

A background image of the Paris skyline at sunset, featuring the Eiffel Tower on the left and various skyscrapers in the distance. The sky is a mix of orange, yellow, and pink.

THE 24<sup>TH</sup> INTERNATIONAL EXPERTS SYMPOSIUM

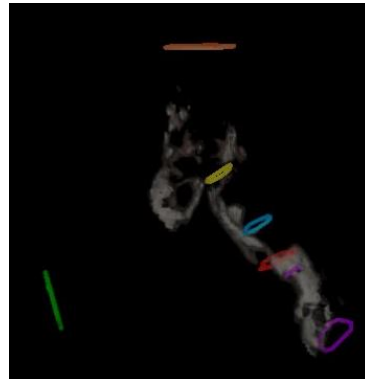
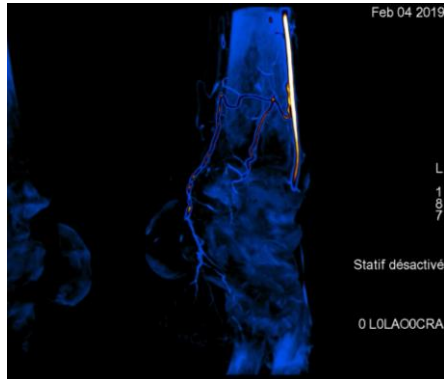
# CRITICAL ISSUES

IN AORTIC ENDOGRAFTING

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**DECEMBER 17 & 18 2021**

# Fusion for occlusive disease, a game changer?



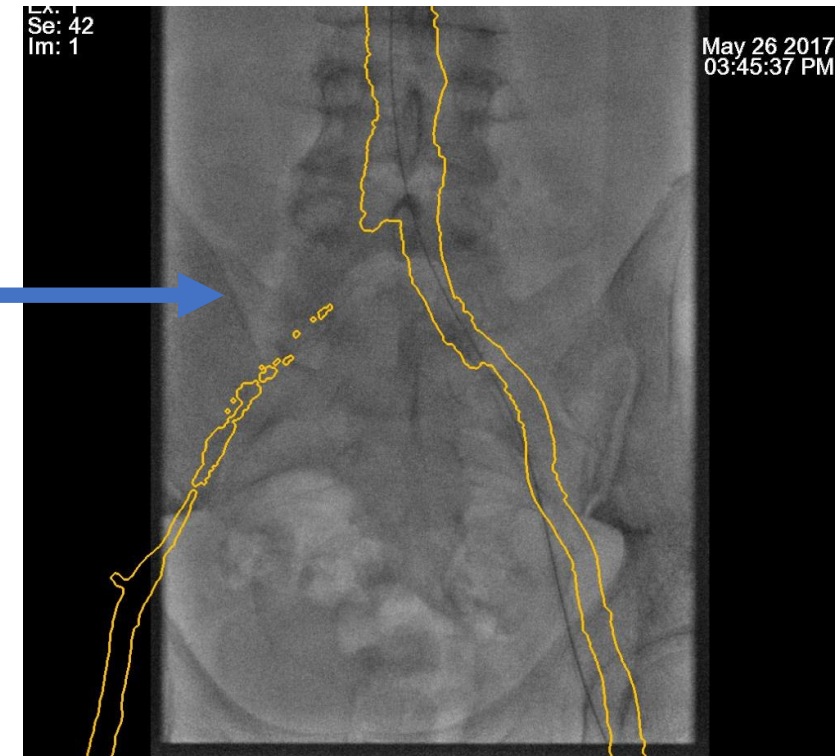
**Nicolas LOUIS,**  
Vascular Surgeon,  
Clinique Les Franciscaines,  
Nîmes



# Occluded Arteries and Image Fusion?

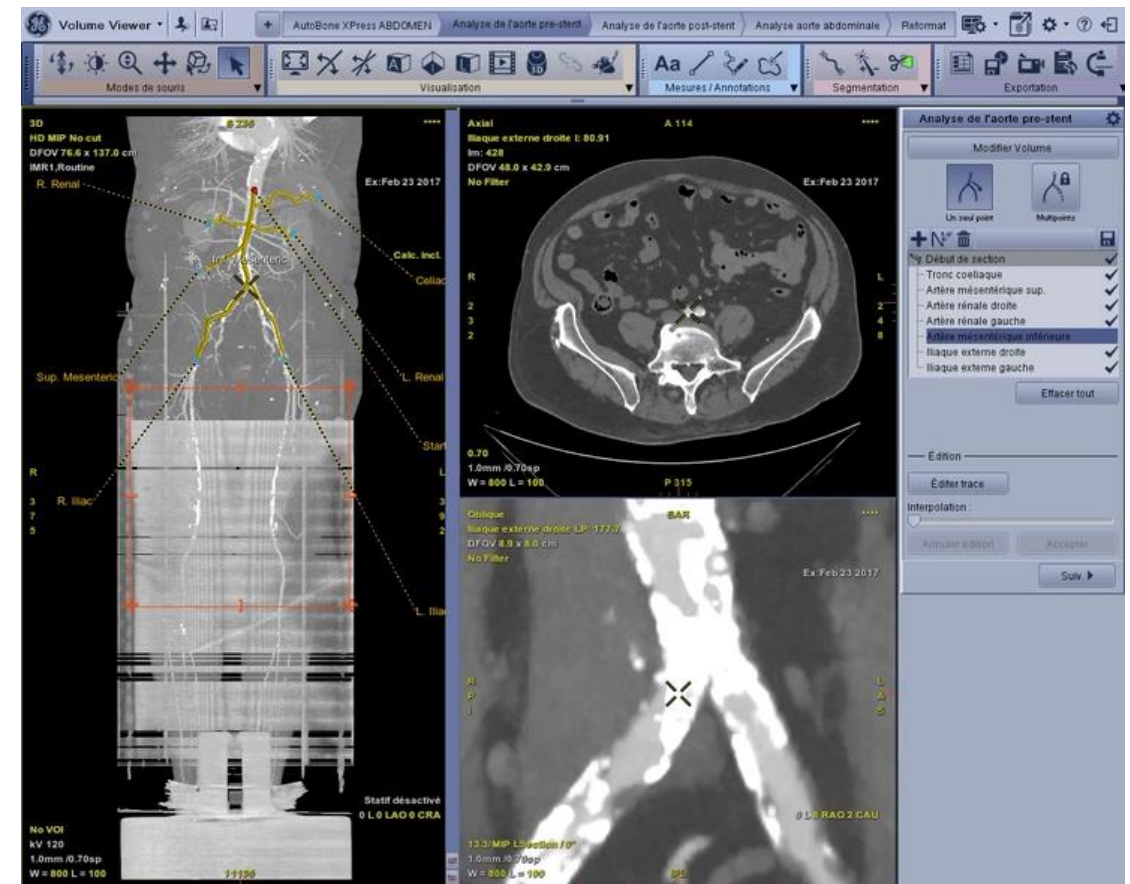


*Void Area*



# Occluded Arteries and Image Fusion?

- Workstation ADW 4.7 from **GE<sup>®</sup>**
- **To create a bridge between two non occluded area**
- **Line up the centerline inside the lumen artery**



# Occluded Arteries and Image Fusion?

- Workstation ADW 4.7 from GE®
- Create a bridge between two non occluded area
- Line up the centerline inside the lumen artery
- **DRAW PLANNING CERCLES INSIDE THE CALCIFICATION**

The screenshot displays the GE ADW 4.7 workstation interface. The main window shows a list of exams for patient BANTZE SERGE. The interface includes a left sidebar with application menus, a top navigation bar, and a central display area with multiple data tables.

Nom Patient	Fin de ru	ID Patient	ID Exame	Date	Desc
BALLUFFIER PHILIPPE	Nouveau	032114429	IRMHEP+	Mar 30 2016	IRM F
BANTZE SERGE	Nouveau	1769956		Apr 05 2017	REC
BANTZE SERGE	Nouveau	212604	1	Apr 05 2017	Visior
BANTZE SERGE	Nouveau	212604	1	Apr 09 2017	Visior
BANTZE SERGE	Nouveau	212604	1	Apr 09 2017	Visior
BANTZE SERGE	Nouveau	212604	3890	Feb 23 2017	ANGI
BAR_ALA_Saint-etienne_30_mars2017	Nouveau	AW1648289365_694_1490862456	93069592	Apr 16 2017	DILAT
BAR_ALA_SAINTE ETIENNE_30_MARS_2017	Nouveau	AW459212214_983_1490862513	71508116	Mar 03 2017	ANGI

Série	Type	Images	Description	Modalité	Fabricant
401	AXIAL	1911	ARTERIEL IMR	CT	Philips
402	SCPT	1	3D Saved State - zzz	CT	GEMS
403	SCPT	1	3D Saved State -	CT	GEMS
404	SCPT	1	Data Sharing Only (for Vision)	CT	GEMS
405	SCPT	1	3D Saved State - Vision Export	CT	GEMS

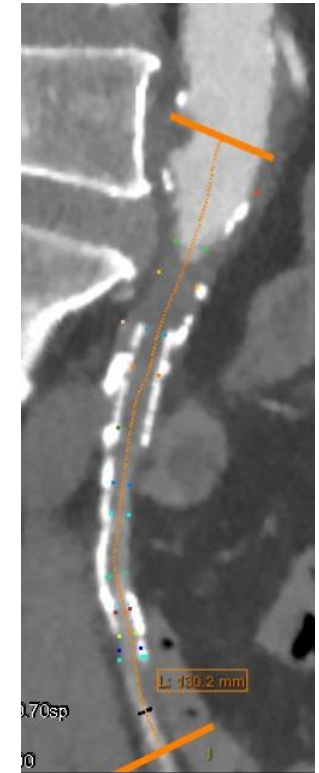
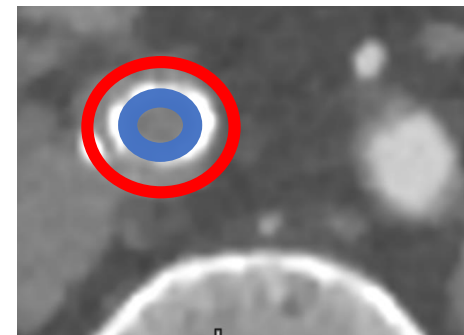
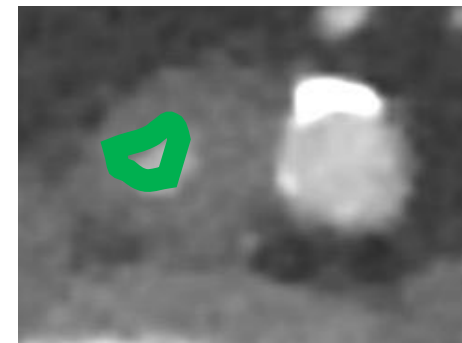
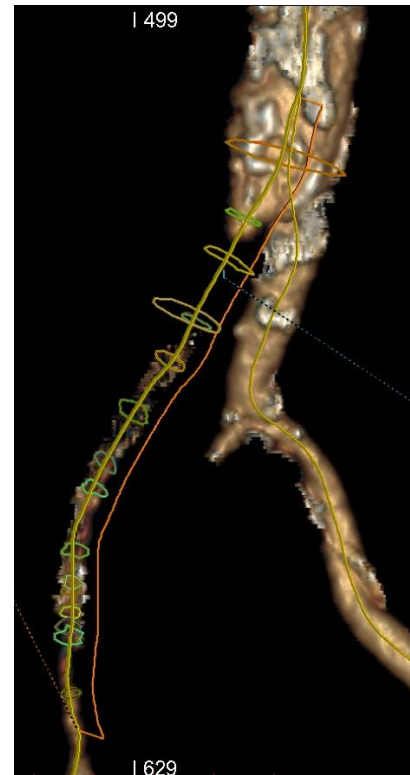
  

Image	Position (mm)	Epaisseur	Statif (de)	R-L	A-P	SFOV (cm)	Diamètre de rec.	Rés
1+C	S 218.0	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
2+C	S 217.3	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
3+C	S 216.6	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
4+C	S 215.9	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
5+C	S 215.2	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
6+C	S 214.5	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
7+C	S 213.8	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
8+C	S 213.1	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR
9+C	S 212.4	1.0	0.0	L 8.6	P100.9	50.0	42.9	IMR

## FIRST LEVEL : 2015-2017



# FIRST LEVEL : 2015-2017

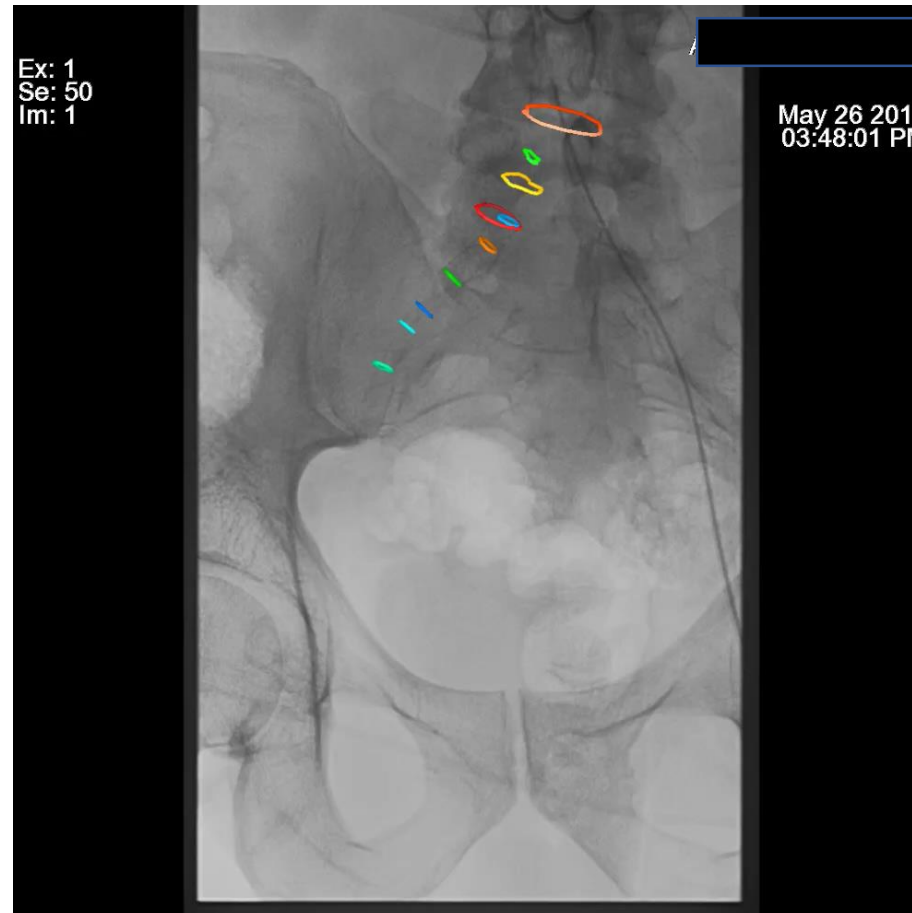


# CRITICAL ISSUES

IN AORTIC ENDOGRAFTING

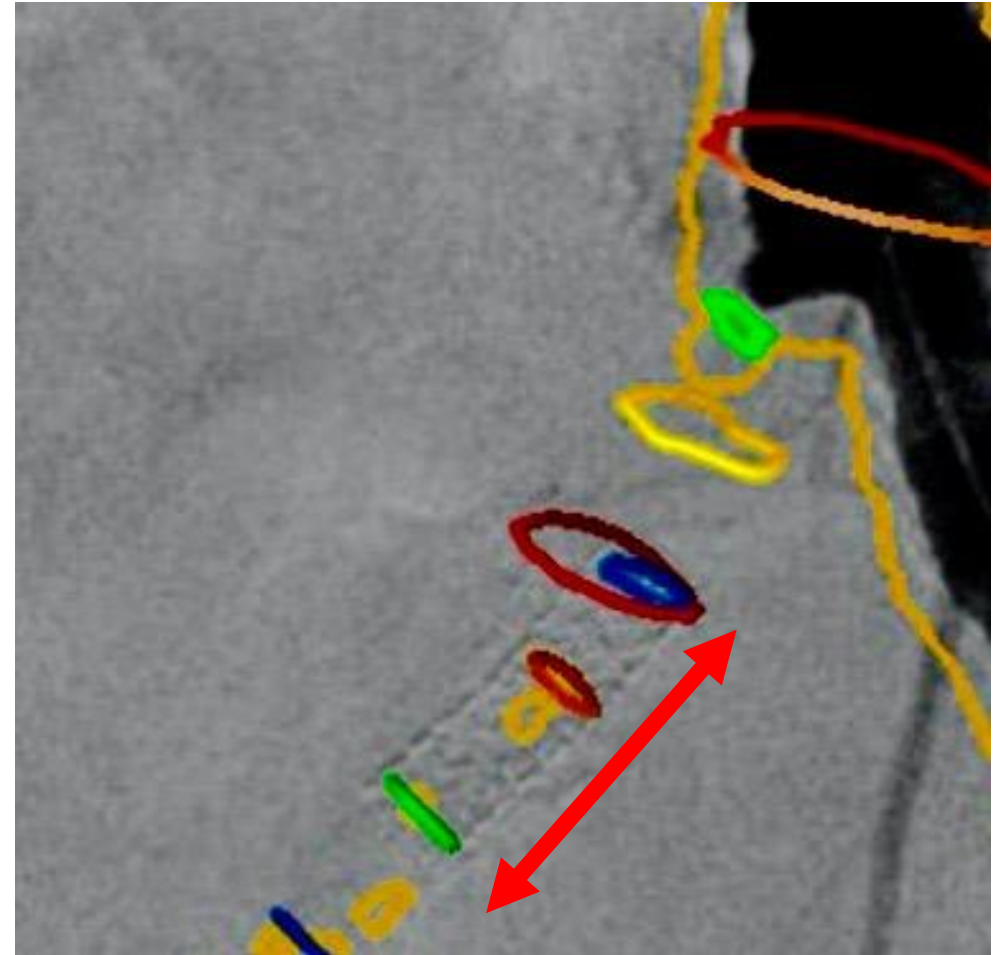
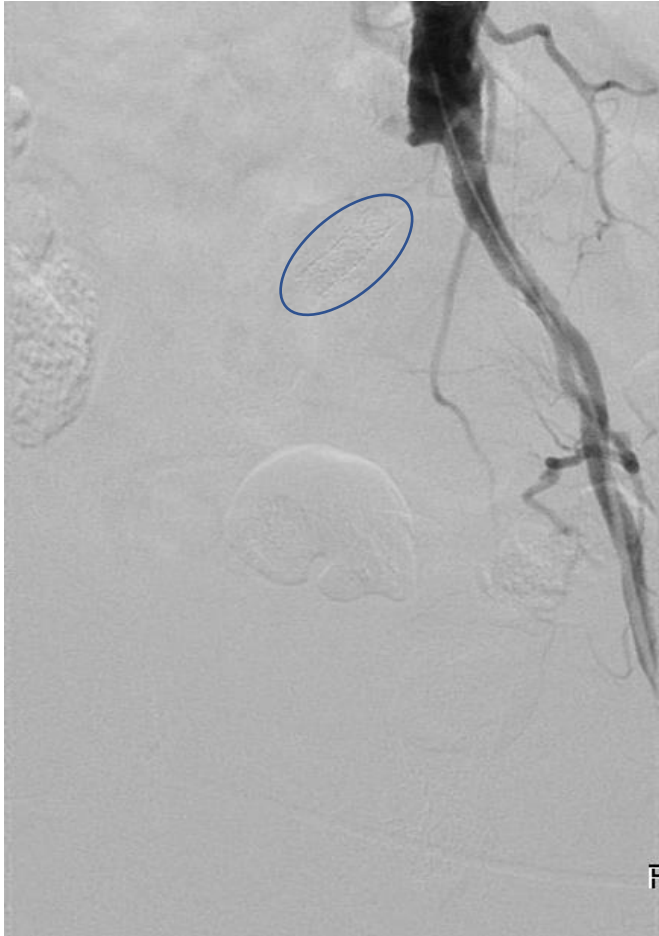
# DECEMBER 17 & 18 2021

PULLMAN PARIS BERCY PARIS - FRANCE

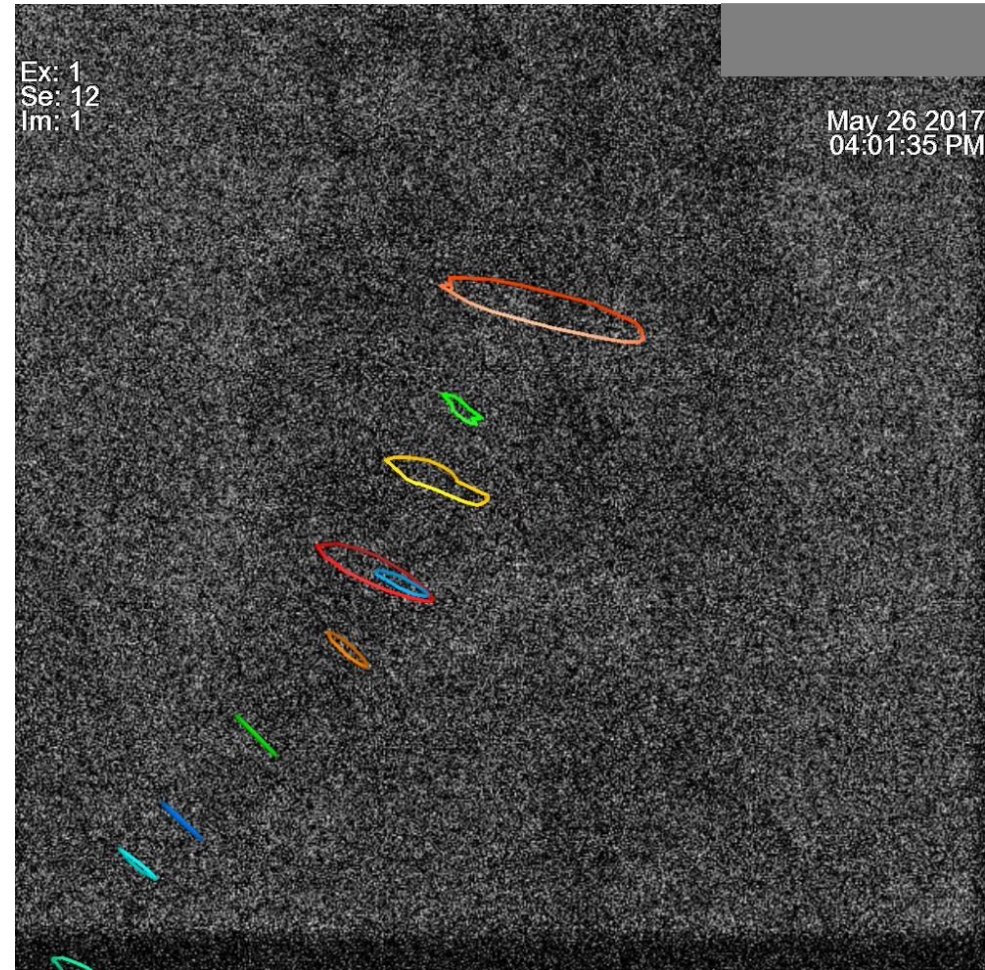
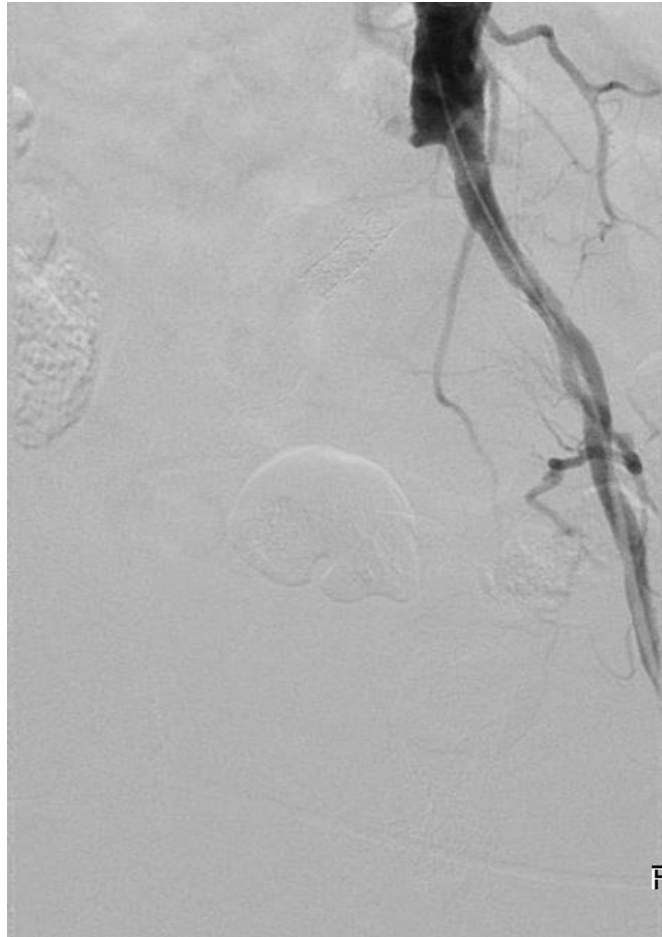




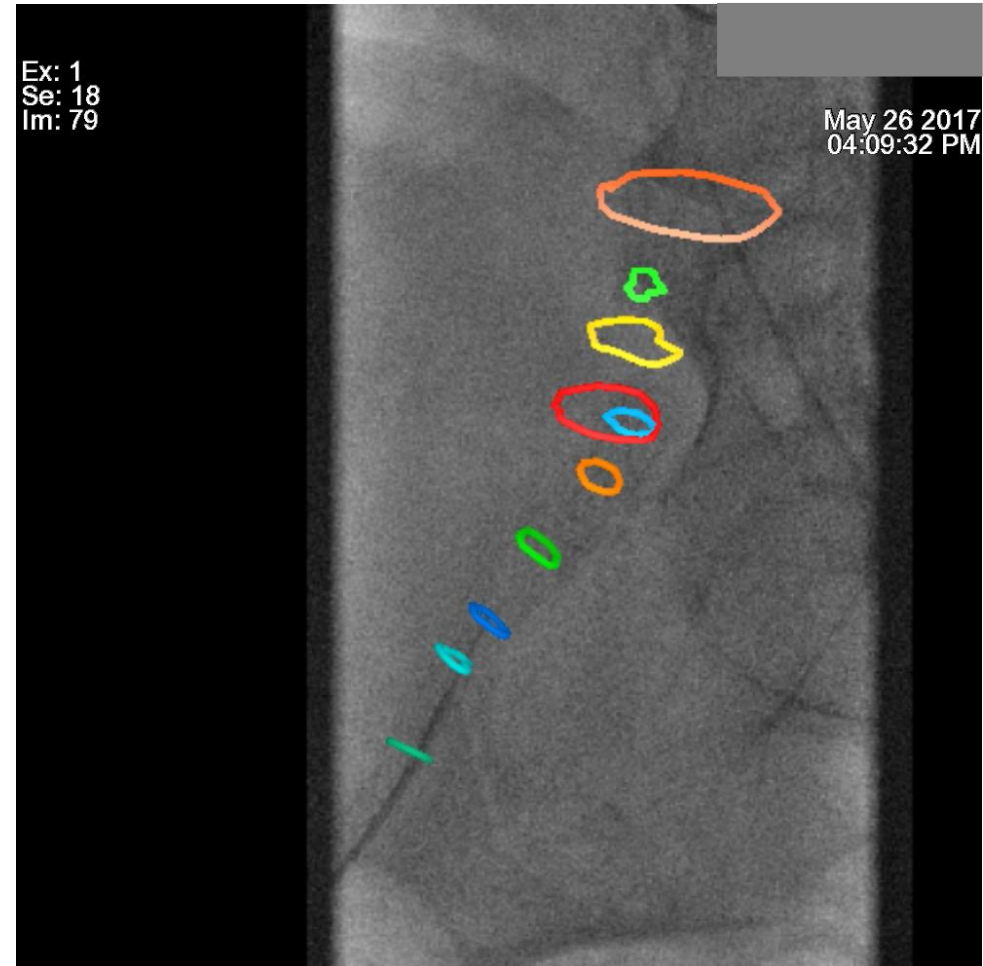
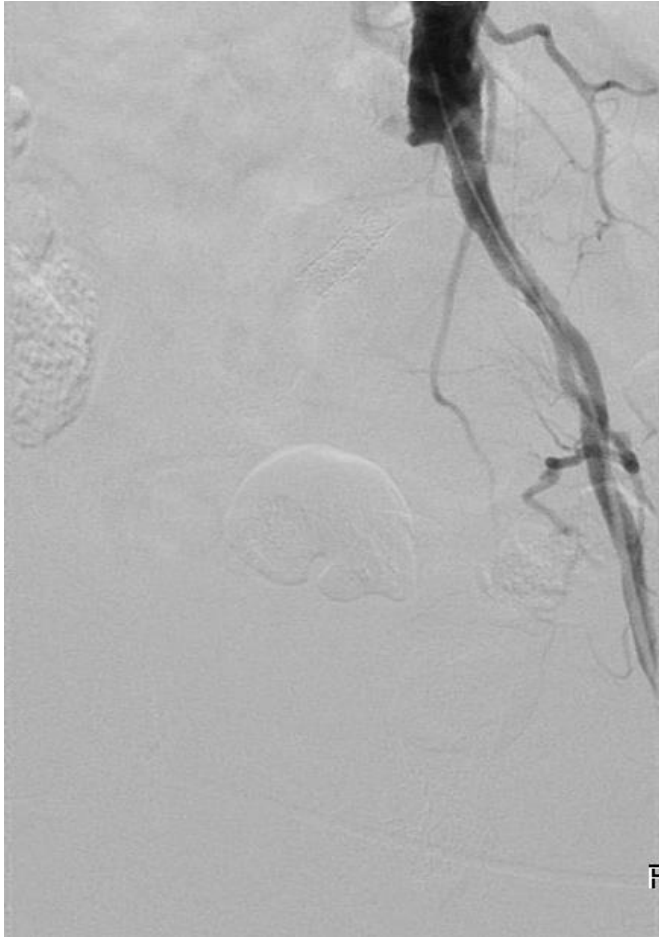
# *Accuracy of The Planning Circles*



# *Sub-Intimal progression*



# *Digital Zoom (with-out increasing the radiation)*



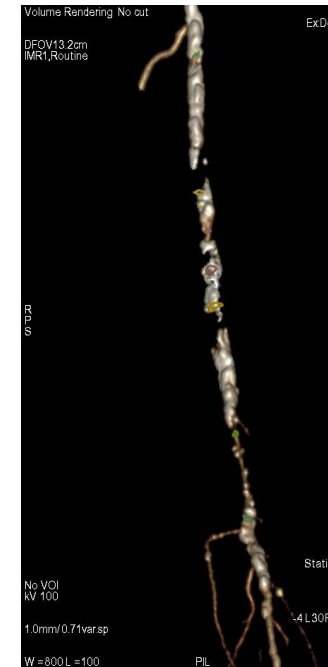
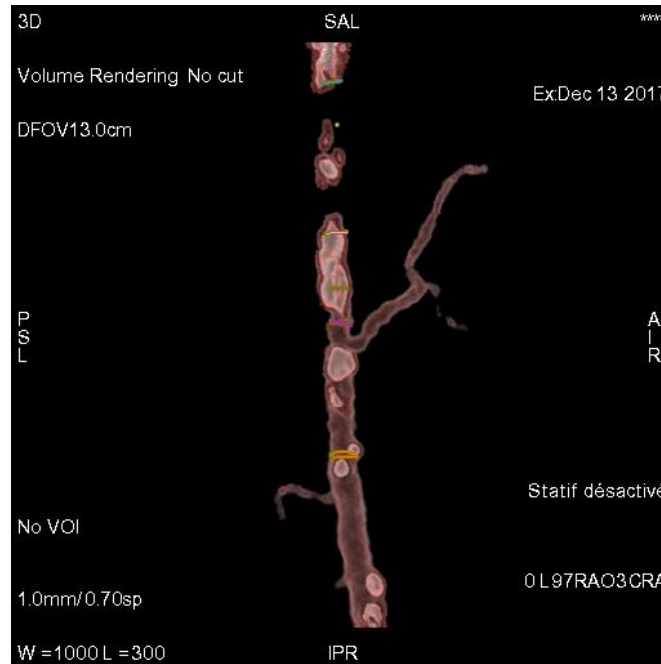
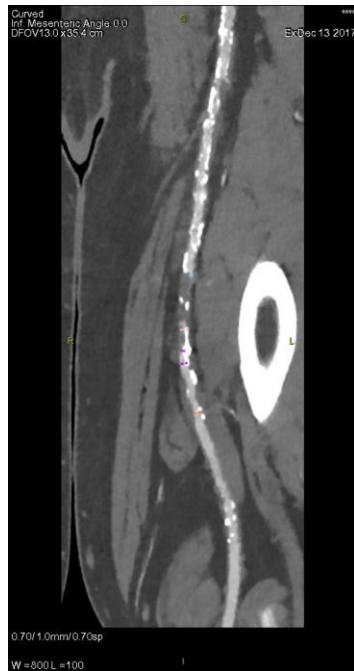
# *Résultat final*



## SECOND LEVEL : 2017-2019

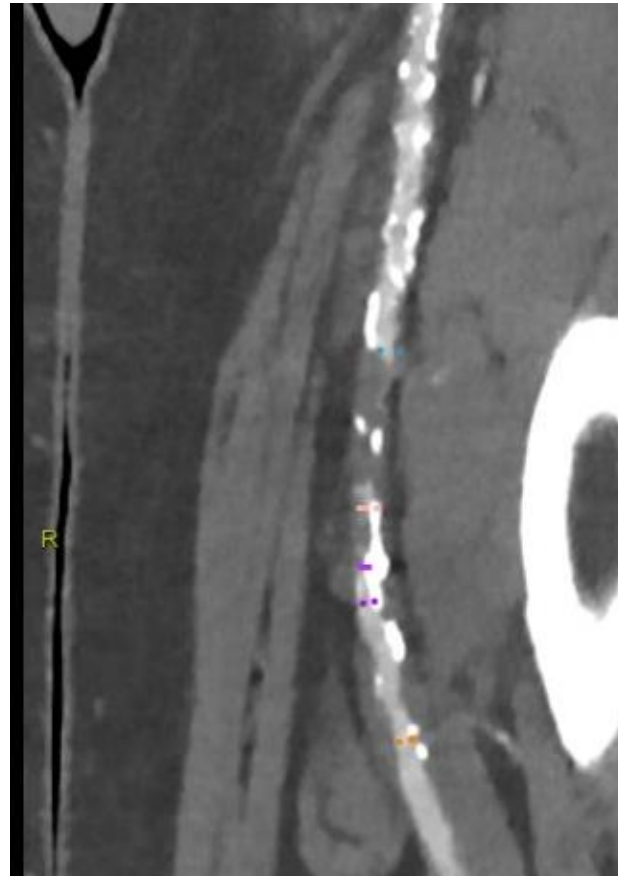


# Planning Circles and Modelling Calcification Volume

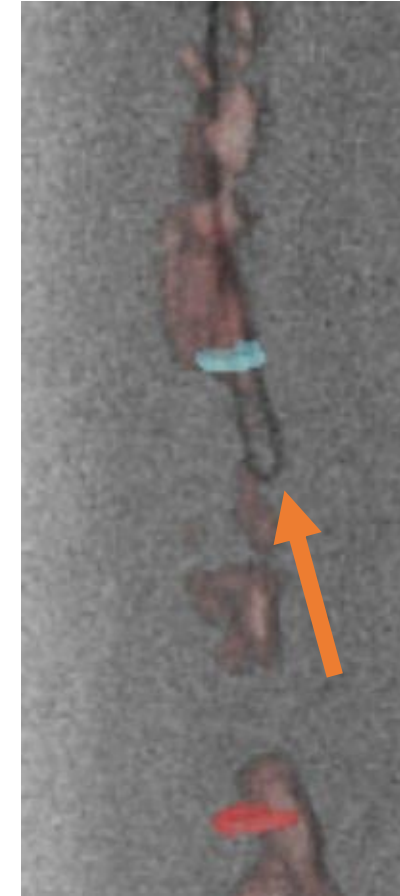
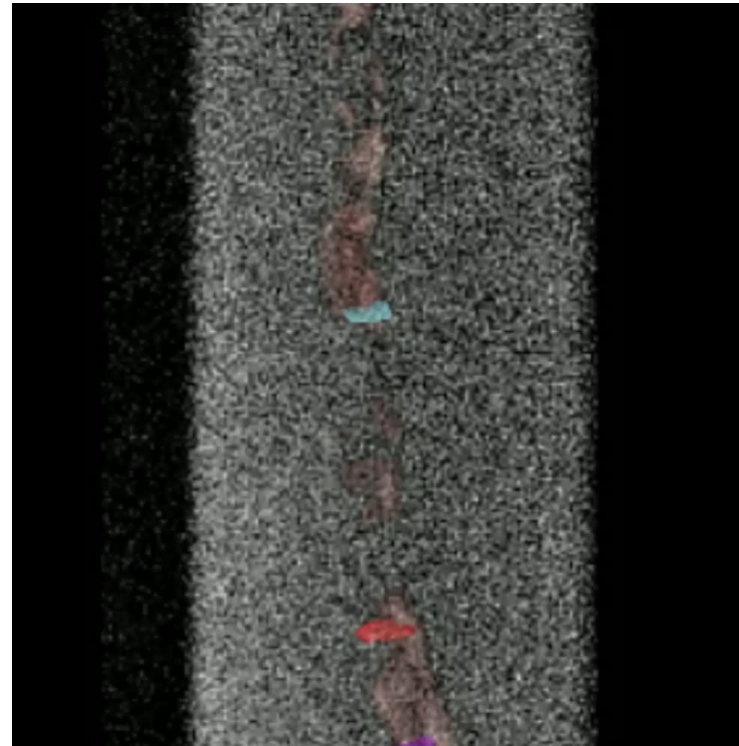
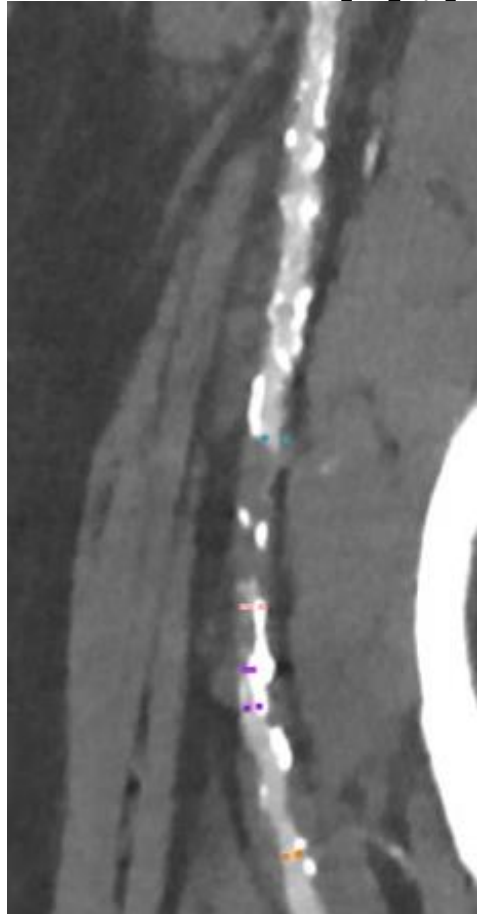


The GE software create the modeling of all the calcifications

## *Left SFA Occlusion*



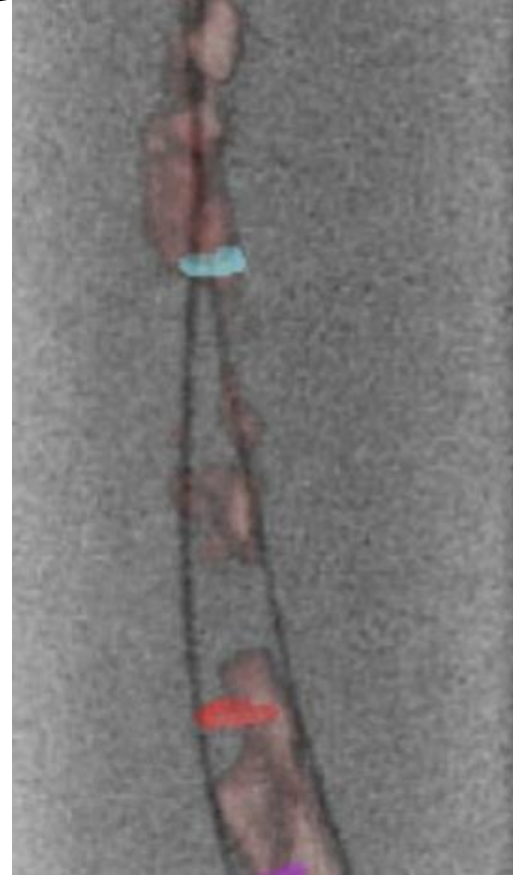
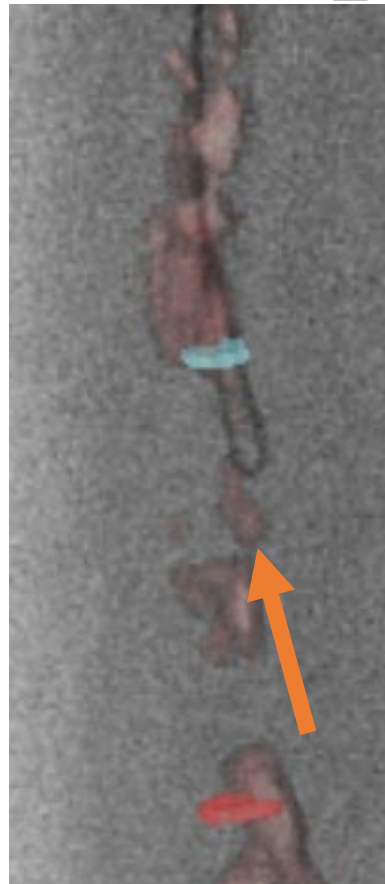
## *Left SFA Occlusion*



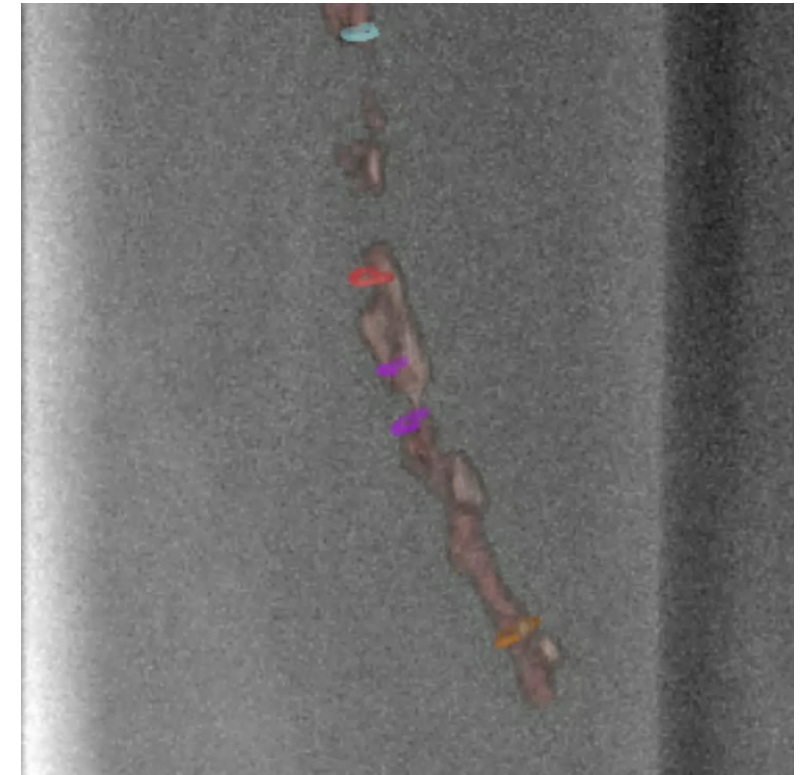
Dissection



## *Left SFA Occlusion*

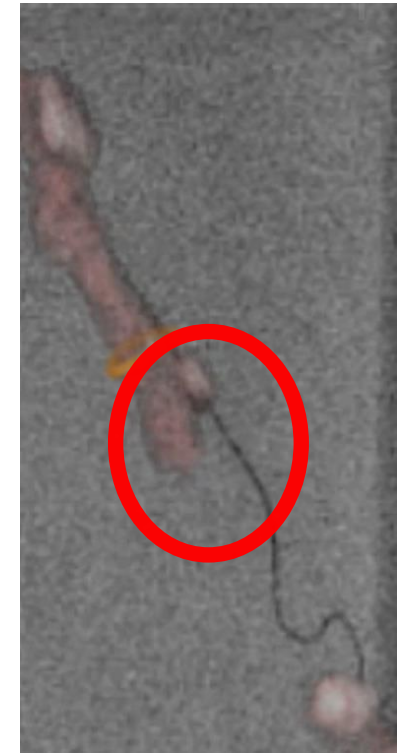
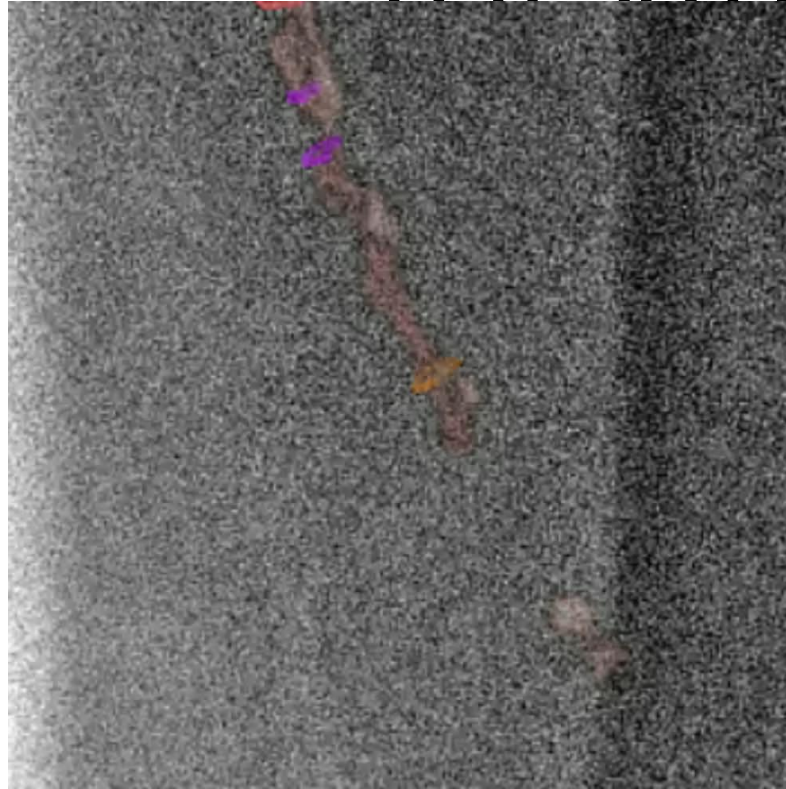


Dissection



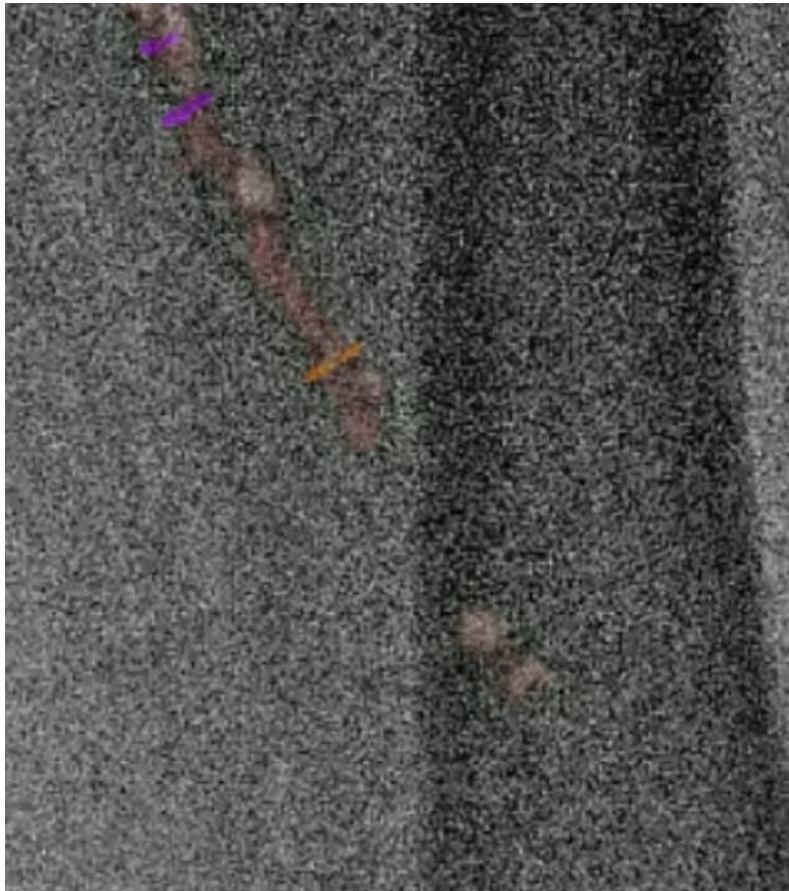
Good Lumen

## *Left SEA Occlusion*



Re-entry after the  
yellow circle

## *Left SFA Occlusion*



- Redirected the catheter and the guide wire in the opposite side of the calcifications
- The guide wire perfectly line up the calcifications

## THIRD LEVEL : 2019.....

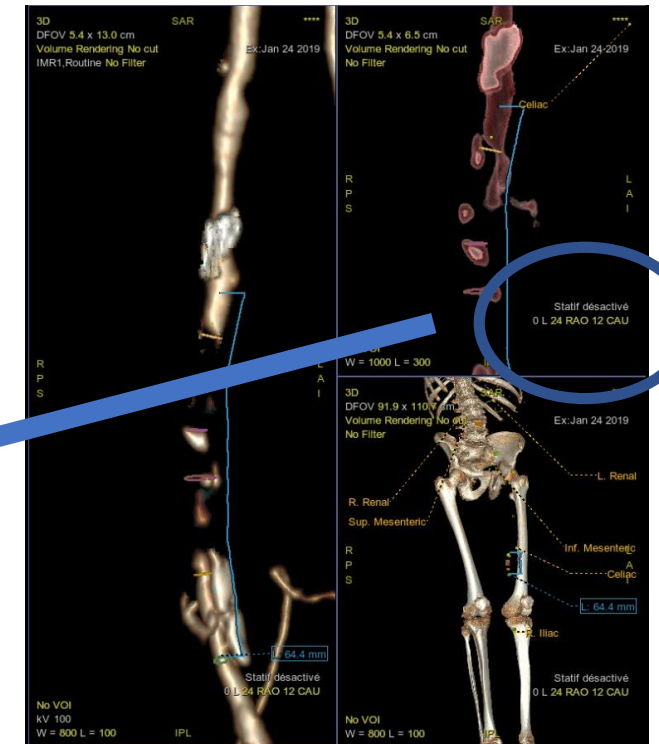
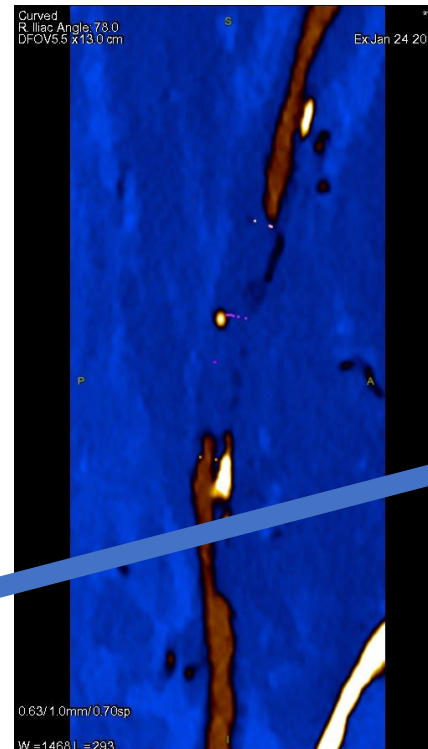


## THIRD LEVEL : 2019.....

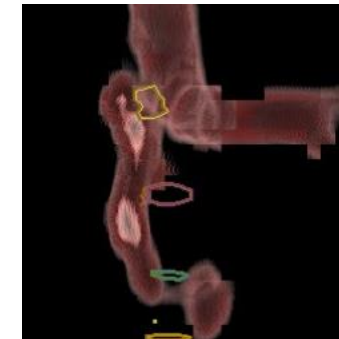
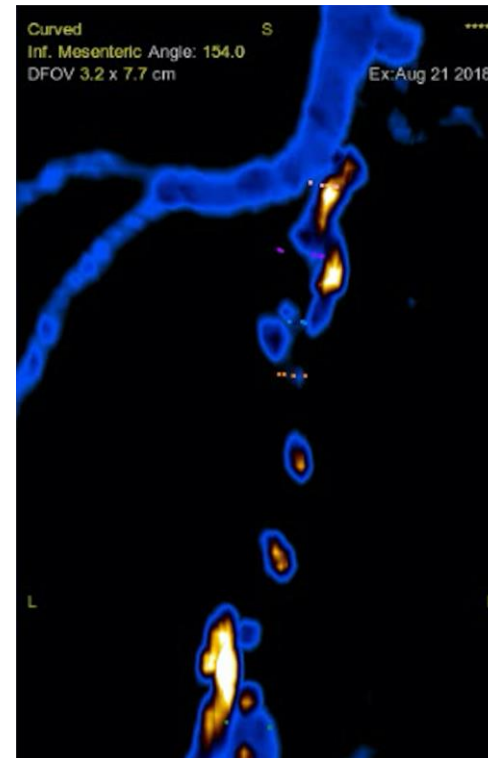
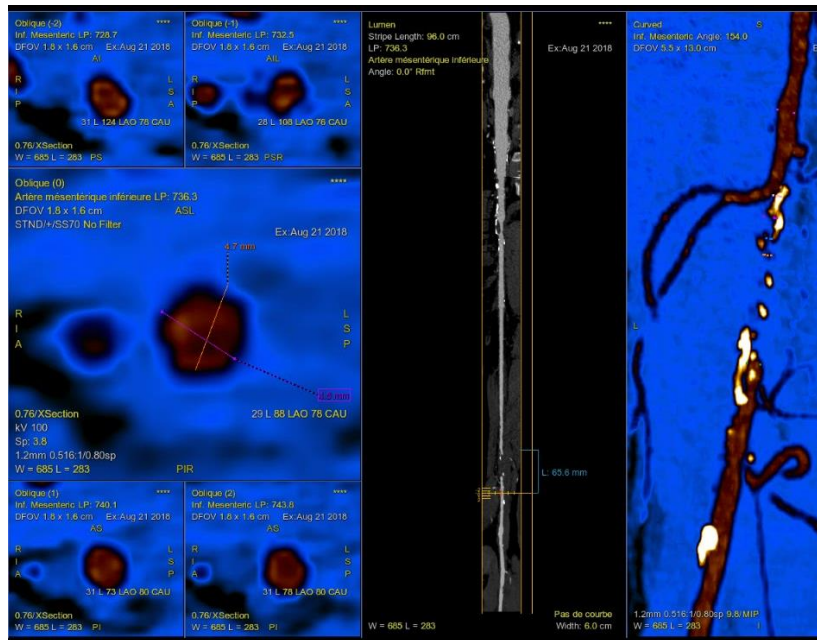
- Circles planning
- Calcification modelling

### RECORDING THE BEST RECANALISATION ANGLE

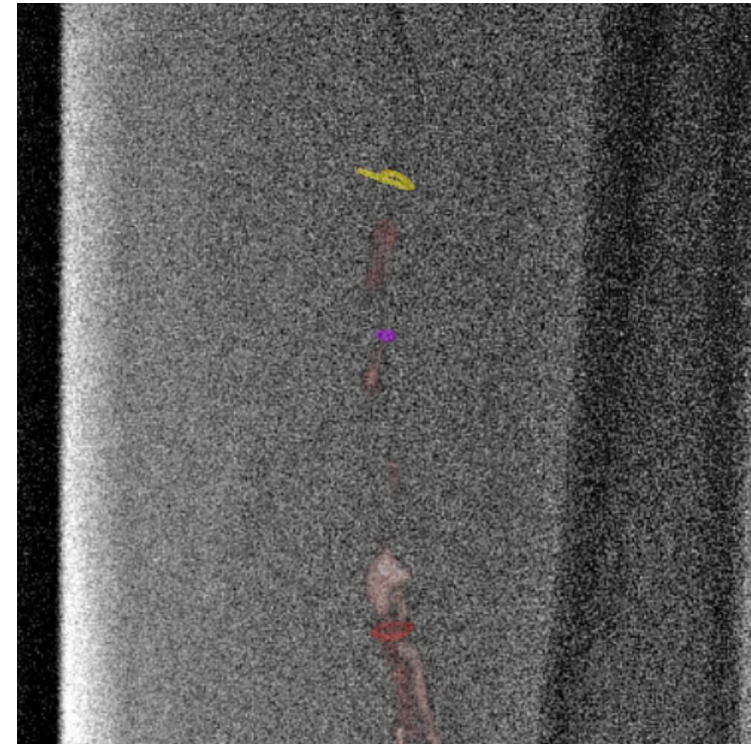
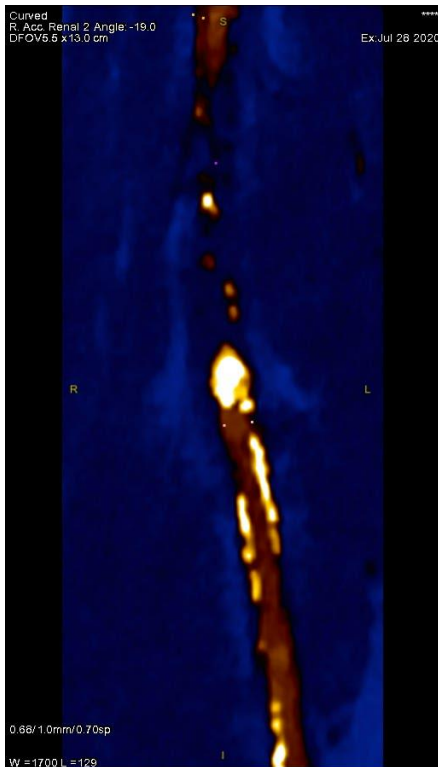
***24 RAO 12 CAO***



## Complex SFA occlusion



## Complex SFA calcified occlusion

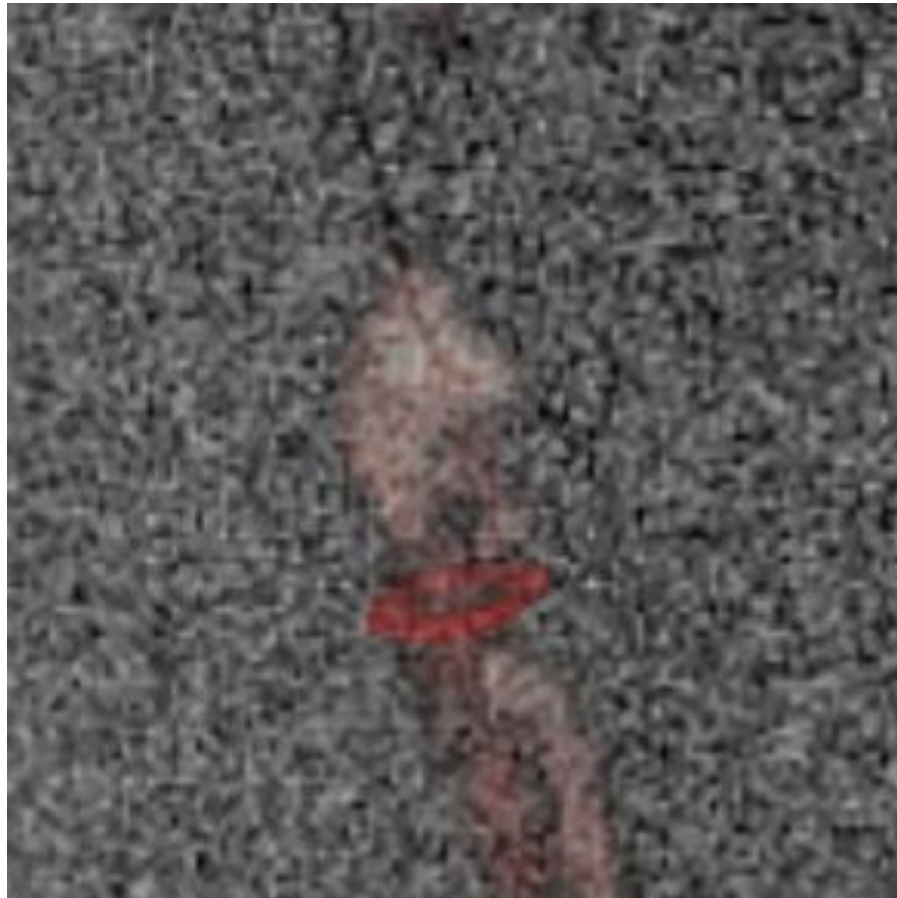


## Complex SFA occlusion

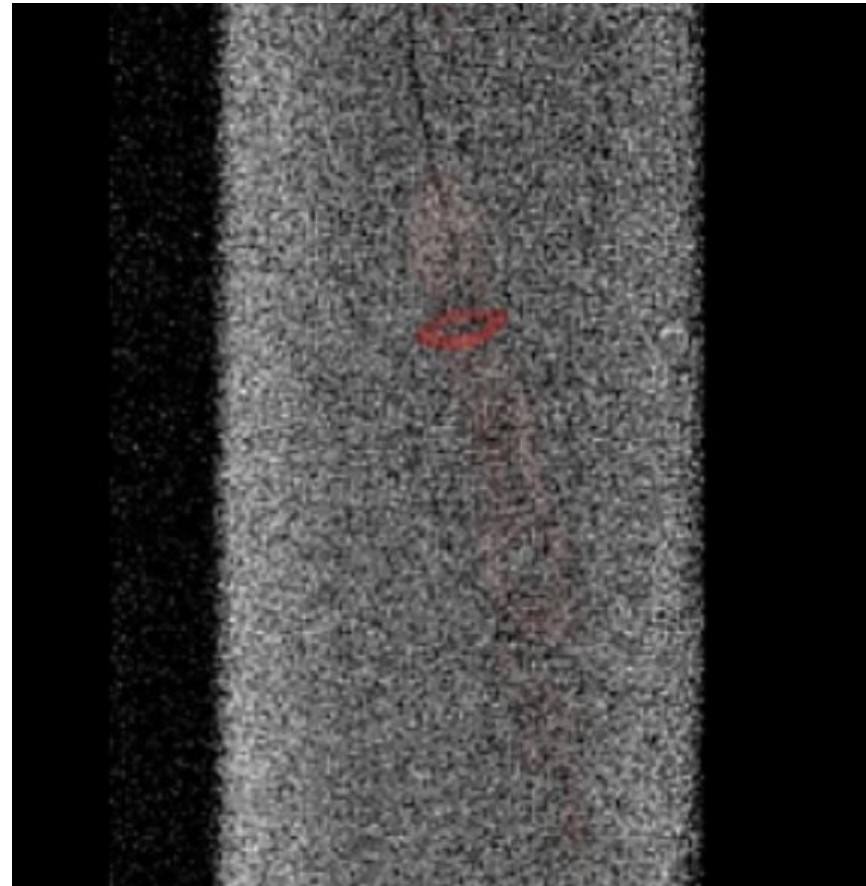




## Complex SFA occlusion



## Complex SFA occlusion



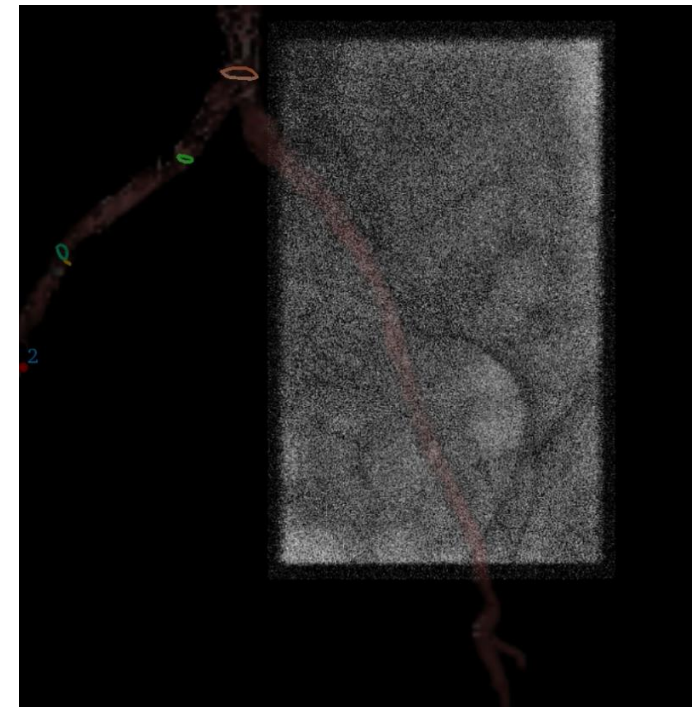
## OCCLUSION OF EXTERNAL ILIAC AND RIGHT COMMON FEMORAL ARTERY

- Woman 76 Y/O
- Tobacco Abuse
- 15 cm occlusion
- Medium calcified occlusion



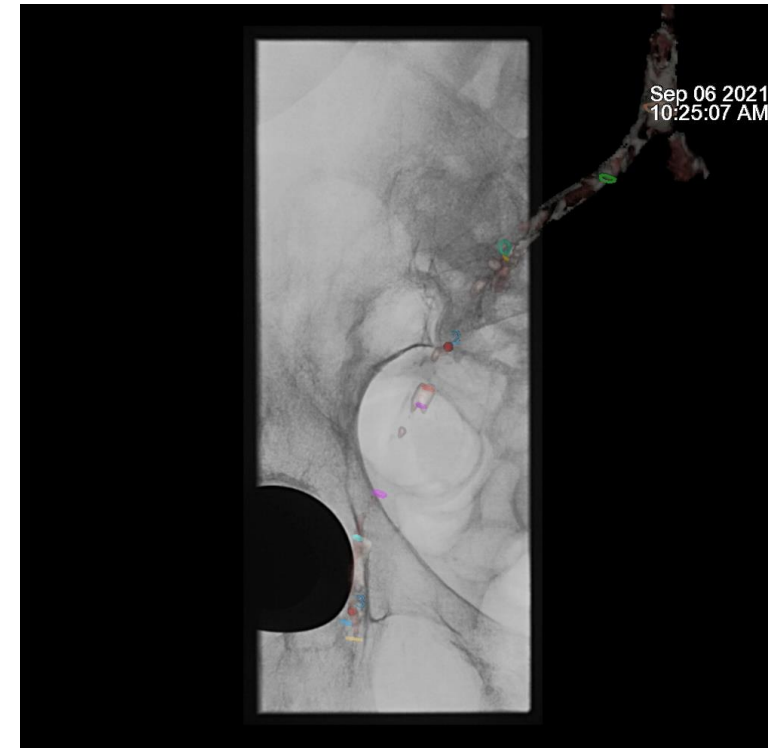
## OCCLUSION OF EXTERNAL ILIAC AND RIGHT COMMON FEMORAL ARTERY

- Procedure under fusion imaging  
with calcifications modelling:
- Left cross over approach
- 6 Fr sheet (45 cm)
- 5 Fr KMP support Catheter

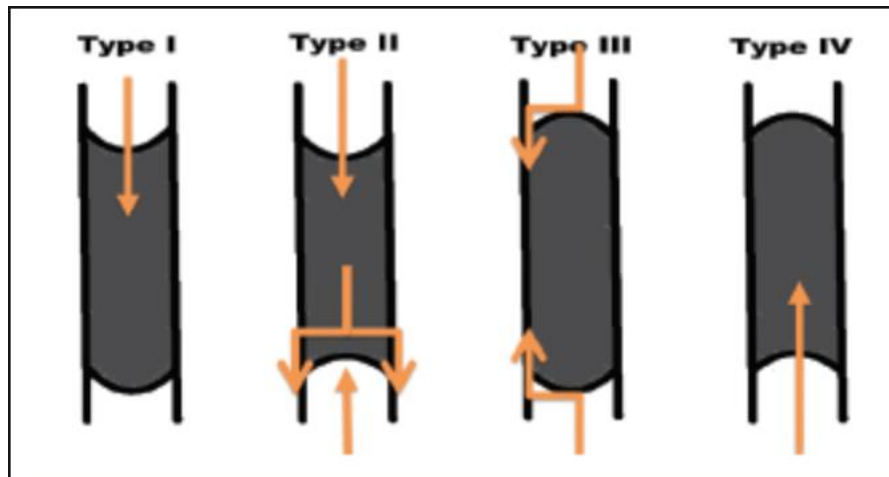


## OCCLUSION OF EXTERNAL ILIAC AND RIGHT COMMON FEMORAL ARTERY

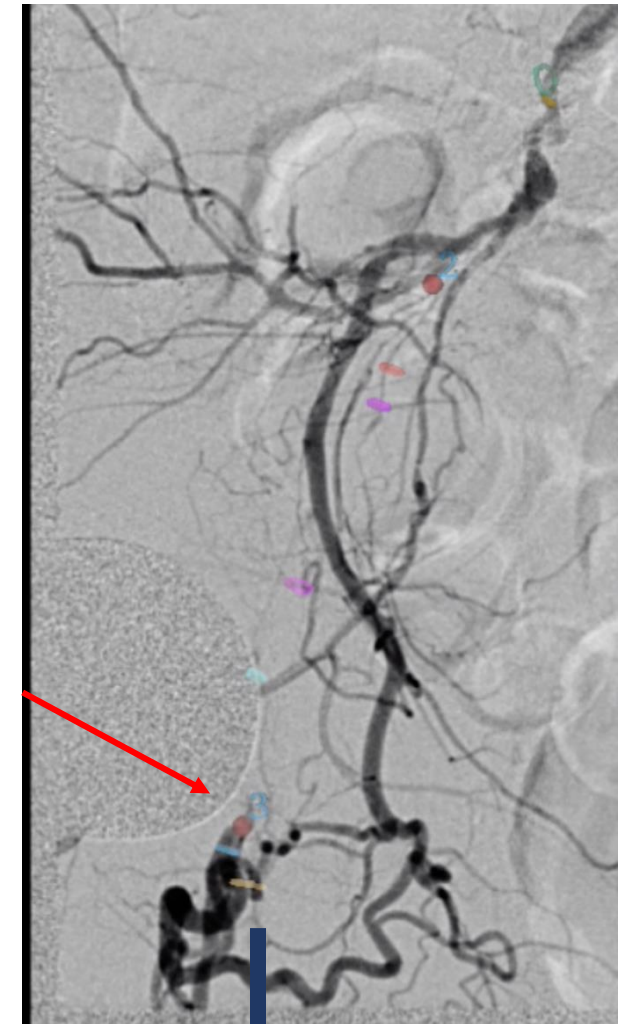
- Procedure under fusion imaging  
with calcifications modelling:
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- Type IV
- Long occlusion
- Median hard calcification

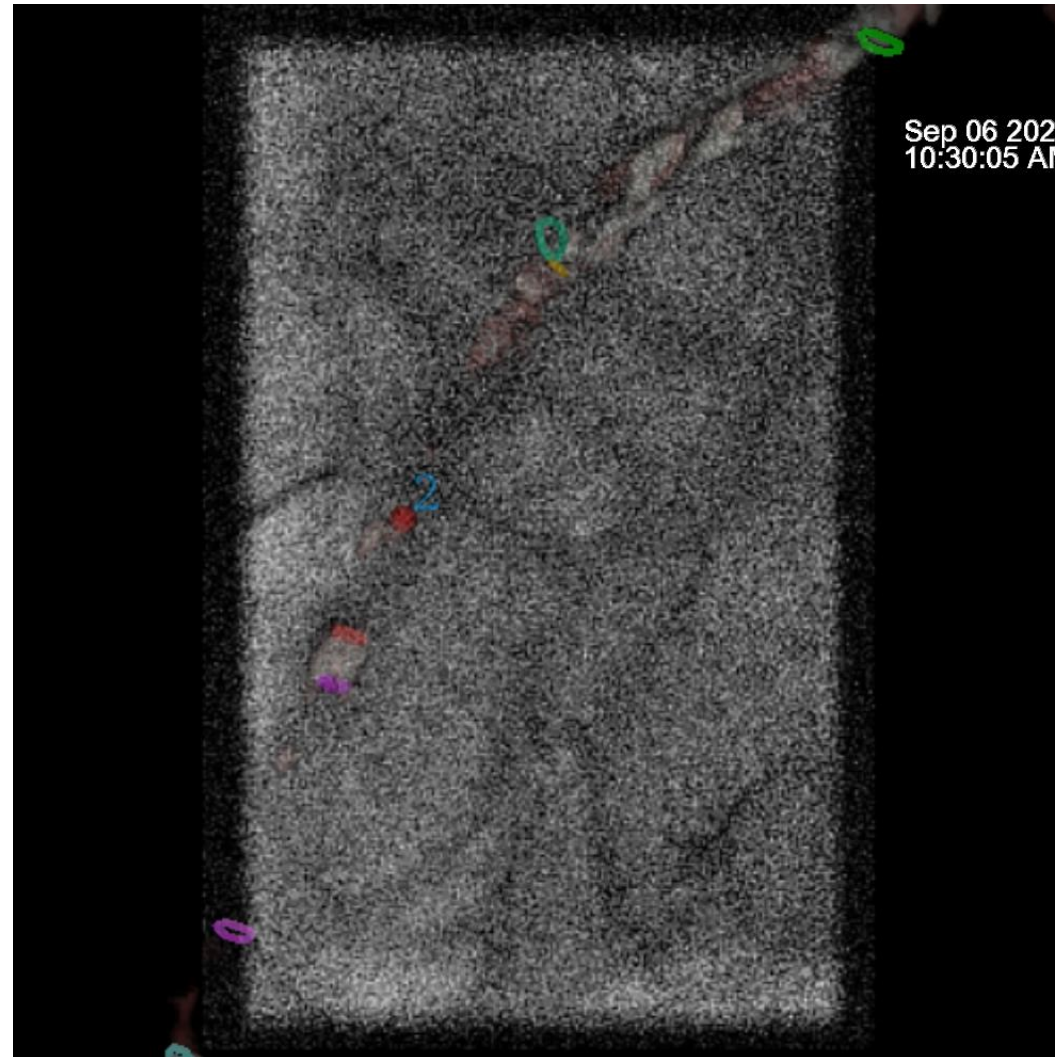


*Ostia of the profunda*

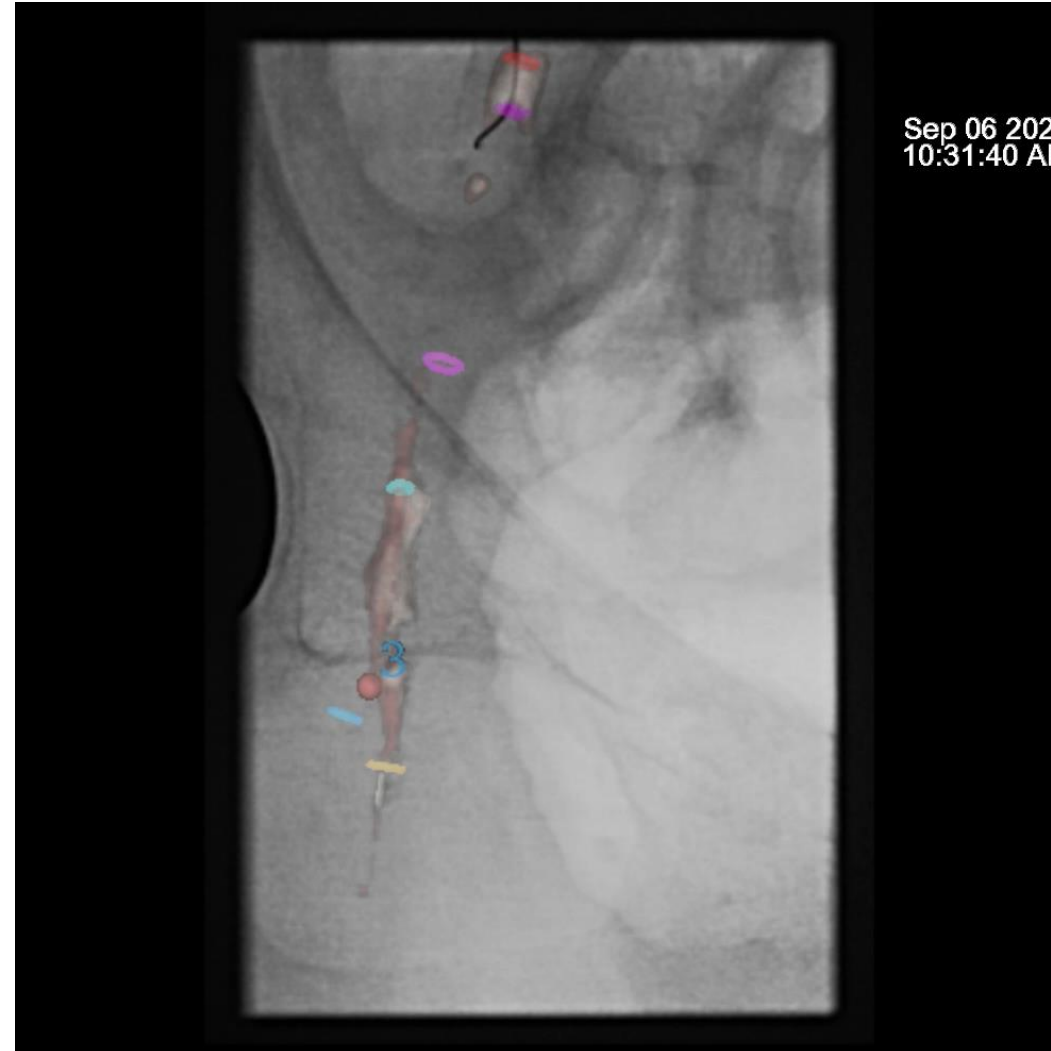


**AXIS OF THE SFA**

Type IV  
Long occlusion  
Median hard calcification  
NO BLUNT PROXIMAL CAP

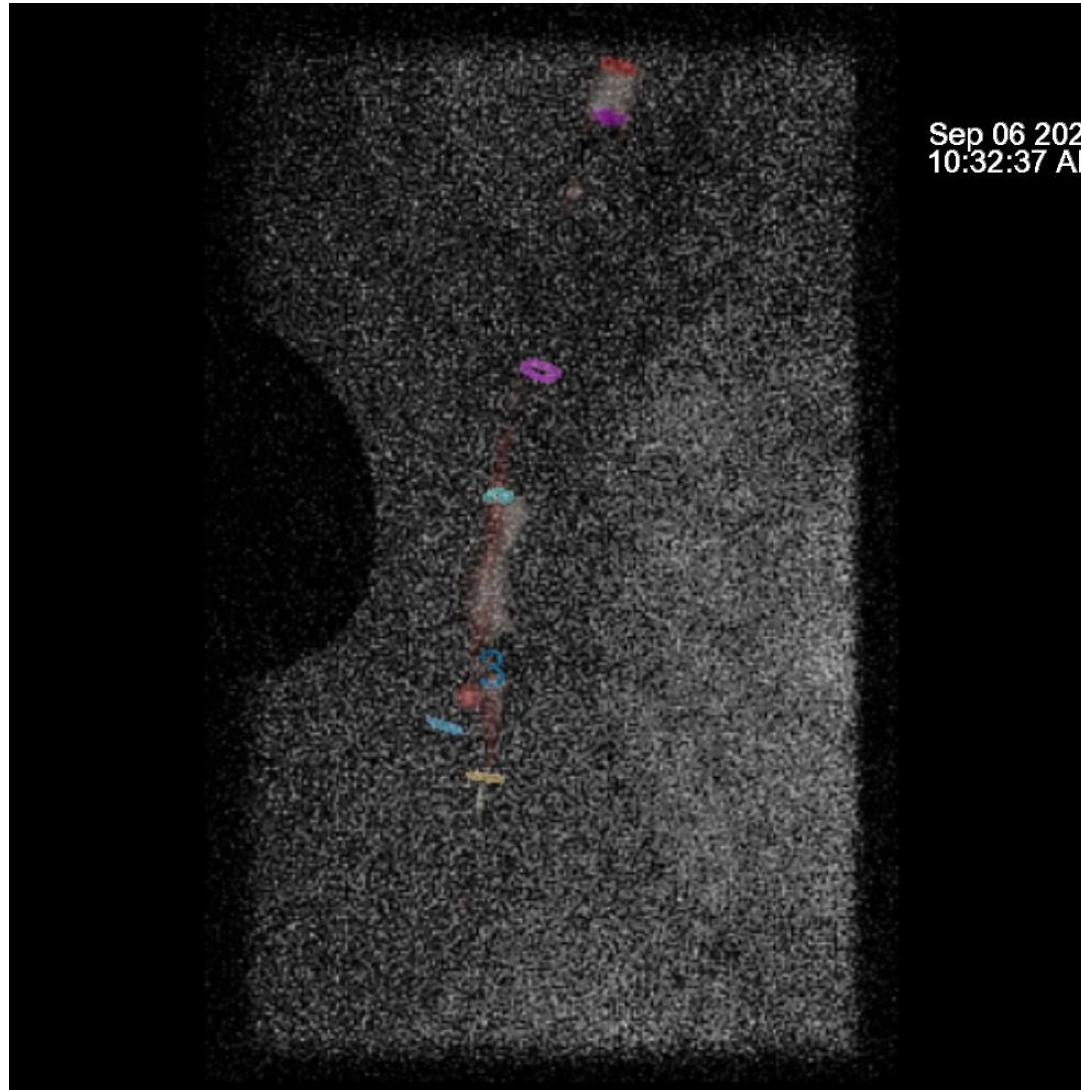


Type IV  
Long occlusion  
Median hard calcification  
NO BLUNT PROXIMAL CAP





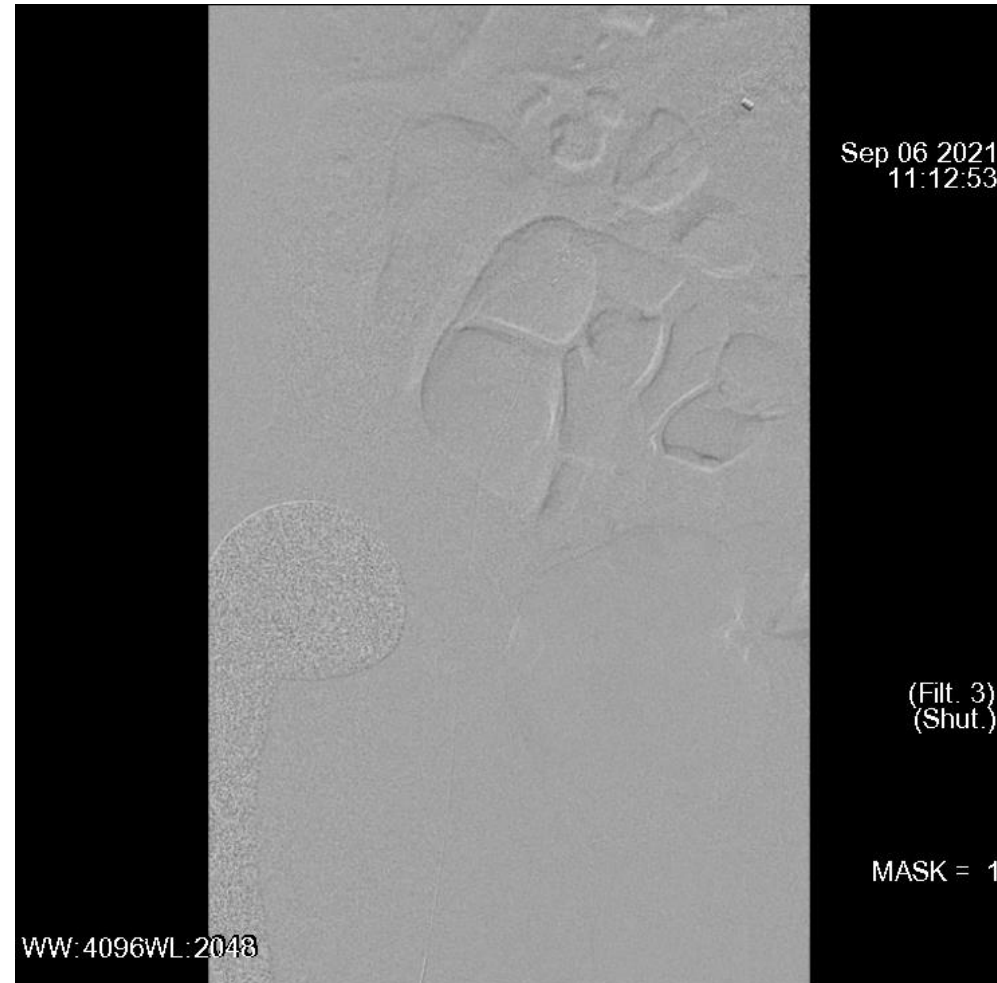
Type IV  
Long occlusion  
Median hard calcification  
NO BLUNT PROXIMAL CAP



Type IV  
Long occlusion  
Median hard calcification  
NO BLUNT PROXIMAL CAP



**CROSSING TIME 2 MIN**  
**RECONSTRUCTION 30 MIN**



# Fusion Imaging for EVAR, FEVAR

## Impact of Hybrid Rooms with Image Fusion on Radiation Exposure during Endovascular Aortic Repair

A. Hertault <sup>a</sup>, B. Maurel <sup>a</sup>, J. Sobocinski <sup>a</sup>, T. Martin Gonzalez <sup>a</sup>, M. Le Roux <sup>a</sup>, R. Azzaoui <sup>a</sup>, M. Midulla <sup>b</sup>, S. Haulon <sup>a,\*</sup>

<sup>a</sup> Vascular Surgery, Hôpital Cardiologique, CHRU de Lille, INSERM U1008, Université Lille Nord de France, 59037 Lille Cedex, France

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### WHAT THIS PAPER ADDS

Experience has shown that the routine use of fusion during endovascular aneurysm repair has significantly reduced the exposure of patients and operators to X-rays and contrast volume injection during complex repairs, without jeopardising the overall procedure workflow.

**Objective:** To evaluate exposure to radiation during endovascular aneurysm repair (EVAR) performed with intraoperative guidance by preoperative computed tomographic angiogram fusion.

**Methods:** All consecutive patients who underwent standard bifurcated (BIF) or thoracic (THO), and complex

## Aortic Procedure

**Conclusion:** The exposure of patients and operators to radiation is significantly reduced by routine use of fusion imaging....

## Fusion Imaging FOR PAD

### Peripheral Procedure

Fusion imaging guidance for endovascular recanalization of peripheral occlusive disease

Justine Mougín • Nicolas Louis • Eric Maupas • Yann Goueffic • Dominique Fabre • Stéphane haulon

Published: September 04, 2021 • DOI: <https://doi.org/10.1016/j.jvs.2021.07.239>

### Conclusion

Routine use of fusion imaging guidance during endovascular treatment is associated with **low radiation** exposure, high technical success and reduced need for rescue systems.



## Fusion Imaging FOR PAD

### Peripheral Procedure

Fusion imaging guidance for endovascular recanalization of peripheral occlusive disease

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### Conclusion

Routine use of fusion imaging guidance during POD endovascular treatment is associated with low radiation exposure, **high technical success** and for re-entry systems.



## TAKE HOME MESSAGES

*The CTO with planning circles technique combined*

• *with the calcifications modeling:*

1. Is a very reliable technic
2. Allow most often to stay in the good lumen
3. Decrease the time of procedure, the radiation, the use of the re-entry devices (Economic cost-effectiveness)
4. Simplify the complex cases
5. **Open a new era with the use of different angulations based of 3D Imaging**

## NEXT LEVEL....COMING SOON..

