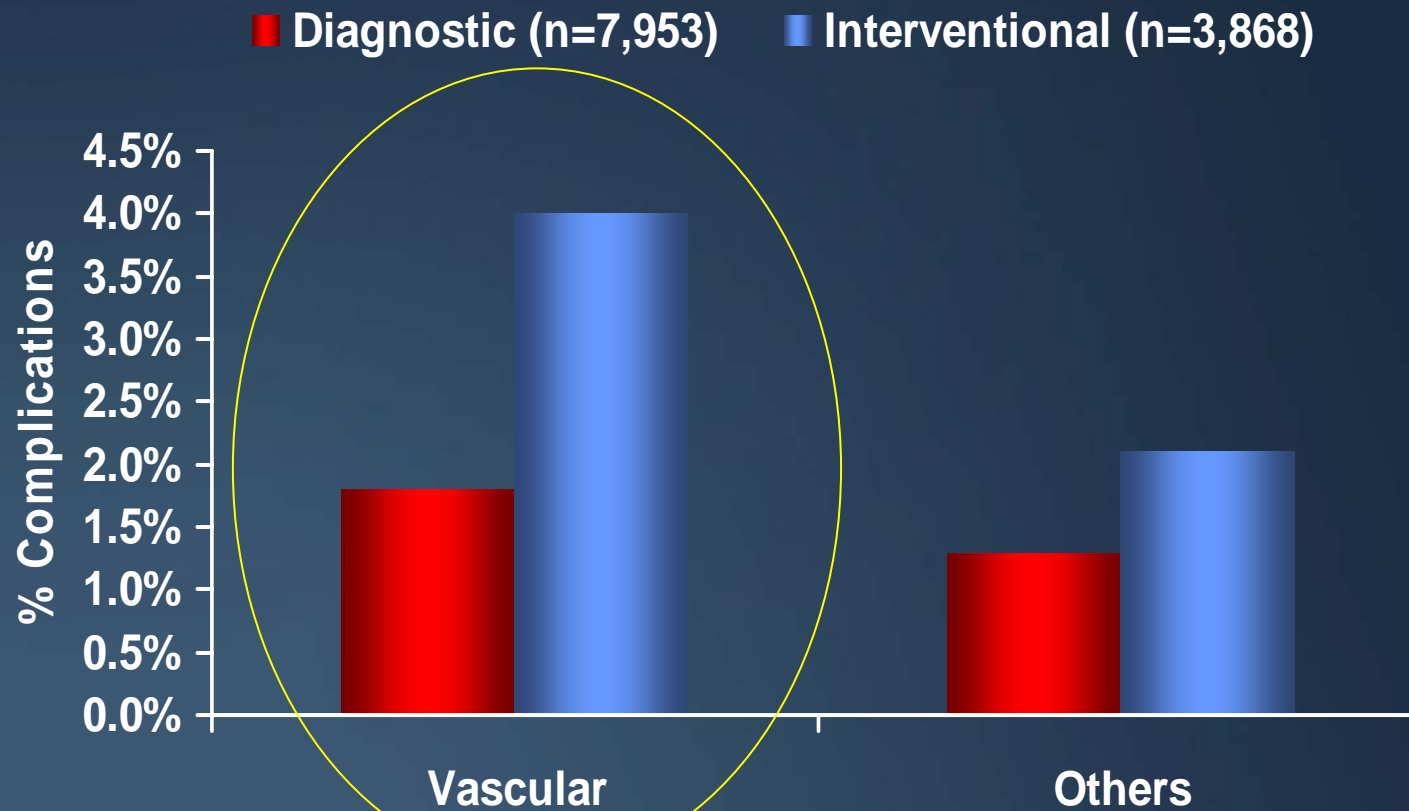
Very little literature considering vast experience

55 Years Later



Courtesy Dr. John Eidt, UAMS.

Complication Rates



Chandrasekar et al CCI/2001

Usual Approach to Vascular Access

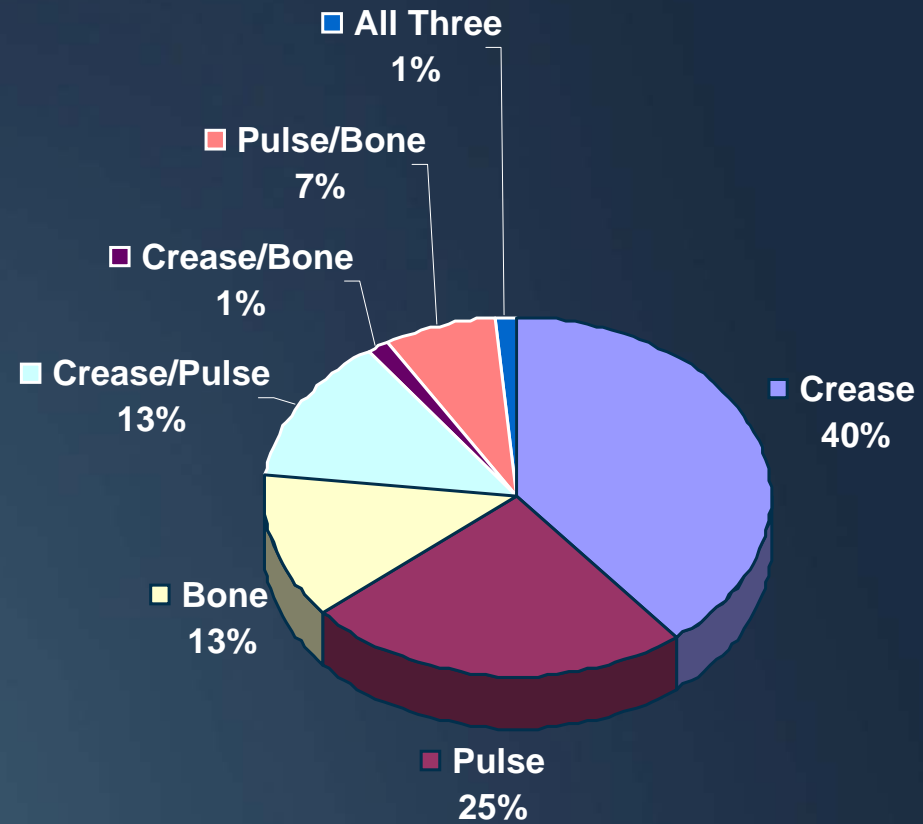


Landmarks Used for Femoral Puncture

Skin Crease

Maximum Pulse

Bony Landmarks



Skin Crease Most Common

Inguinal Crease

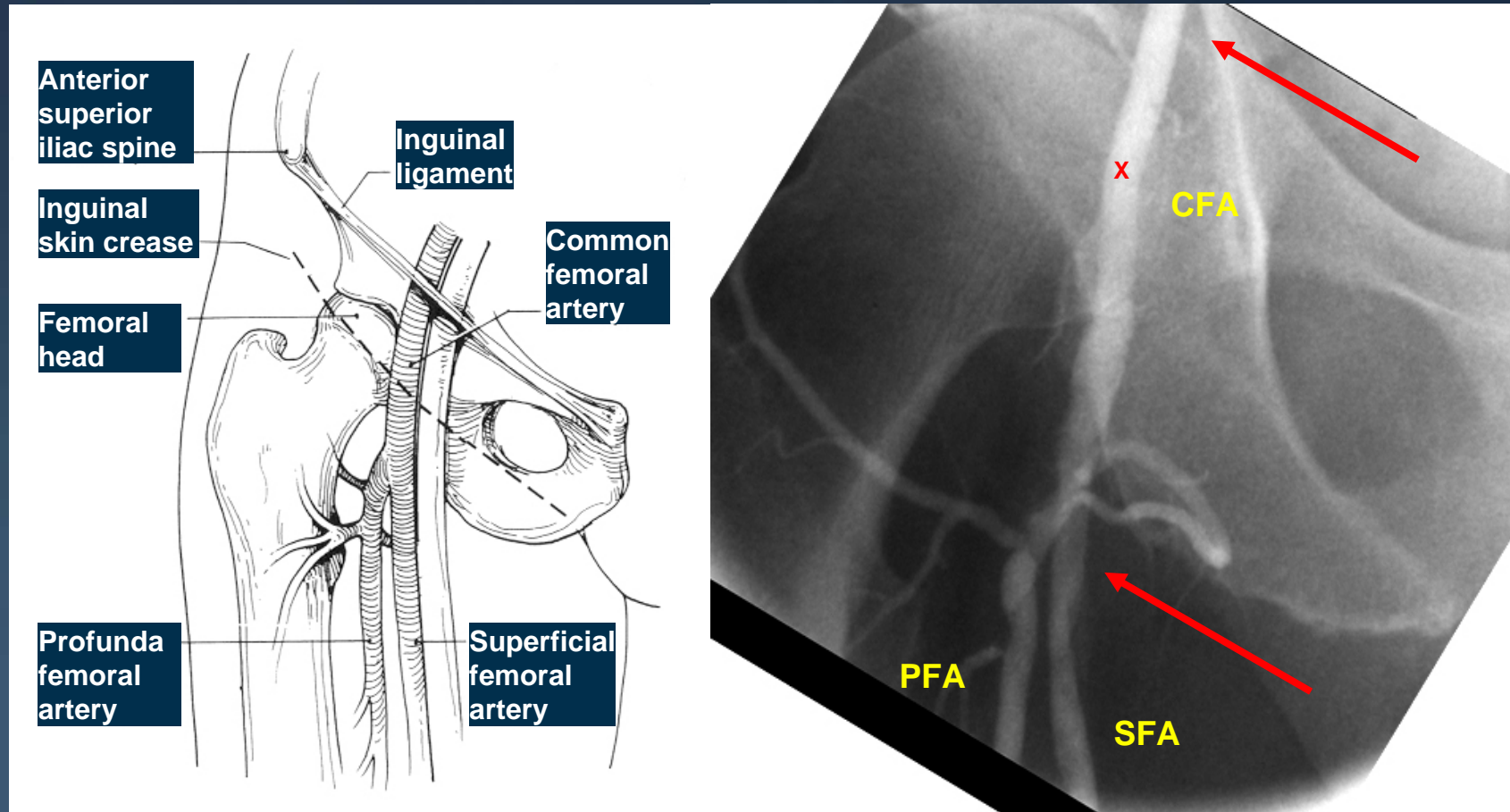


Cannes - 2008

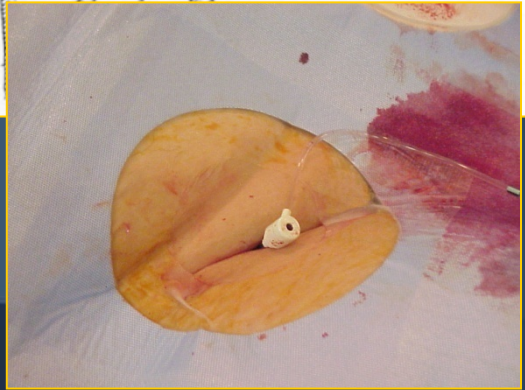
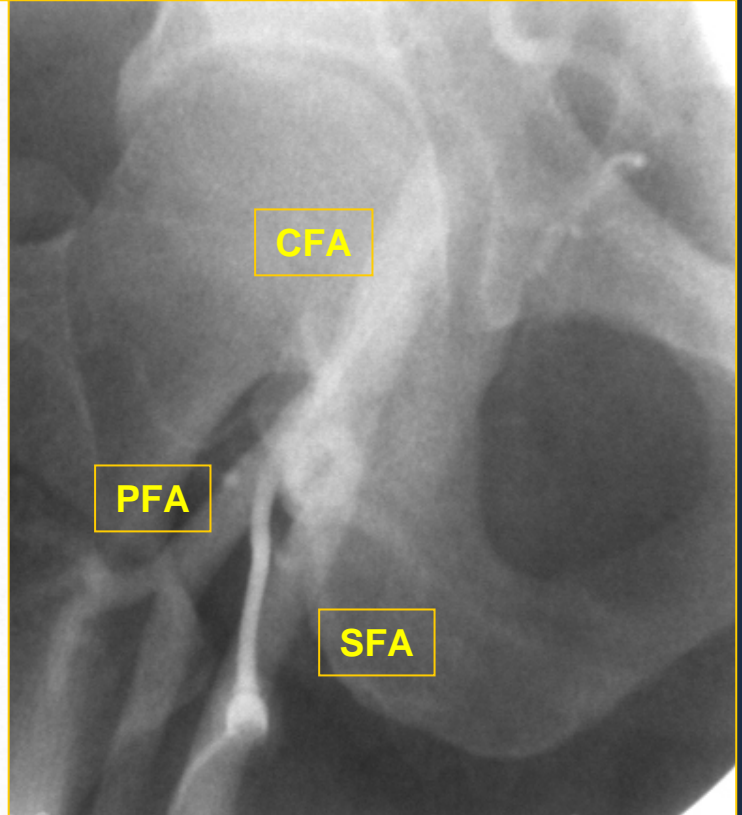
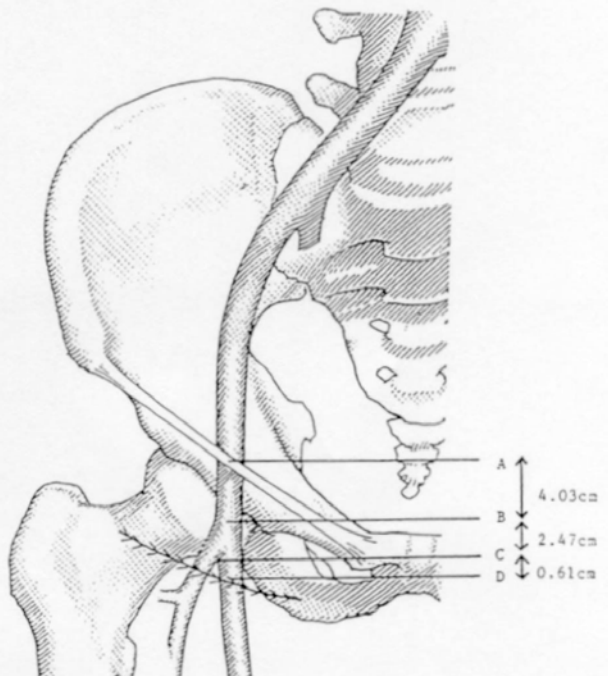


New Jersey

“Normal” Anatomy



Misconceptions Despite 50 Years Experience



31.CTA Runoff to feet
Mater H QLD 3
Age:83
F
29 Sep 2005
13:35:16

S

QLD XRAY - Mater
/Vol./VISIPAQU



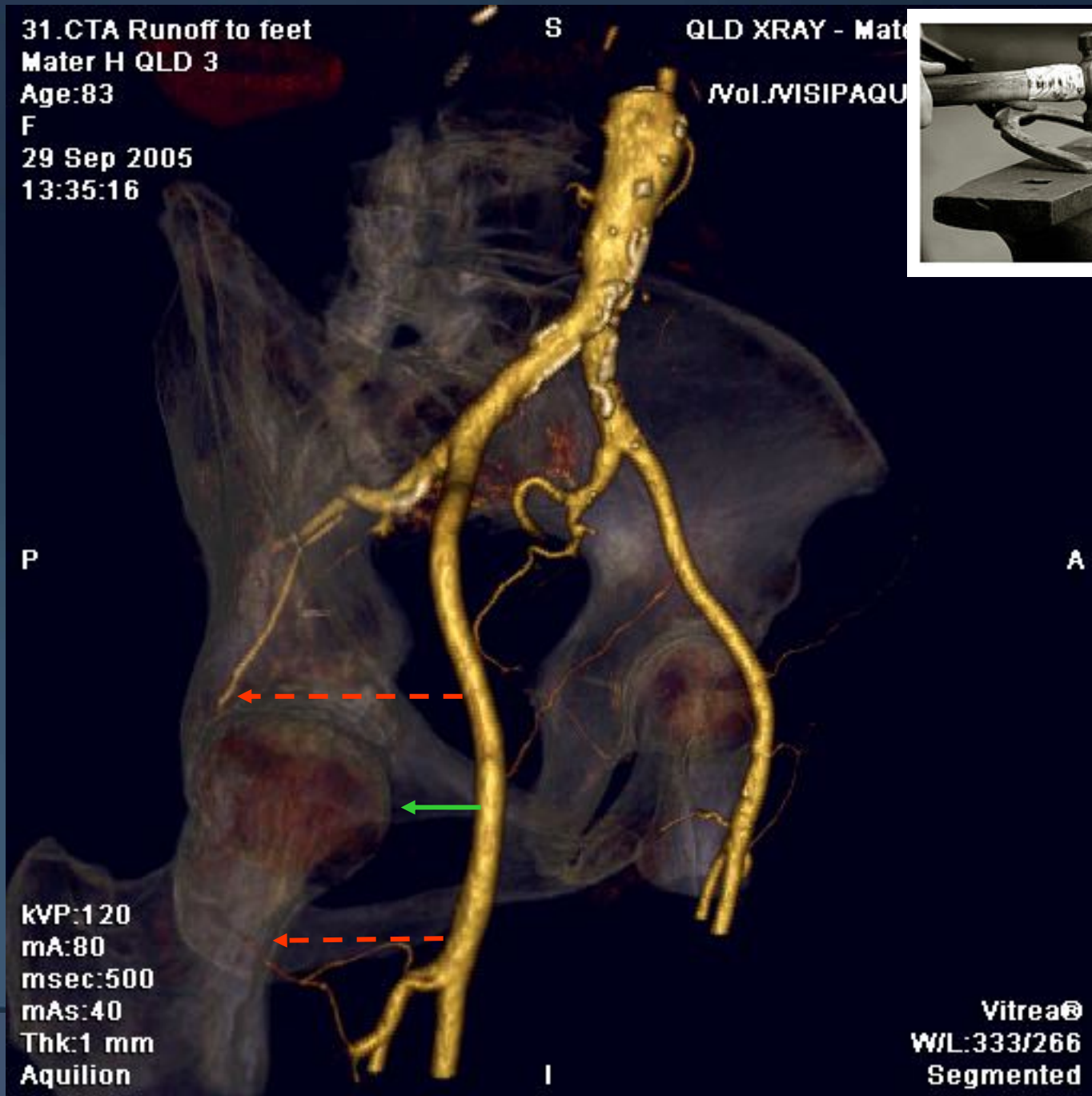
P

A

KVP:120
mA:80
msec:500
mAs:40
Thk:1 mm
Aquilion

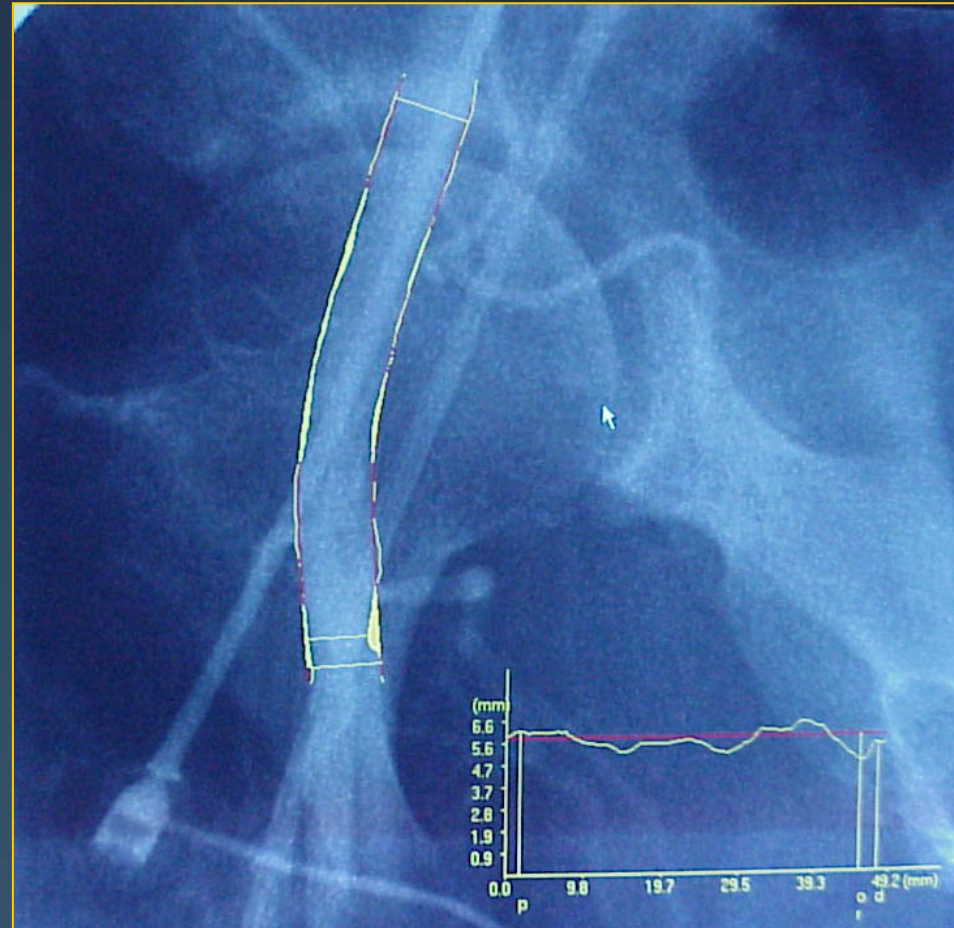
I

Vitrea®
W/L:333/266
Segmented

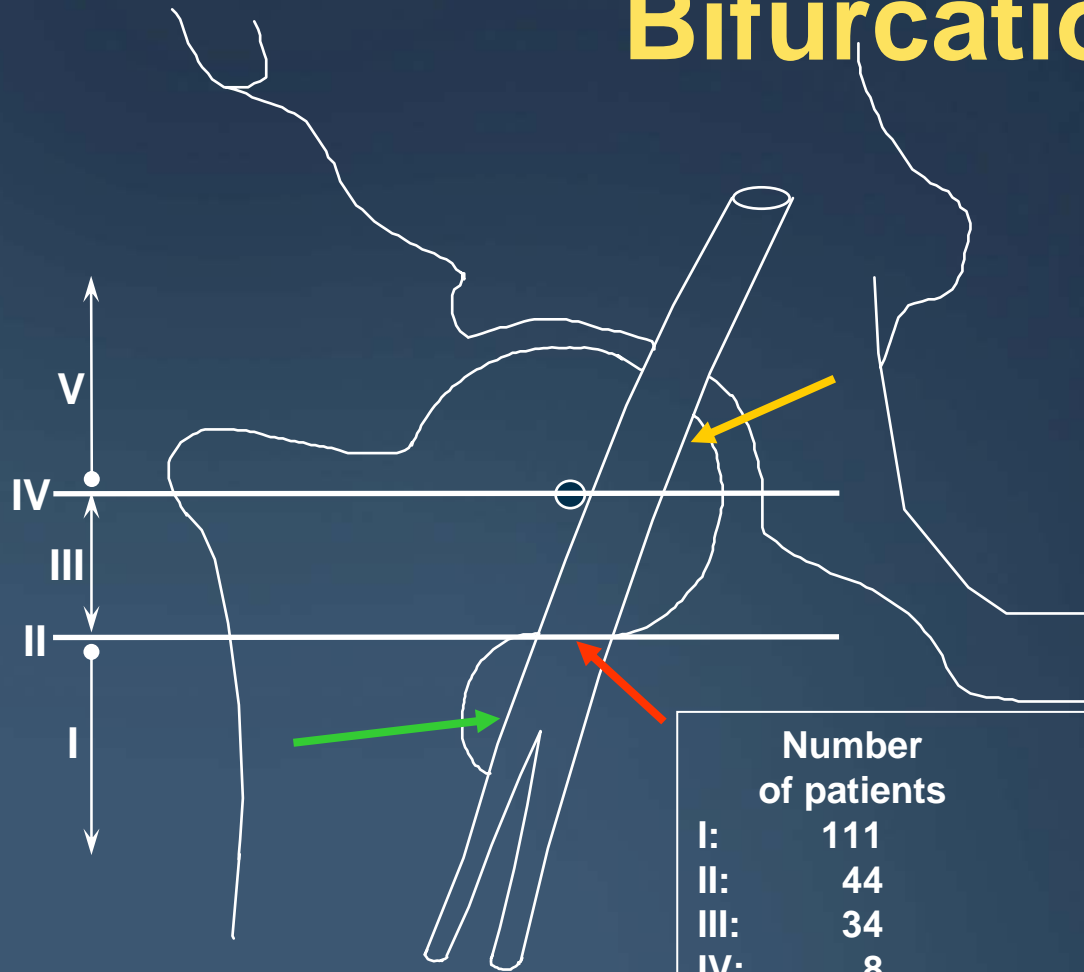


Femoral Artery Anatomy: A Prospective Study

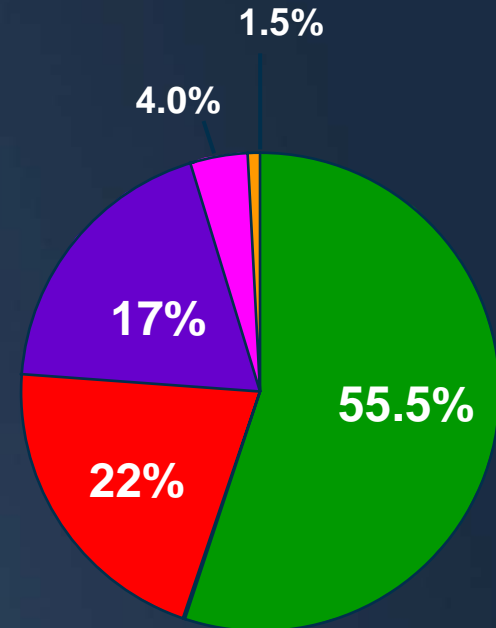
- 200 consecutive patients
- All undergoing coronary angiography
- Femoral angiography at end of procedure
- Quantitative angiography



Femoral Head and the CFA Bifurcation



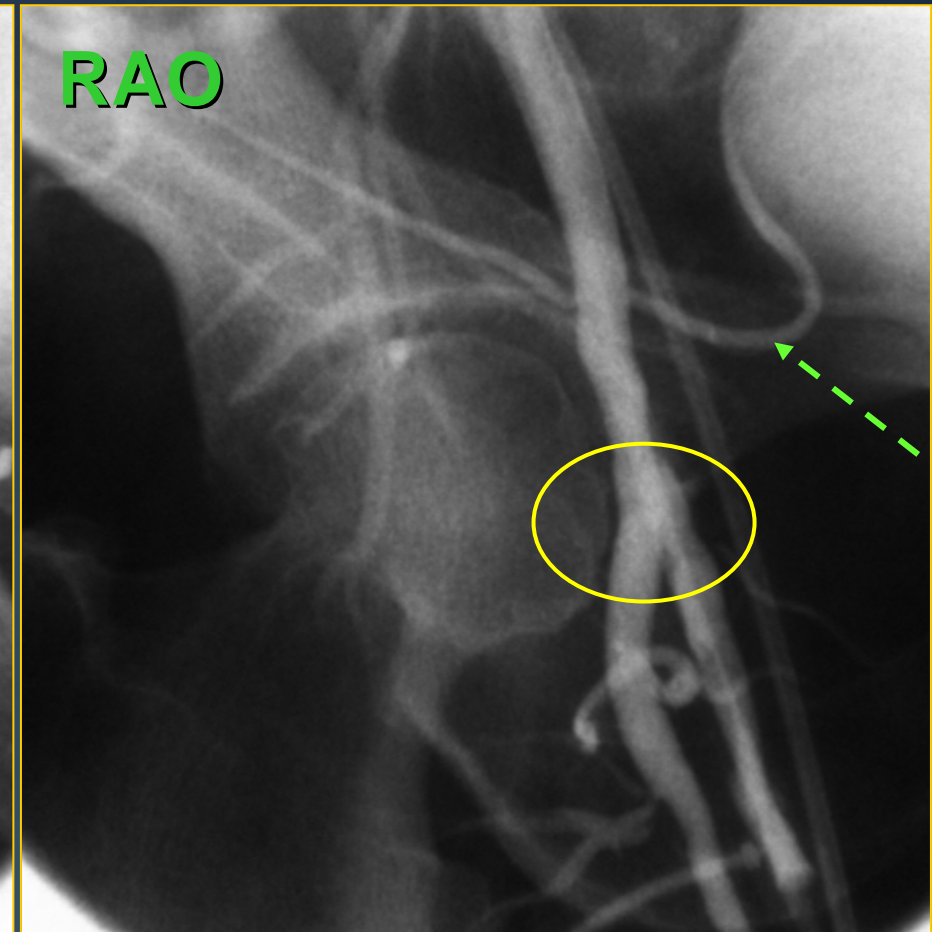
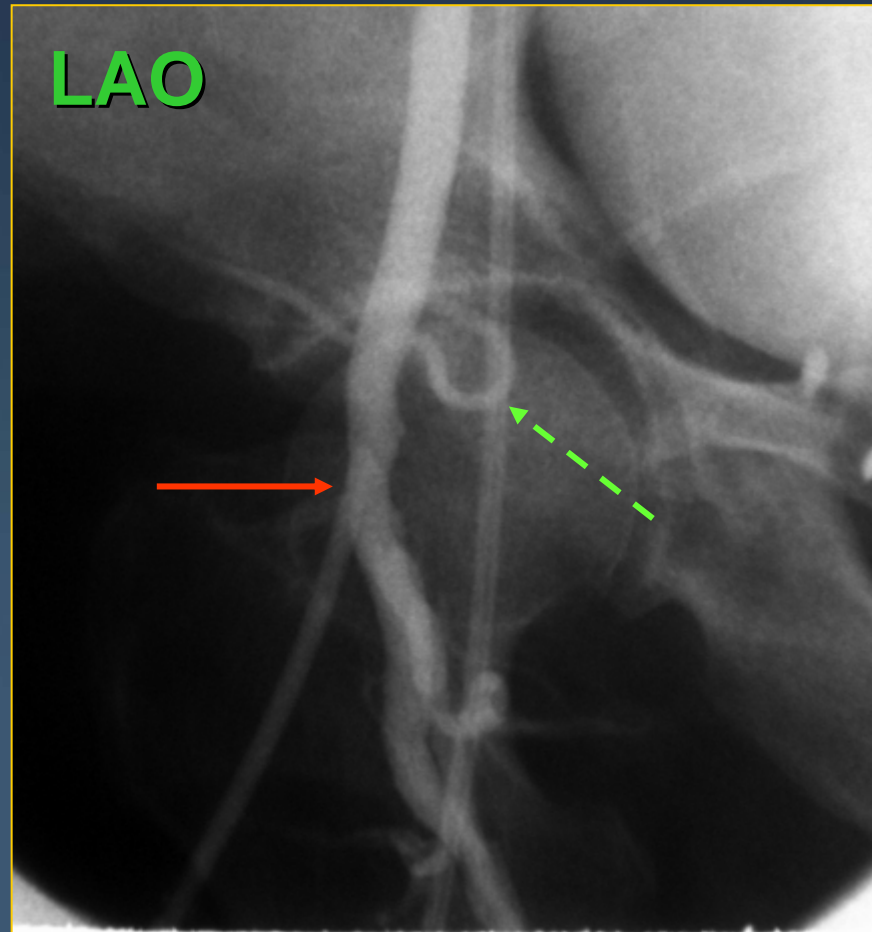
	Number of patients
I:	111
II:	44
III:	34
IV:	8
V:	3

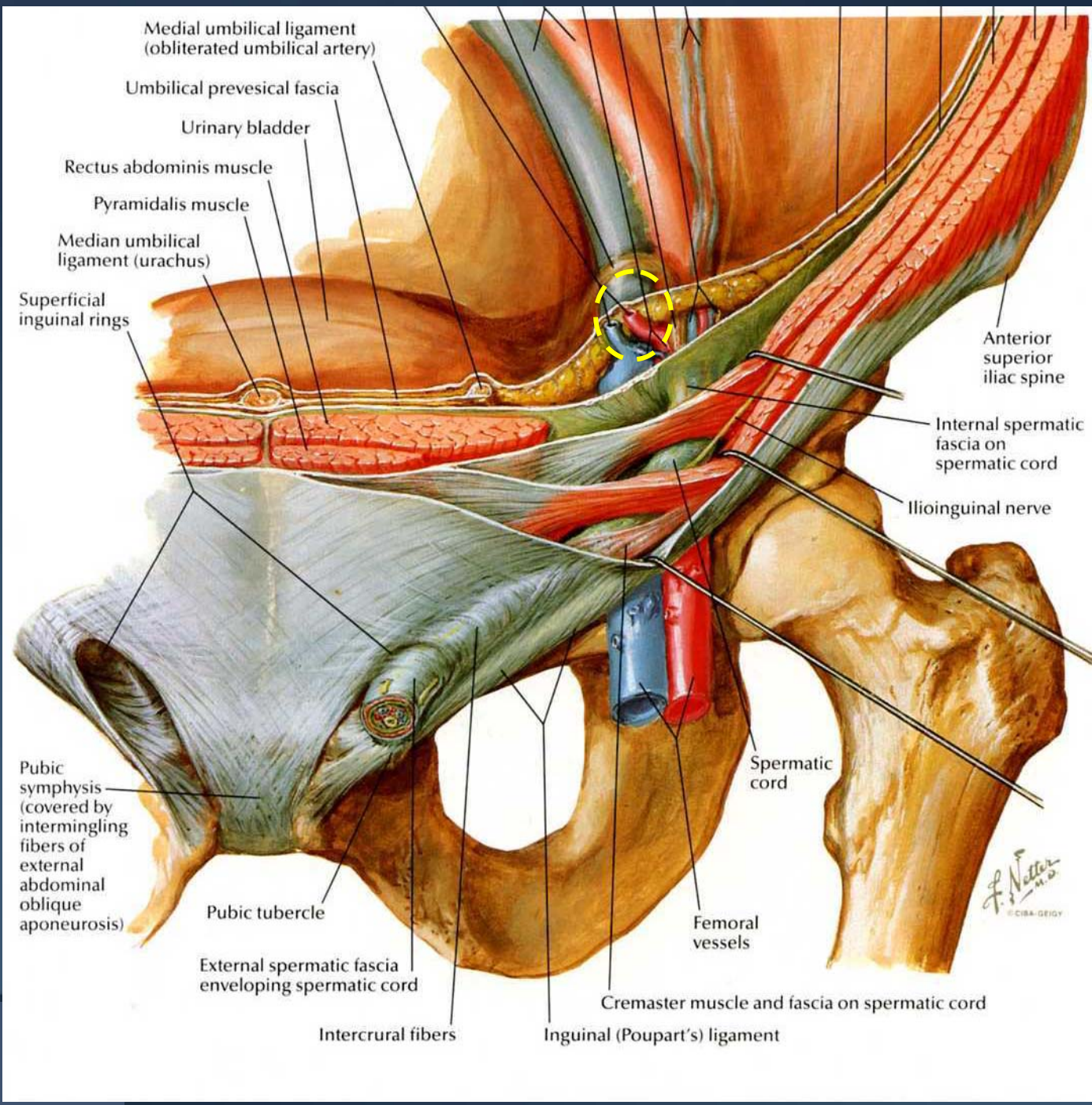


- Below inferior border
- At inferior border
- Below center of head
- At center of head
- Above center of head

n=200

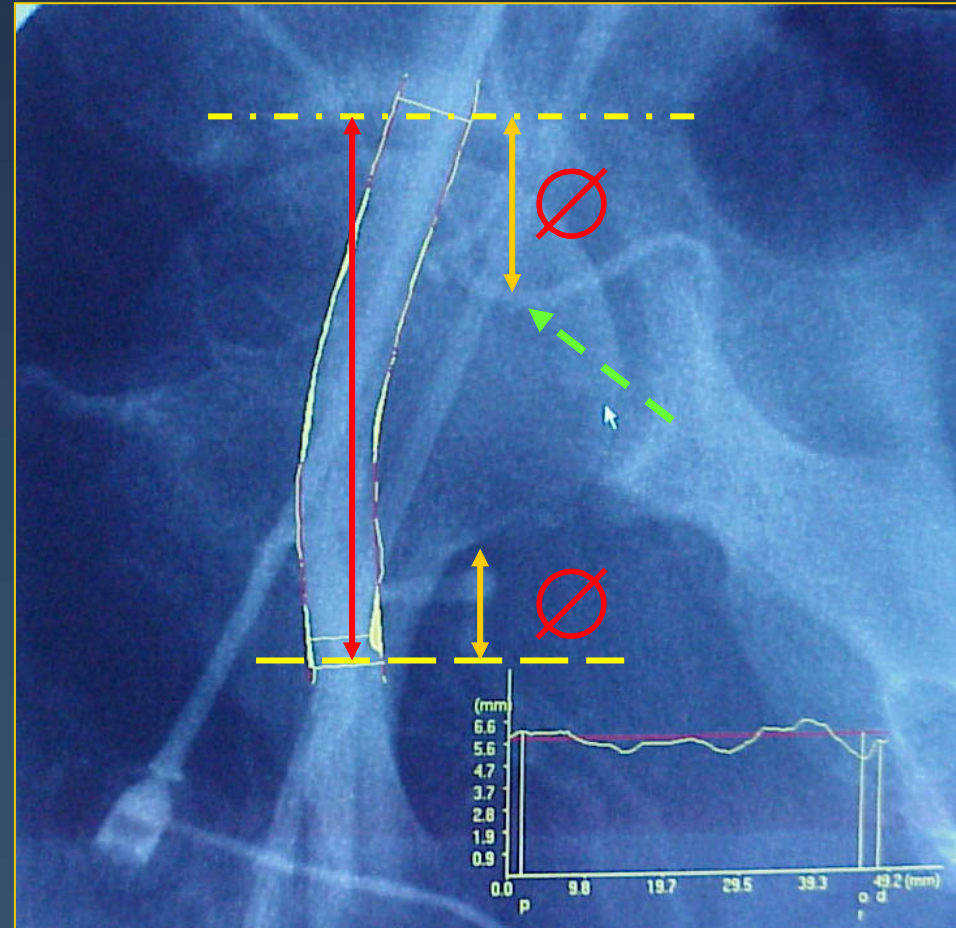
Femoral Angiogram



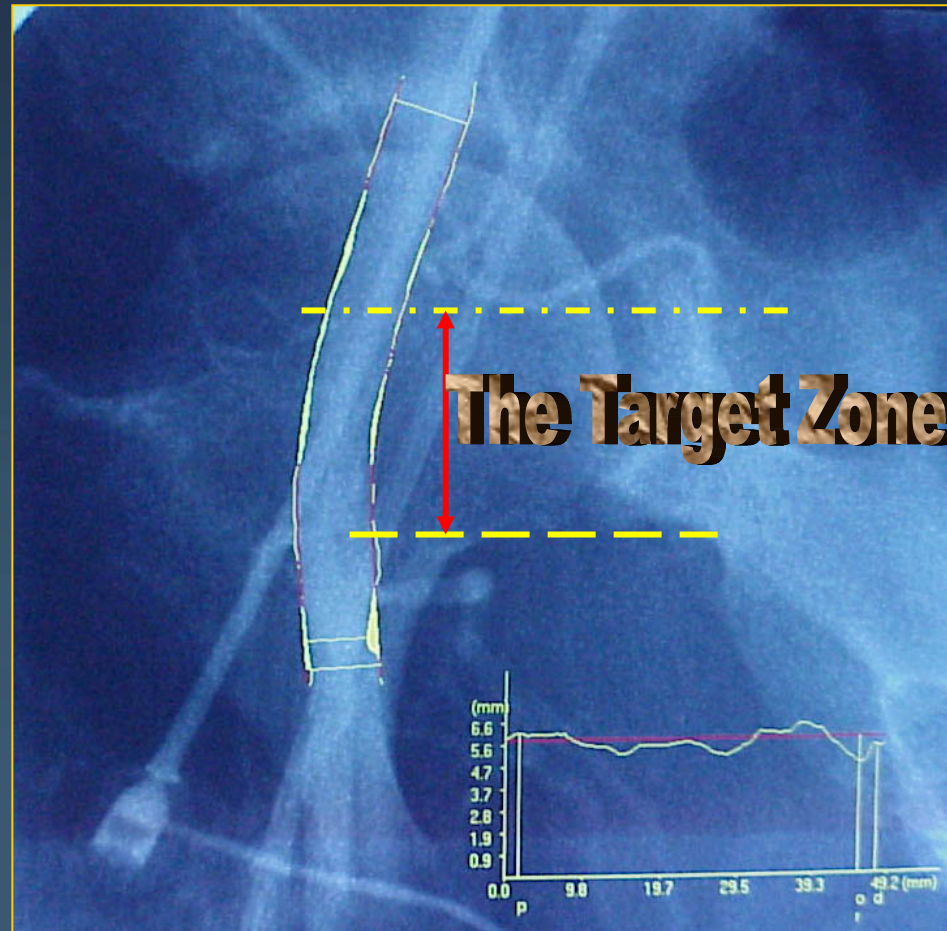


Common Femoral Artery – Classic Measurements

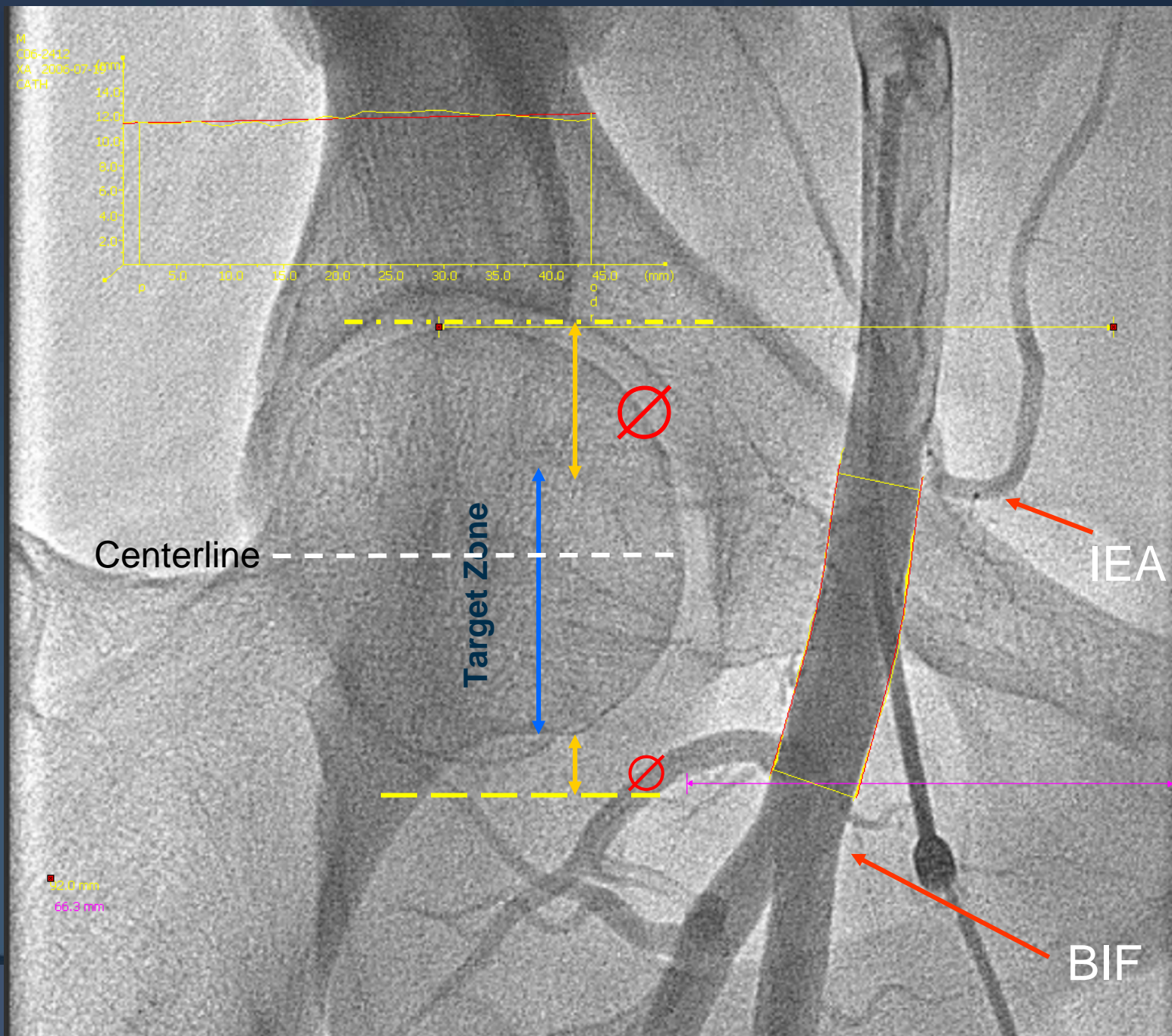
- From top of femoral head to femoral bifurcation
- Does not take IEA into consideration
- Does not consider implications of CFA stick above bifurcation, but below femoral head



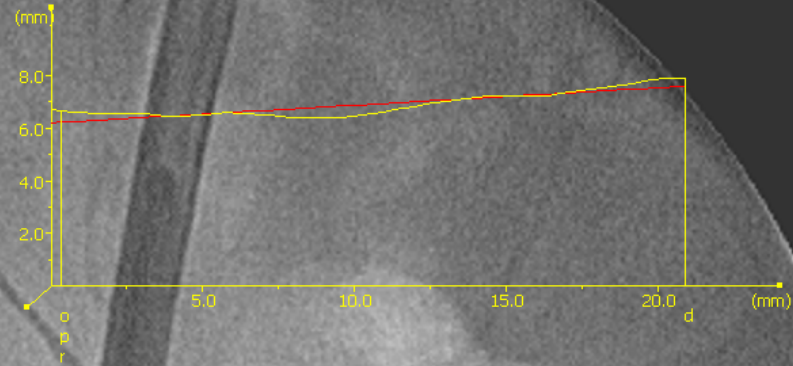
Target Zone



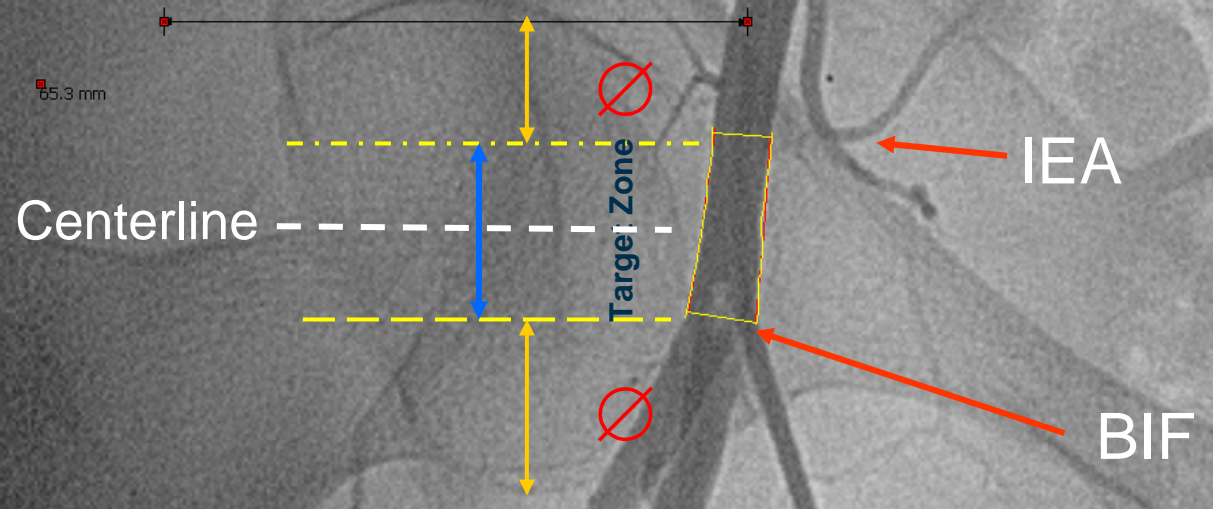
TYPE 1



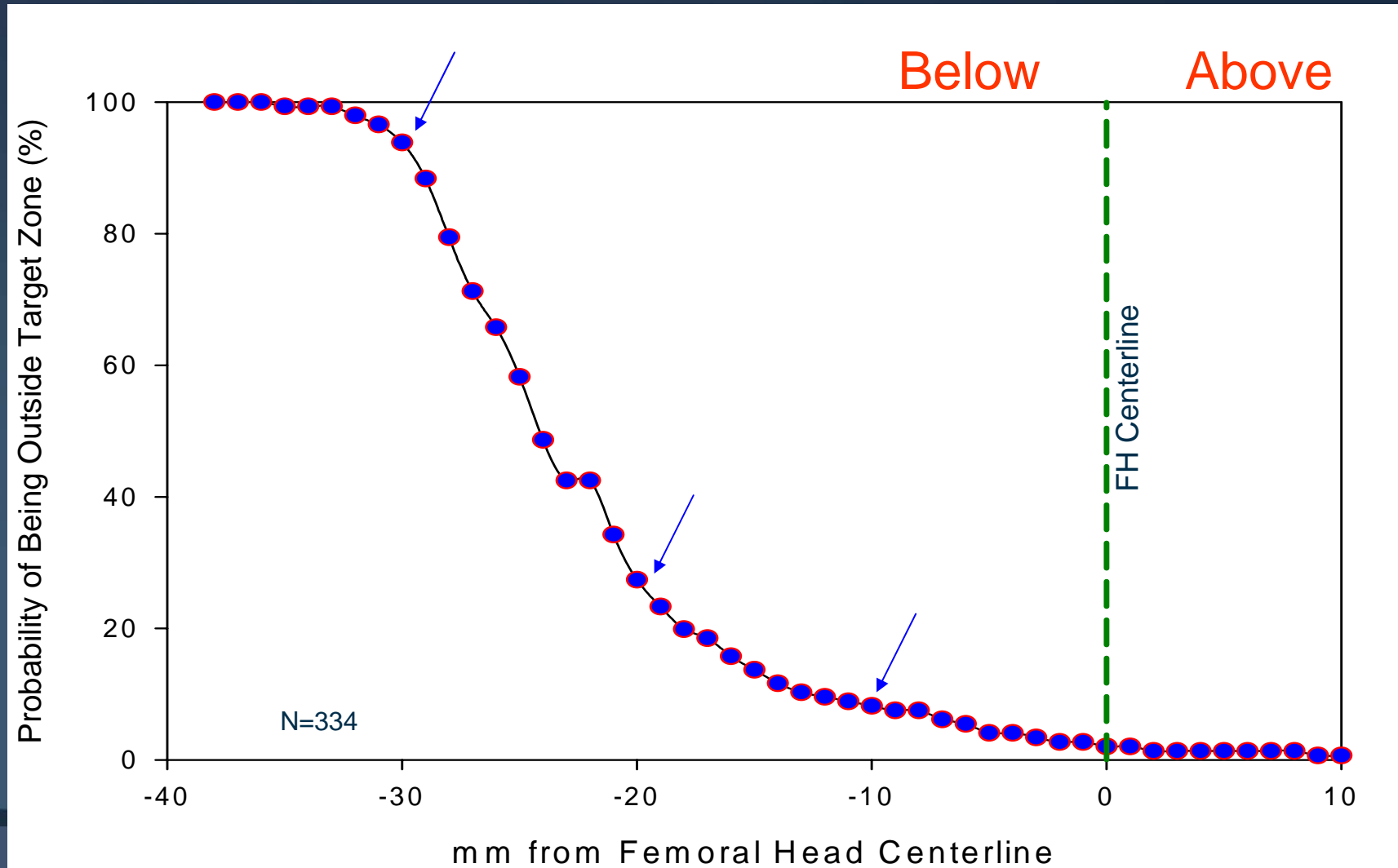
F 2003-02-26
CD6-4189
XA 2006-12-21
Study
3DF/S CORONARY



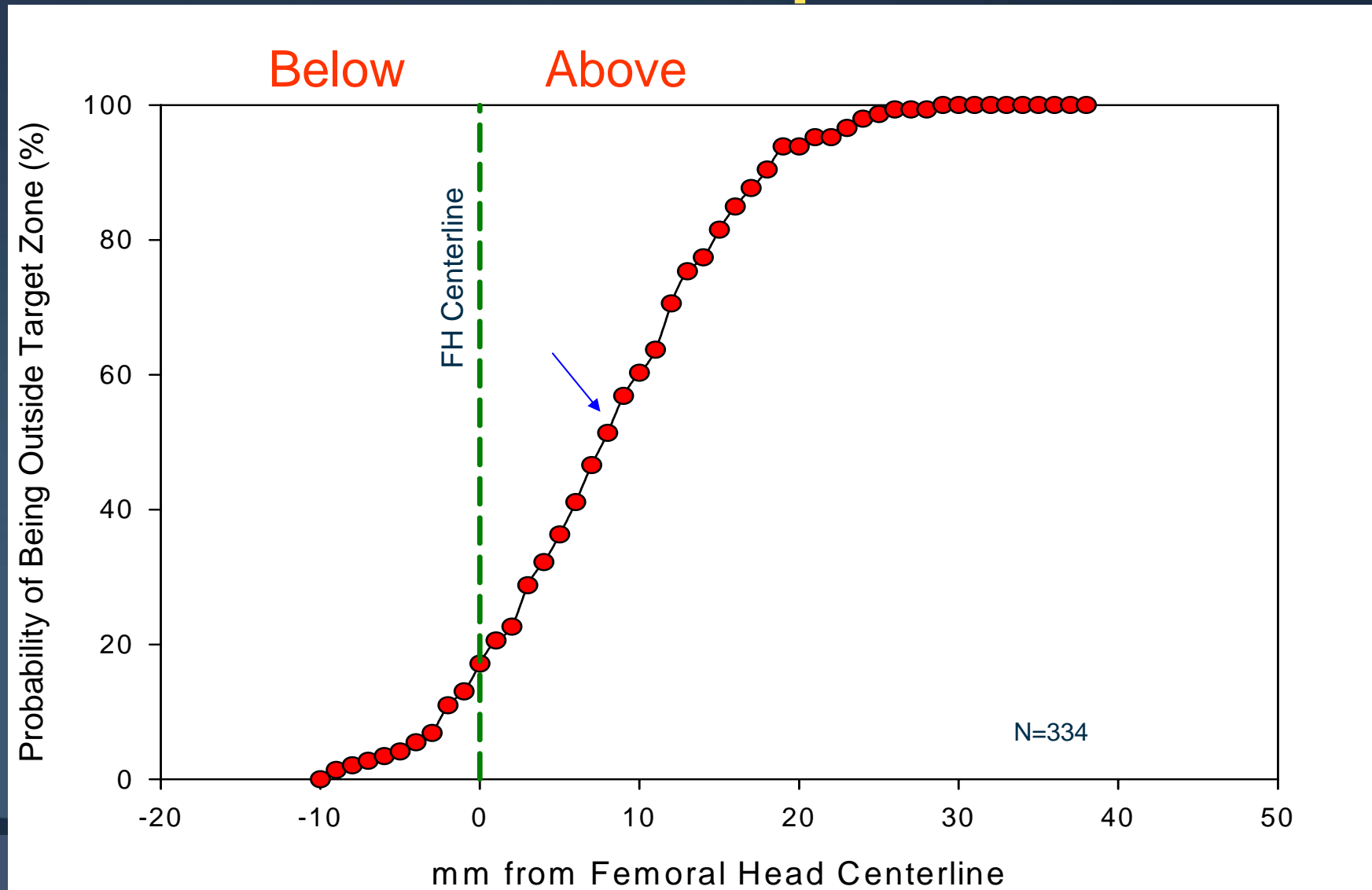
TYPE 2



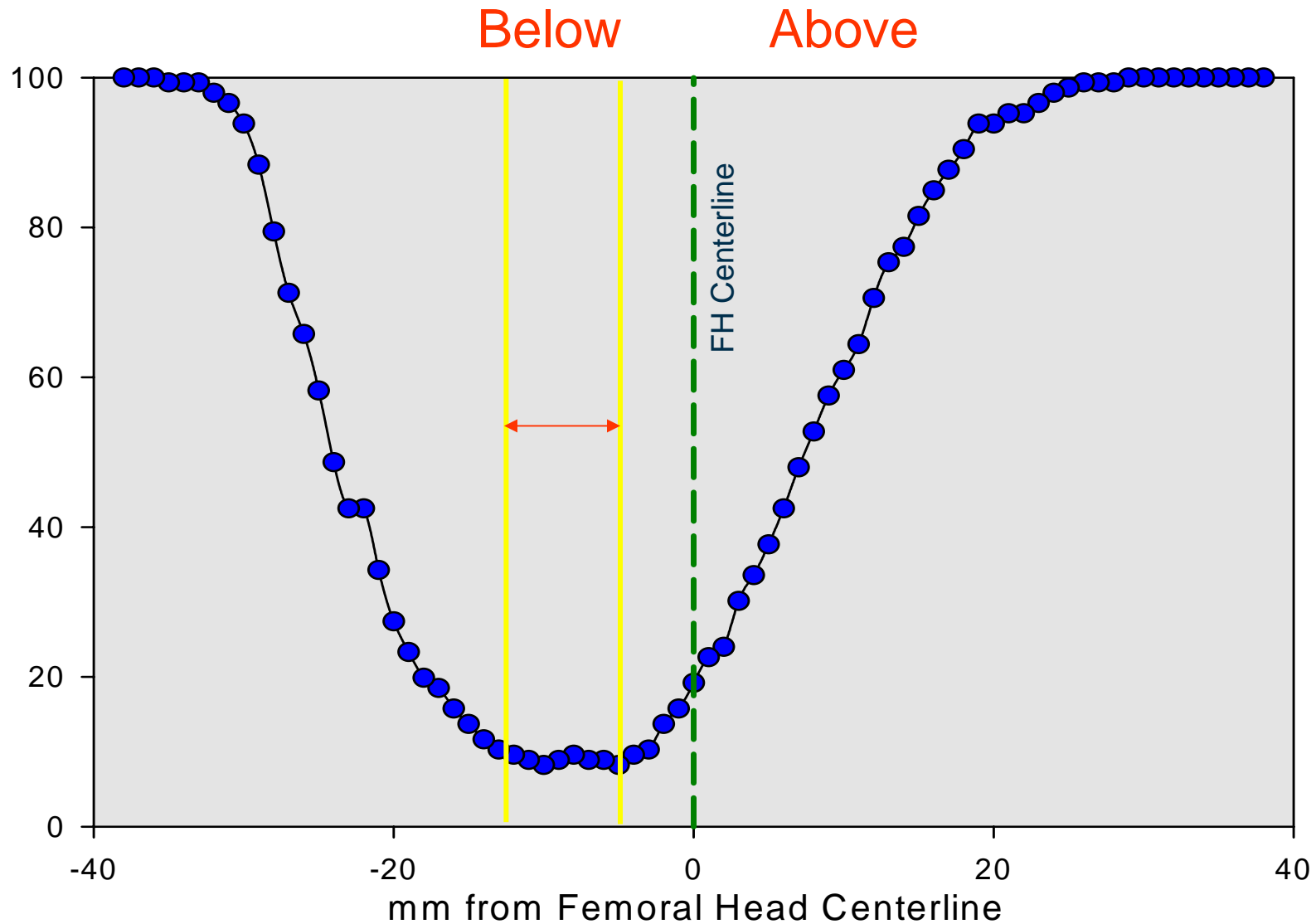
Cumulative Probability of Being Below FH or Puncturing Bifurcation Vessel

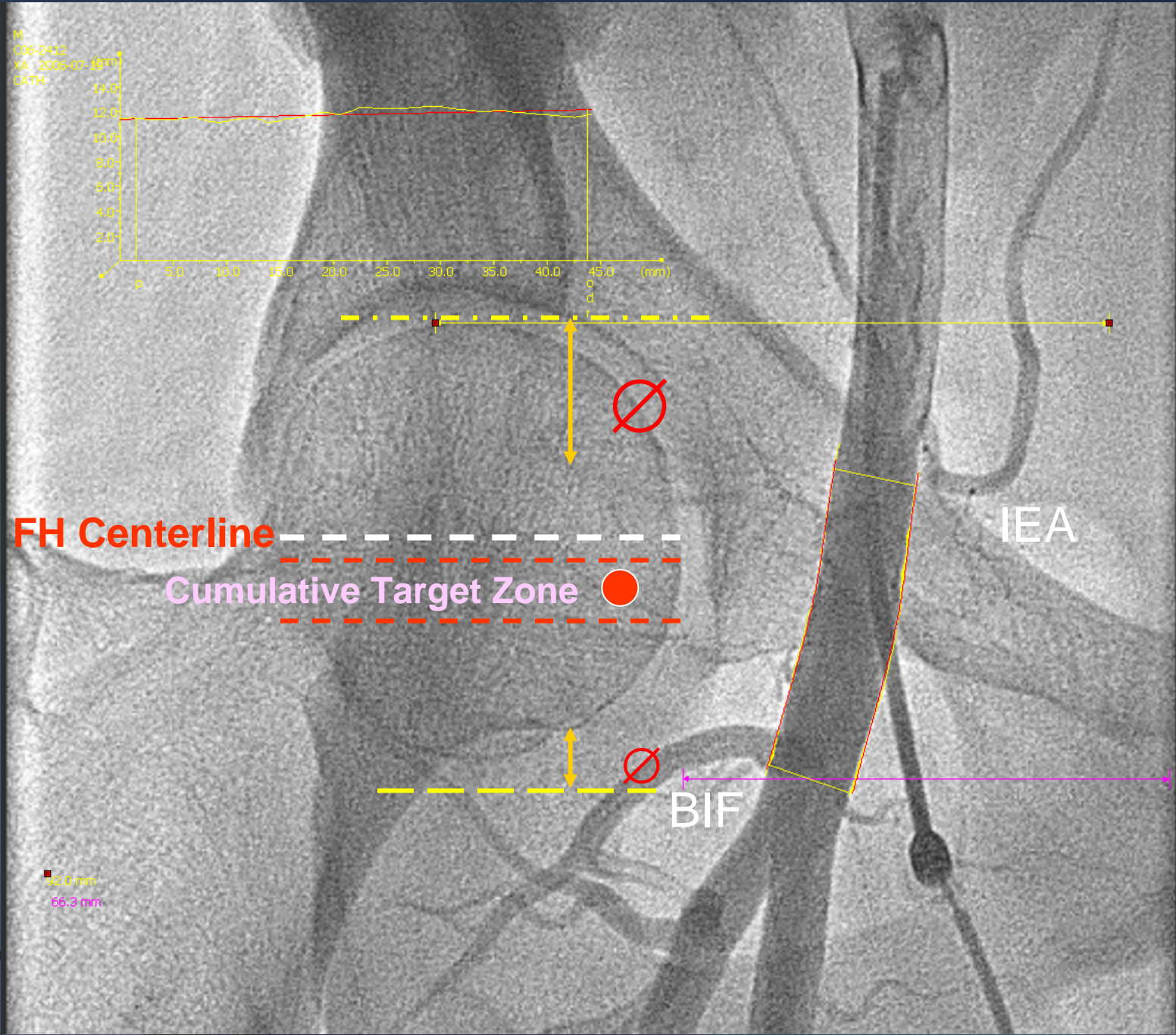


Cumulative Probability of Being Above Bottom Sweep of IEA

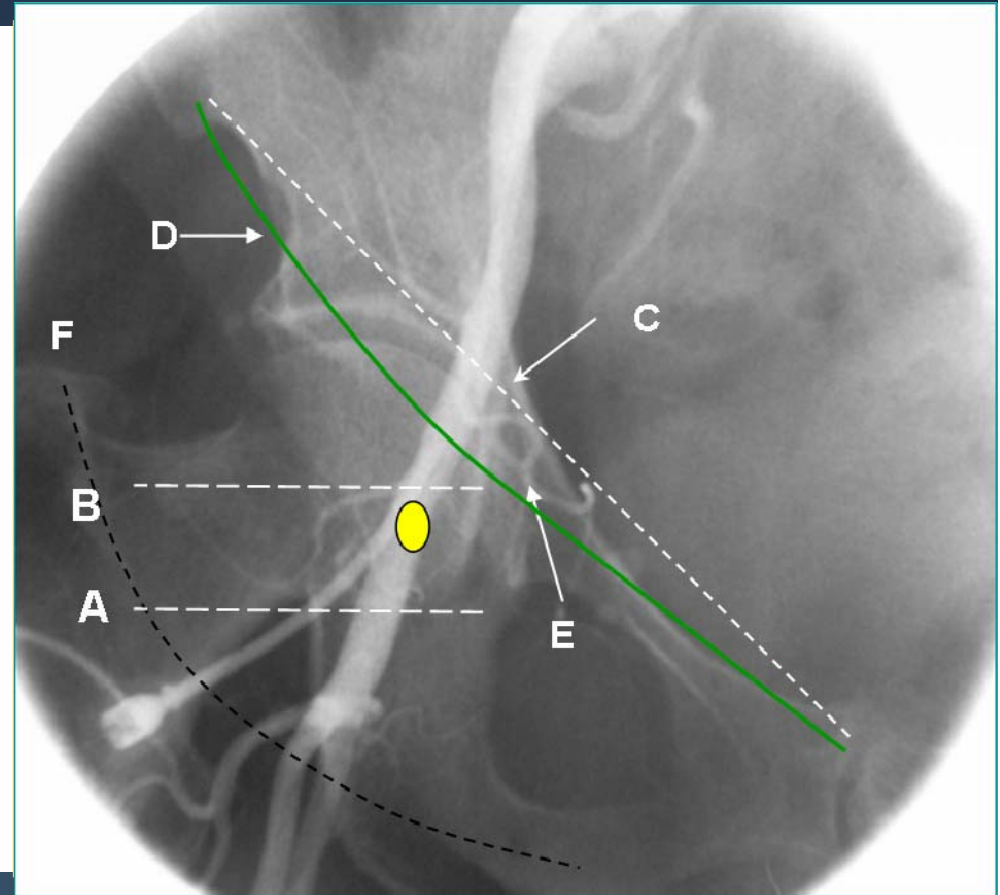
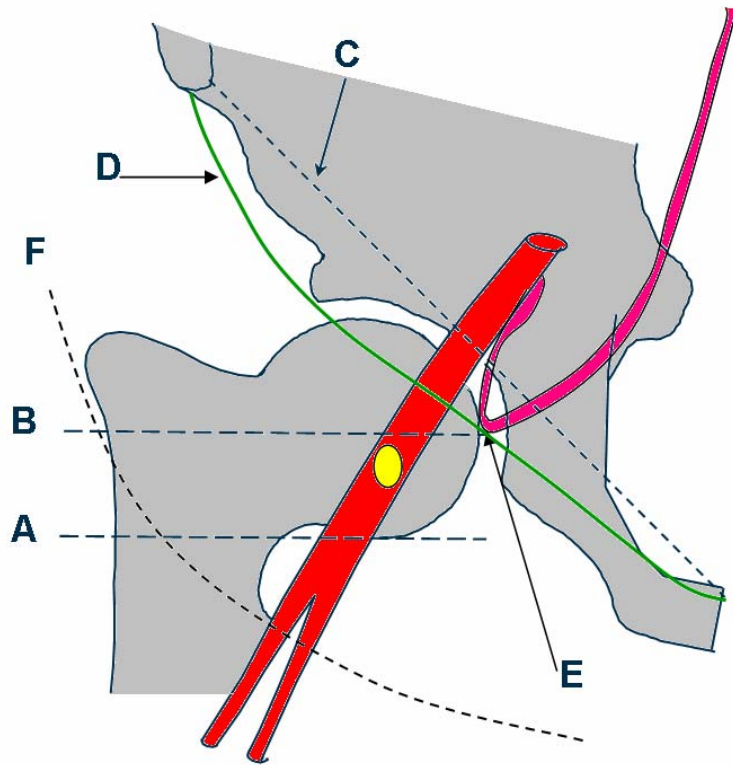


Cumulative Probability of Being Outside Target Zone

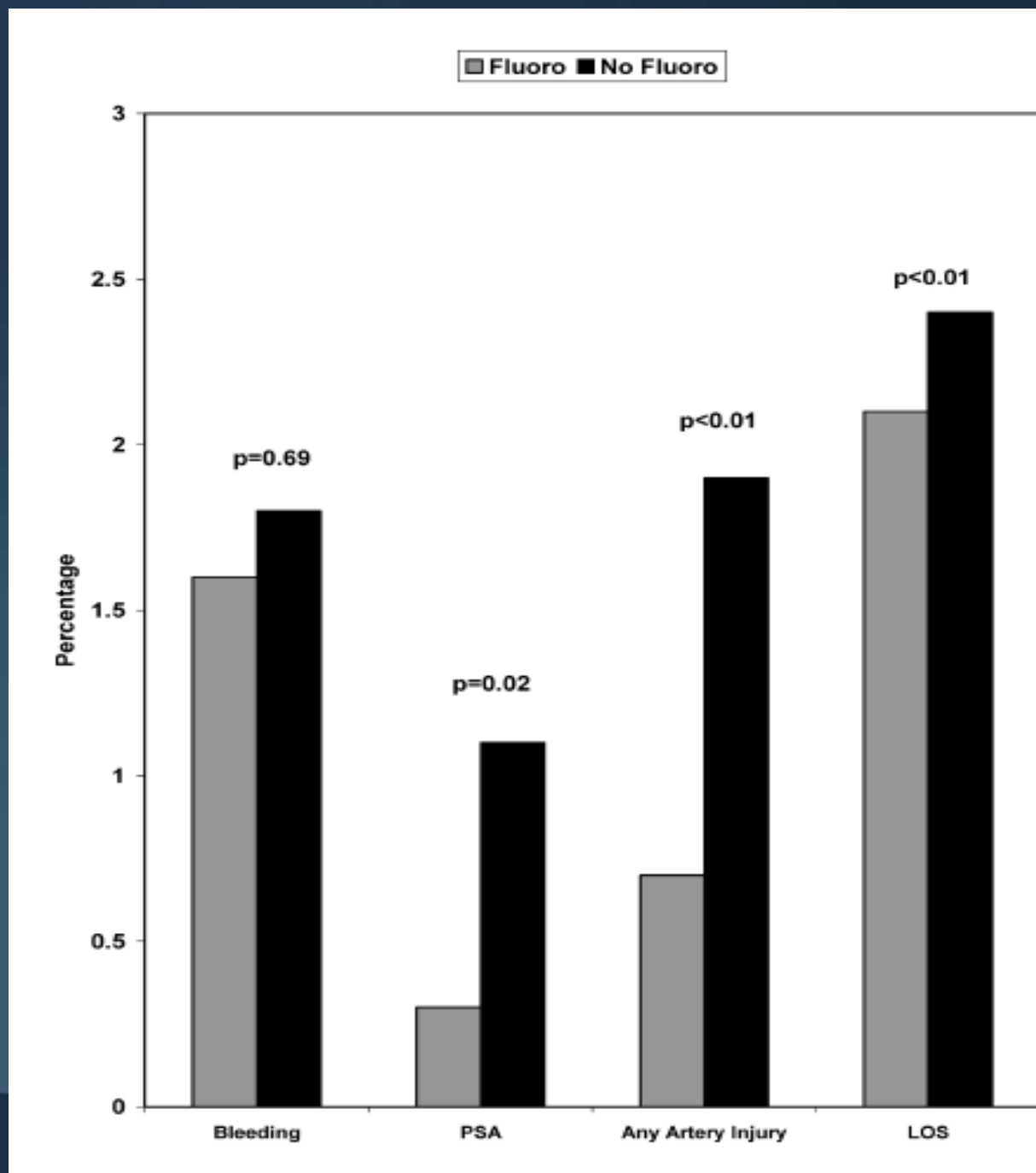




Recommended Approach

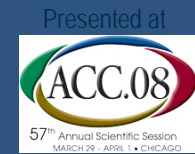


Fitts June 2008
J Interv Cardiol



Optimal Access to Prevent Complications: A Quantitative Assessment of Puncture Into the Femoral Target Zone

Zoltan G. Turi, Brian J. McEniry, Michael N. Turi, Cooper University Hospital, Robert Wood Johnson Medical School, Camden, NJ

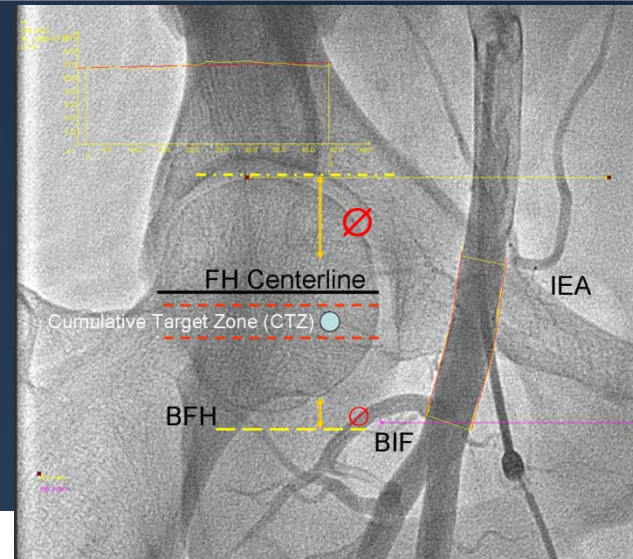


BACKGROUND

We have previously described a target zone (TZ) for vascular access, defined as that portion of the common femoral artery below the lowest sweep of the inferior epigastric artery (IEA) and above the femoral bifurcation (BIF) or bottom of the femoral head (BFH) [whichever is higher]. We have established that a cumulative target zone (CTZ), located between 5 and 14 mm below the femoral head centerline results in the lowest probability of access outside the TZ. We sought to assess the location of femoral punctures when the operator utilized fluoroscopy during vascular access to enter the TZ.

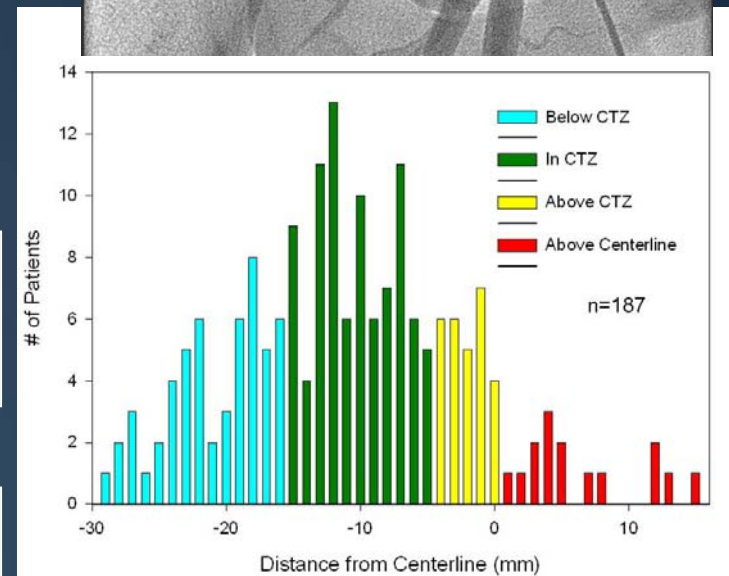
METHODS

Using quantitative femoral angiography, we evaluated the location of femoral sheath placement in 187 consecutive patients. We compared puncture location from the centerline of the femoral head to the inferior sweep of the IEA, the BIF and the BFH. Since the location of the BIF and IEA is not known prior to sheath placement and femoral angiography, we also compared femoral puncture location to the CTZ.



RESULTS

Puncture above the IEA occurred in 2.7% of patients, below the BIF in 3.7% and below the BFH in 2.1%. The CTZ was the location of puncture in 46.8% of patients. Puncture above the centerline, the location most likely to result in retroperitoneal hemorrhage, occurred in 7.4 % of patients.

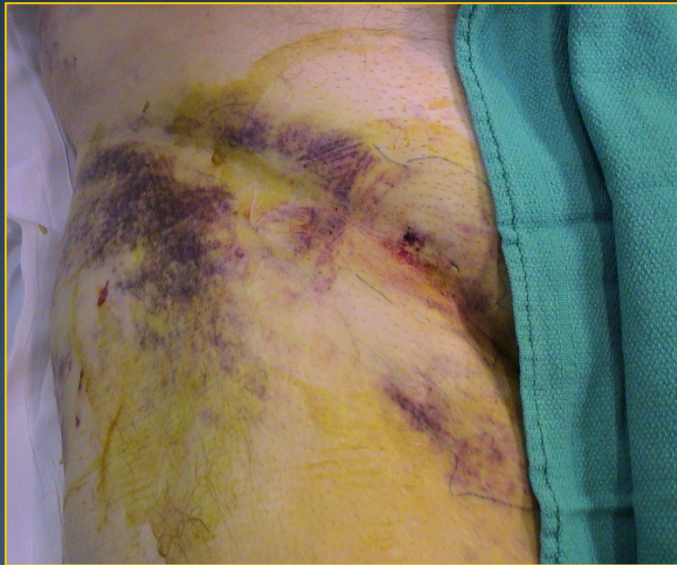


CONCLUSION

Using fluoroscopy to guide femoral artery access results in a relatively low rate of puncture outside the TZ, and may contribute meaningfully to a decrease in overall femoral access site complication rates.

DISCLOSURE

Dr. Z. Turi receives research support from Abbott Vascular and is a member of the Abbott Vascular Scientific Advisory Board



- Diagnostic cath – no heparin
- No fluoroscopy
- Inguinal crease



- PTCA – heparin + IIb/IIIa
- Fluoroscopy
- Ignored inguinal crease

Better Technique \Rightarrow Better Result

