



WHY I PREFER EXCHANGES PROCEDURES

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ESSEY-LES-NANCY , FRANCE

Introduction



- The access to the common carotid during carotid stenting is very challenging and is responsible of a significant number of embolic complications in the ipsilateral but also in the contralateral side or in the posterior circulation.

- The variation of carotid origin, the divergent orientation of common carotid (frequent posterior and left to right direction of right common as opposed to the anterior and right to left direction of the left common), the long distance in a diseased common carotid before reaching a complex and embolic stenosis , explain the development of specific access tools to perform CAS.

1. Besides “ the French vascular surgeons” , the anatomy is the main CAS limiting factor to perform
2. The anatomic limitations reside at 2 levels
 - A. The access to the common carotid
 - B. The angulations and the nature of the carotid lesion

Exchange procedures



Consist of 3 main steps:

- Placement via the femoral or radial artery of a diagnostic selective catheter (Vitek catheter, Simmons type II, III or IV, Multipurpose, Bentson Hanafee ...) in the external carotid .
- Insertion of an extra stiff guidewire in the external carotid
- Exchange of the diagnostic catheter for a long braided (90cm) 5 or 6 F introducer. The radio opaque tip of the introducer is placed in the common carotid

The main advantages of this technique are:



- Smaller size of groin introducer, only method for radial artery, simpler method in aorto-iliac disease (AAA, Bypass grafts...),
- Great variety and smaller size with different coating (Hydrophilic) of diagnostic catheters,
- Use of a braided sheath protecting the course in complex curves of embolic protection devices and stents,
- Good stability during CAS of the sheath

Catheter selection

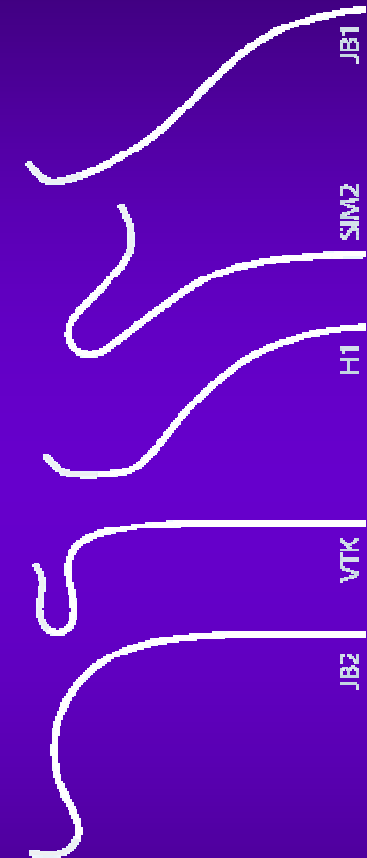
Catheters	Left	Right
Simmons (Sidewinder)		
I	+	+++
II	++	+++
III	+++	++
IV	+++	++
Hinck/Berenstein	++	+++
Headhunter		
I	+	+++
II	+++	+
Bentson		
JB1	+	+++
JB2	+++	++
JB3	+++	+
Mani	+++	++
Vitek	++	+++



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Catheter selection & width of the aorta

CATHETERS SHAPE	AORTA TYPE		
	SMALL	STANDARD	LARGE
SIMMONS			
I	+++		
II	+	+++	+
III		++	+++
IV		++	+++
HINCK	+	+	+
HEADHUNTER			
I		++	
II			++
BENTSON			
JB1	+	++	
JB2		+++	
JB3			++
VITEK	+	+++	+



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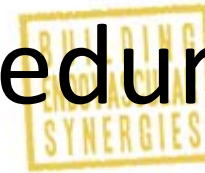
Type 2 arch : 2 directions



Bovine Arch : 2 directions

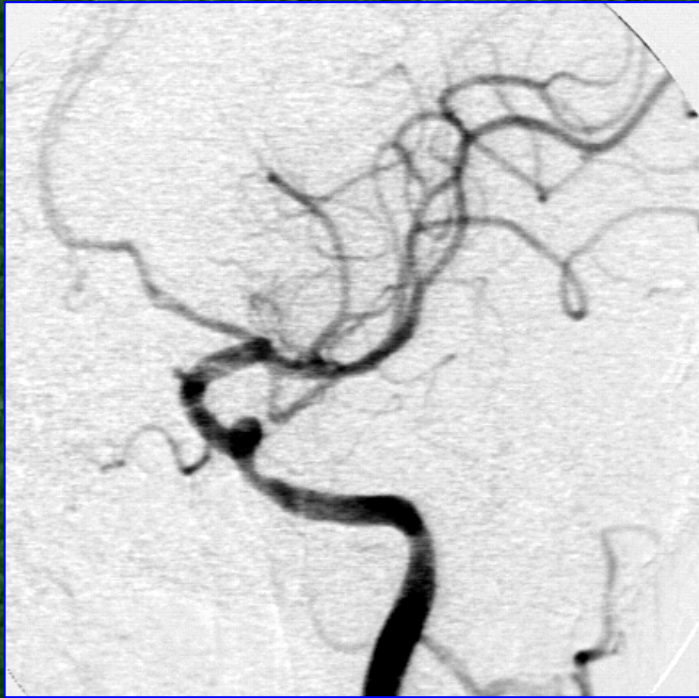


Limits of exchange Procedures

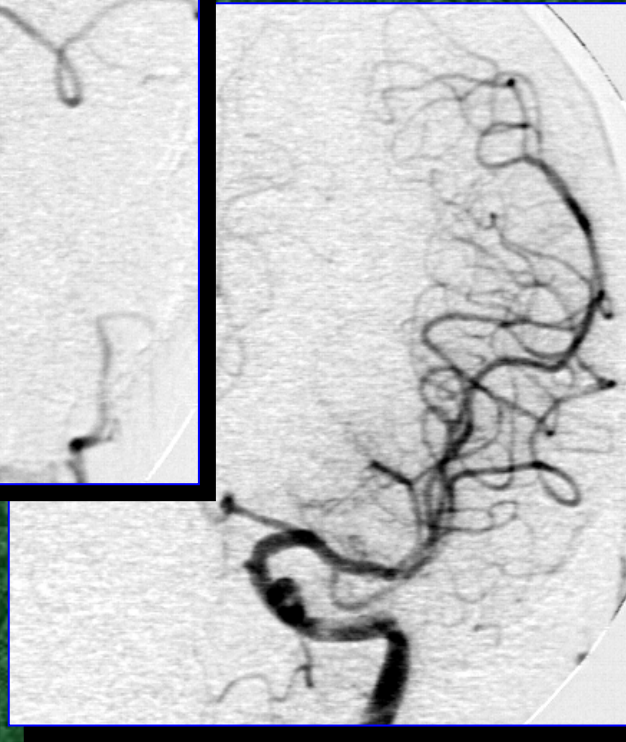


- Absence of external carotid or risk to loose external carotid
- Stenosis of ostium of common carotid
- Perpendicular origin of internal carotid

LEFT CAROTID ARTERY STENOSIS



BEFORE
ANGIOPLASTY



Angulations+ severe eccentric stenosis



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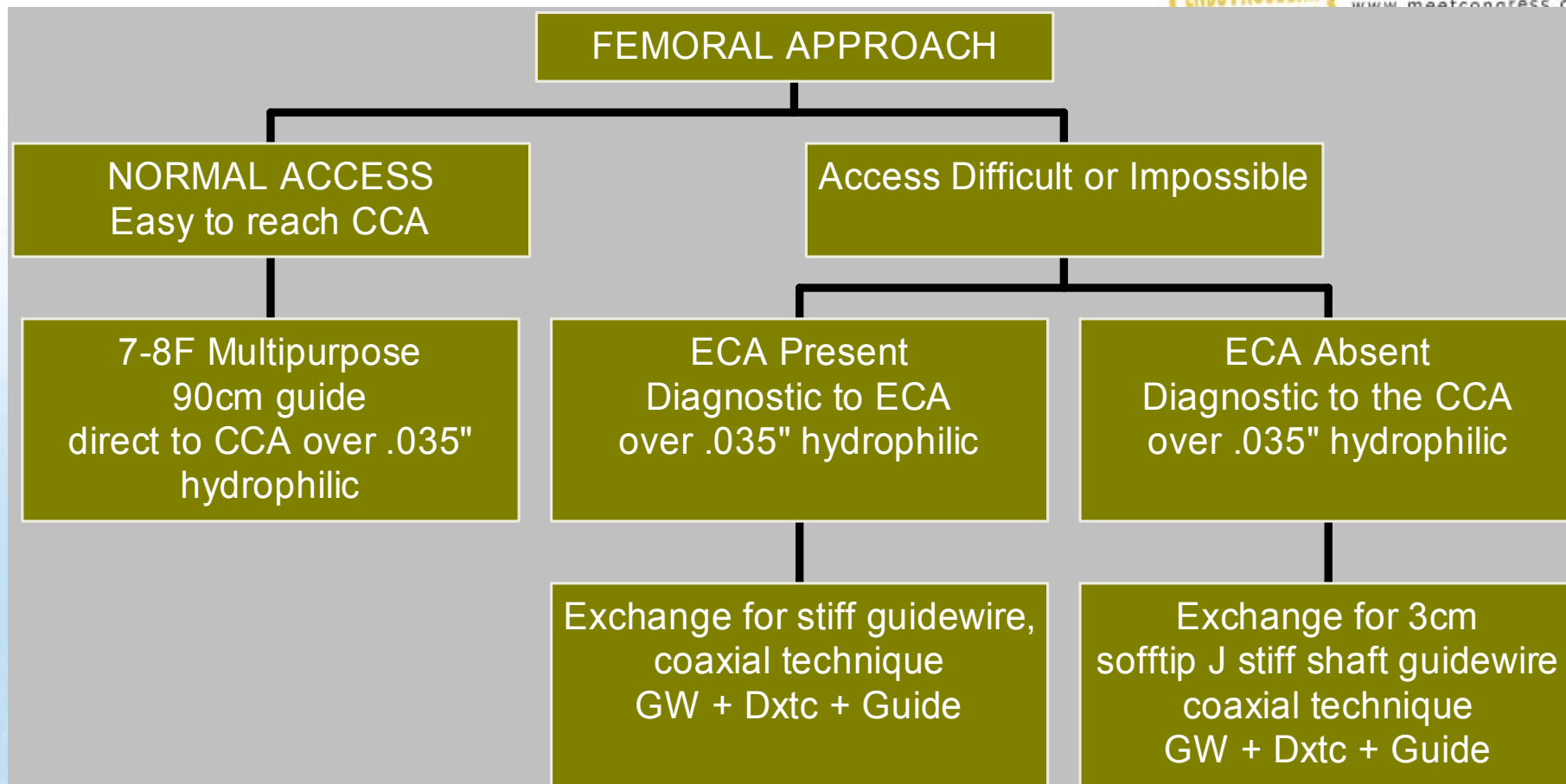
CIG APRES DLT

Complications of exchange procedures



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- Occlusion of external carotid
- Dissection of external carotid
- Perforation of external carotid branch with hematoma
- Thyroid hematoma...



Consider Radial / Cervical approach

The access to the common carotid is difficult or impossible



- Aorto-iliac disease or occlusion ► radial or brachial approach
- Aortic arch diseased or type II , III, or bovine arch ► selection of new guiding catheter
- Diseased or stented common carotid ostium ► use of braided hydrophilic sheath

Conclusion



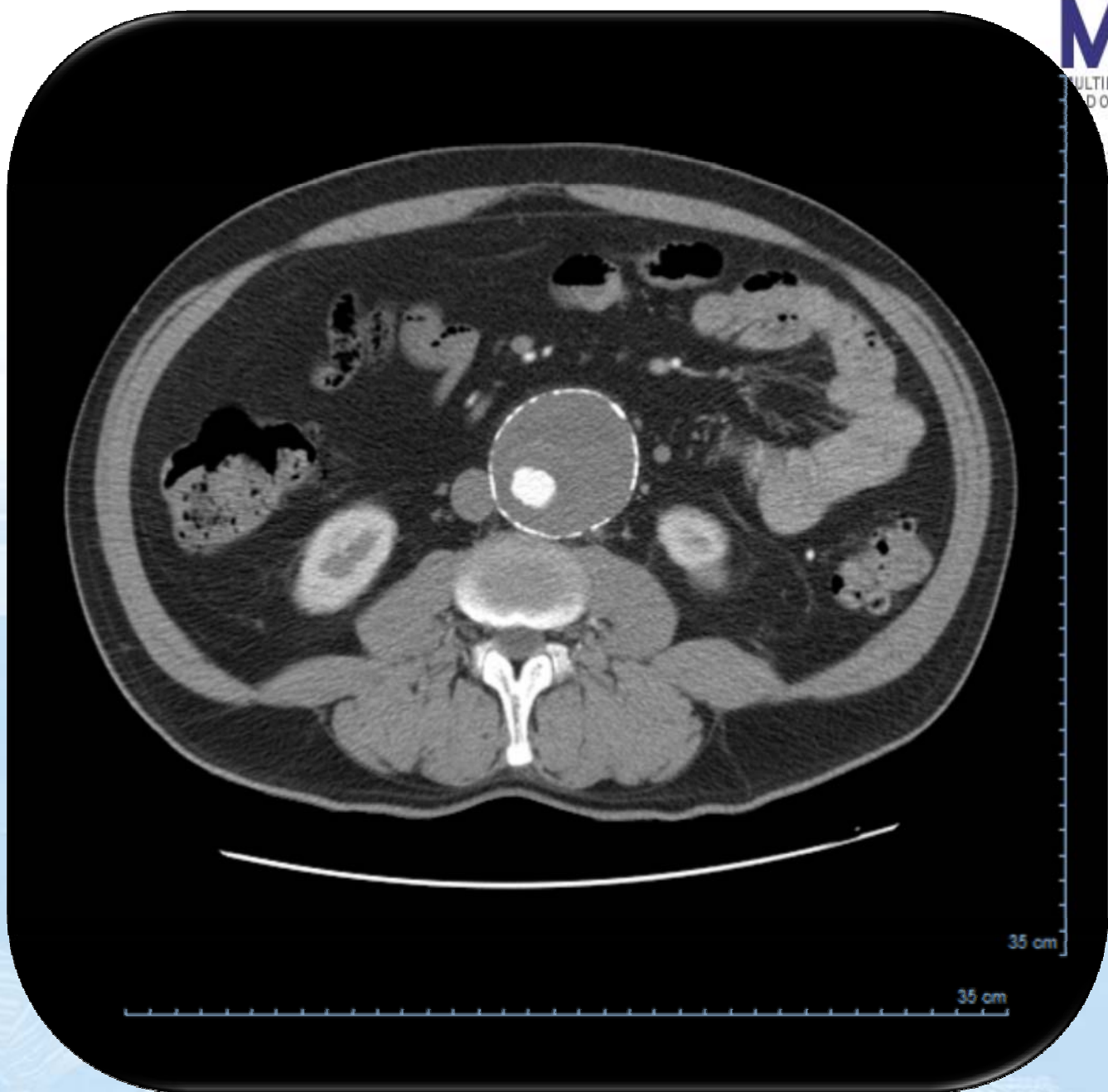
- Some anatomic limitations have found today new solutions
 - Trans-radial CAS
 - New guiding catheter
 - Trans-cervical approach with percutaneous closing

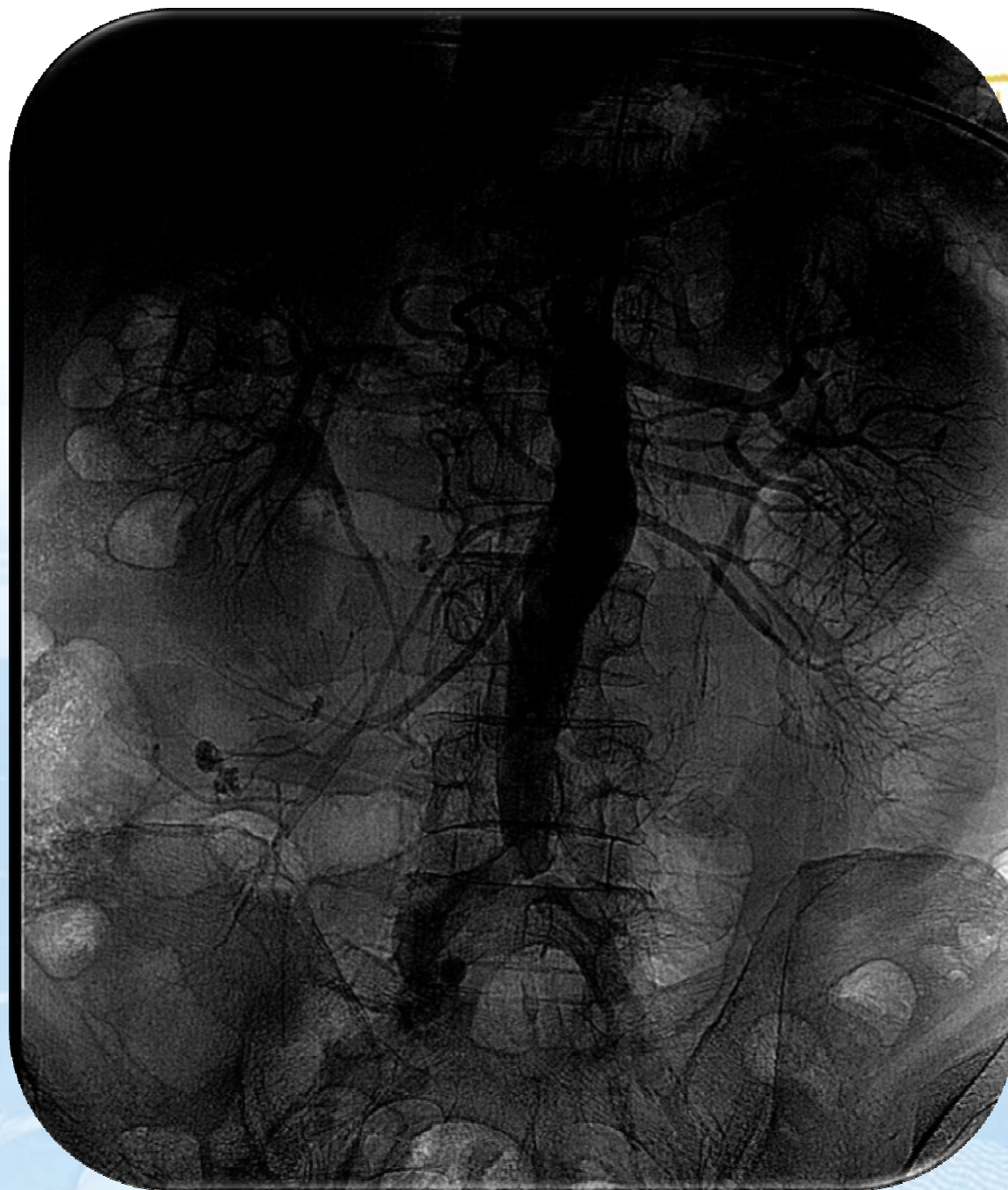


Case 2



- Physician 52 years old , heavy smoker , hyperlipidemic
- 62 mm AAA , 3 coronary VD , Bilateral carotid artery disease
- Bilateral iliac artery Stenosis





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5°
ng 1°
FD 48 cm

0:00
3:33
1:00:43

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1-7.1



563

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Right internal carotid stenosis



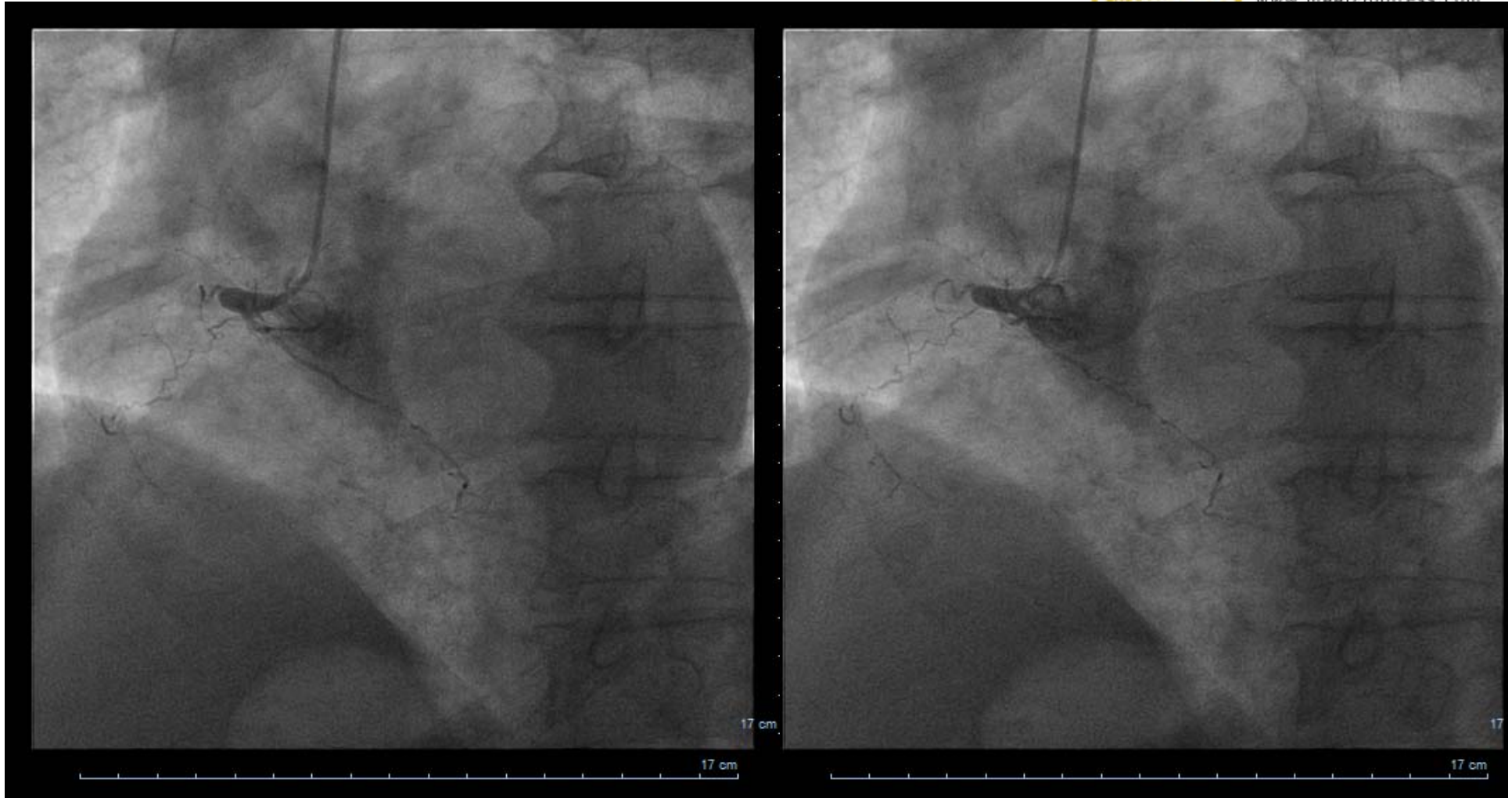
35°
ng 0°
FD 31 cm

1:00
3:50
10:40:34

CAROTIDE G



Right Coronary occlusion



Left Coronary artery . Left CX occlusion (AP & RAO view)

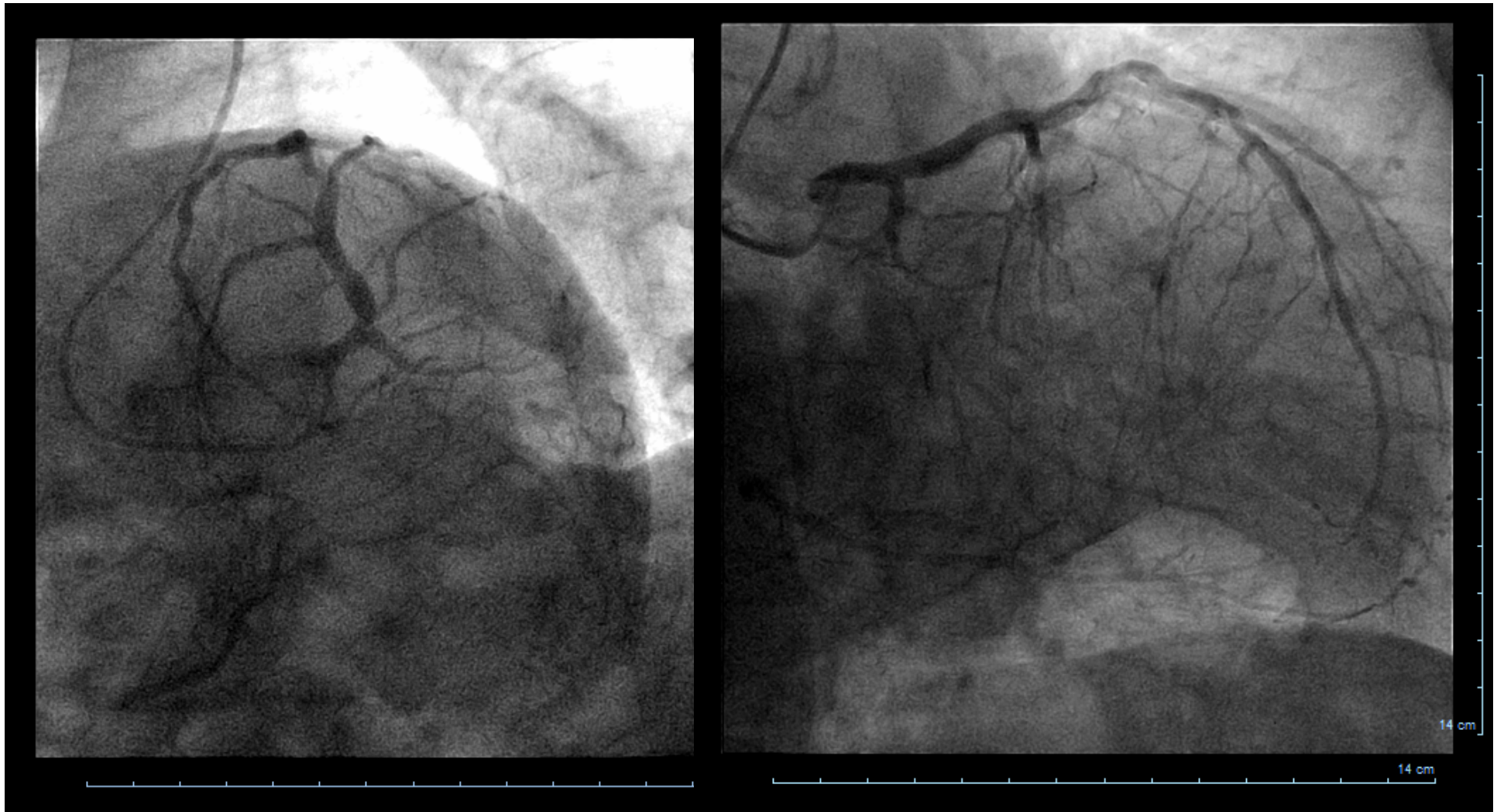
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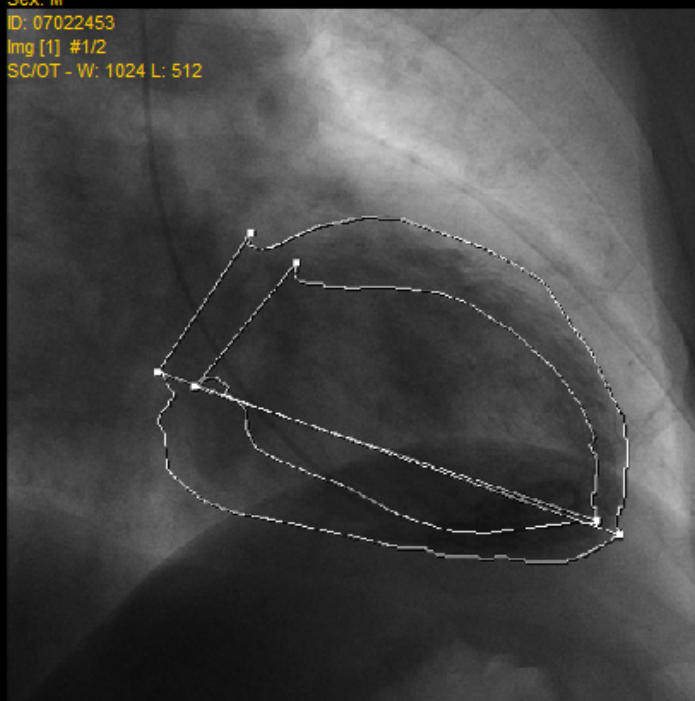
Left coronary (LAO, RAO views)



Infos générales

Clinique Louis Pasteur

PROF. H.T. BERTON
Sex: M
ID: 07022453
Img [1] #1/2
SC/OT - W: 1024 L: 512



FE 65.8 %

	Volume (ml)	Indexé (ml/m ²)
VTD	165.8	-
VTS	56.7	-
DS	109.1	-

Débit cardiaque - l/min
Index cardiaque - l/min/m²

Paroi
Epaisseur - mm
Volume - ml
Masse - g
Effort -

Patient ID



Né le : 06/12/1950
Médecin : Dr Amor
Hôpital : Clinique Louis Pasteur
Date examen : 22/11/2007

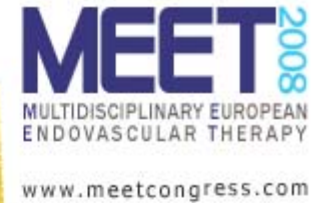
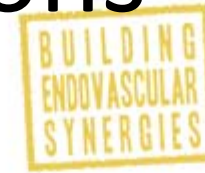
Rythme card. - bpm
ZSC - m²
Méth. d'indexage ZSC

Etude
ID séq. 10
Nb images TD 125
Nb images TS 135

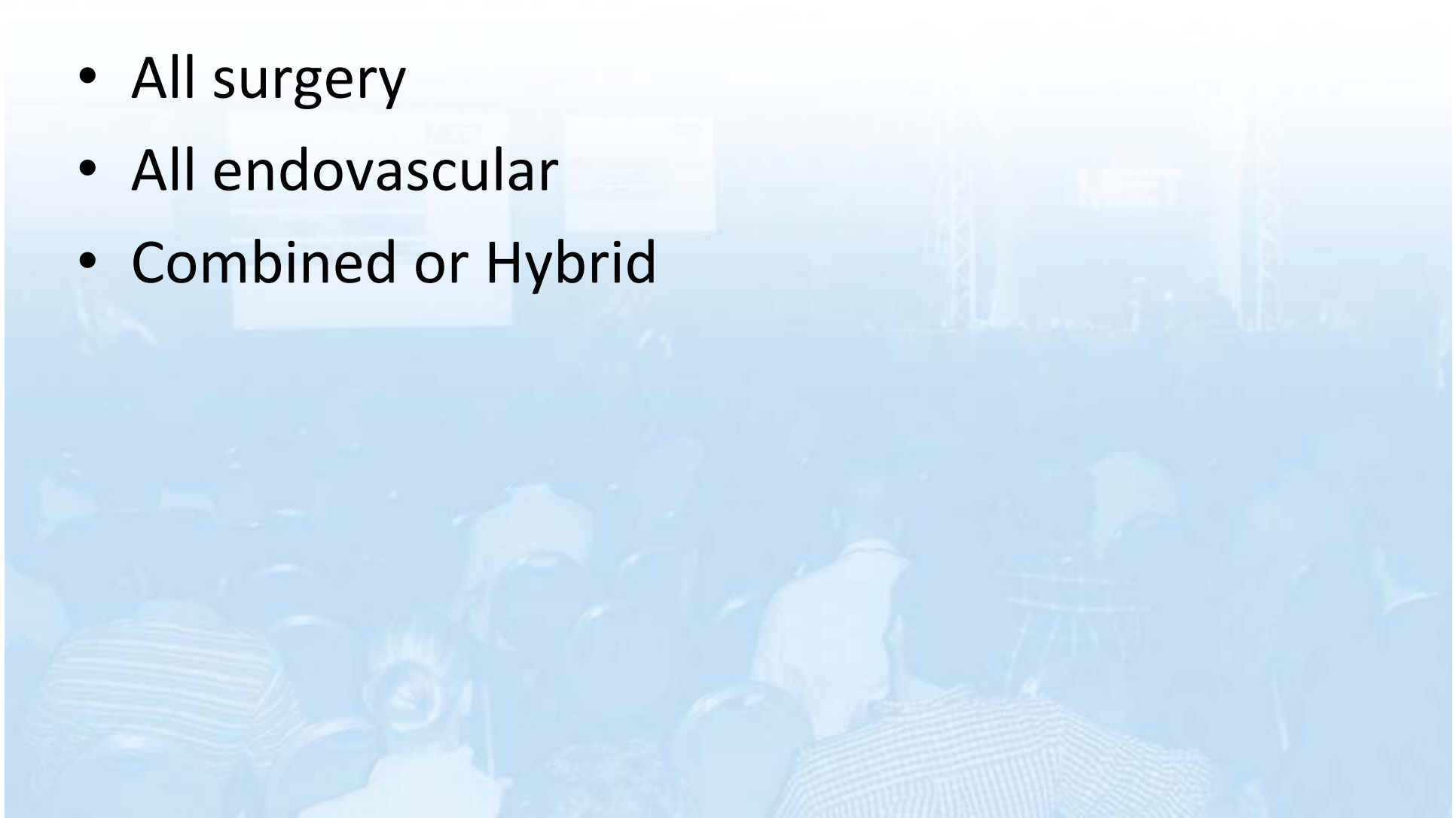
Méth. volumétriq. Long de la zone
Régression VTD x0.783-3.759
Régression VTS x0.783-3.759

Fact. calibr. 0.2297 mm/pix
Objet calibré 5.00 French Catheter

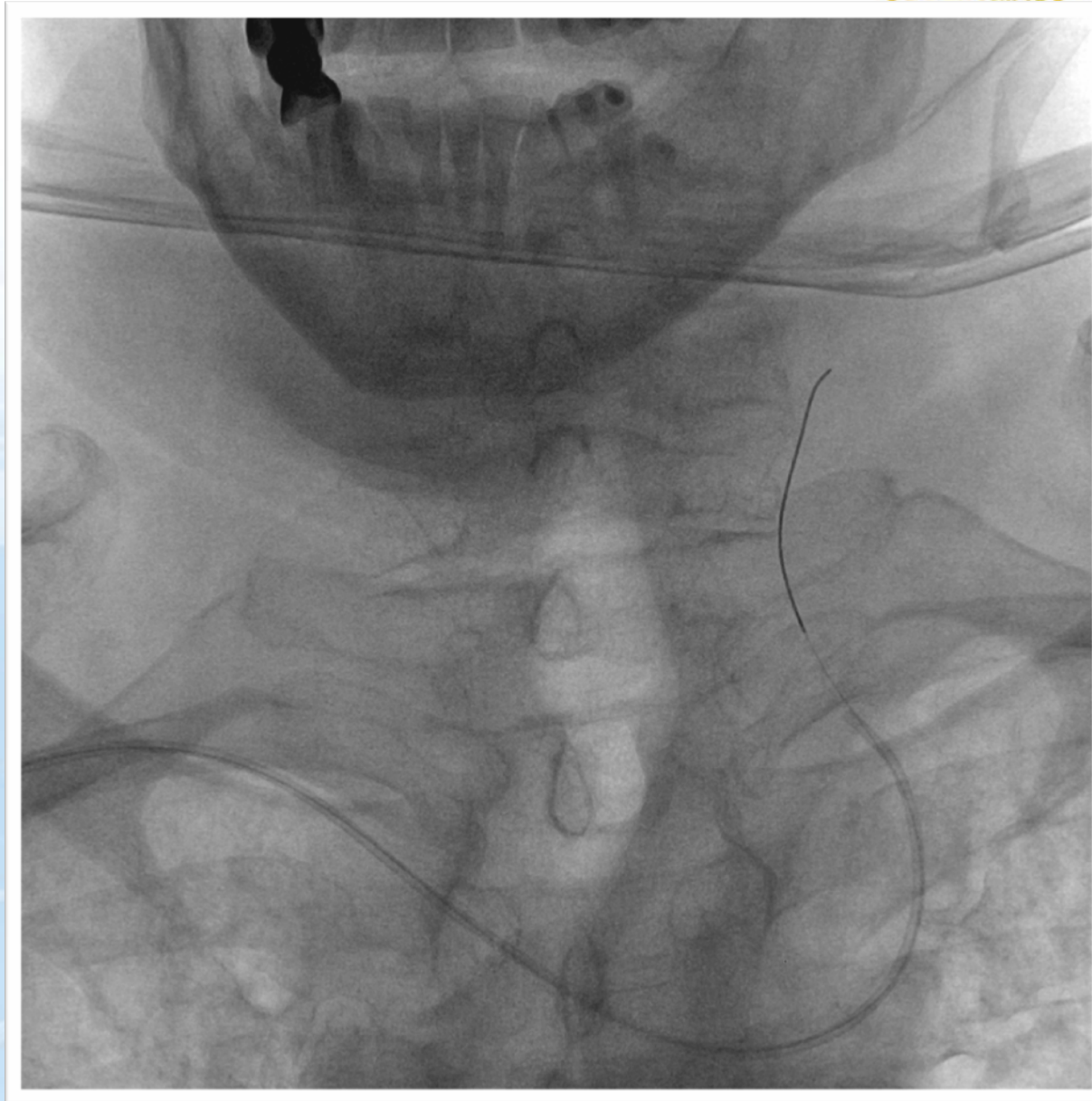
Several Therapeutical options have been discussed



- All surgery
- All endovascular
- Combined or Hybrid



Left CC access : 5 F right Judkins catheter

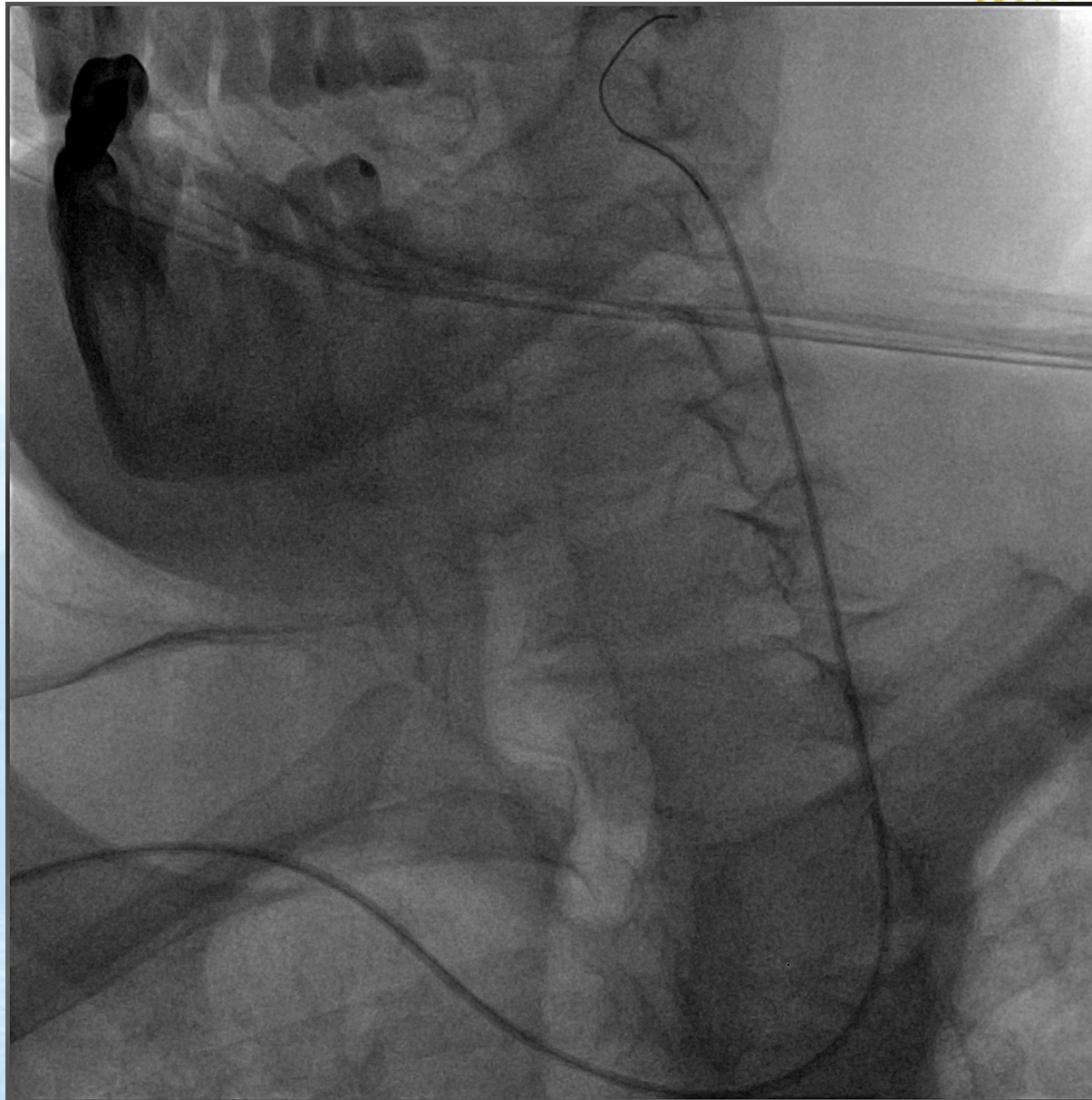


Placement of Extra-stiff GW

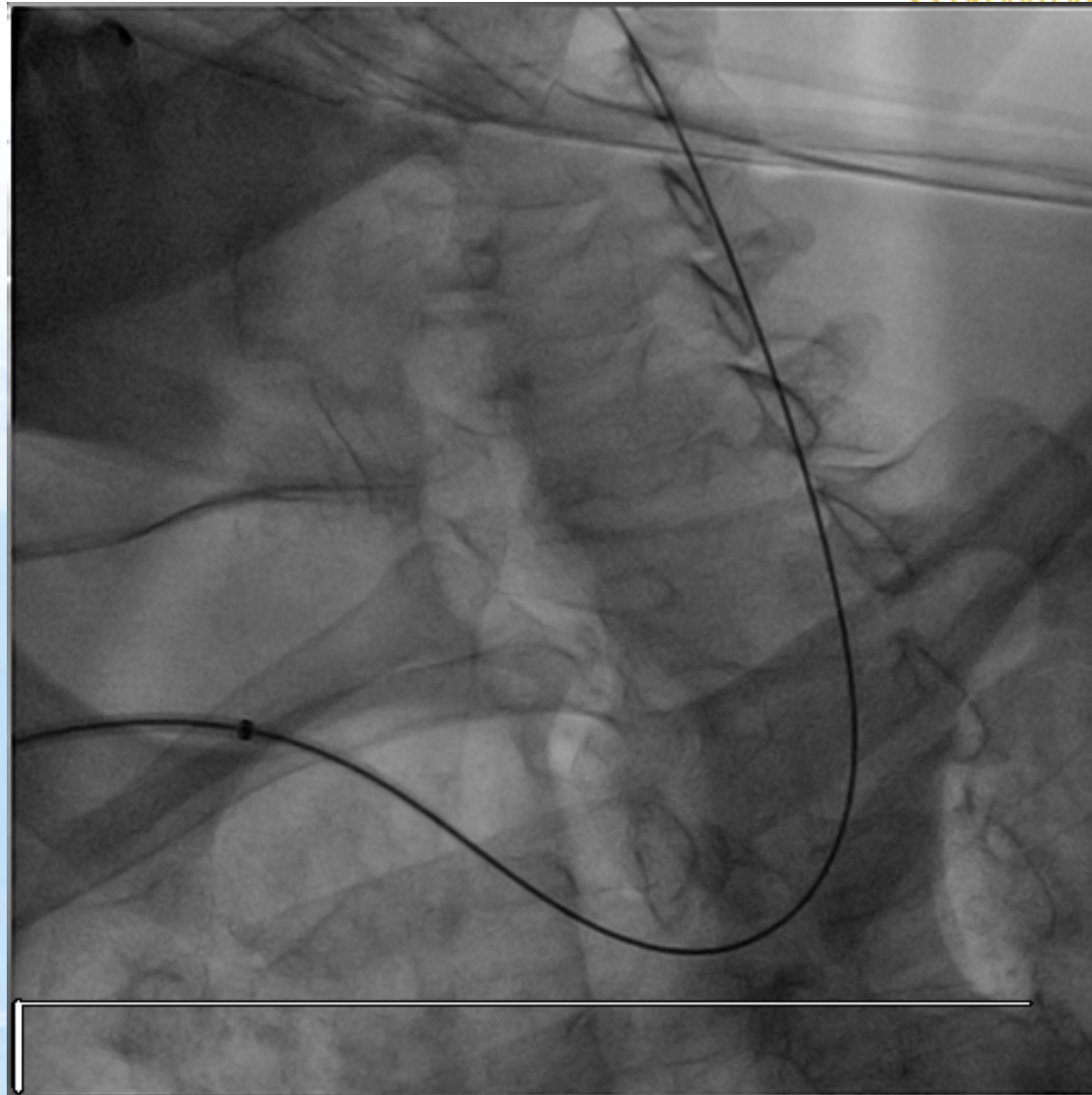
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Placement of 6F 90 cm braided introducer over the extra stiff guidewire.



Precise Placement of the tip of the introducer

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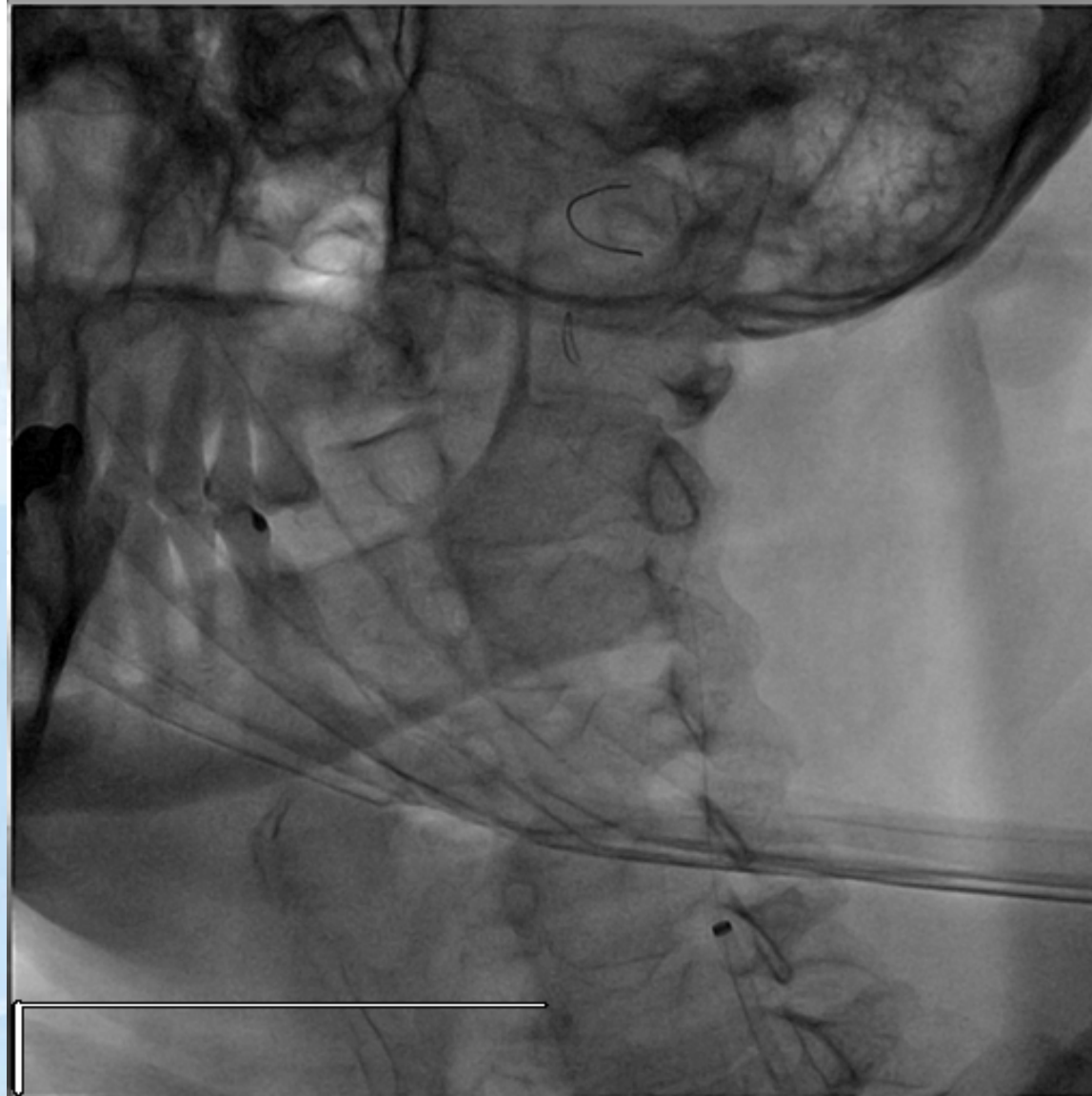
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EPD placement : EPI Boston Filter

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Selective left CC injection

