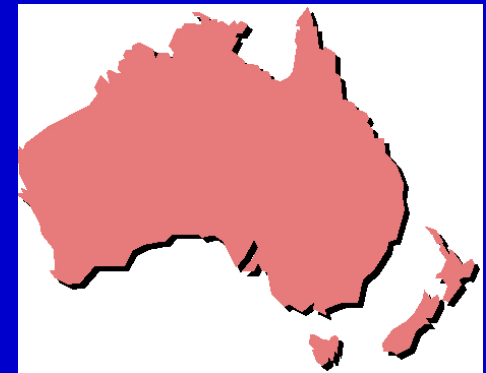


Major Vascular Complications: Getting in & out of trouble in the Femoral Artery

A/ Professor Darren Walters



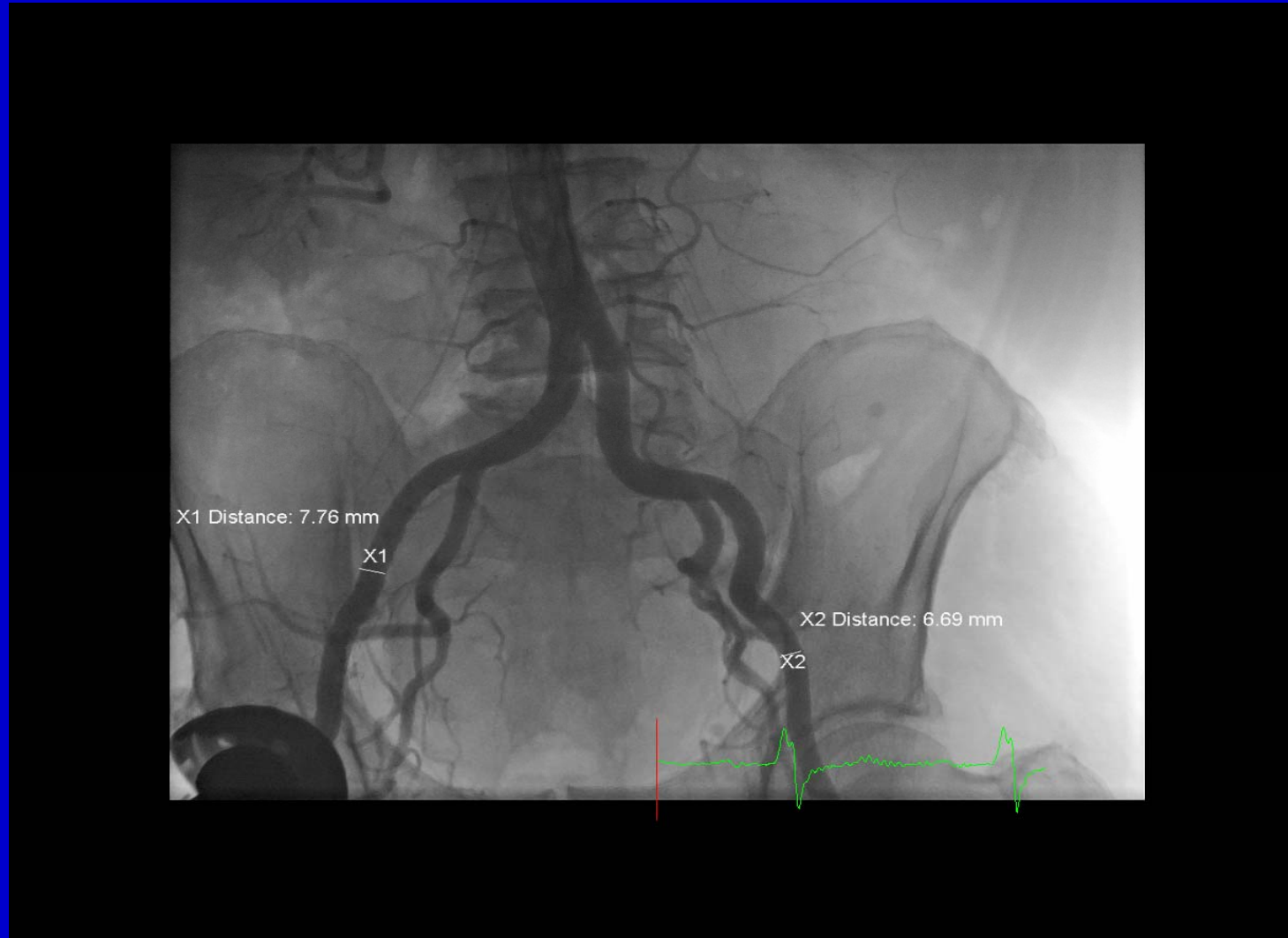
Director of Cardiology
The Prince Charles Hospital
Brisbane, Australia



Pre Procedural Evaluation

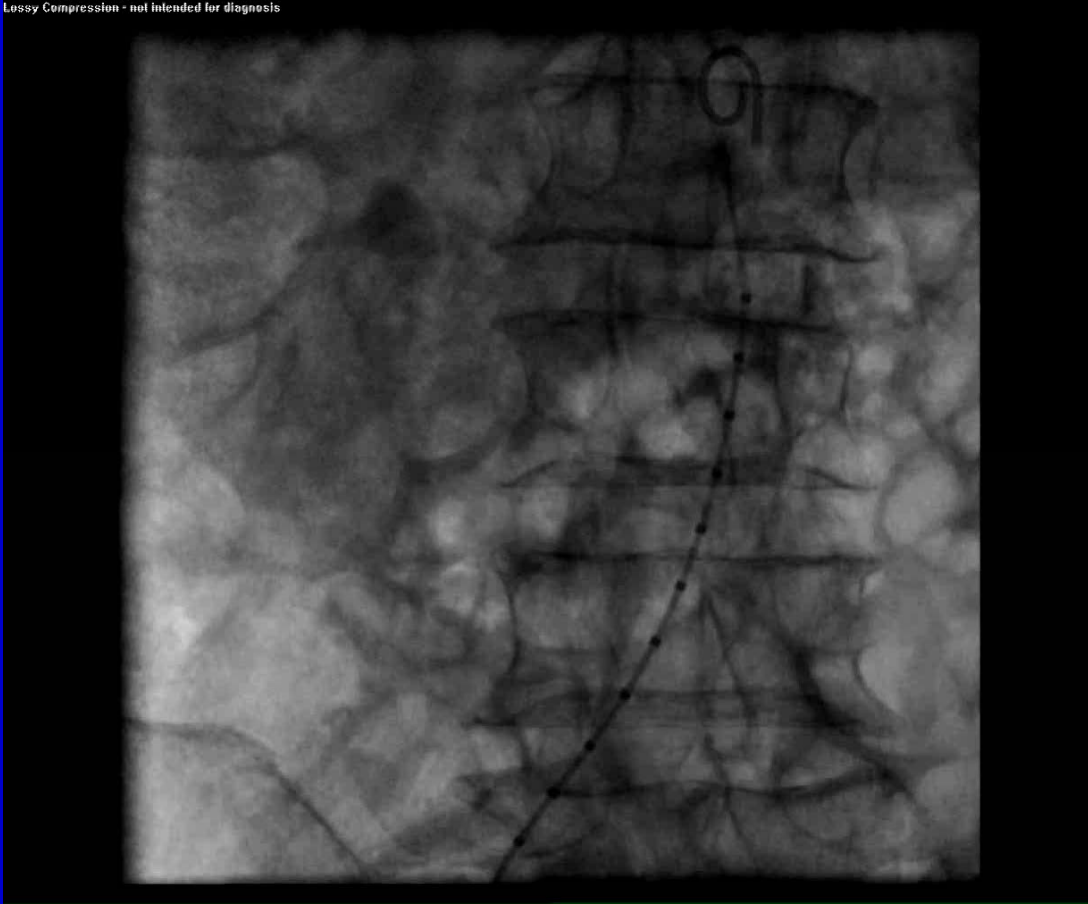


Femoral Artery Assessment



Assessing peripheral vasculature

Lessy Compression - not intended for diagnosis

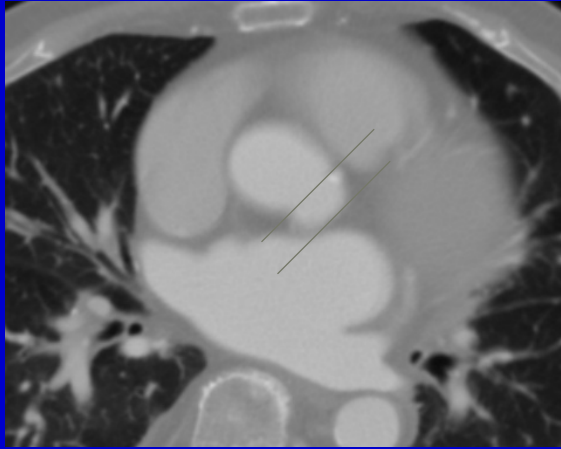


◆ Measurements

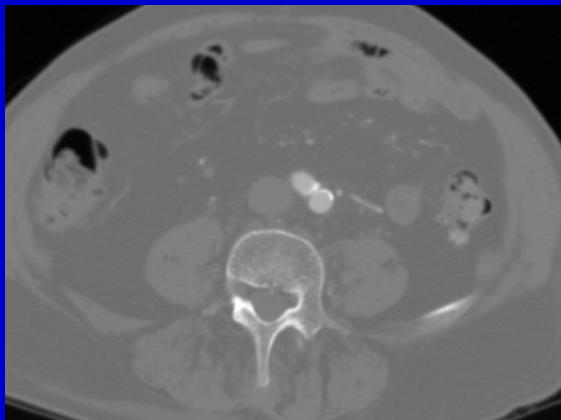
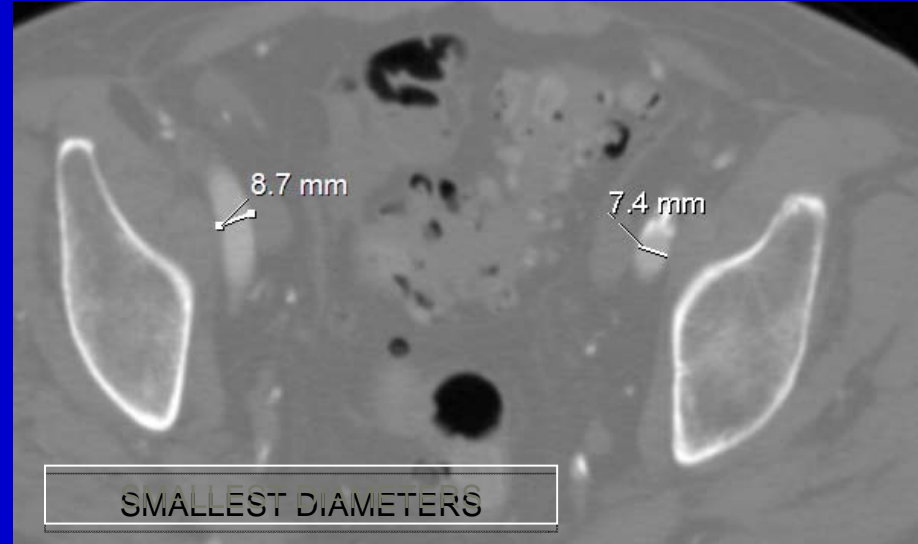
- Angiography
 - ◆ Access calibre
 - ◆ Tortuosity
- CT aortogram
 - ◆ Access calibre
 - ◆ Tortuosity
 - ◆ Aortic calcification



CT Evaluation

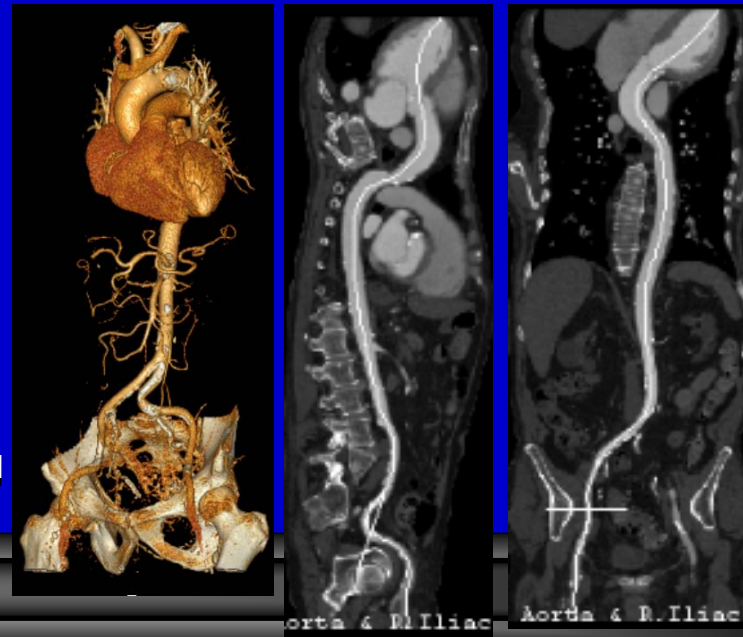


OSTIA TO BOTTOM CUSPS



BIFURCATION

3D RECONSTRUCTION

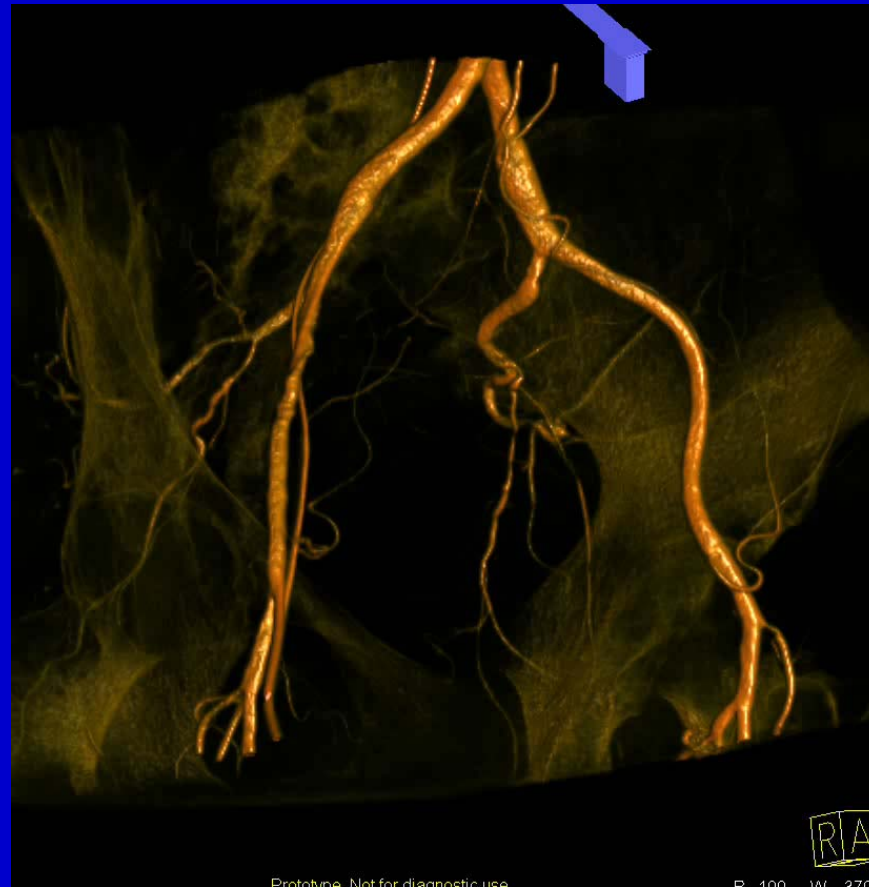


Next generation prototype software



Next generation prototype software

Siemens
Dyna CT



Case Scenario: Femoral Perforation

- ◆ 82 year old lady
- ◆ Symptomatic severe aortic stenosis
- ◆ Mixed aortic valve disease $\frac{3}{4}$ AR
AVA 0.9cm²
- ◆ Normal coronary arteries and normal LV function



Background History:

- ◆ Hypertension
- ◆ Chronic Atrial Fibrillation
- ◆ Dyslipidaemia
- ◆ Symptomatic benefit from aortic balloon valvuloplasty
- ◆ Other: osteoarthritis, osteoporosis, macular degeneration



Multi-disciplinary Meeting

- ◆ Deemed more suitable for TAVI vs surgery given:
 - Frailty
 - Severe osteoarthritis with bilateral TKR
 - Osteoporosis
 - Visual Impairment
 - Cerebrovascular disease with TIA's
- ◆ Euroscore 9.25%
- ◆ STS 5.5% Mortality
 17.7 % Morbidity & Mortality



TAVR Procedure

Fluoro guided RFA puncture



Preclosing with ProStar



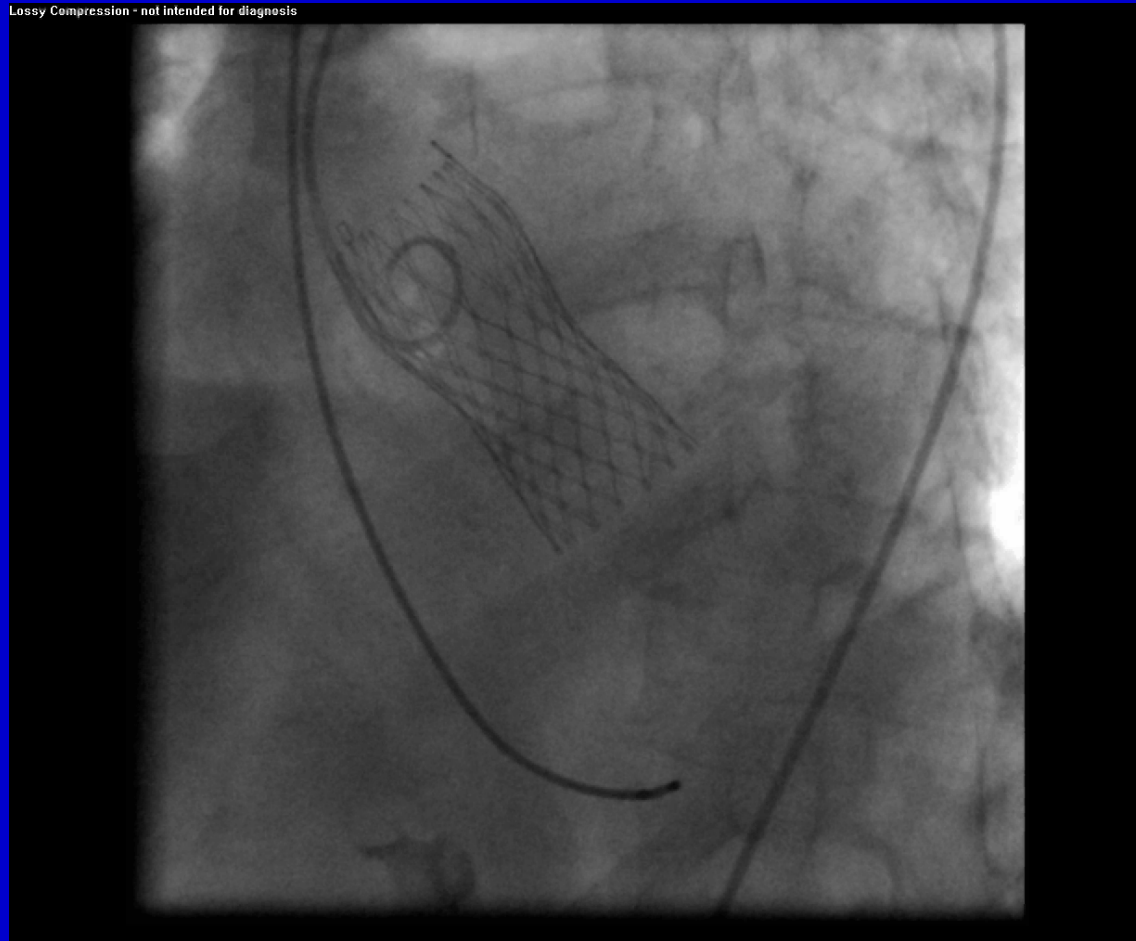
TAVR Procedure:

- ◆ Local Anesthesia/Sedation No TOE
- ◆ 6 Fr LFA sheath – contralateral access to guide RFA sheath insertion
- ◆ 18 Fr RFA – 9-18 Fr serial dilators used
- ◆ TPW via the R) IJV
- ◆ 4cm x 22m NuMed balloon used for valvuloplasty
- ◆ 26 mm CoreValve deployed uneventfully over a 260 cm Amplatz Super Stiff Wire
- ◆ Peak Pressure gradient fell from 36 mmHg to 0 mmHg.



Final TAVR Result

26 mm
CoreValve



Post ProStar Closure:

Lossy Compression - not intended for diagnosis



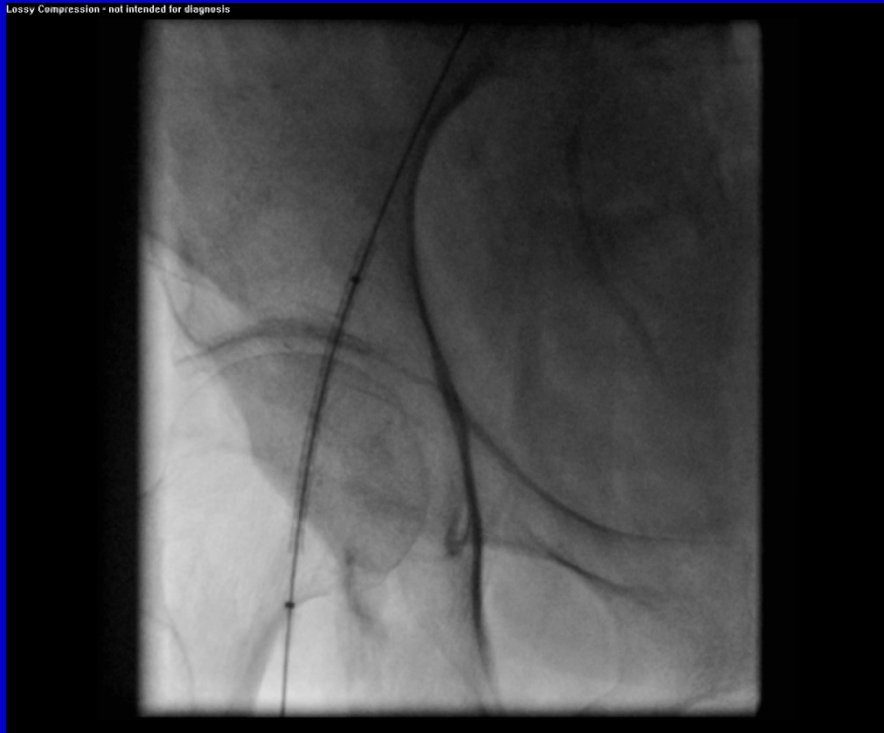
Aortogram
Pigtail
40mls @
20 mls/s
1000psi



8 mm x 59 mm Atrium V12 Covered Stent Deployed

In <10 minutes passed a Terumo
wire and a covered stent

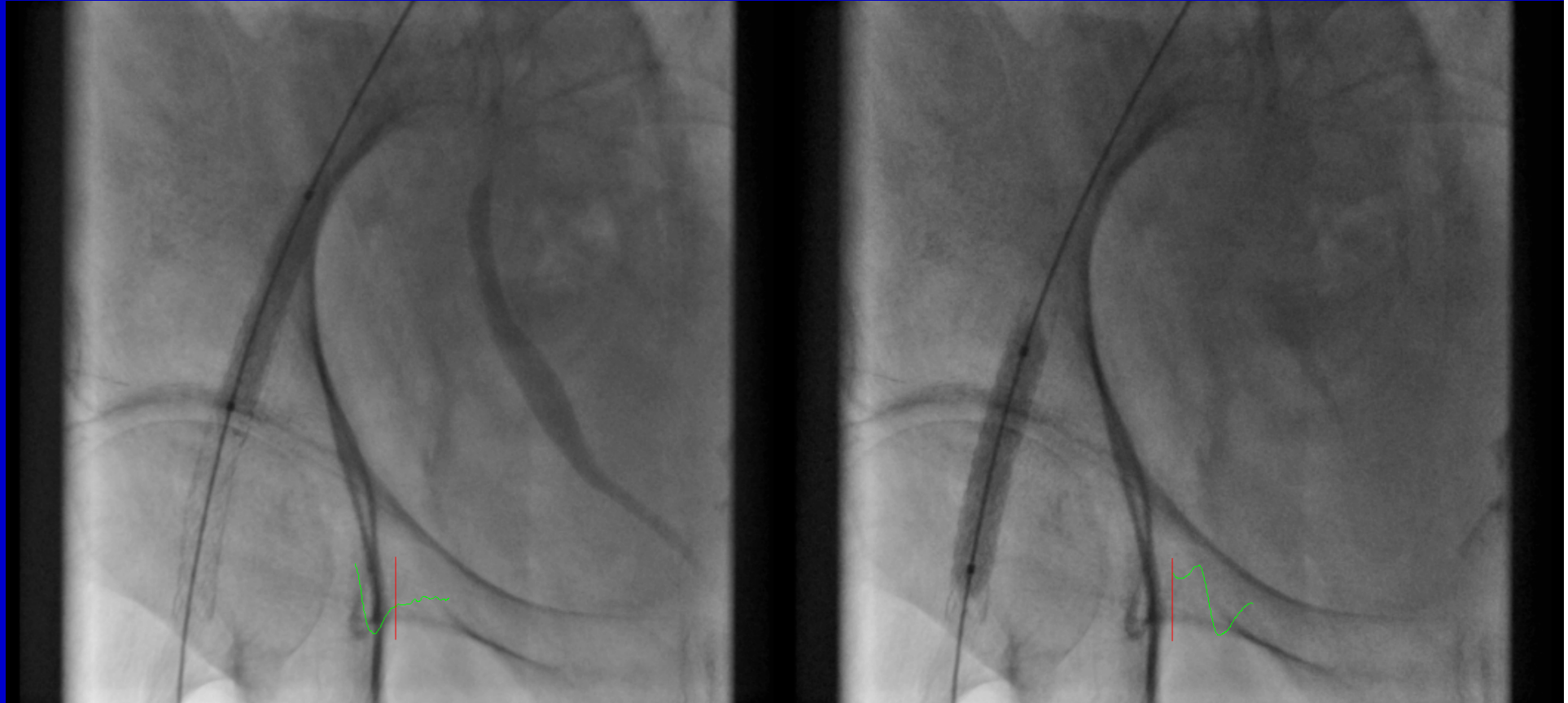
Lossy Compression - not intended for diagnosis



8 mm x 59 mm Atrium V12 Covered Stent Deployed



Post-dilation 8mm x 4cm Passeo



Final Result – disaster averted



Hb 12 → 5 g/dl



Case Scenario: Femoral Artery Occlusion

- ◆ 88 yo Male
- ◆ Co morbidities:
 - Frail
 - Cerebrovascular disease – prior TIA
 - Renal Impairment
 - COPD
 - Prostatic Cancer
 - Euroscore 19.8%
 - STS 6.3%



TAVR

- ◆ 19 Fr Novaflex 26 mm Sapien XT
- ◆ Under General Anaesthesia
- ◆ Transoesophageal echo
- ◆ TPW Right Femoral



Femoral Access



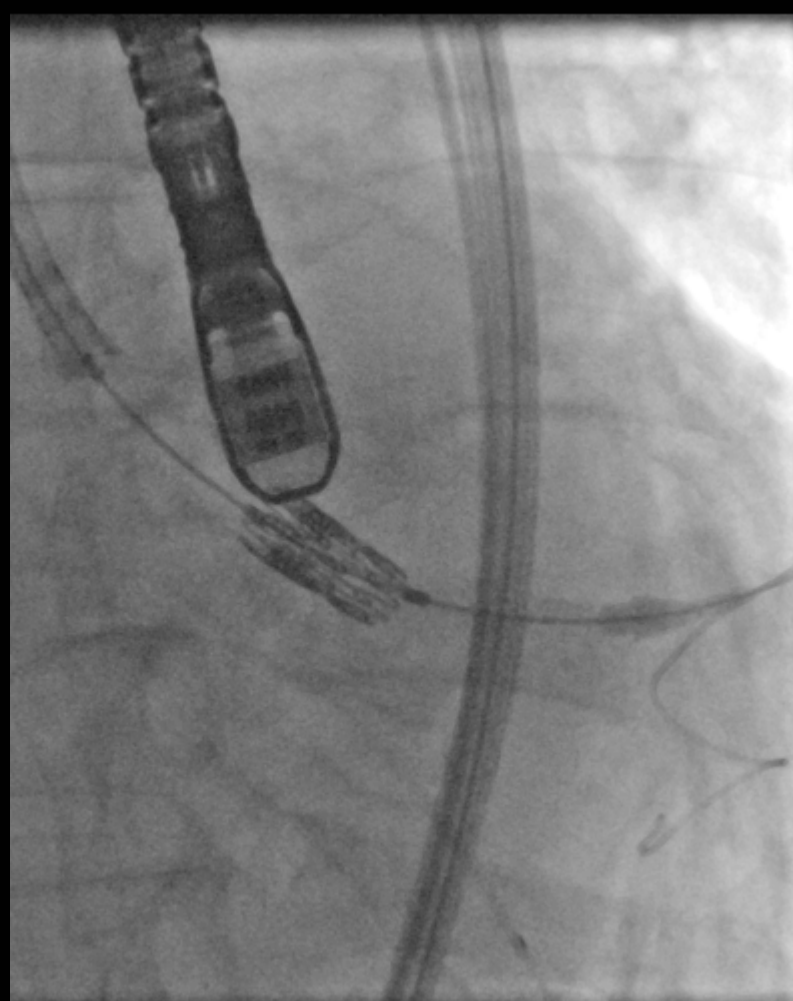
Pre closure



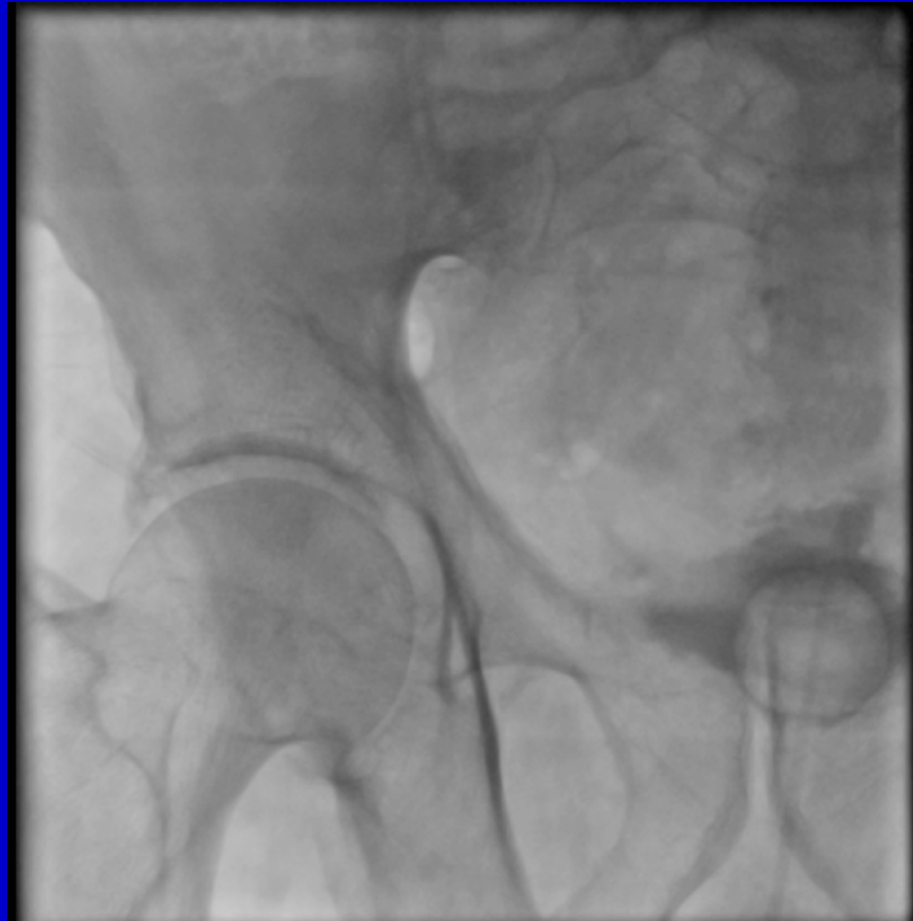
Femoral Access



Valve Deployed



Femoral angiogram post Prostar



Sheath Passage



LIMA catheter → Terumo slippery →
Boston Amplatzer Super Stiff '0.035



Cook Flexor sheath



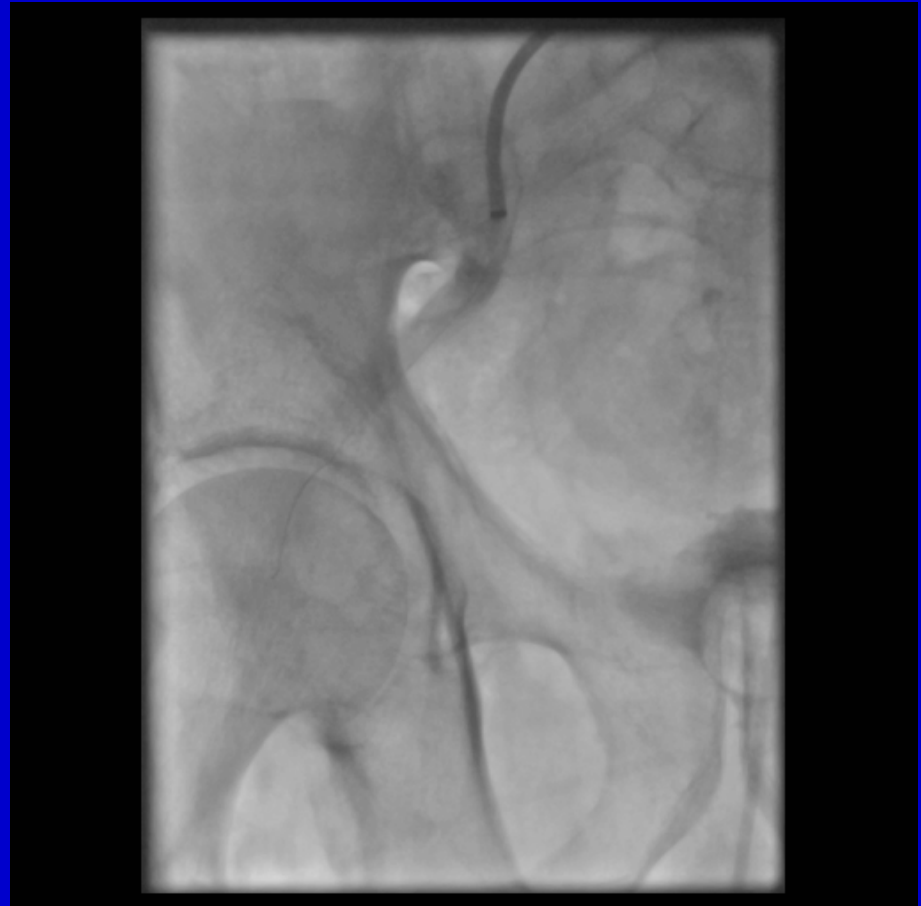
Flexor® Check-Flo® Introducers Balkin Up & Over® Contralateral Design



Wire Passage



Terumo 0.035'
unsuccessful



Whisper wire 0.014' successful



Balloon Angioplasty



Cordis Fox Balloon
8 x 39 mm



Cook Zilver stent



Major Vascular Complications

- ◆ Any thoracic aortic dissection
- ◆ Access site or access-related vascular injury (dissection, stenosis, perforation, rupture, arterio-venous fistula, pseudoaneurysm, haematoma, irreversible nerve injury, or compartment syndrome)
- ◆ **leading to either death, need for significant blood transfusions (≥ 4 U), unplanned percutaneous or surgical intervention, or irreversible end-organ damage**
- ◆ Distal embolisation (noncerebral) from a vascular source **requiring surgery or resulting in amputation or irreversible end-organ damage**

VARC definitions



Minor Vascular Complications

- ◆ not associated with death, need for significant blood transfusions (≥ 4 U), or irreversible end-organ damage



SORCE ANZ Major Complications (30 Days)

	TF % (n=67)	TA % (n=63)	Total % (n=130)
Bleed (All)	14.93	19.05	16.92
Minor Vascular	10.45	1.59	6.15
Major Vascular	4.48	6.35	5.38

*Defined according to VARC Criteria
Eurointervention:2010;5;673-679.*



Major Complications

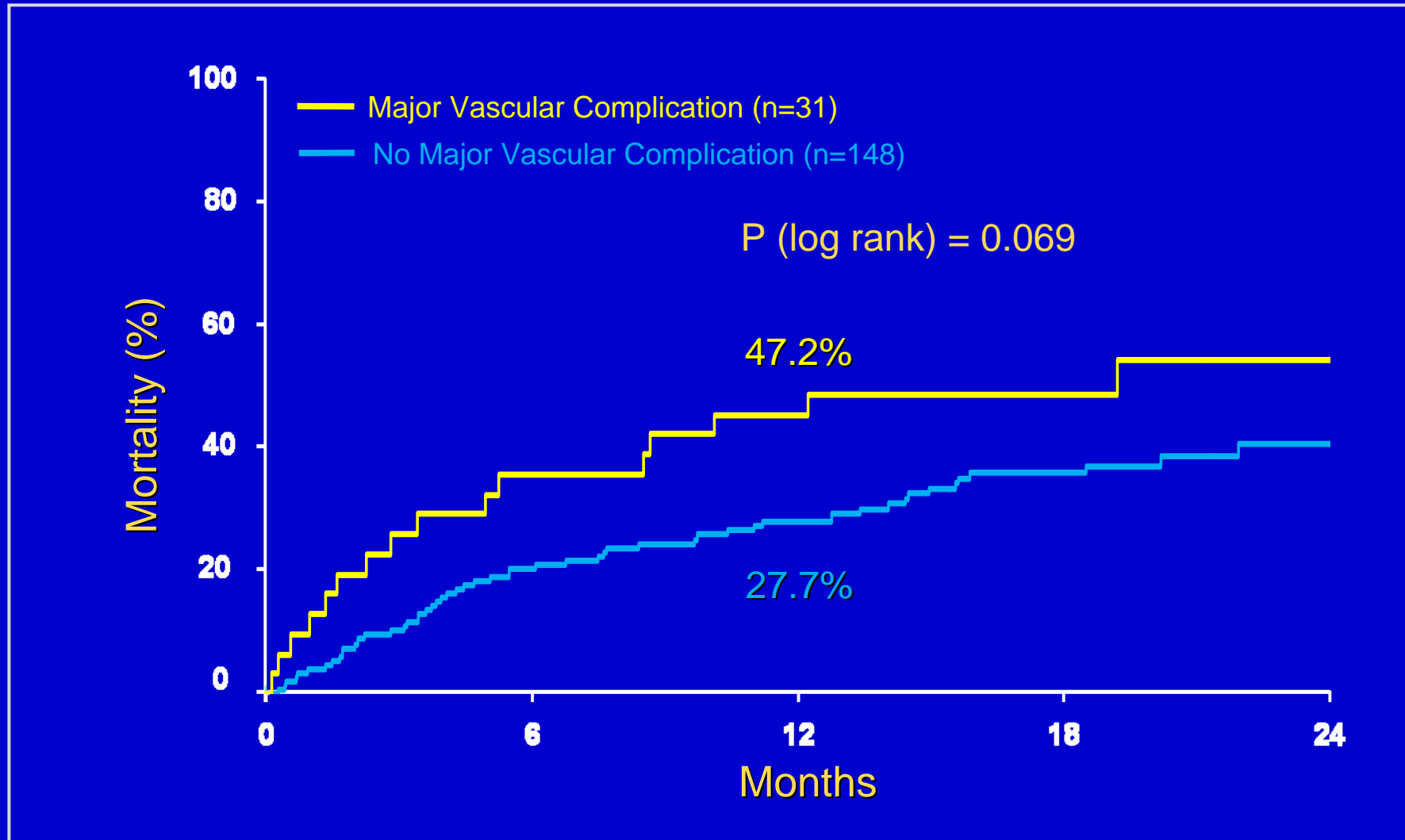
(< 30 days)

	TF % (n=67)	TA % (n=63)	ANZ Total % (n=130)	EU Total %(n=1038)	Partner A TAVR %(n=348)
Death	5.97	9.52	7.69	8.5	12
Stroke	2.99	4.76	3.85	2.5	5.5
Permanent pacemaker	1.49	7.94	4.62	7.0	3.8
Vascular Major	4.48	6.35	5.38	7.0	11.1



Mortality vs. Major Vasc Complics

TAVI patients Partner Trial



Conclusion

- ◆ Femoral Complications are not infrequently encountered
- ◆ Pre procedural & Post procedural evaluation are critical to success
- ◆ Operator must be familiar with techniques to treat complications percutaneously

