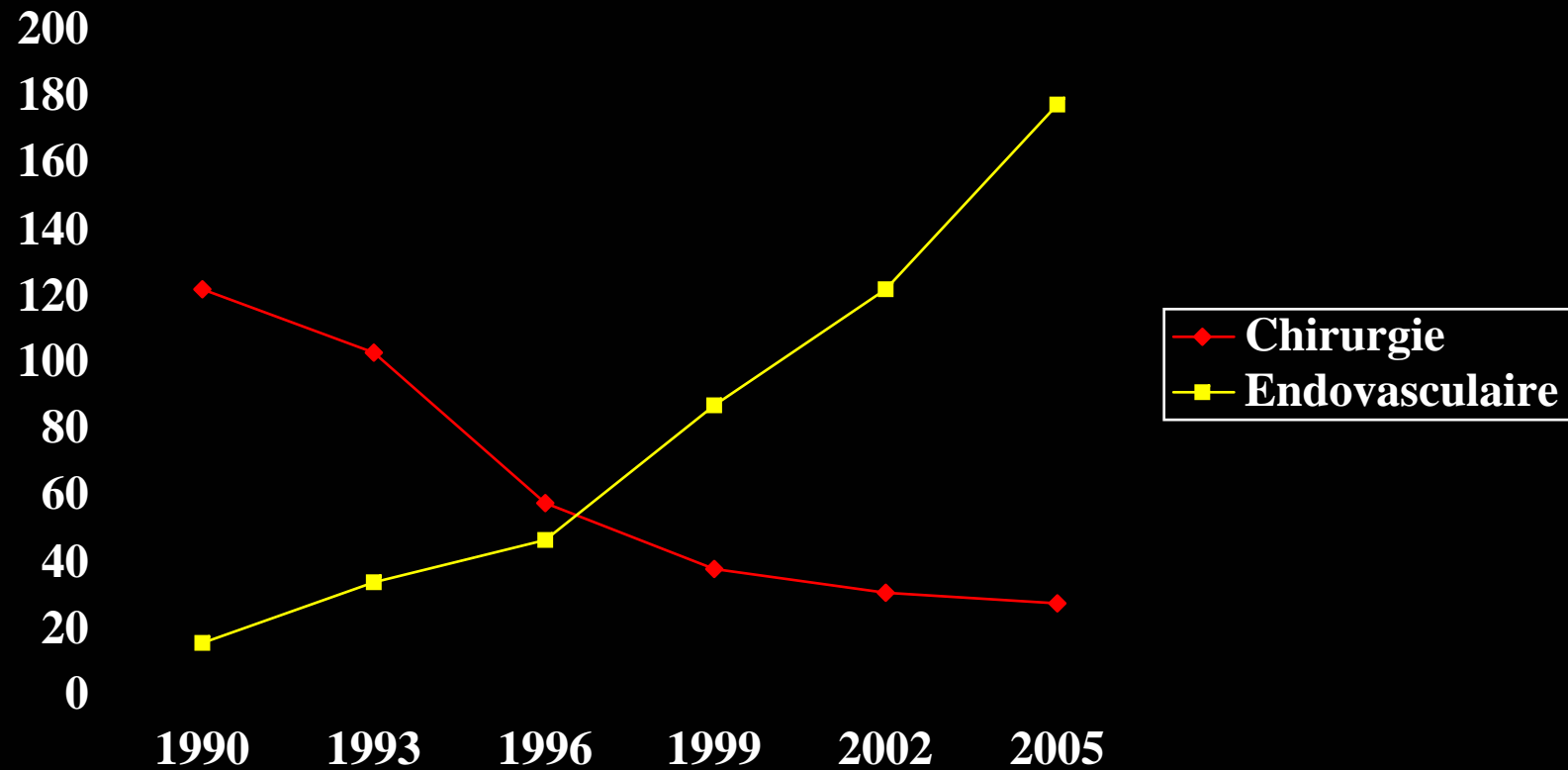


Challenging cases in CLI

T . Reix

CHU Amiens

Surgical treatment of CLI



Methods of treatment

- Challenging extensive or multi-level often heavy calcified lesions
- Treatment from proximal to distal lesions
- Endovascular therapy
- Hybrid technics

Equipment

- Operative room
- Carbon table and C arm
- Long, hydrophylic, brite tip sheaths
- 0,035''; 0,014'' guide wires; 180-260 cm
- Hydrophylic 4F catheter vertebral and UF
- Micro-catheter
- Standard 5F and low-profile rapid exchange balloon
- Nitinol, balloon expandable and low profile stents

Flexor[®] Shuttle

Features

Kink resistance – Patented coil reinforced construction.

Low friction – PTFE coated lumen.

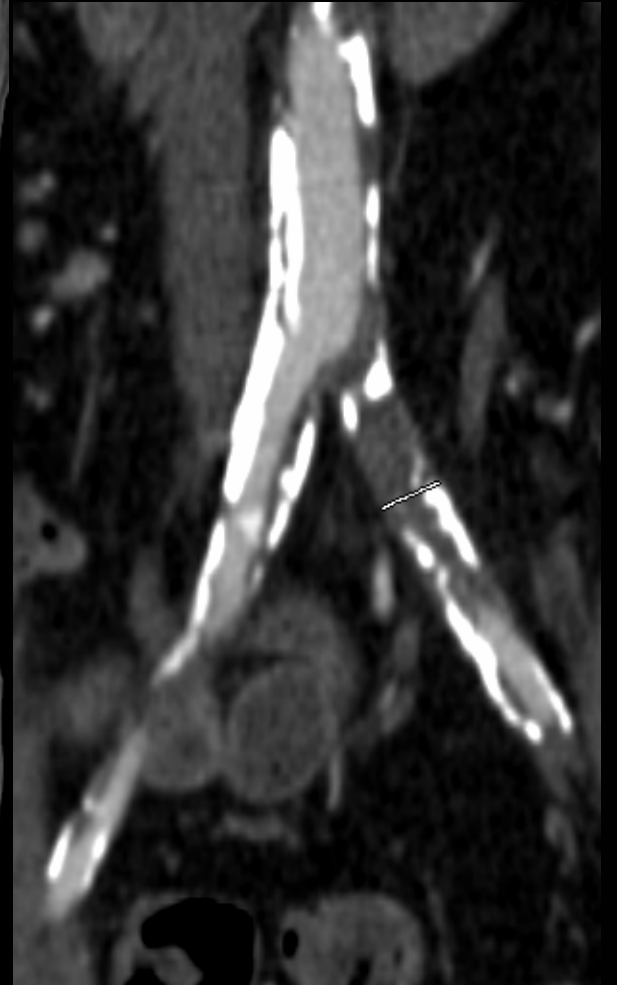
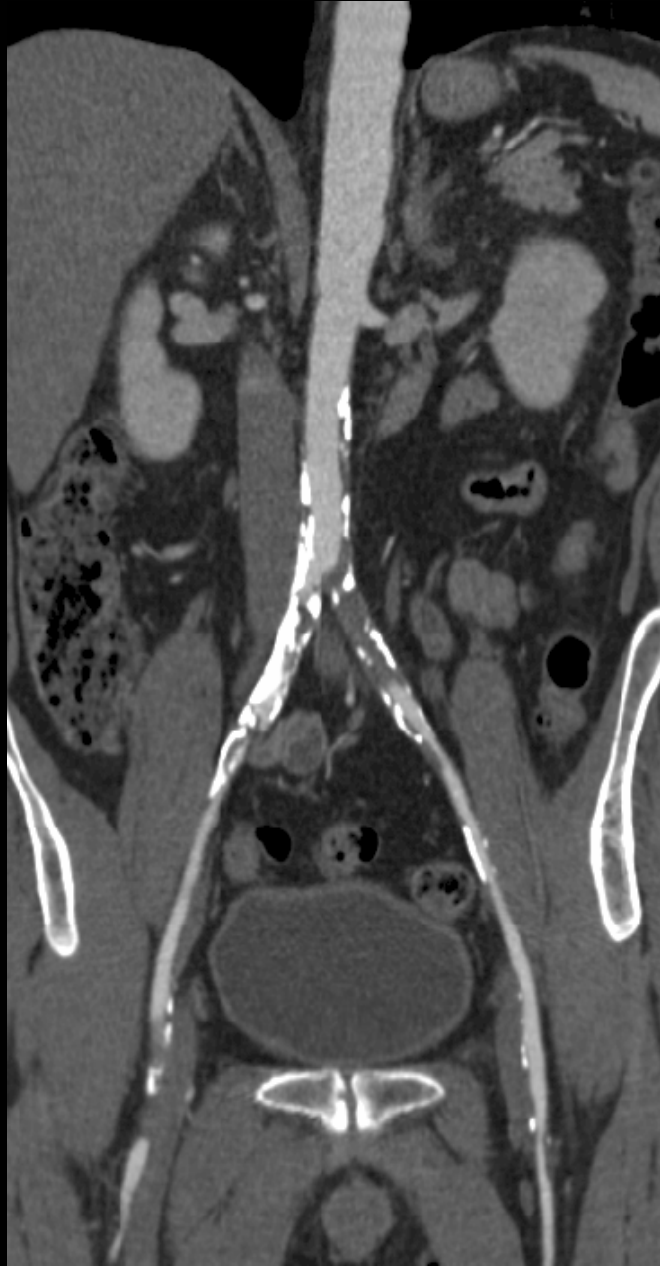
Great visibility – Radiopaque band within the sheath material.

Trackability – AQ[®] hydrophilic coating.



Aorto-iliac revascularization

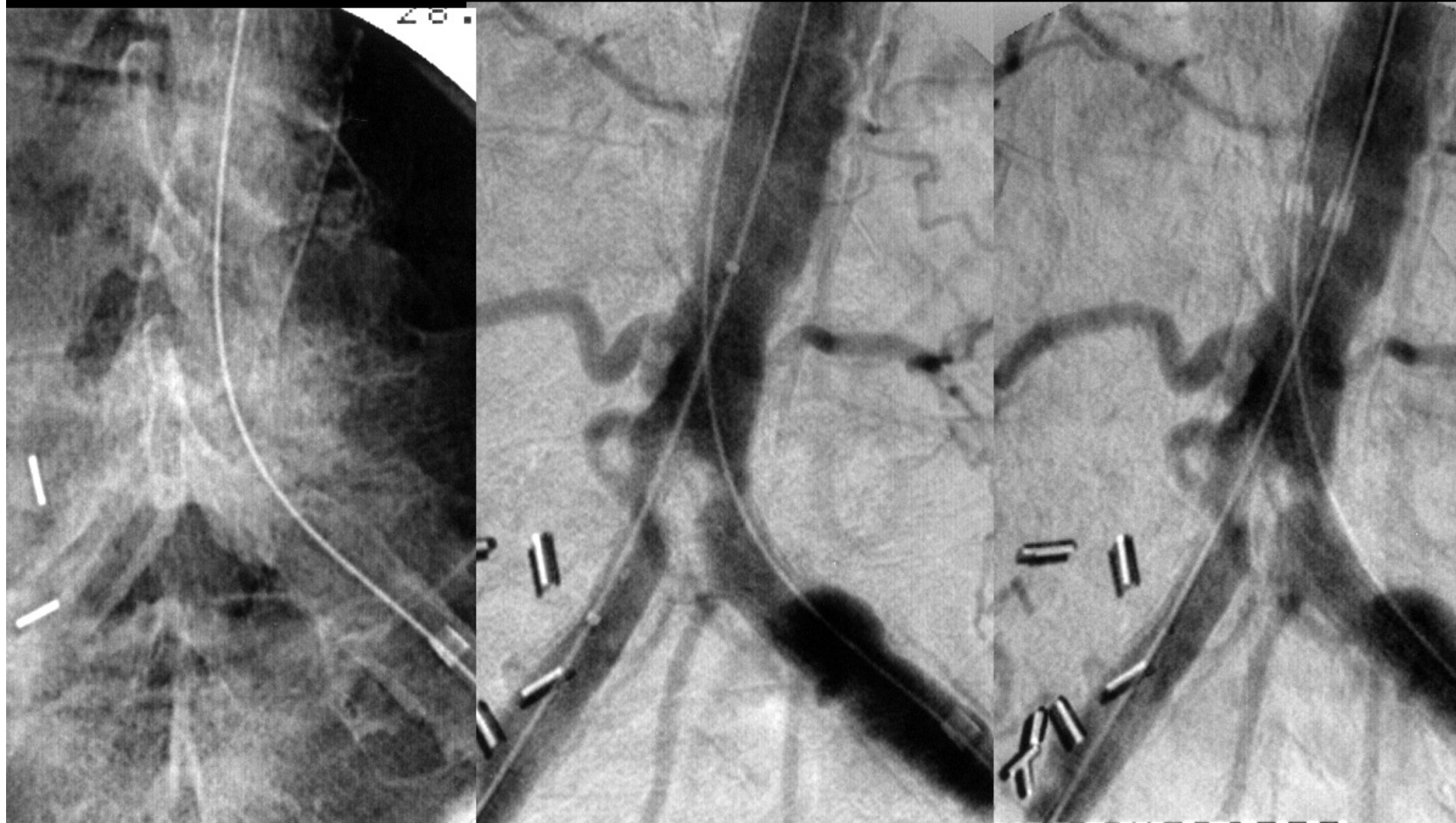
- Single retrograde approach
- Cross-over
- Bilateral approach
- 6F sheath
- 10F sheath for aortic stenting



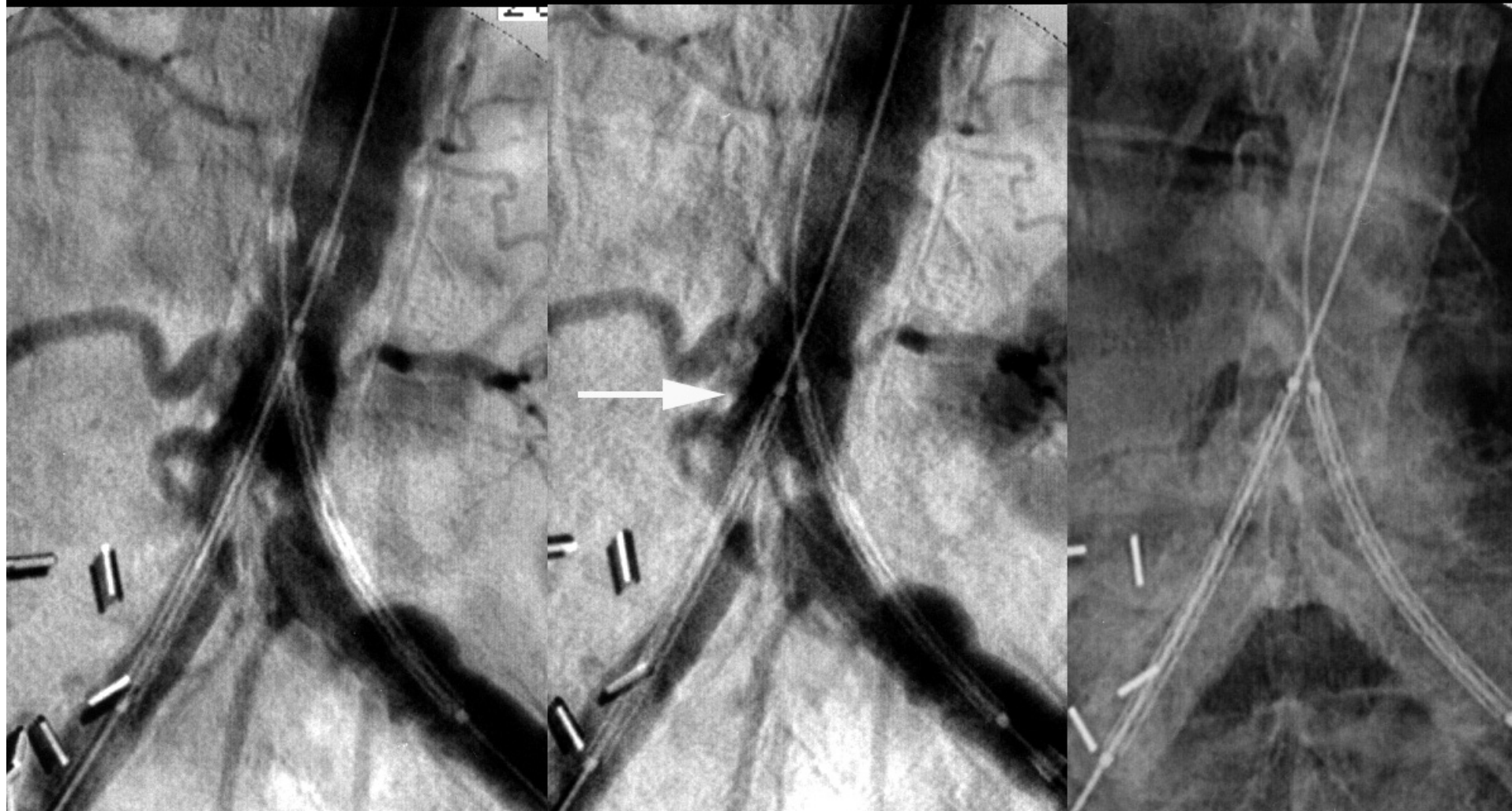
Why long sheaths

- Best precision
- Manual contrast injection
- Balloon expandable stent protection

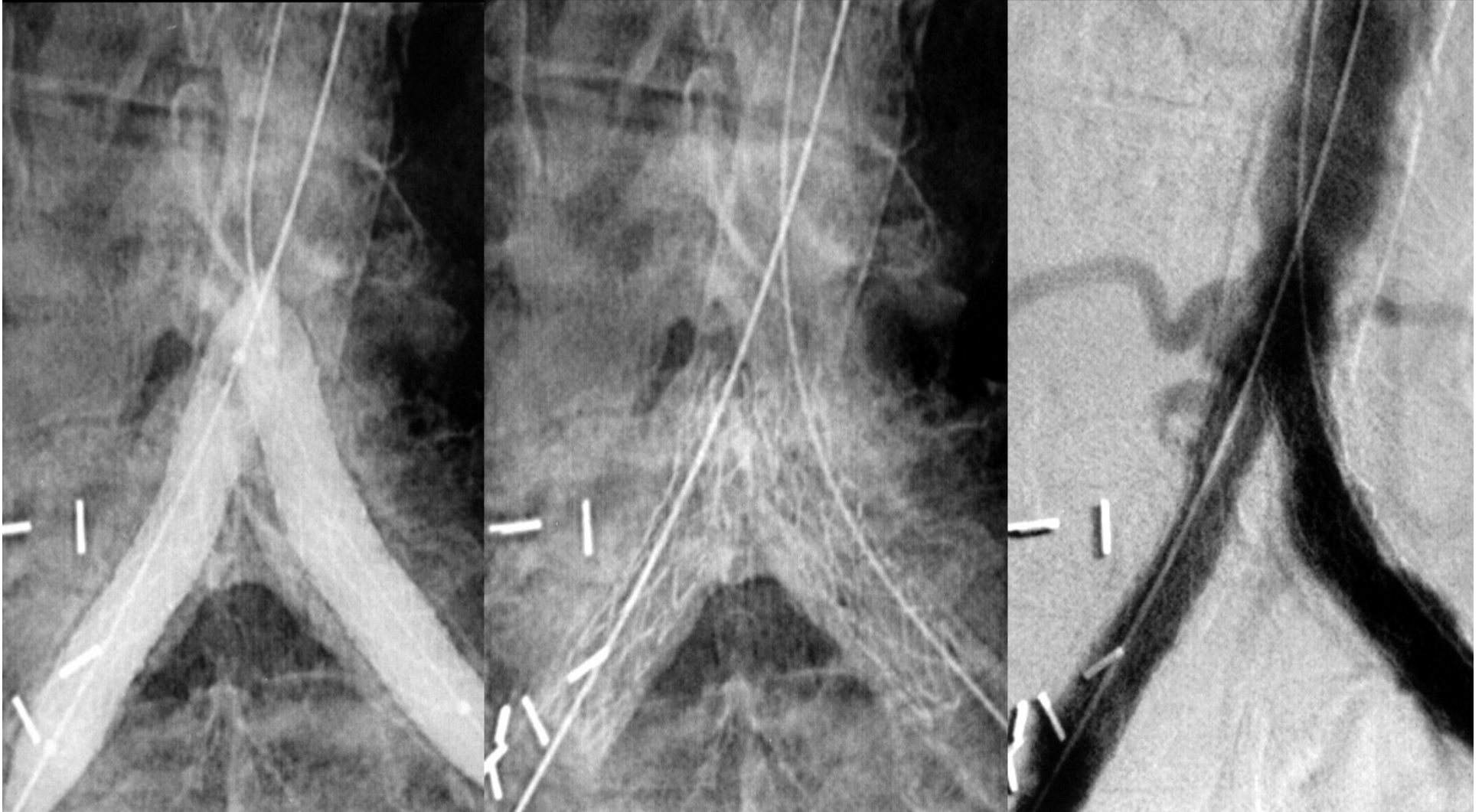
Franchissement de la sténose



Stenting protégé



Dilatation et controle



Eiffel Tower

- Triple stenting --> anatomic reconstruction
- Aortic stenting first with a nitinol (Bard or Sinus)
- In stent progressive remodeling
- Iliac kissing-stent

Scanner non injecté

Im:9
DFOV 35.0cm
SOFT/P

Im:10
MF: 1.3

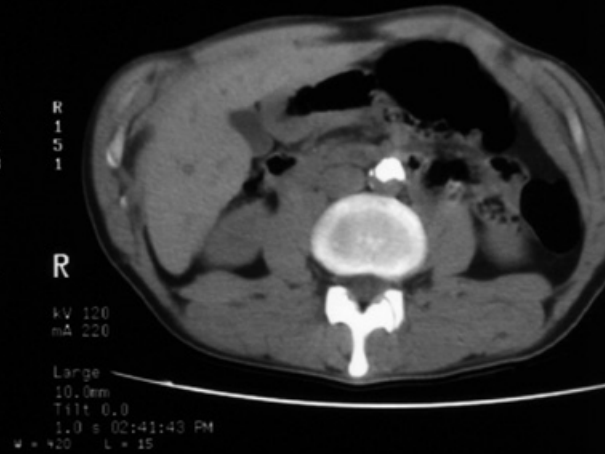
Im:10
DFOV 35.0cm
SOFT/P

Im:10
MF:

H1Speed Adv SYS#HSUD
49262
2
1216.5
15
V 35.0cm
T/P

A113

HOPITAL SUD AMIENS
LEMAIRE JEAN CLAUDE
M 26/03/54
FEB 14, 2002
512
MF: 1.3



CT H1Speed Adv SYS#HSUD
Ex:49262
Se:2
XV 1196.5
Im:13
DFOV 35.0cm
SOFT/P

A113

HOPITAL SUD AMIENS
LEMAIRE JEAN CLAUDE
M 26/03/54
FEB 14, 2002
512
MF: 1.3

CT H1Speed Adv SYS#HSUD
Ex:49262
Se:2
XV 1206.5
Im:14
DFOV 35.0cm
SOFT/P

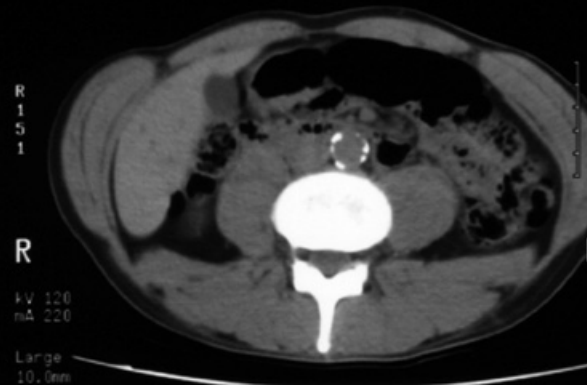
A113

HOPITAL SUD AMI
LEMAIRE JEAN CLA
M 26/03/54
FEB 14, 2

CT H1Speed Adv SYS#HSUD
Ex:49262
Se:2
XV 1226.5
Im:16
DFOV 35.0cm
SOFT/P

A109

HOPITAL SUD AMIENS
LEMAIRE JEAN CLAUDE
M 26/03/54
FEB 14, 2002
512
MF: 1.3

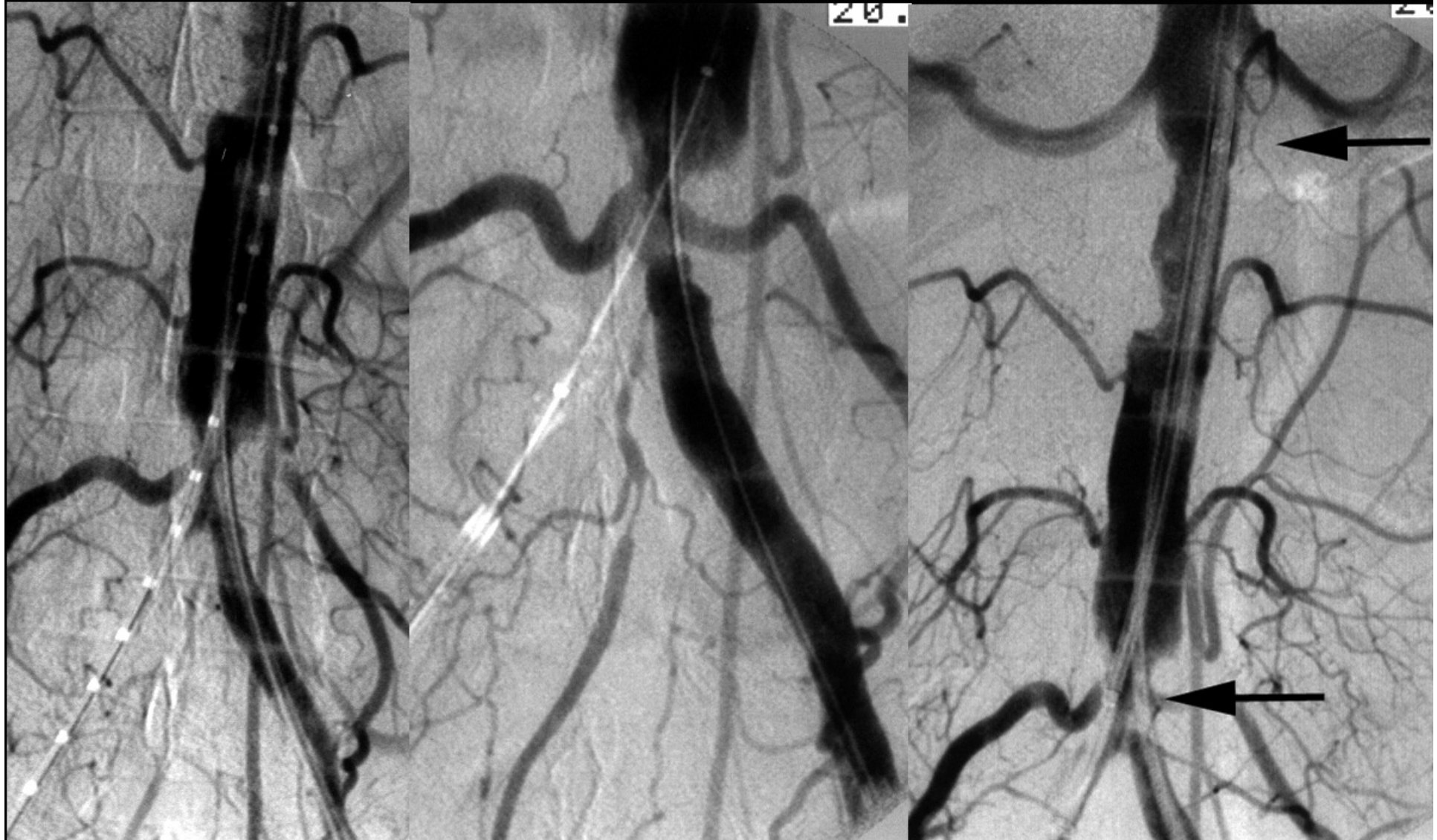




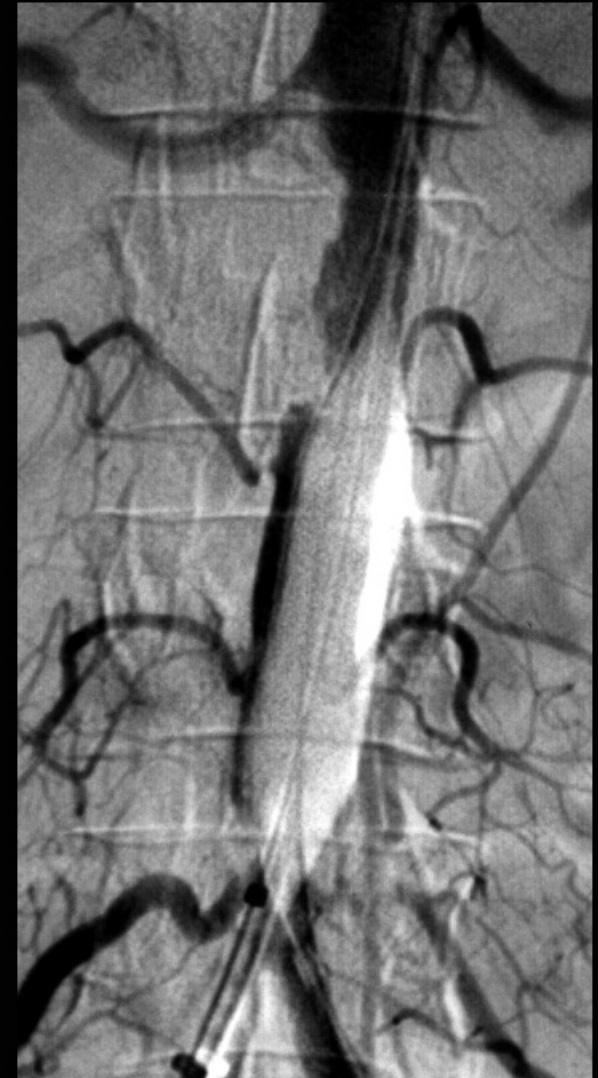
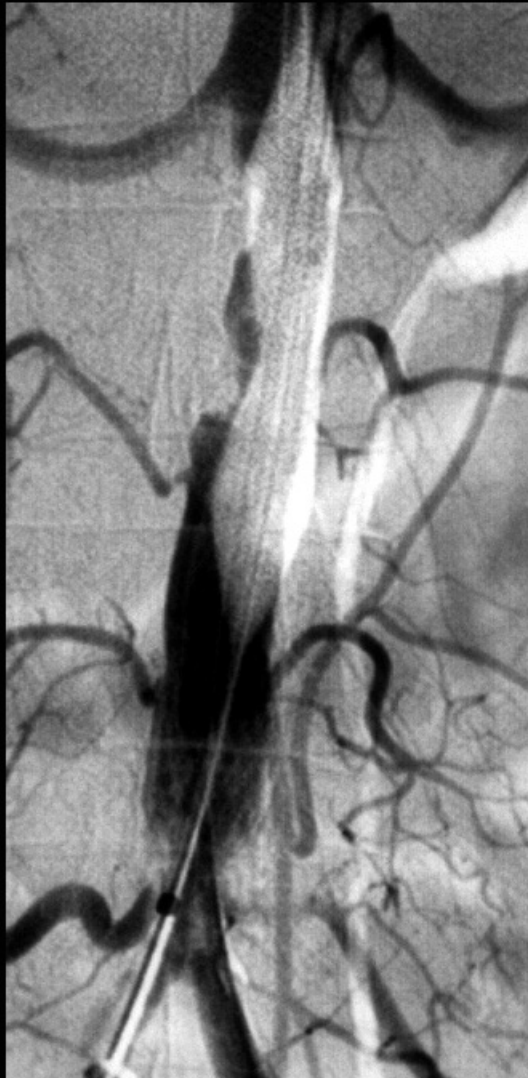
Mesure

Pré-dilatation

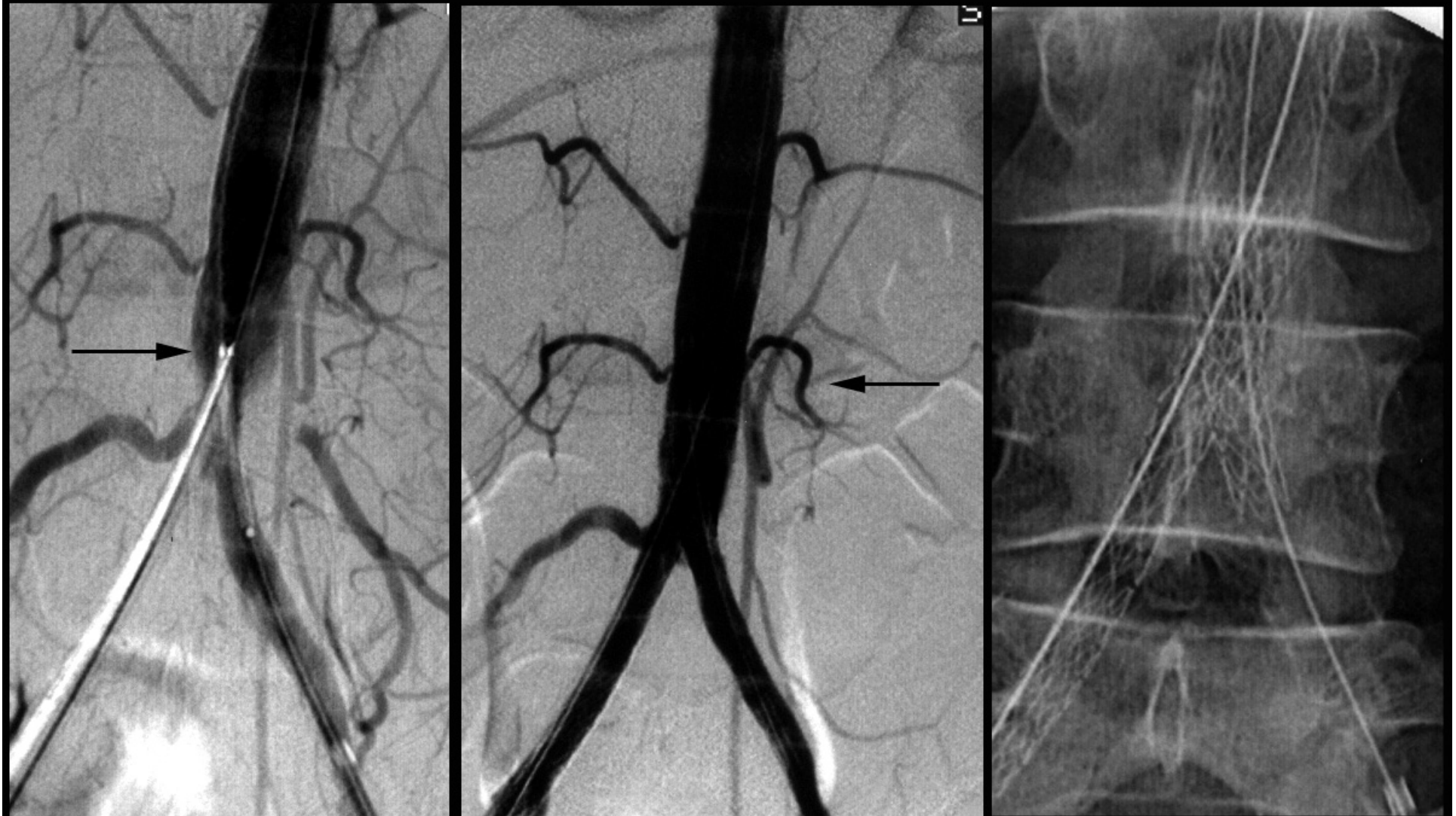
Stent 18mm x 10 cm



Remodelage intra stent (16mm x 4 cm)



Kissing stent et controle



peed CT/1 SYS#CT01
1948
2
S30.0
5

V 12.0cm
D/P

AS SCANOGRAPHIE CHU AMIENS NORD

LEMAIRE J CLAUDE
47 M CCV
DOD: 26 mar 1954
26 fév 02
512
MF:1.1

120
230

ge
mm
t : 2.0
s 16:46:27
37 L:89

P1

peed CT/1 SYS#CT01
1948
2
S24.0
7

V 12.0cm
D/P

AS SCANOGRAPHIE CHU AMIENS NORD

LEMAIRE J CLAUDE
47 M CCV
DOD: 26 mar 1954
26 fév 02
512
MF:1.1

1

5

2

HiSpeed CT/1 SYS#CT01
Ex: 1948
Se: 2
CI S27.0
In: 6

DFOV 12.0cm
STND/P

AS SCANOGRAPHIE CHU AMIENS

LEMAIRE J
47
DOB: 26 mar
26 f

R

6

0

kV 120
mA 230

Large
3.0 mm
Tilt : 2.0
2.0 s 16:46:34
V:237 L:89

P1

HiSpeed CT/1 SYS#CT01
Ex: 1948
Se: 2
CI S21.0
In: 8

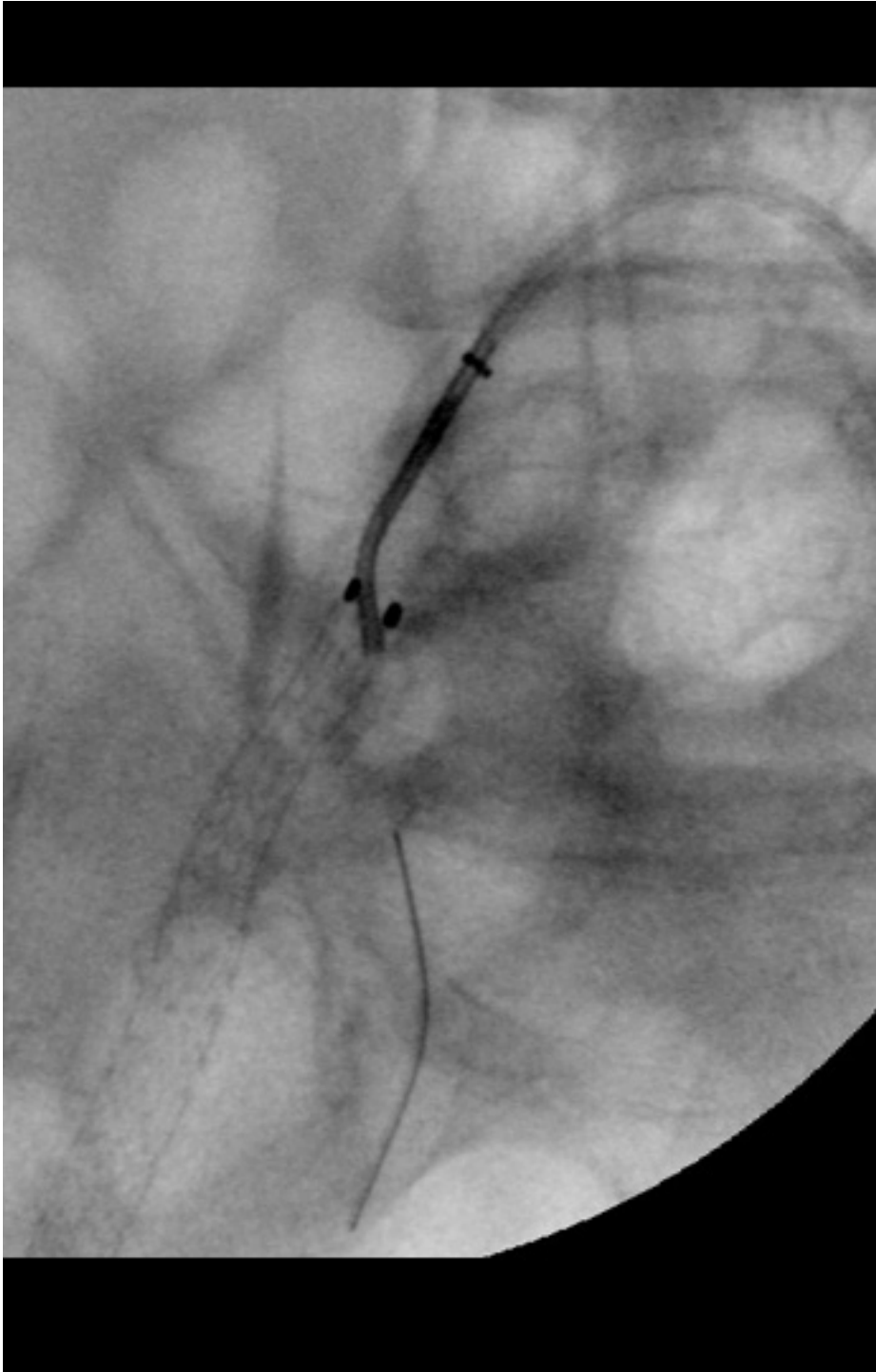
DFOV 12.0cm
STND/P

AS SCANOGRAPHIE CHU AMIENS

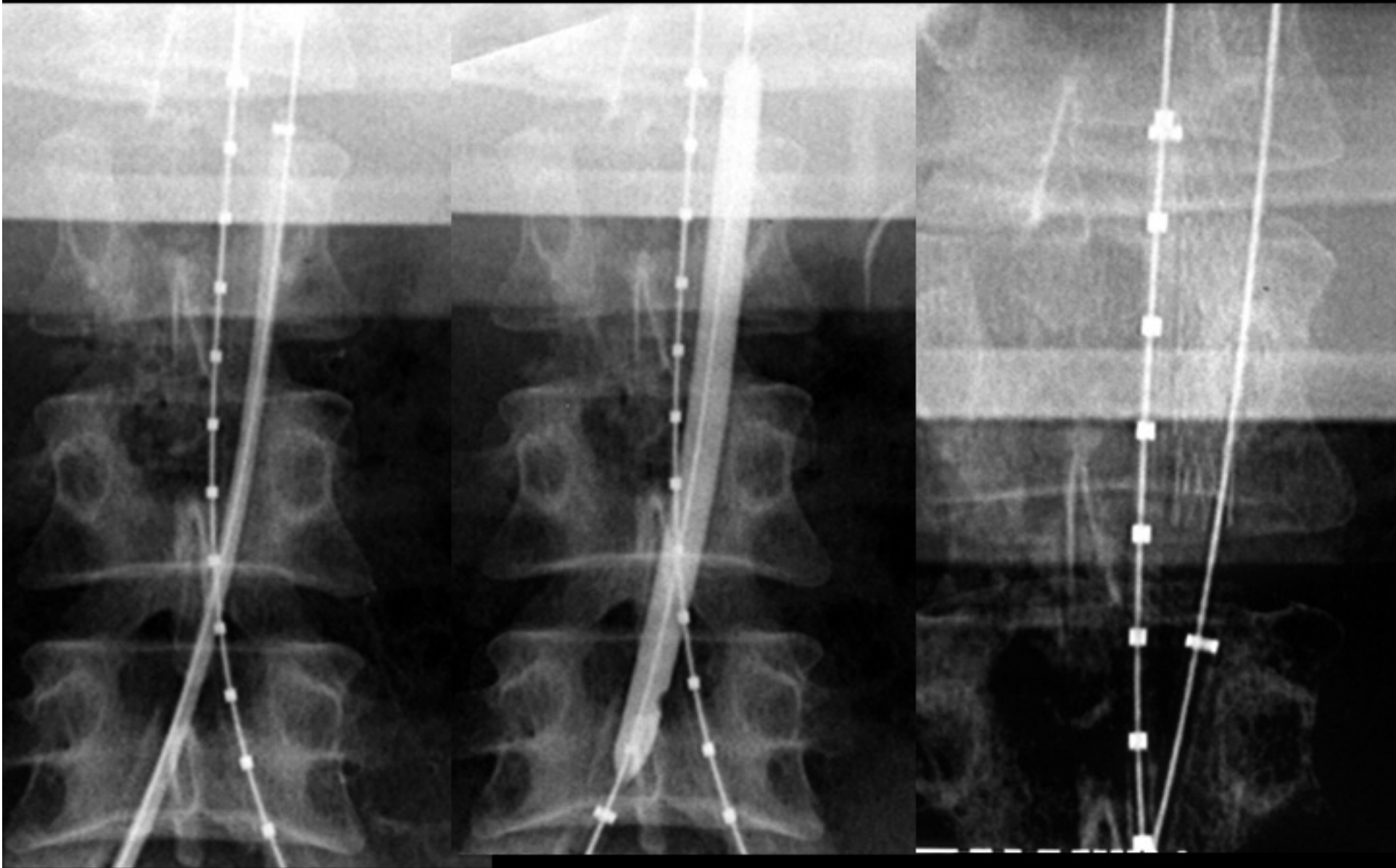
LEMAIRE J
47
DOB: 26 mar
26 f

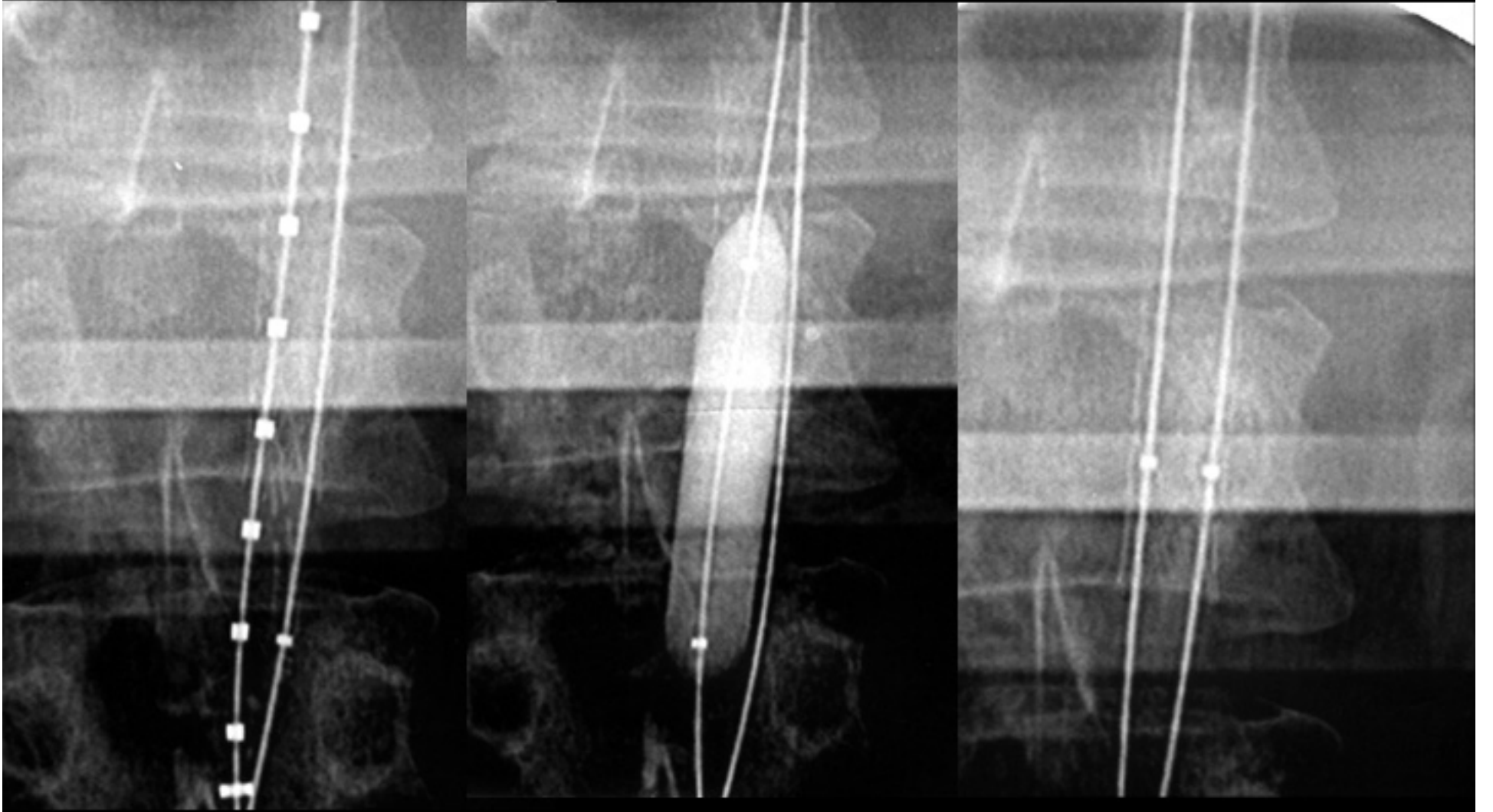
R

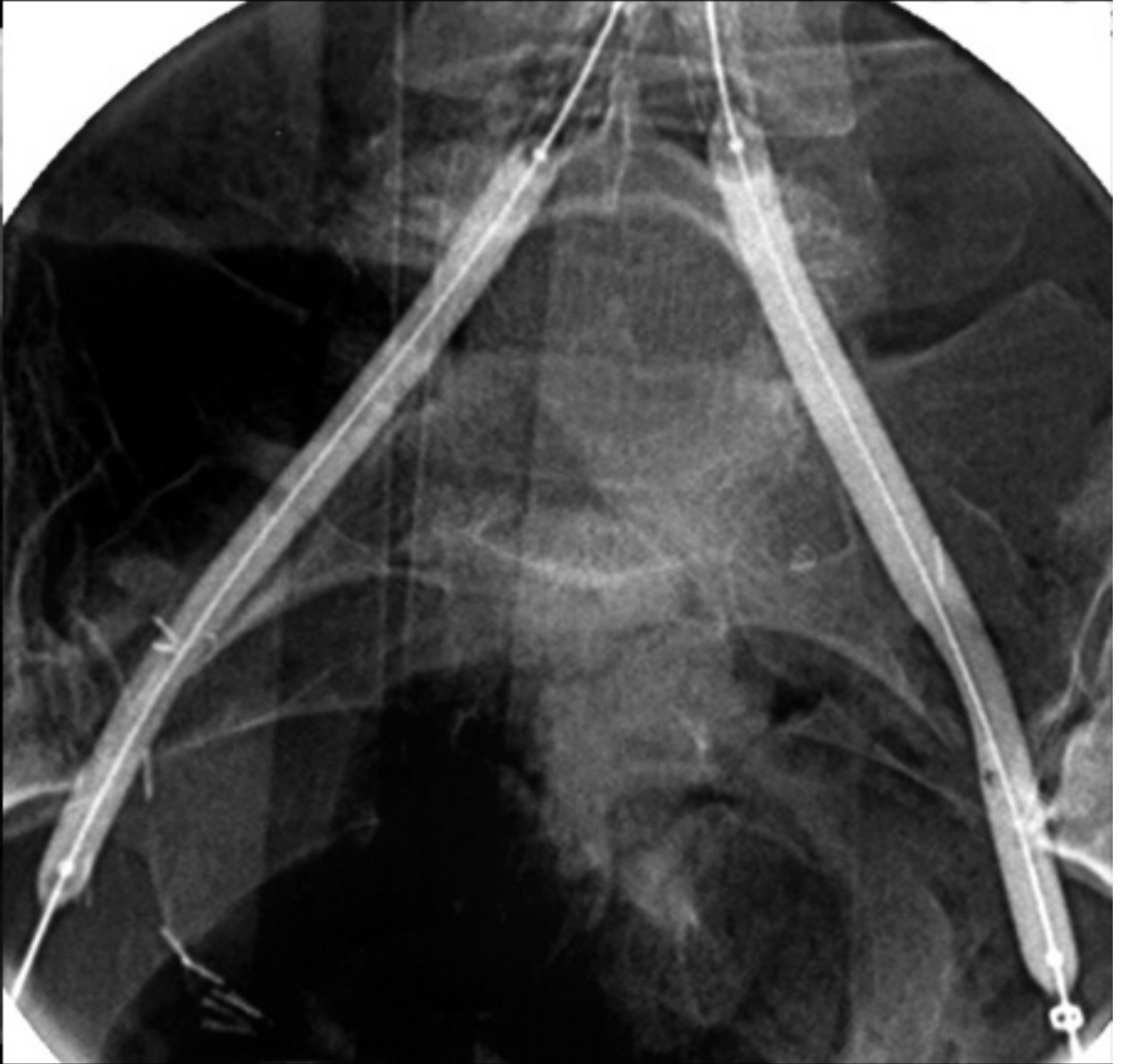


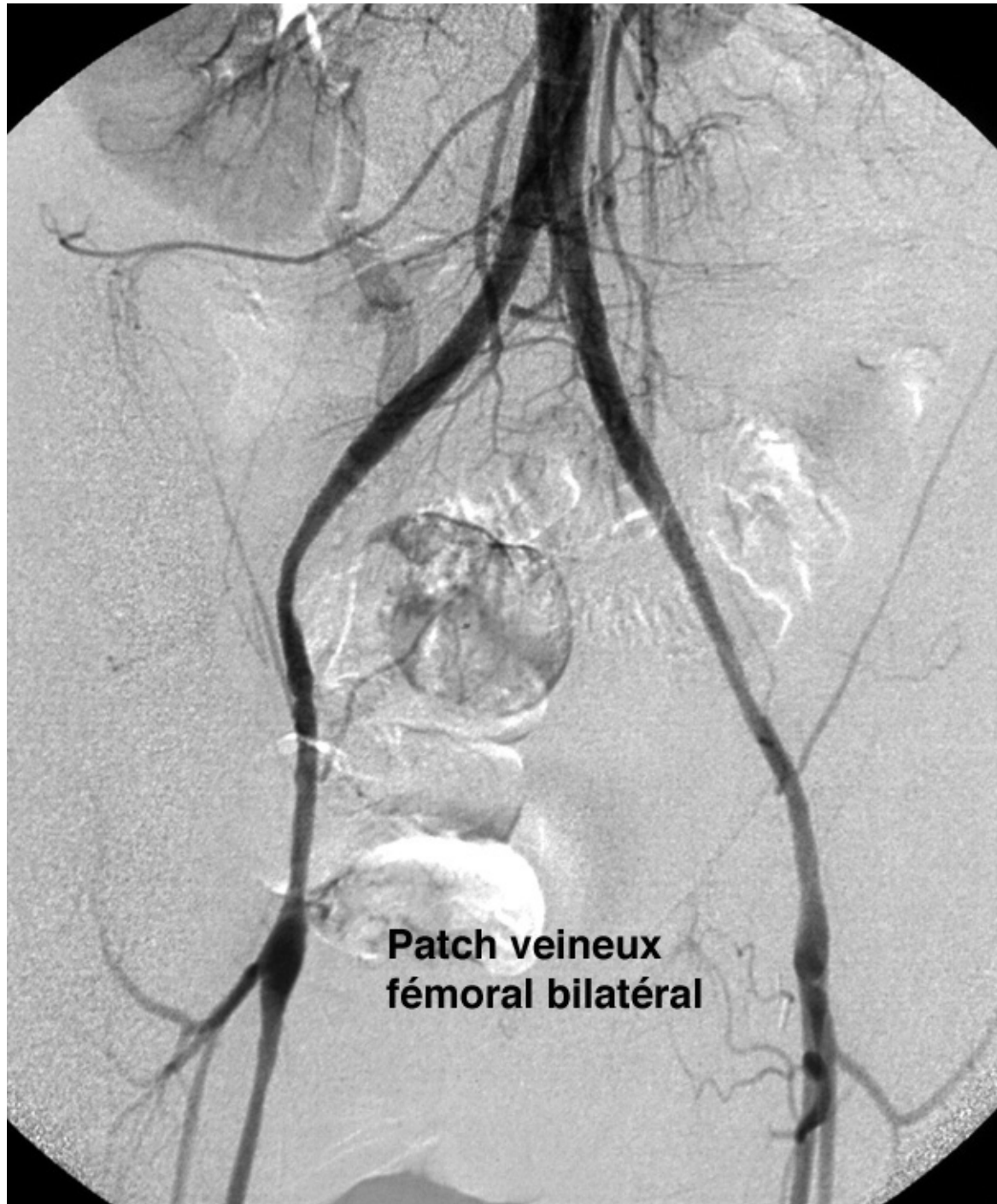












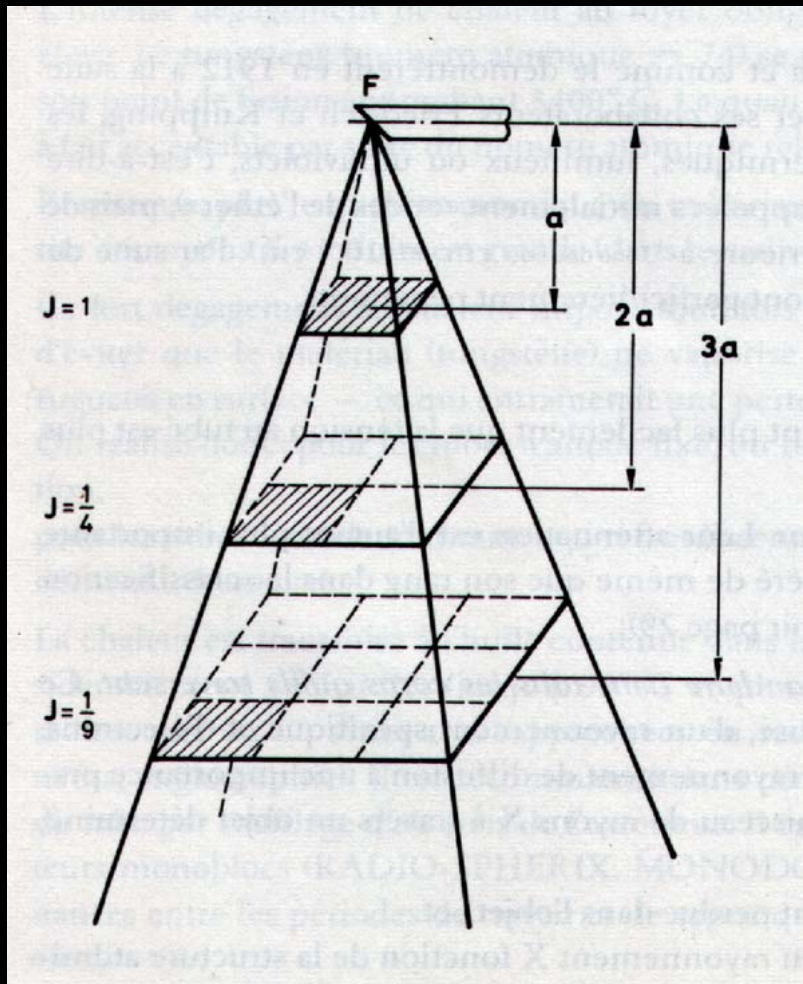
**Patch veineux
fémoral bilatéral**



Femoro-popliteal procedures

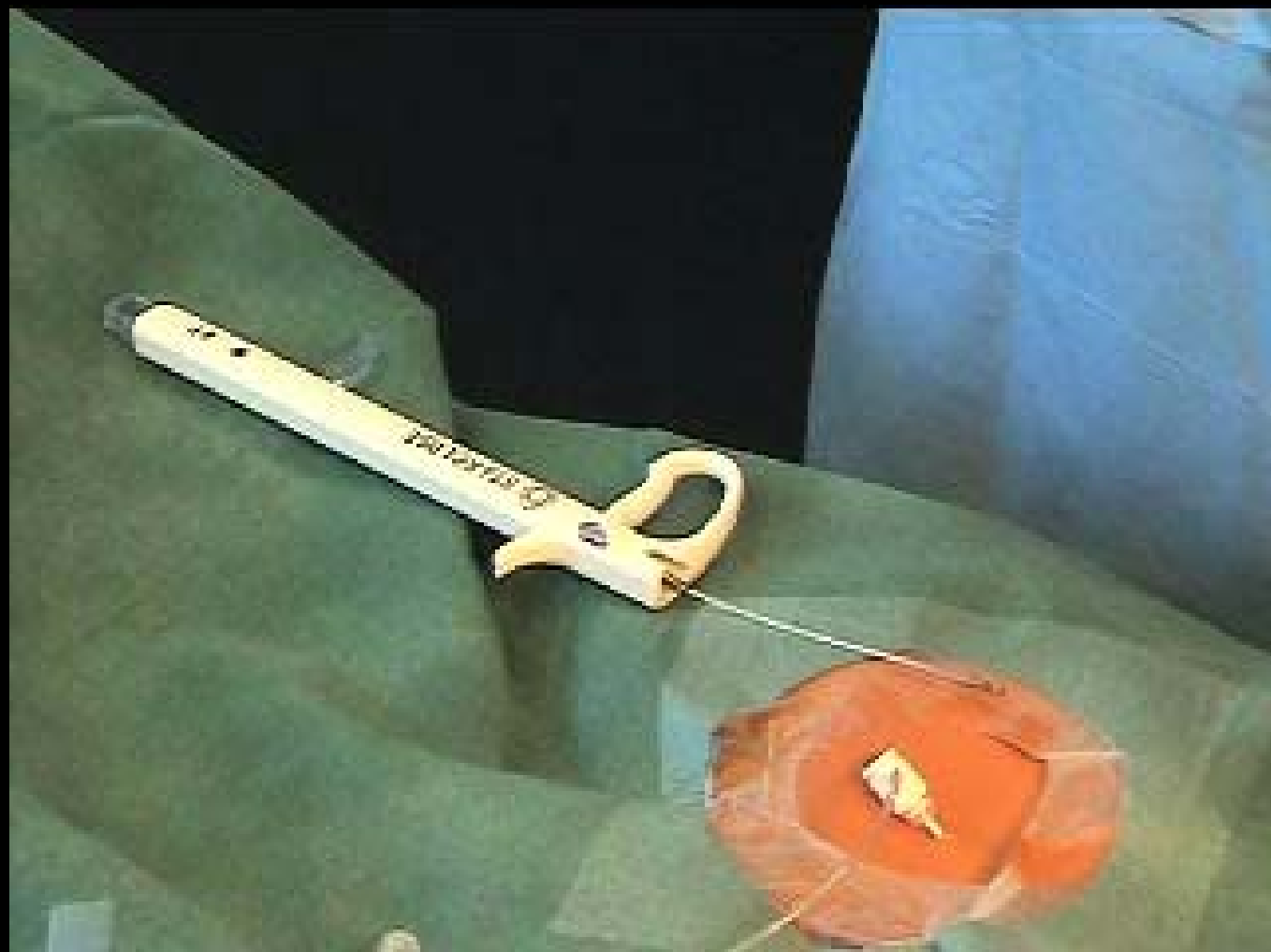
- Anterograde approach
- Cross-over +++
 - Easy punction
 - Good push with aproppriate sheath ++
 - Best hand Xray protection
 - Easy use of closure system

DISTANCE



Distance X 2 → Dose / 4

Distance X 3 → Dose / 9



Cross-over catheterization

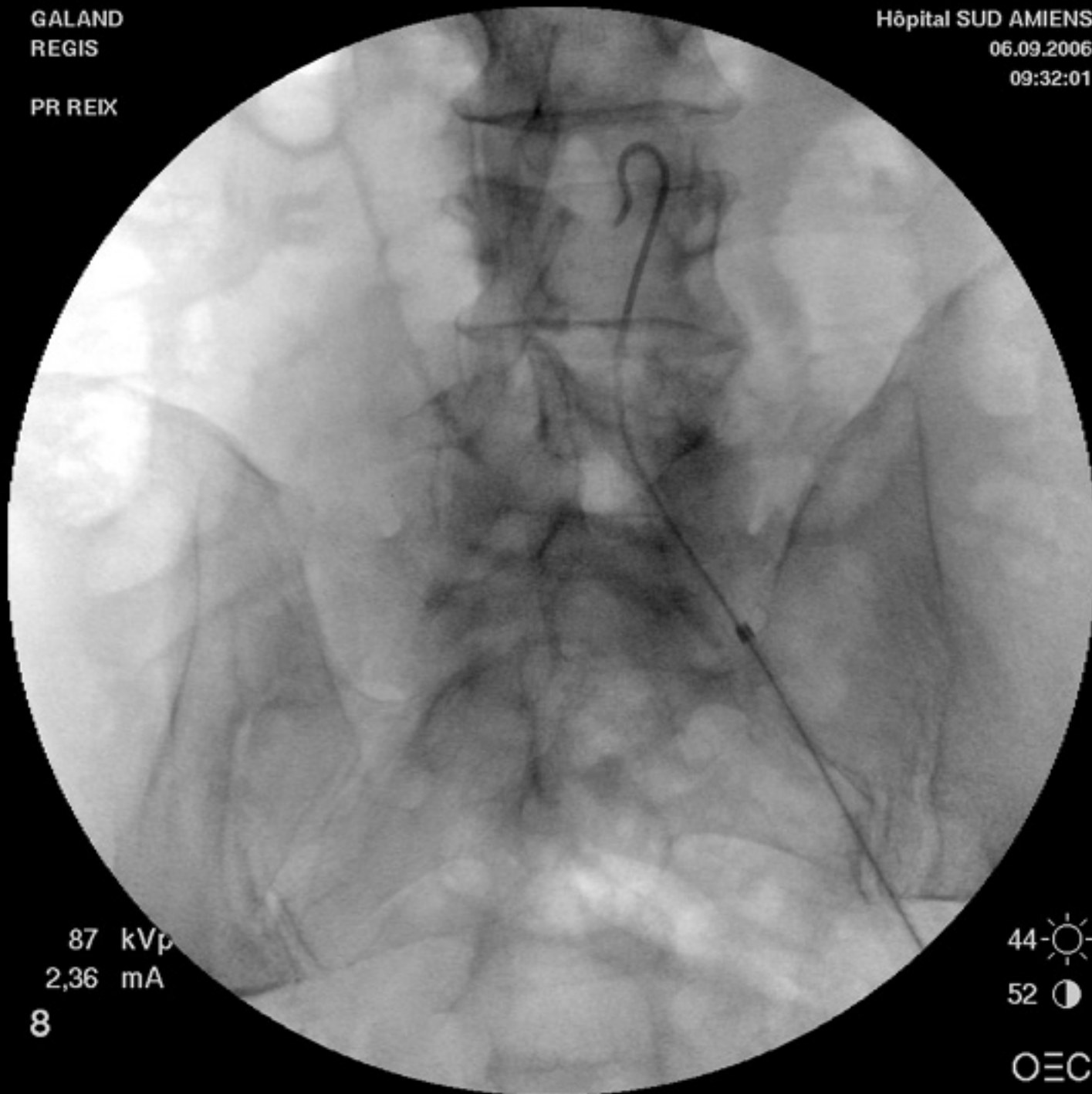
GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:32:01



87 kVp
2,36 mA

8

44-☀

52 ◐

○≡C

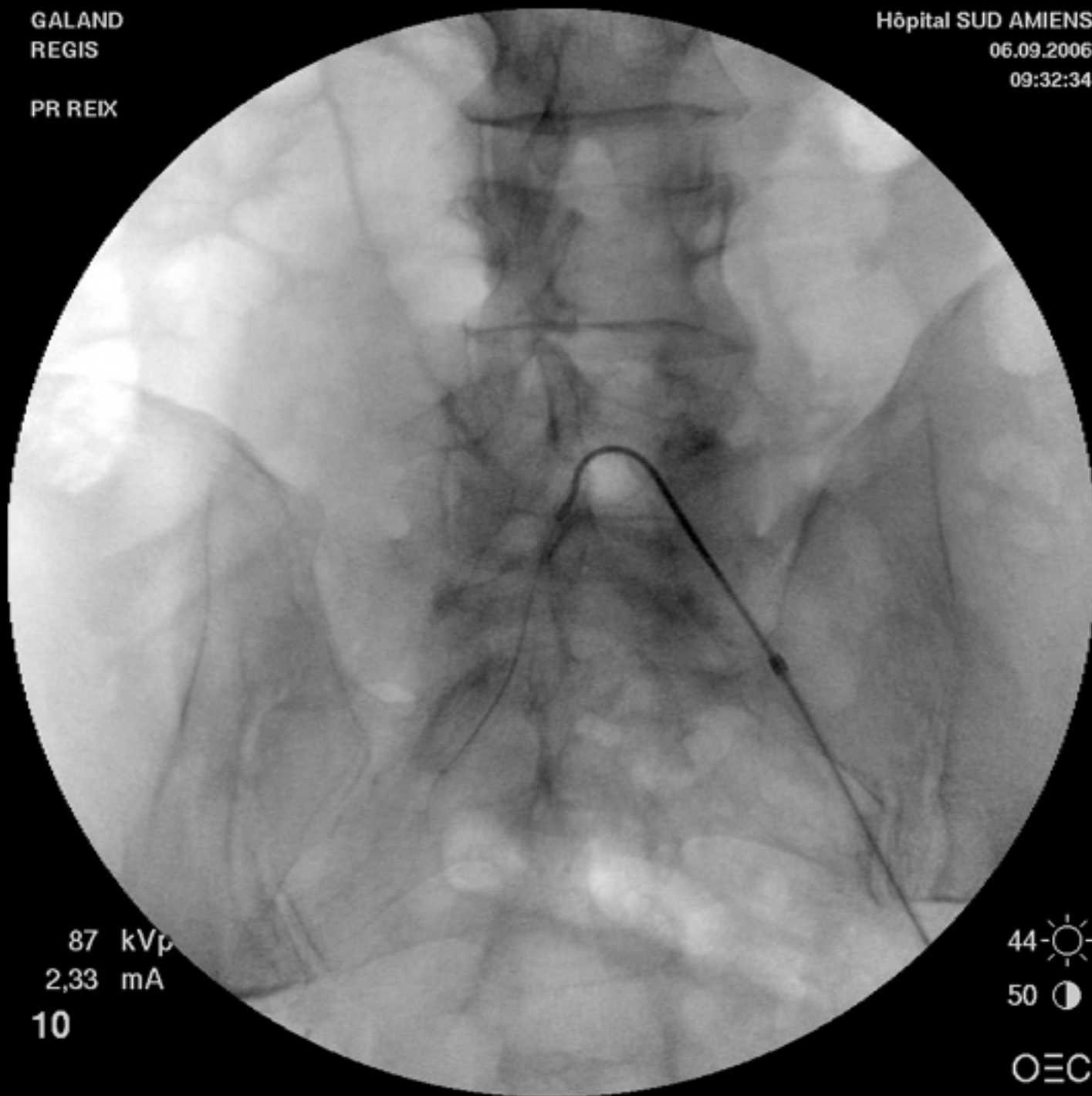
GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:32:34



87 kVp
2,33 mA

10

44-☀

50 ◐

○≡C

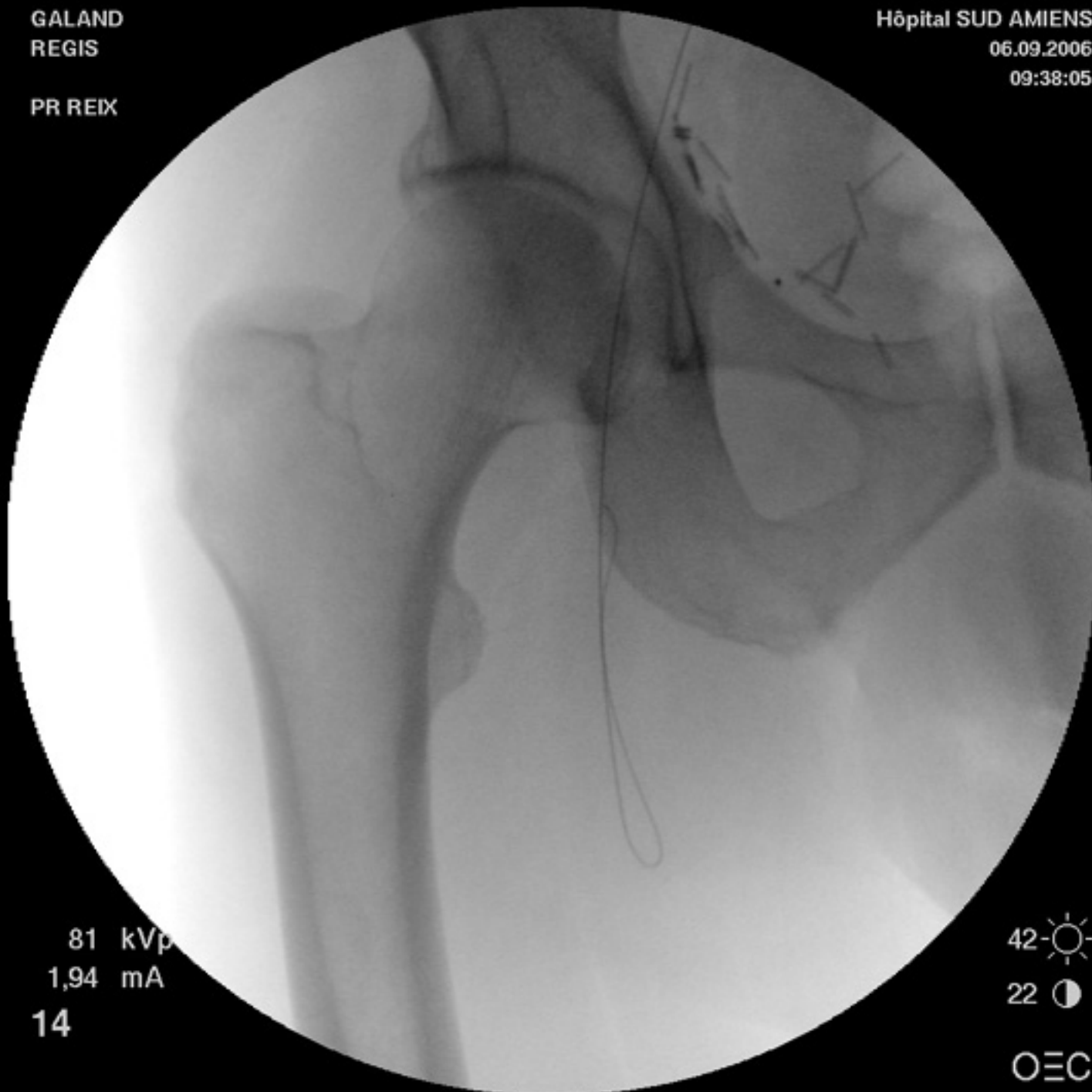
GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:38:05



81 kVp
1,94 mA

14

42-☀

22 ◐

○≡C

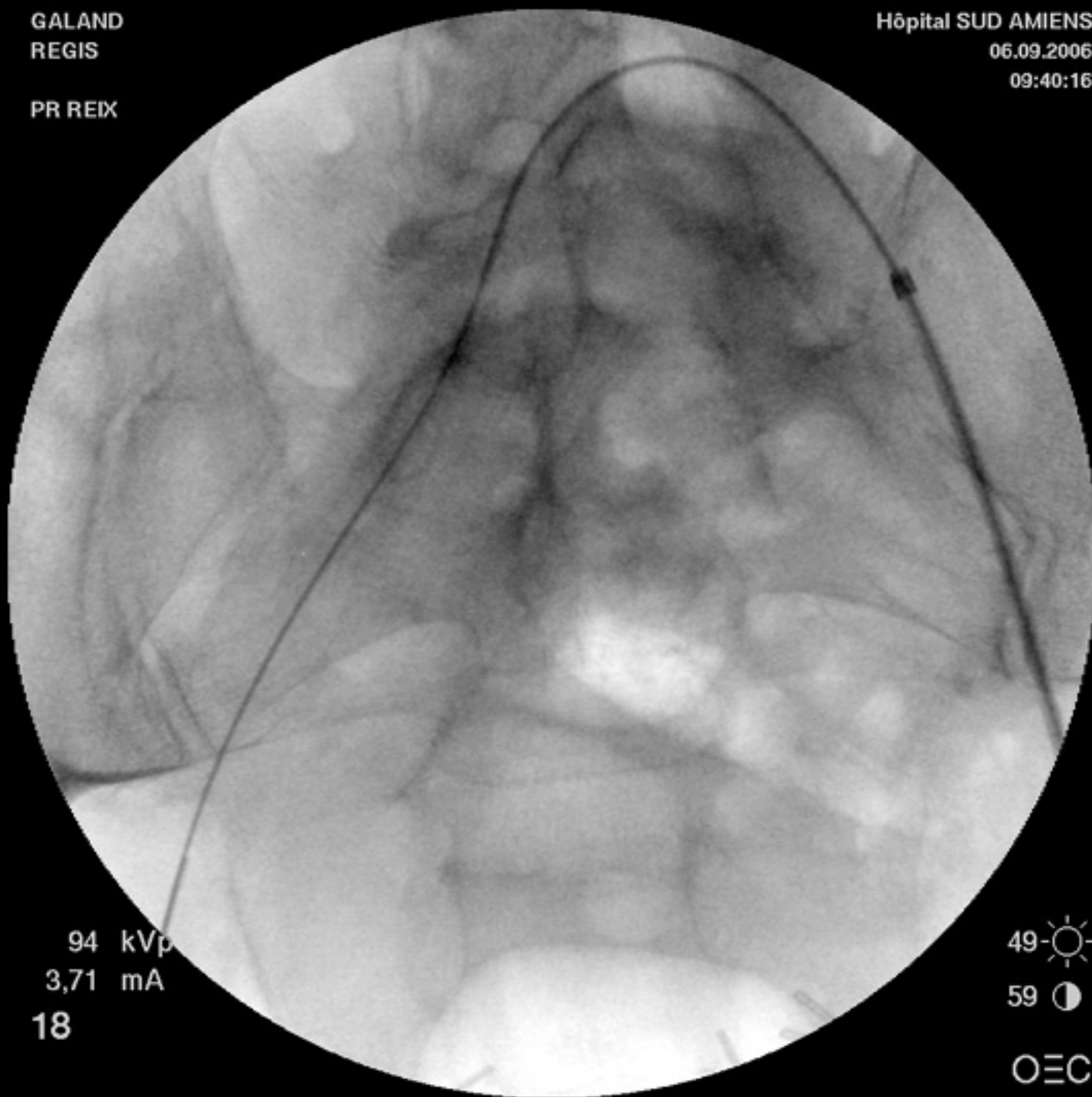
GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:40:16



94 kVp
3,71 mA

18

49-☀

59 ◐

○≡C

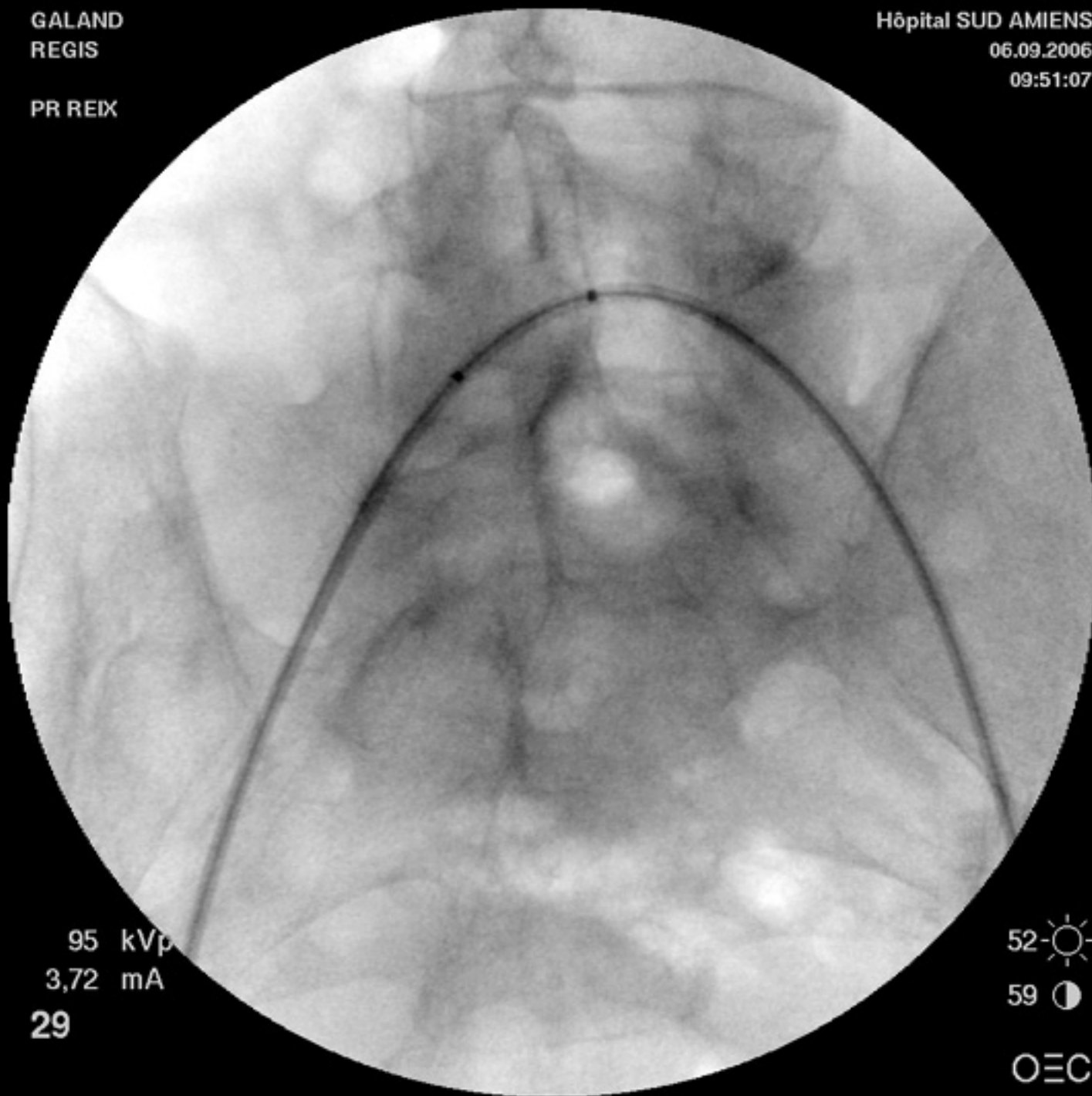
GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:51:07



95 kVp
3,72 mA

29

52-☀

59-☾

○≡C

GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:46:45



70 kVp
7,30 mA

26

55-☀

64 ◐

○≡C

GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:56:53



70 kVp
9,84 mA

41

55-☀

64 ◐

○≡C

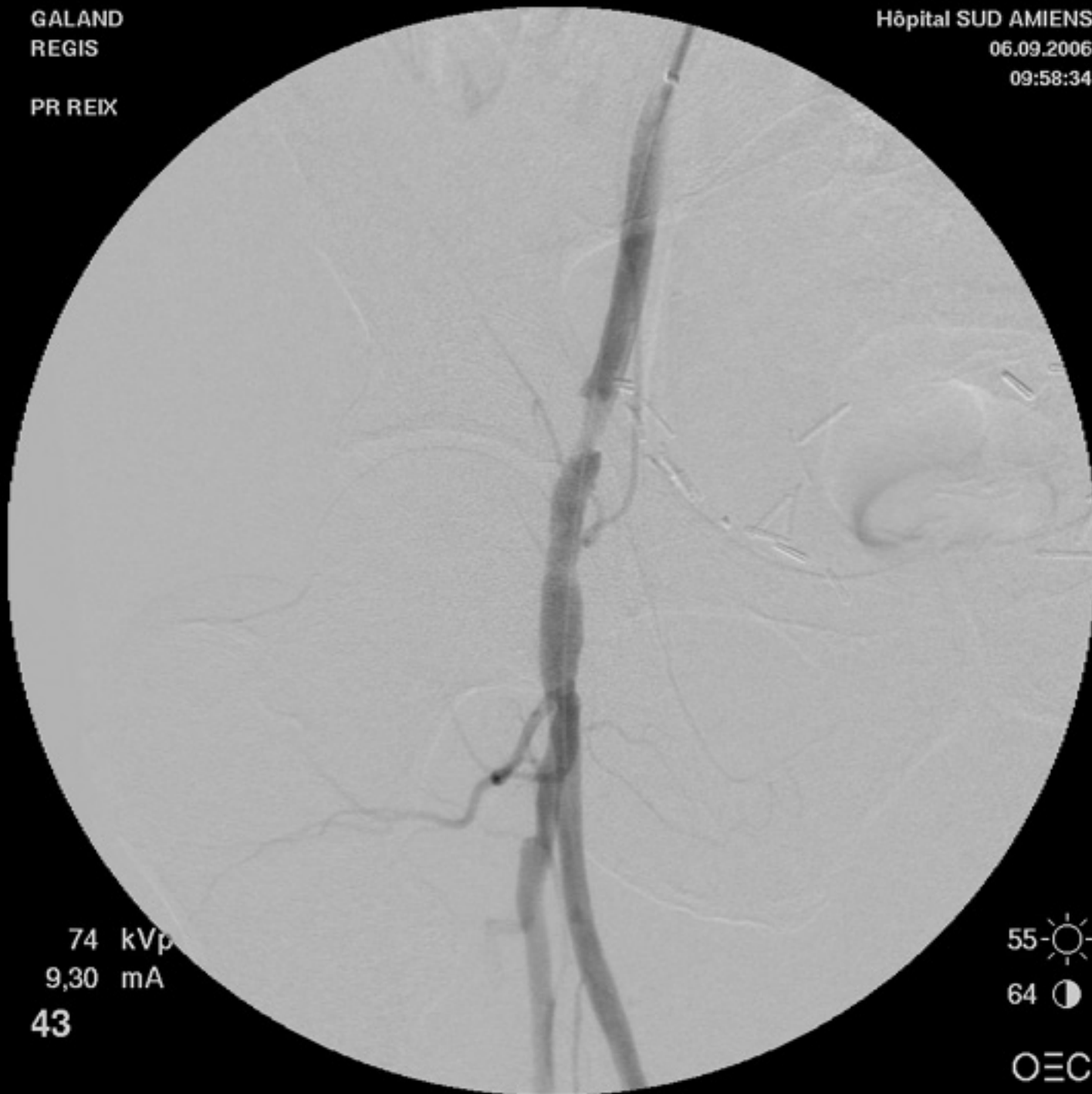
GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

09:58:34



74 kVp
9,30 mA

43

55-☀

64-◐

○≡C

GALAND
REGIS

PR REIX

Hôpital SUD AMIENS

06.09.2006

10:01:10



81 kVp

15,26 mA

49

55-☀

64 ◐

○≡C

Profunda artery angioplasty

DUFETELLE
MADIANA

Hôpital SUD AMIENS

27.09.2006

11:58:03

DR MOUBARAK

861445803



78 kVp
14,89 mA

16

55-☀

64-☾

○≡C

DUFETELLE
MADIANA

Hôpital SUD AMIENS

27.09.2006

11:59:25

DR MOUBARAK

861445803



85 kVp

15,42 mA

19

55-☀

64-🌑

○≡C

DUFETELLE
MADIANA

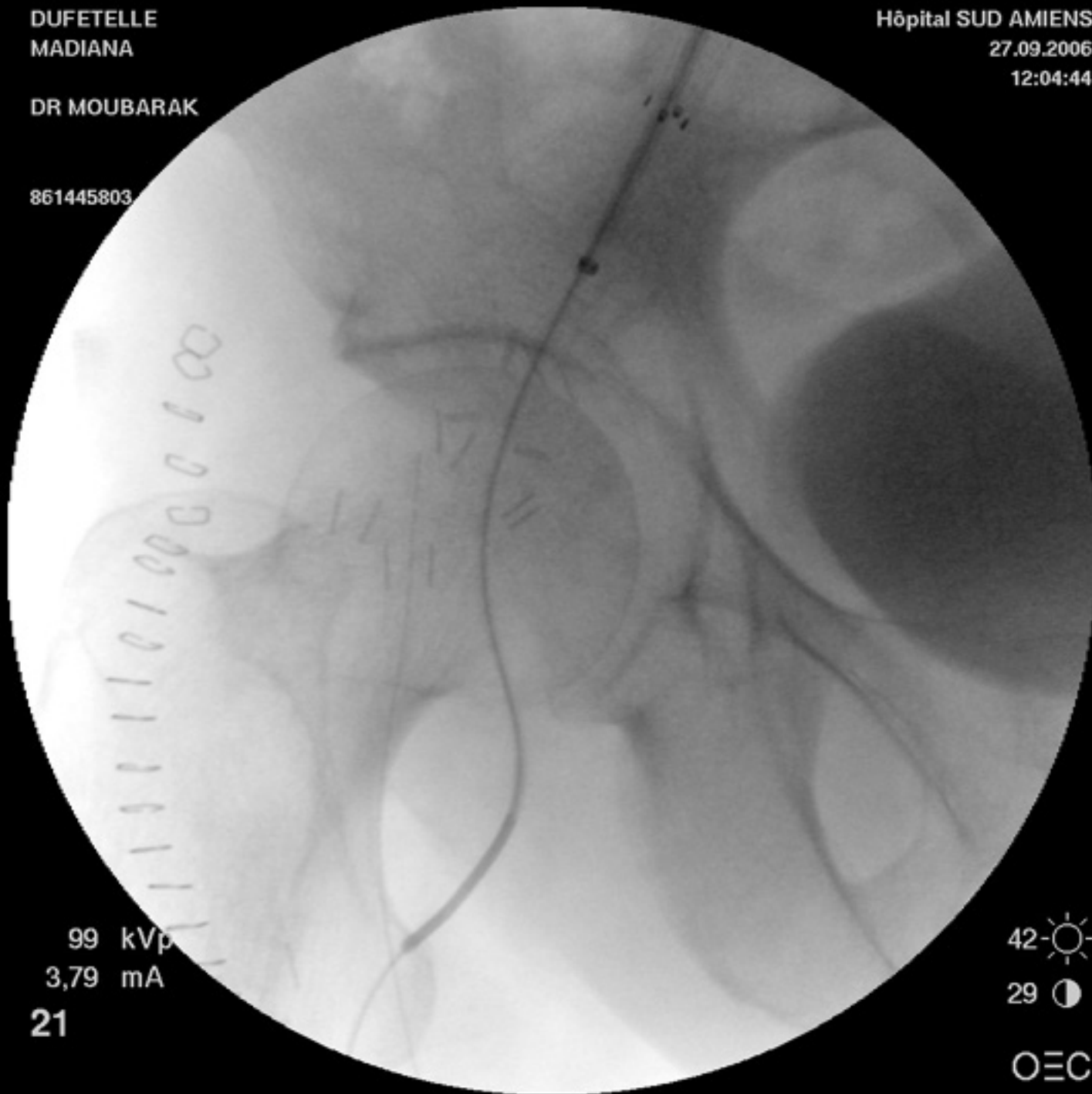
Hôpital SUD AMIENS

27.09.2006

12:04:44

DR MOUBARAK

861445803



99 kVp
3,79 mA

21

42-☀
29-☾

OEC

DUFETELLE
MADIANA

Hôpital SUD AMIENS

27.09.2006

12:09:13

DR MOUBARAK

861445803



85 kVp
15,42 mA

27

55-☀

64 ◐

○≡C

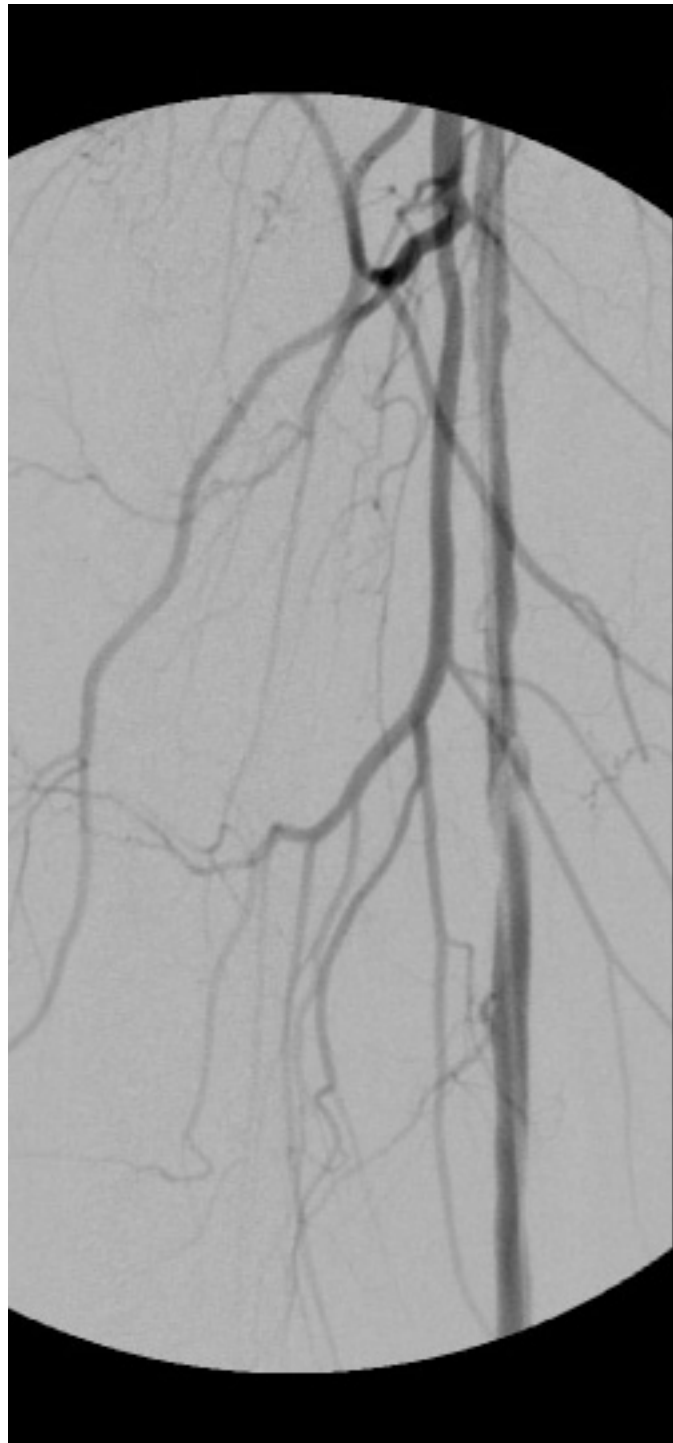
SFA Stenting

Elective stenting

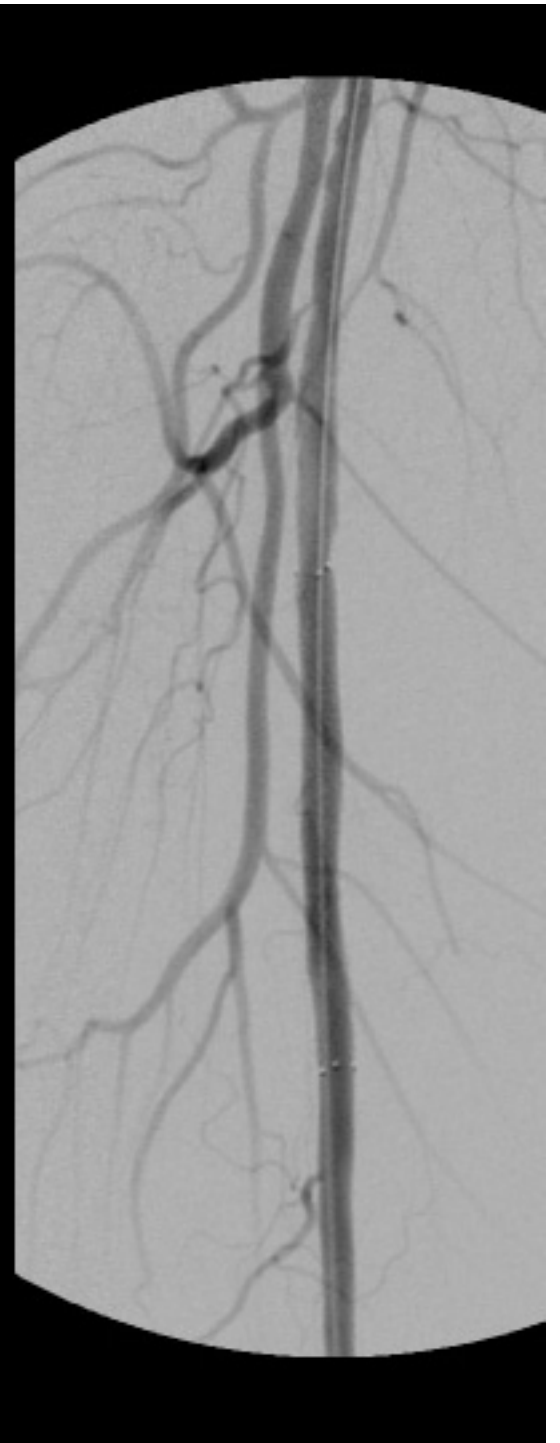
Dynamic pictures

Nitinol stent (rapid exchange Misago)

Short balloon expandable stent for
heavy calcified lesions

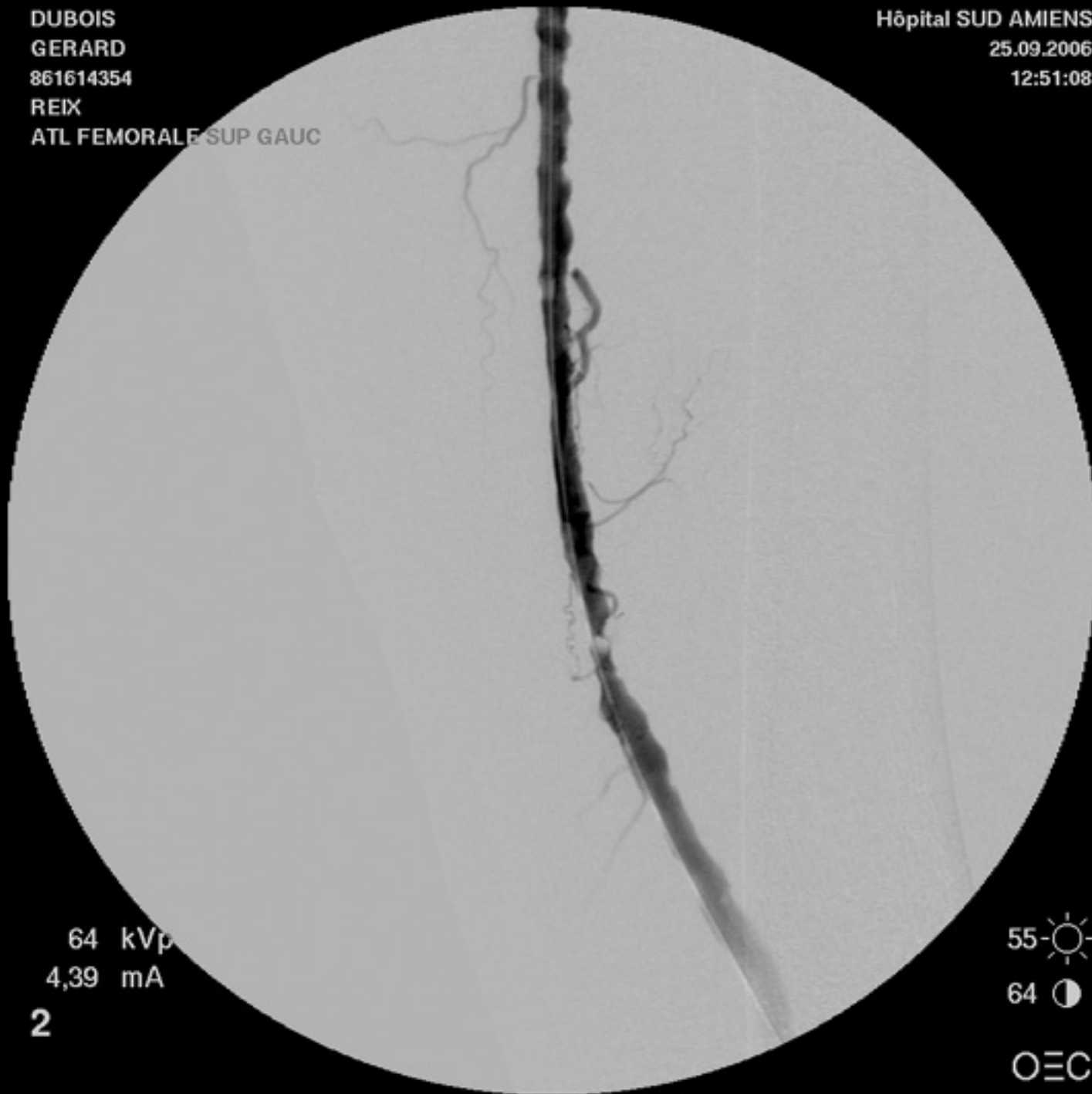


6X60 mm
Misago



DUBOIS
GERARD
861614354
REIX
ATL FEMORALE SUP GAUC

Hôpital SUD AMIENS
25.09.2006
12:51:08



64 kVp
4,39 mA

2

55-☀
64 ◐

OEC

DUBOIS
GERARD
861614354
REIX
ATL FEMORALE SUP GAUC

Hôpital SUD AMIENS
25.09.2006
12:53:37



64 kVp
4,29 mA

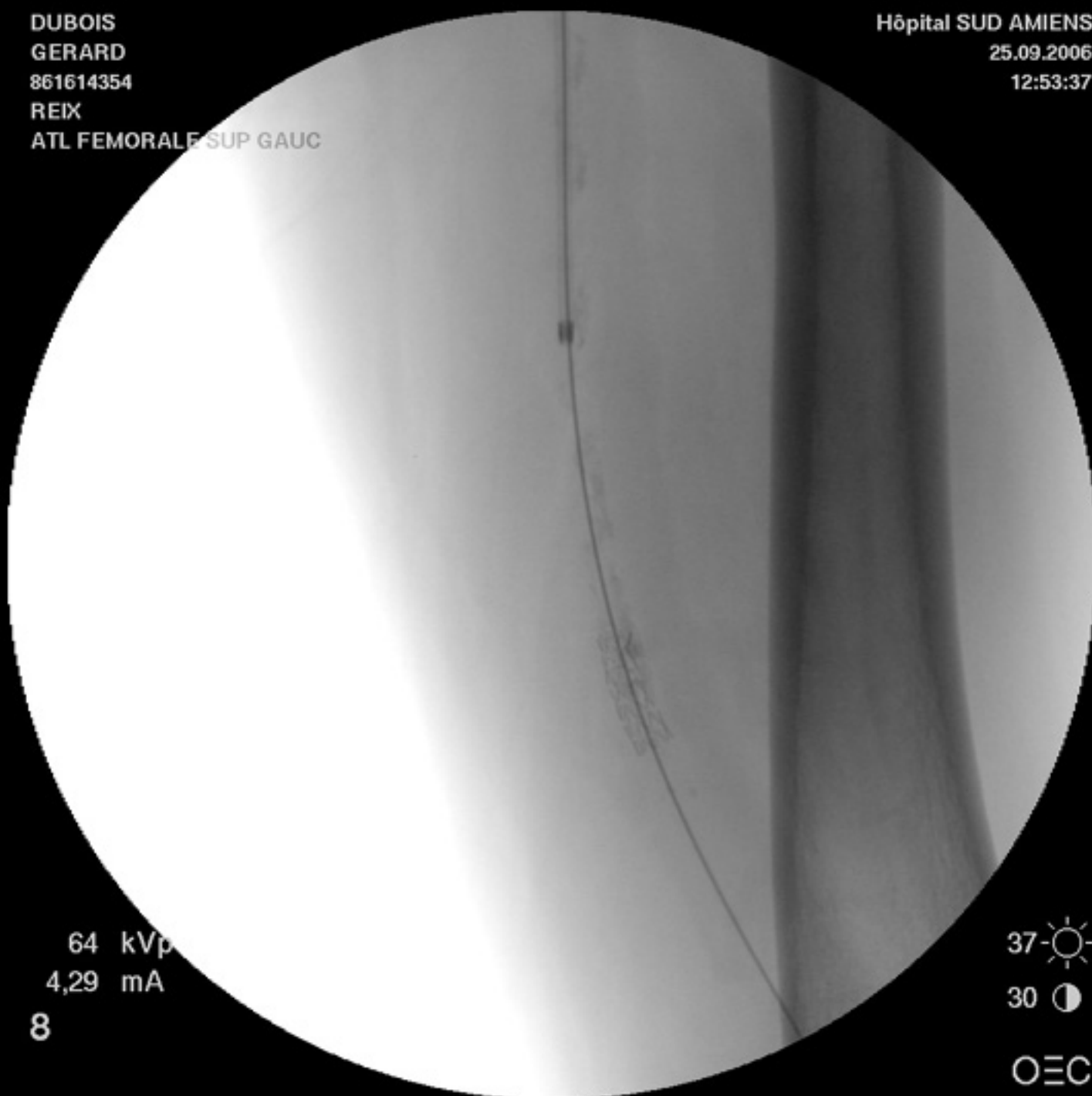
5

55-☀
64 ◐

○≡C

DUBOIS
GERARD
861614354
REIX
ATL FEMORALE SUP GAUC

Hôpital SUD AMIENS
25.09.2006
12:53:37



64 kVp
4,29 mA

8

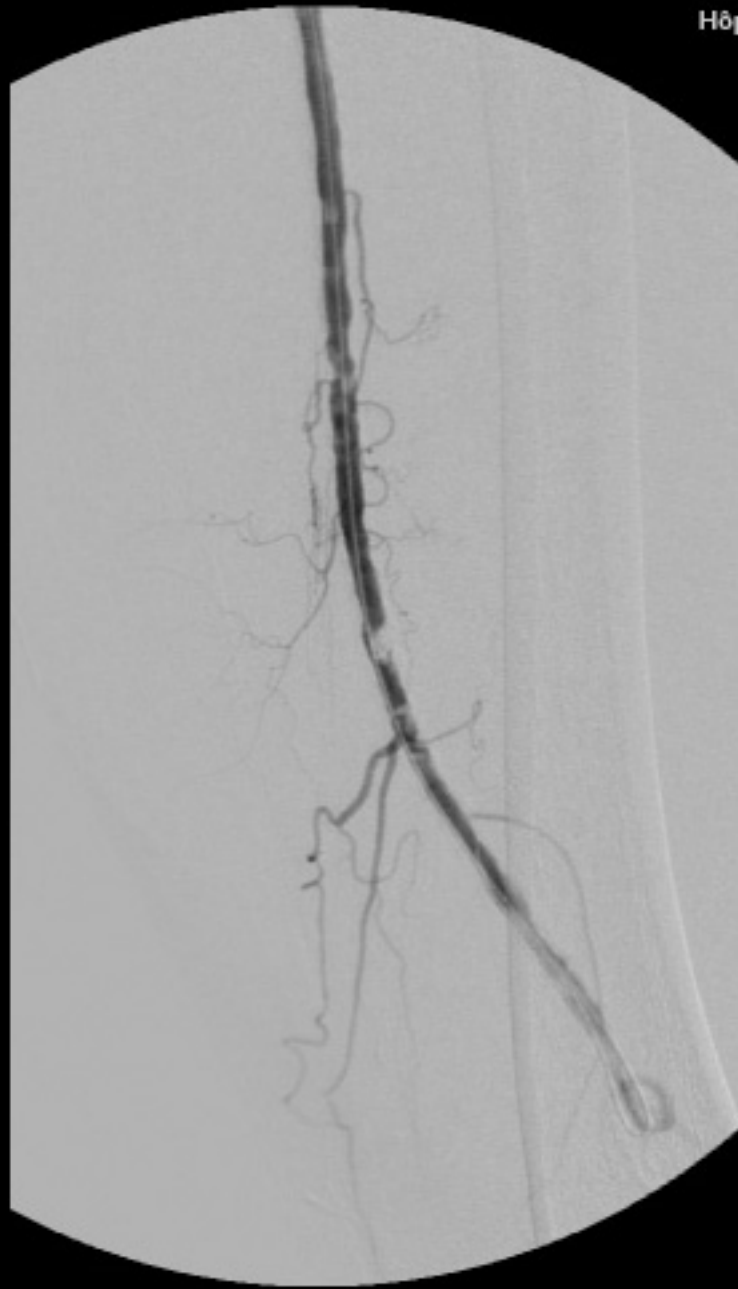
37-☀
30 ◐

OEC

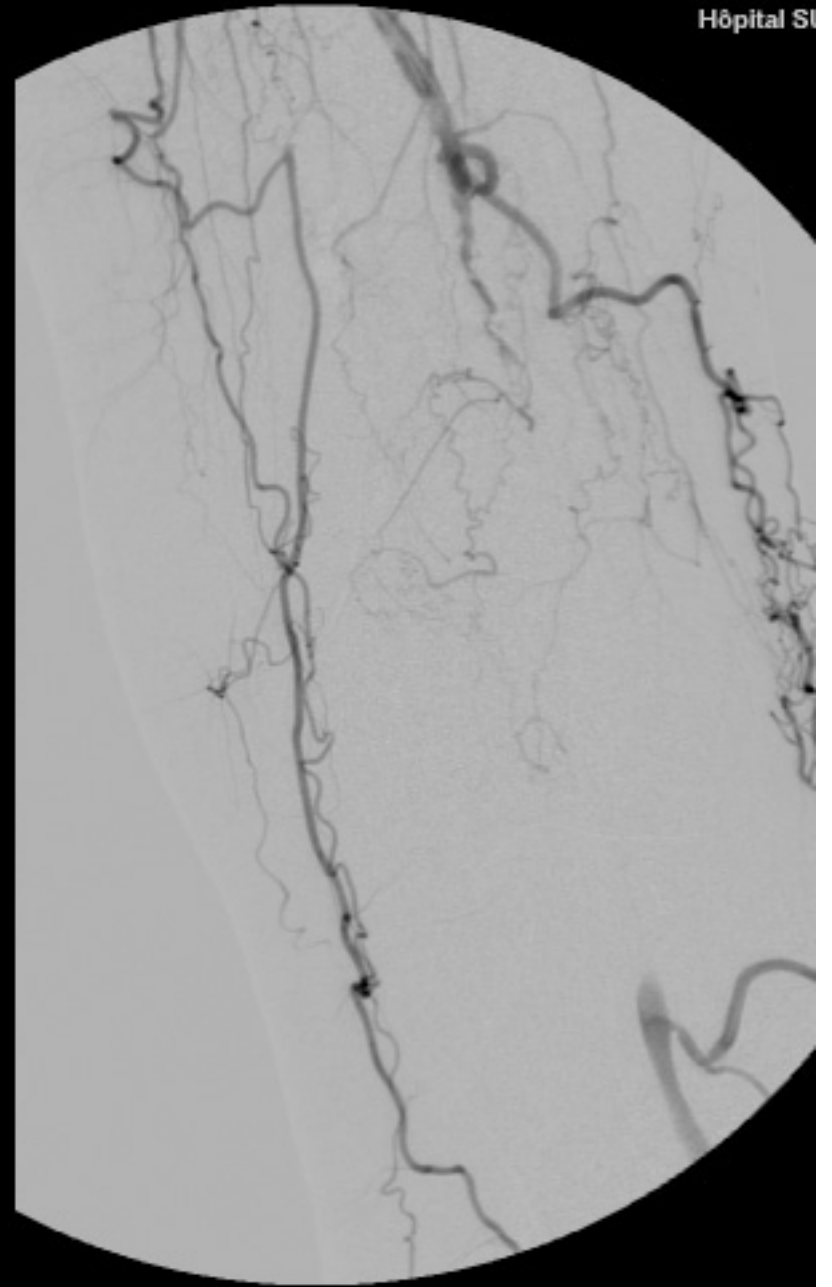
Bolia

- 4F Terumo hydrophylic vertebral cath
- 5F balloon angioplasty
- 0,035 '' J wire

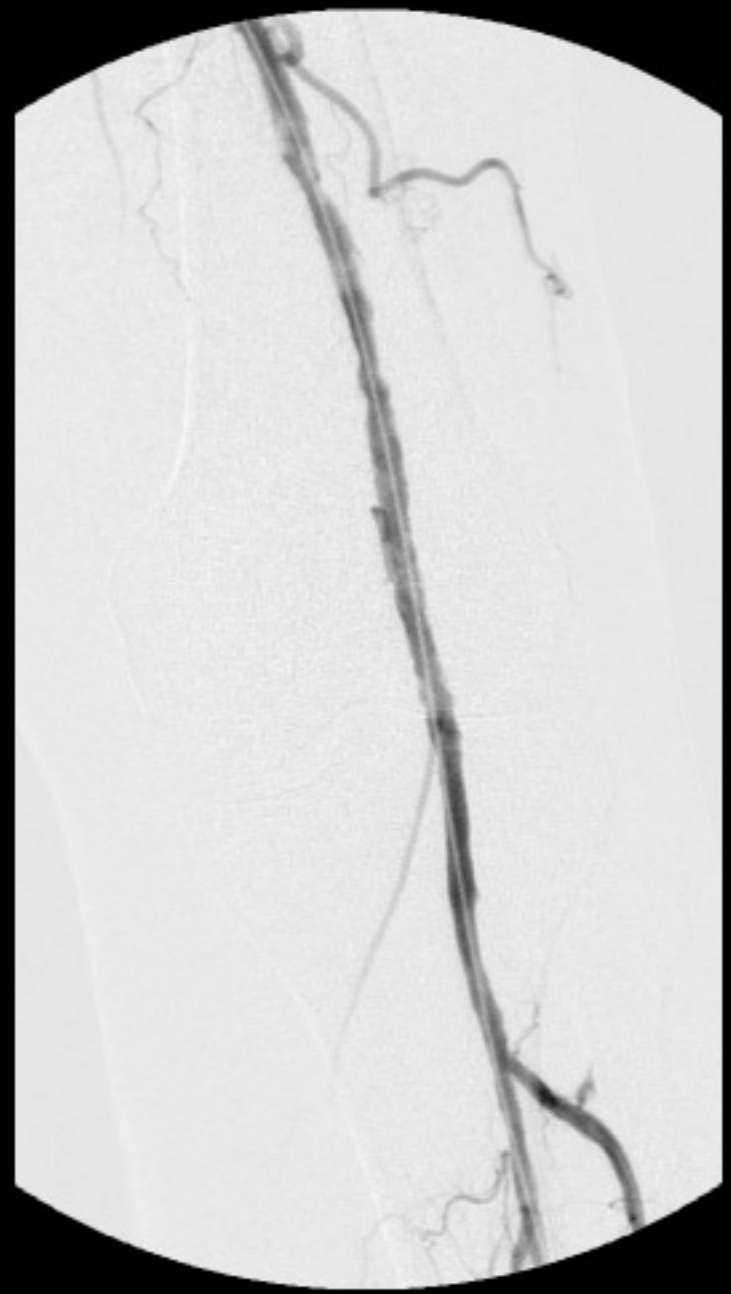
Hôj



Hôpital St



Hôpital SI

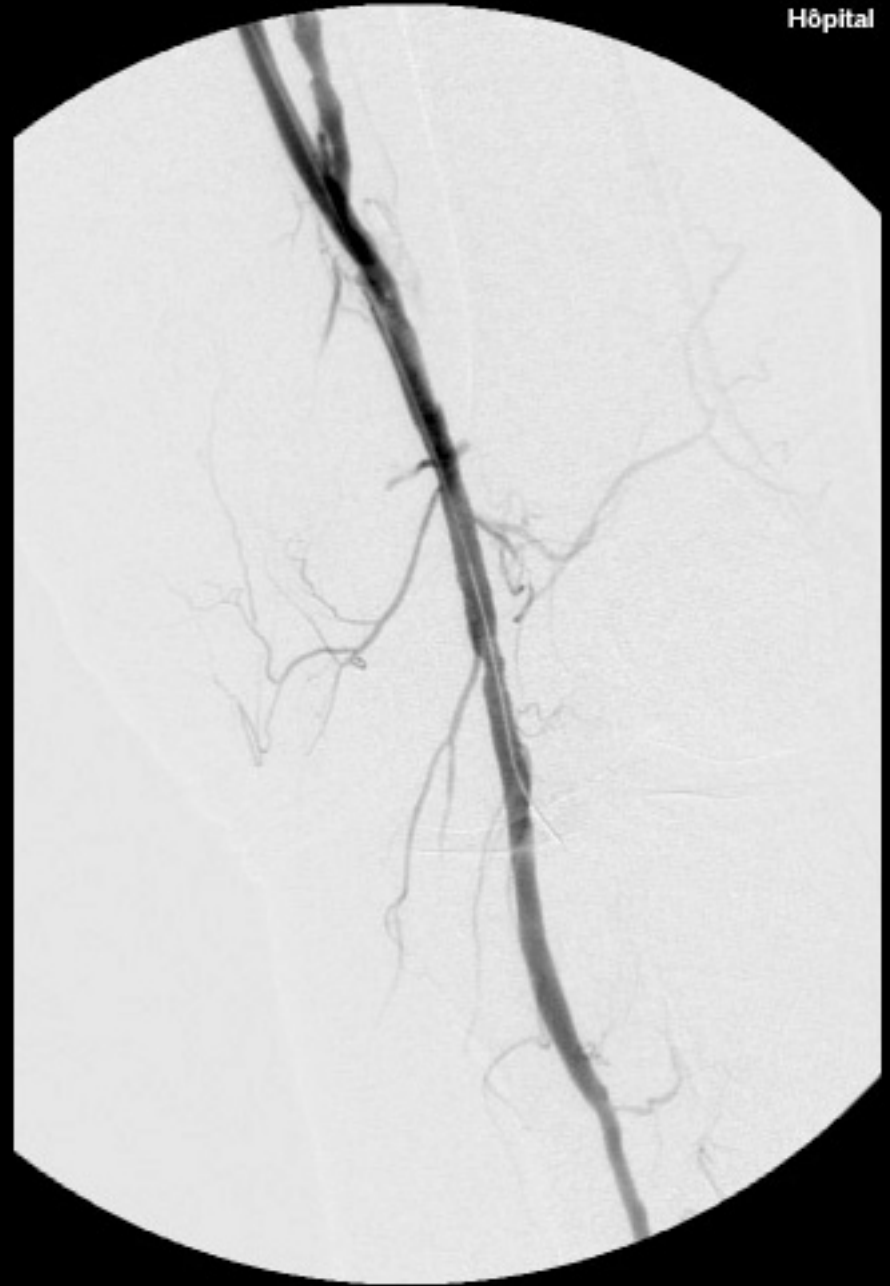


Through FP bypass

Hôpital 1



Hôpital 2



Infrapopliteal angioplasty

Infrapopliteal Sheaths

4.0F Flexor[®] Ansel

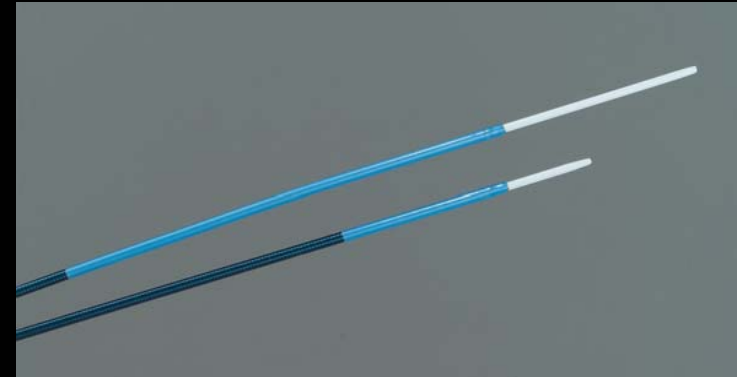
- Access infapopliteal vessels
- Lengths of 90cm and 110cm

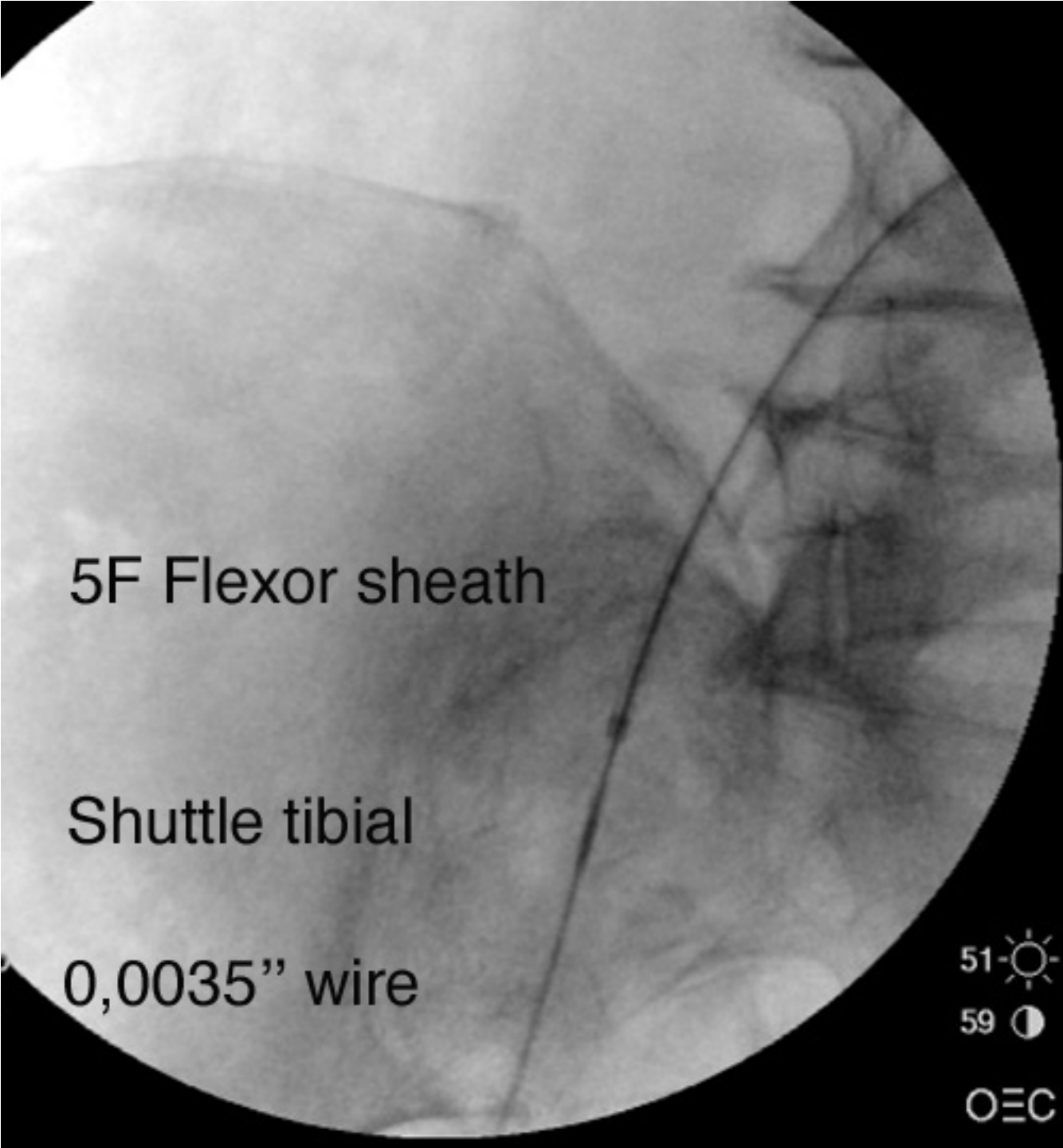
5.0F Flexor[®] Ansel

- Lengths of 90cm and 110cm

Shuttle[®] Tibial

- Coaxial access system
- Combines Flexor sheath with selective catheter





5F Flexor sheath

A circular fluoroscopic image of a knee joint. A thin, dark wire is visible, curving from the lower left towards the upper right. A thicker, curved line represents the 5F flexor sheath. The background shows the soft tissue and bone structures of the knee.

Shuttle tibial

0,0035" wire

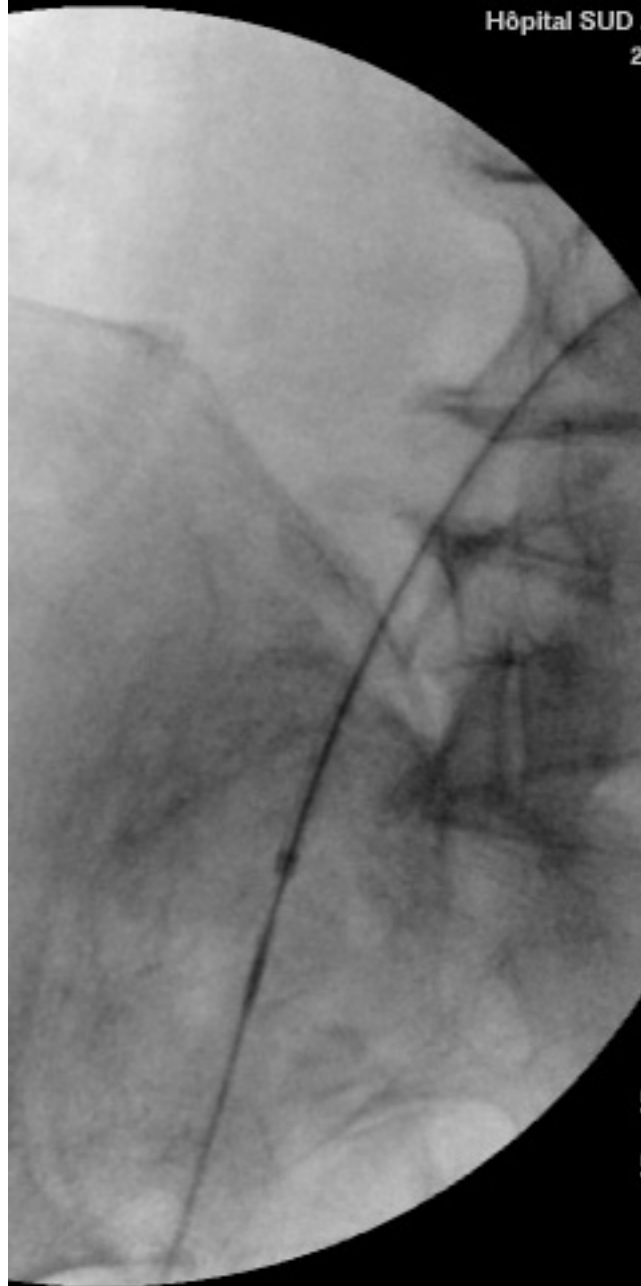
51 ☀

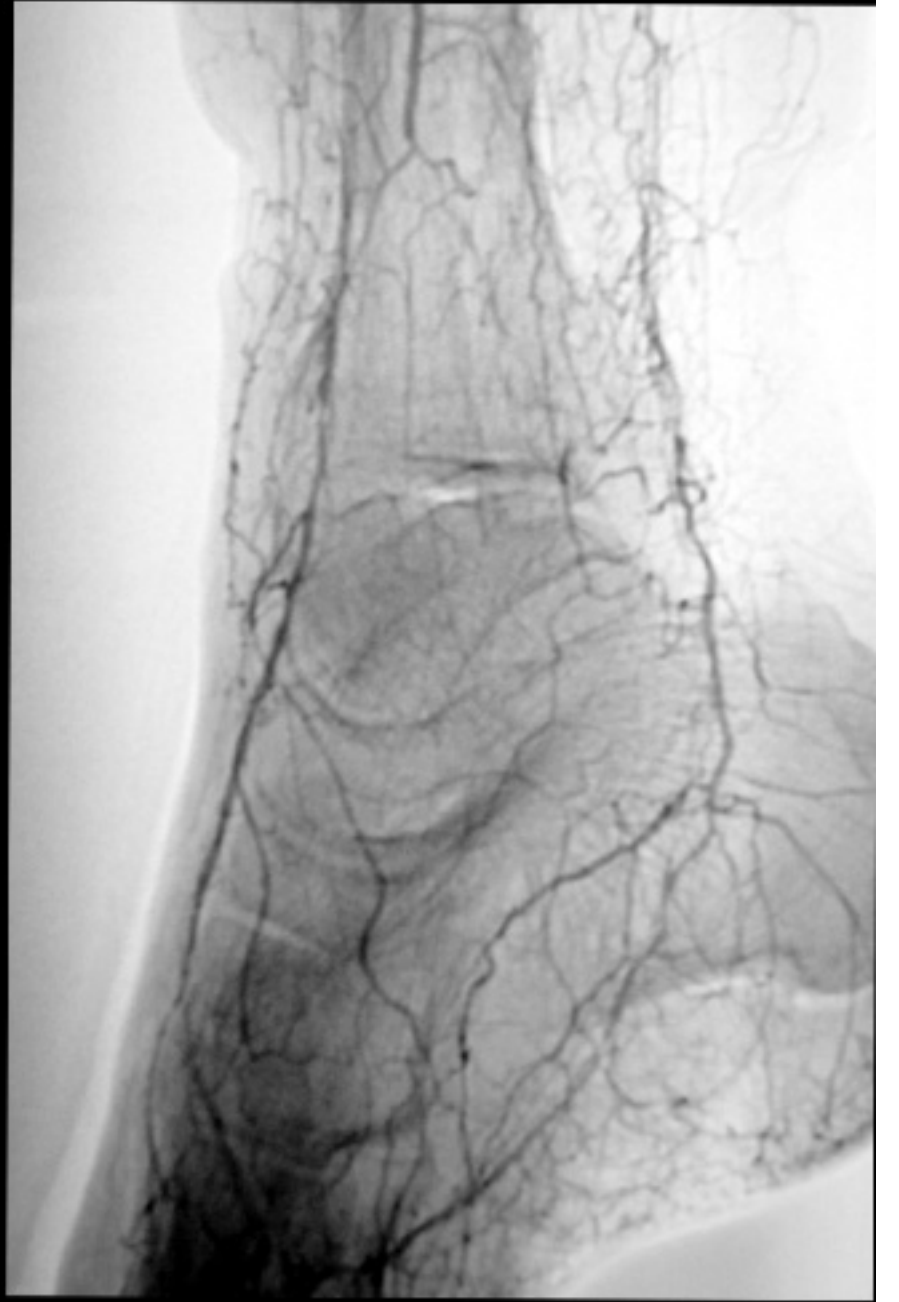
59 🌑

OEC

Hôpital SUD
2

F







H

sleek
2X120



Support Catheters

CXI support catheter

- 2.6F
- Used to support wires while crossing tight lesions and CTOs.
- 0.018" wire compatible
- 40cm Hydrophilic coating.
- Radiopaque markers.
- 1:1 torque control
- Angulated and straight version



CAILLOUET
GILBERT

Hôpital SUD AMIENS
21.06.2008
09:45:02

REIX

871700237



65 kVp
1,48 mA
36

46 
16 
OEC

CAILLOUET
GILBERT

REIX

871700237

Hôpital SUD AMIENS

21.06.2008

09:51:17



61 kVp
1,27 mA
40

45-☀

0 ●

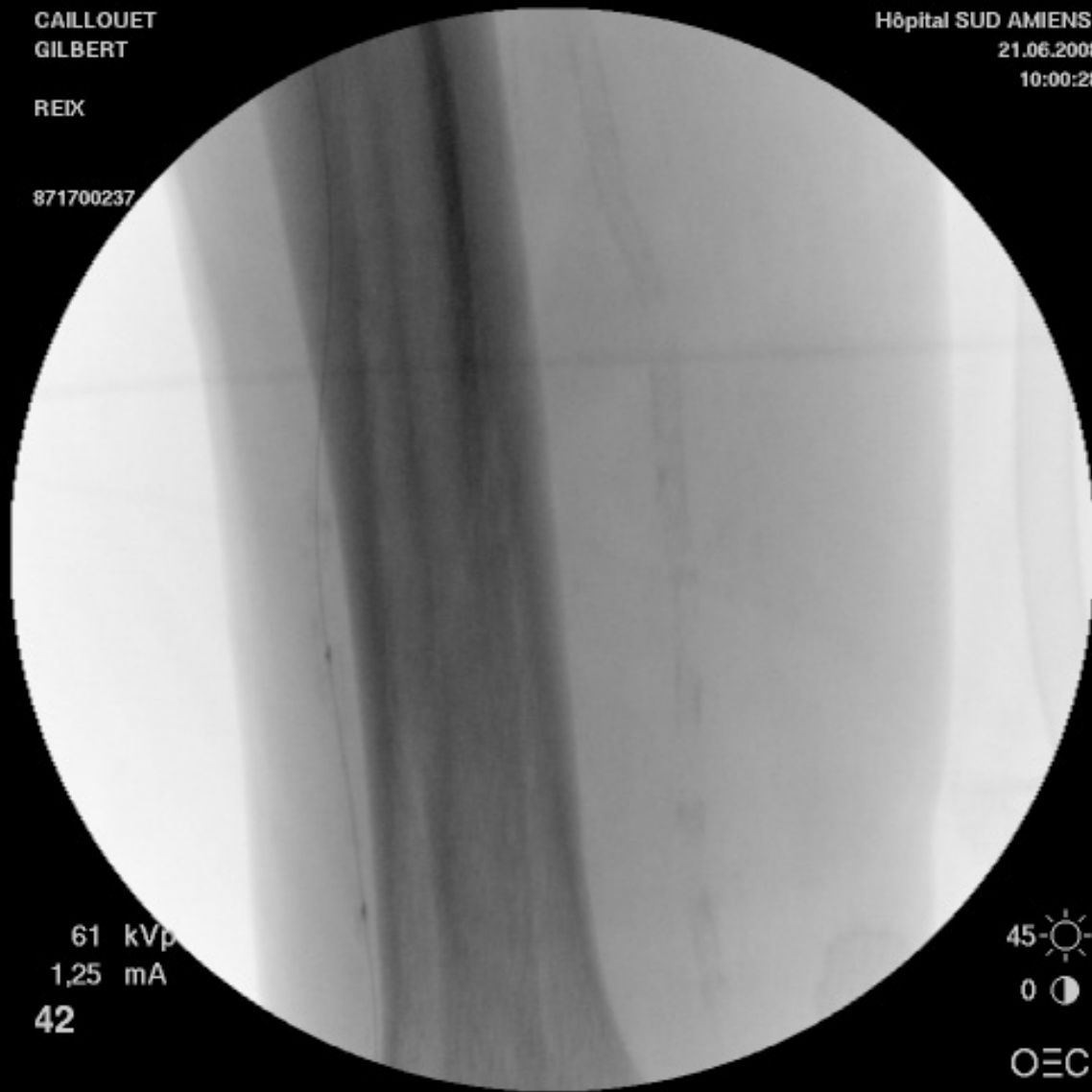
OEC

CAILLOUET
GILBERT

Hôpital SUD AMIENS
21.06.2008
10:00:28

REIX

871700237



61 kVp
1,25 mA
42

45-☀
0 ●
OEC

CAILLOUET
GILBERT

Hôpital SUD AMIENS
21.06.2008
10:05:24

REIX

871700237



63 kVp
4,80 mA
44

55 ☀
64 ●
OEC

CAILLOUET
GILBERT

REIX

871700237

Hôpital SUD AMIENS

21.06.2008

10:05:58



62 kVp
3,85 mA
46

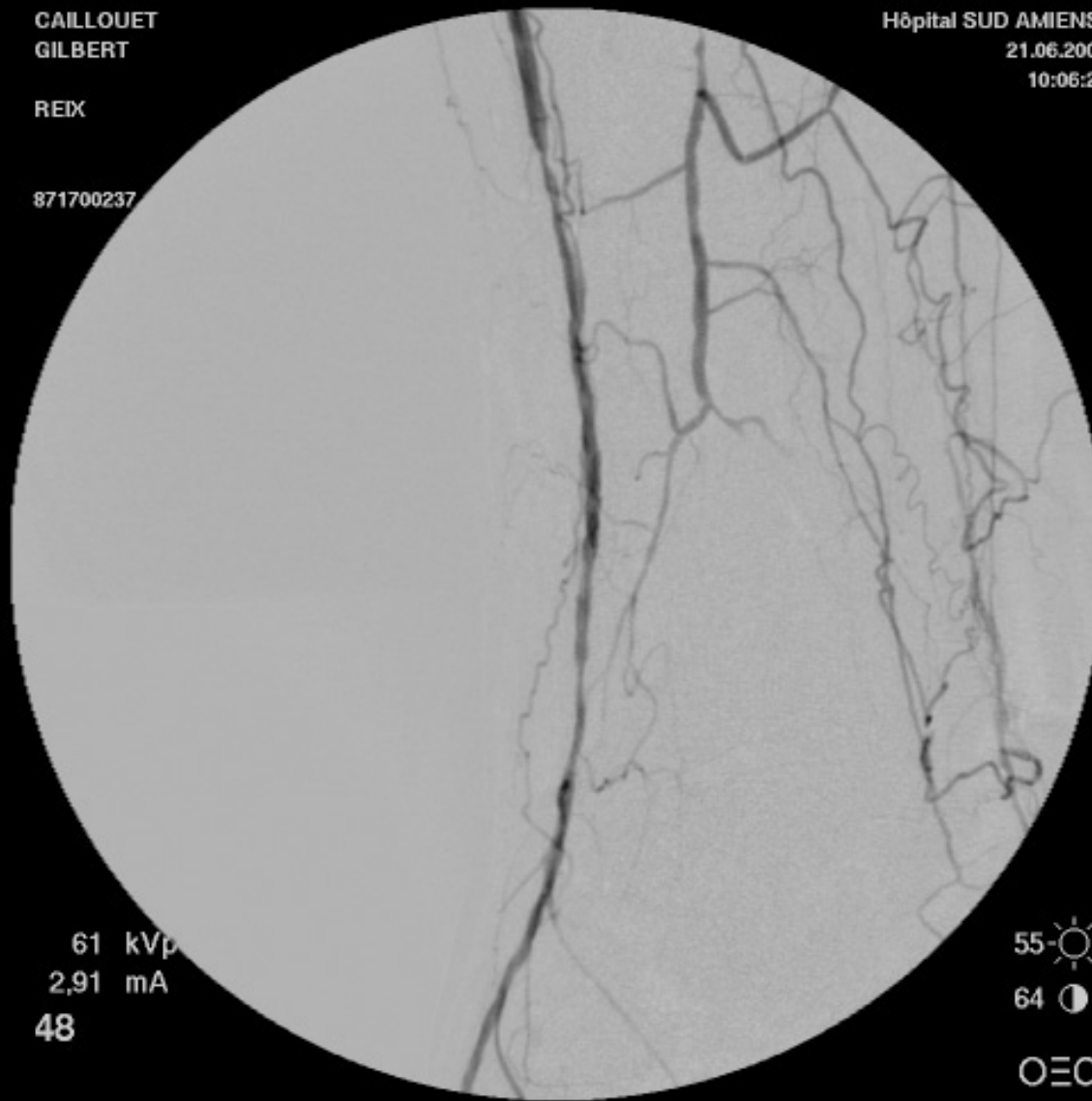
55 ☀
64 ●
OEC

CAILLOUET
GILBERT

Hôpital SUD AMIENS
21.06.2008
10:06:25

REIX

871700237



61 kVp
2,91 mA
48

55 ☀

64 ●

OEC

CAILLOUET
GILBERT

Hôpital SUD AMIENS
21.06.2008
10:12:34

REIX

871700237



63 kVp
0,66 mA
53

41-☀
9 ●
OEC

CAILLOUET
GILBERT

Hôpital SUD AMIENS
21.06.2008
10:13:17

REIX

871700237



63 kVp
0,66 mA
54

41-☀
9 ●
OEC

CAILLOUET
GILBERT

Hôpital SUD AMIENS
21.06.2008
10:15:03

REIX

871700237



61 kVp
1,90 mA
60

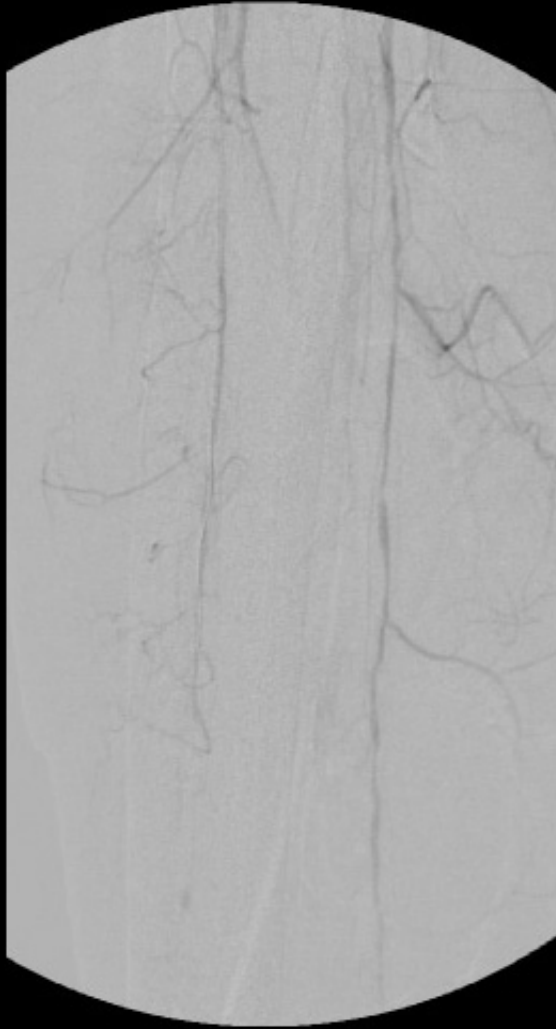
55 ☀

64 ●

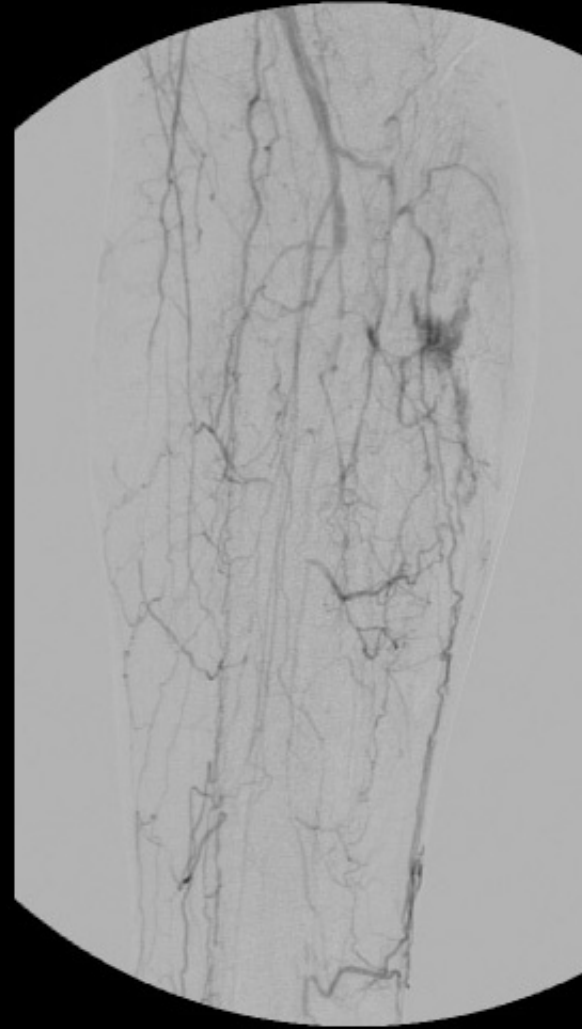
OEC

Minor complications

Spasme



Perforation



Special cases

Ostial stenosis

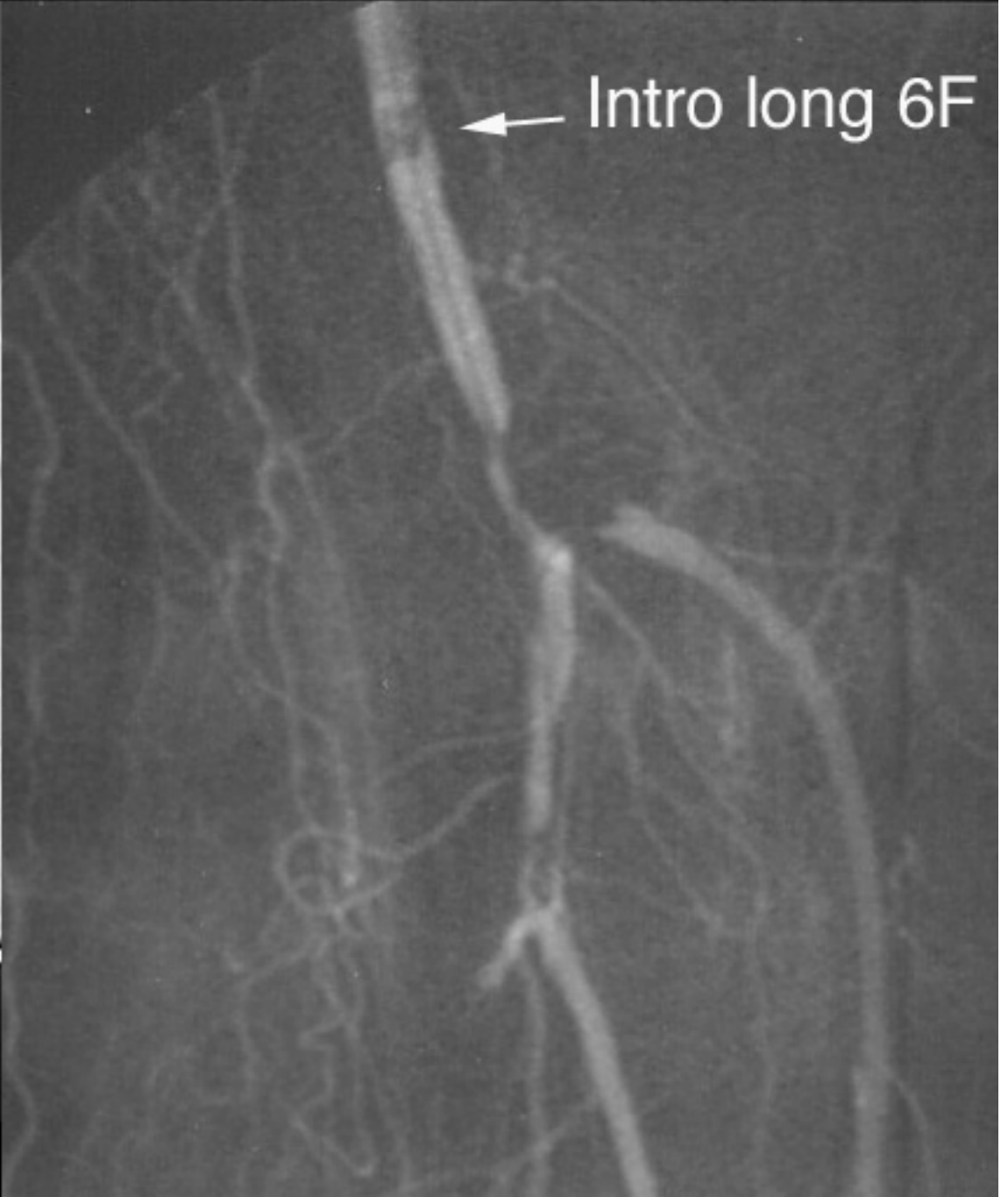
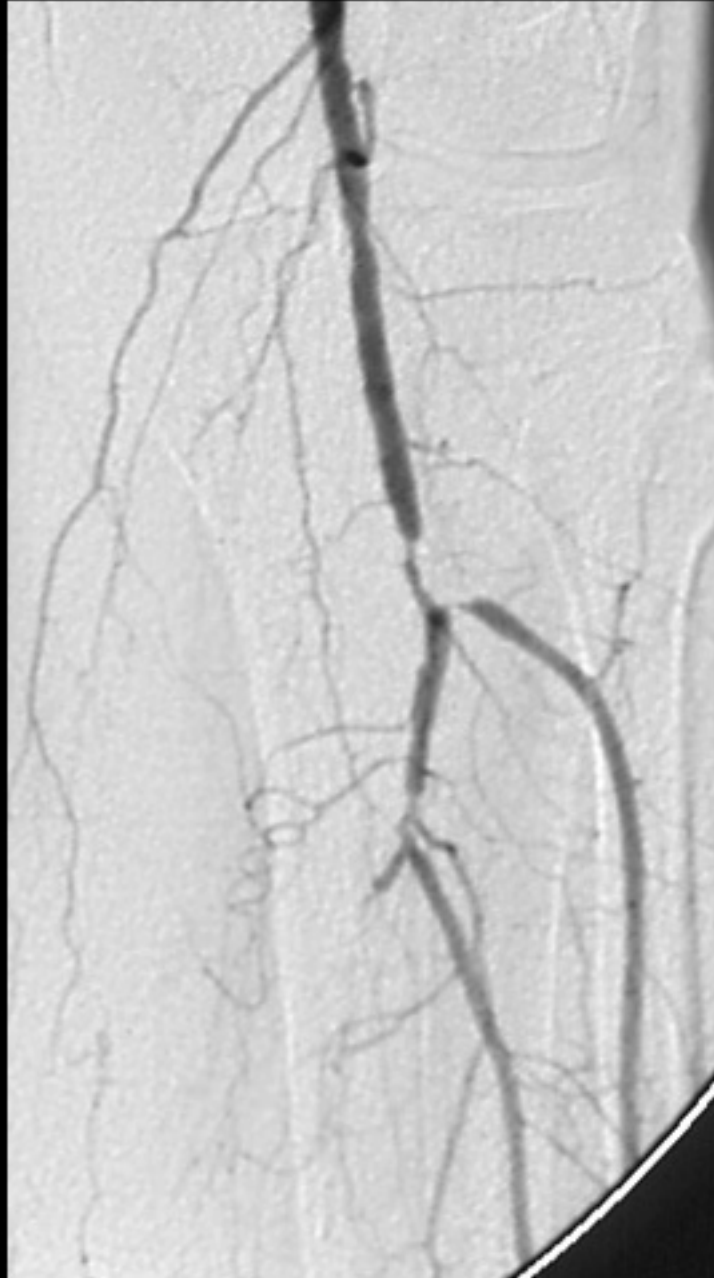


ENS

<

8

Abott nitinol
5X30 mm

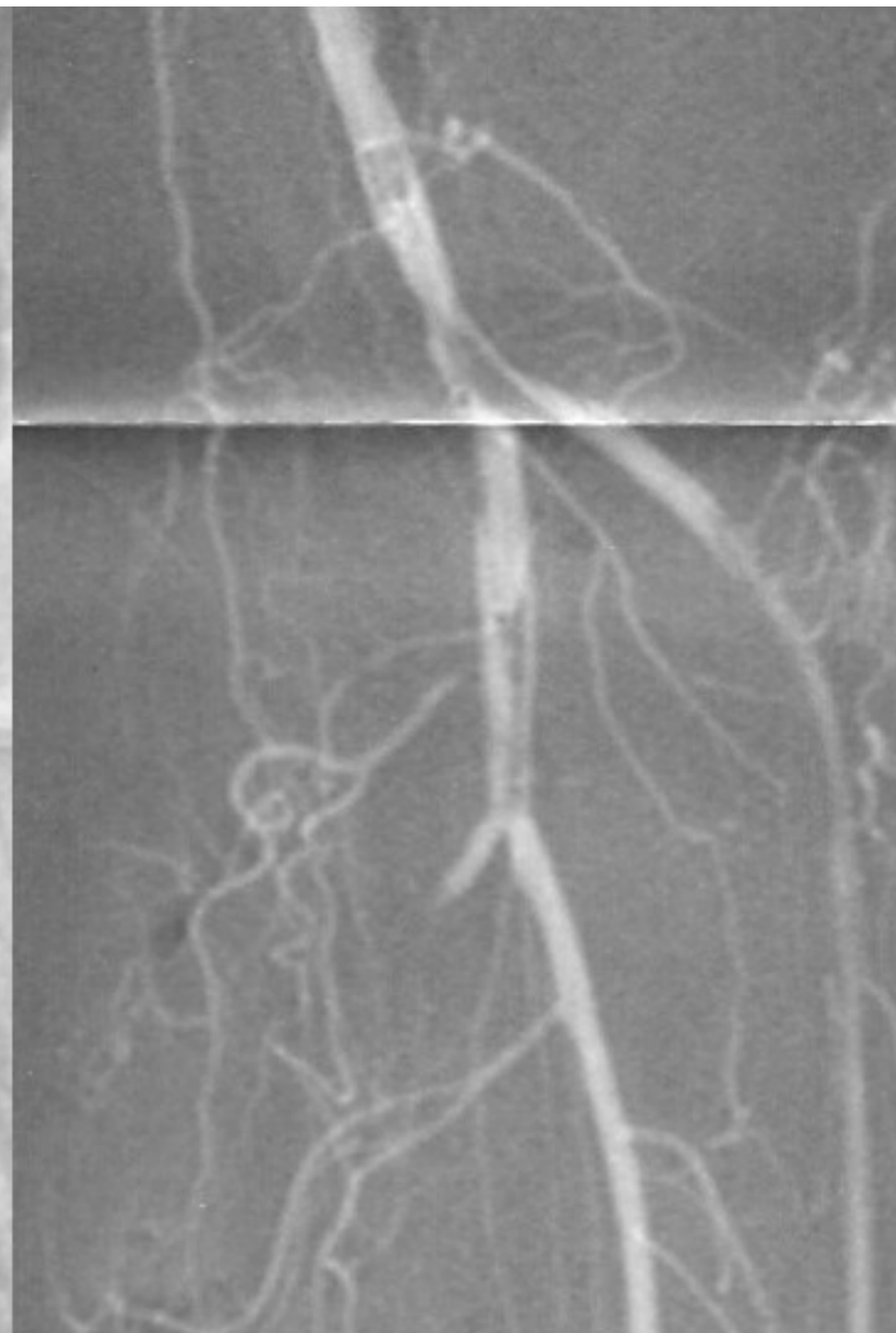


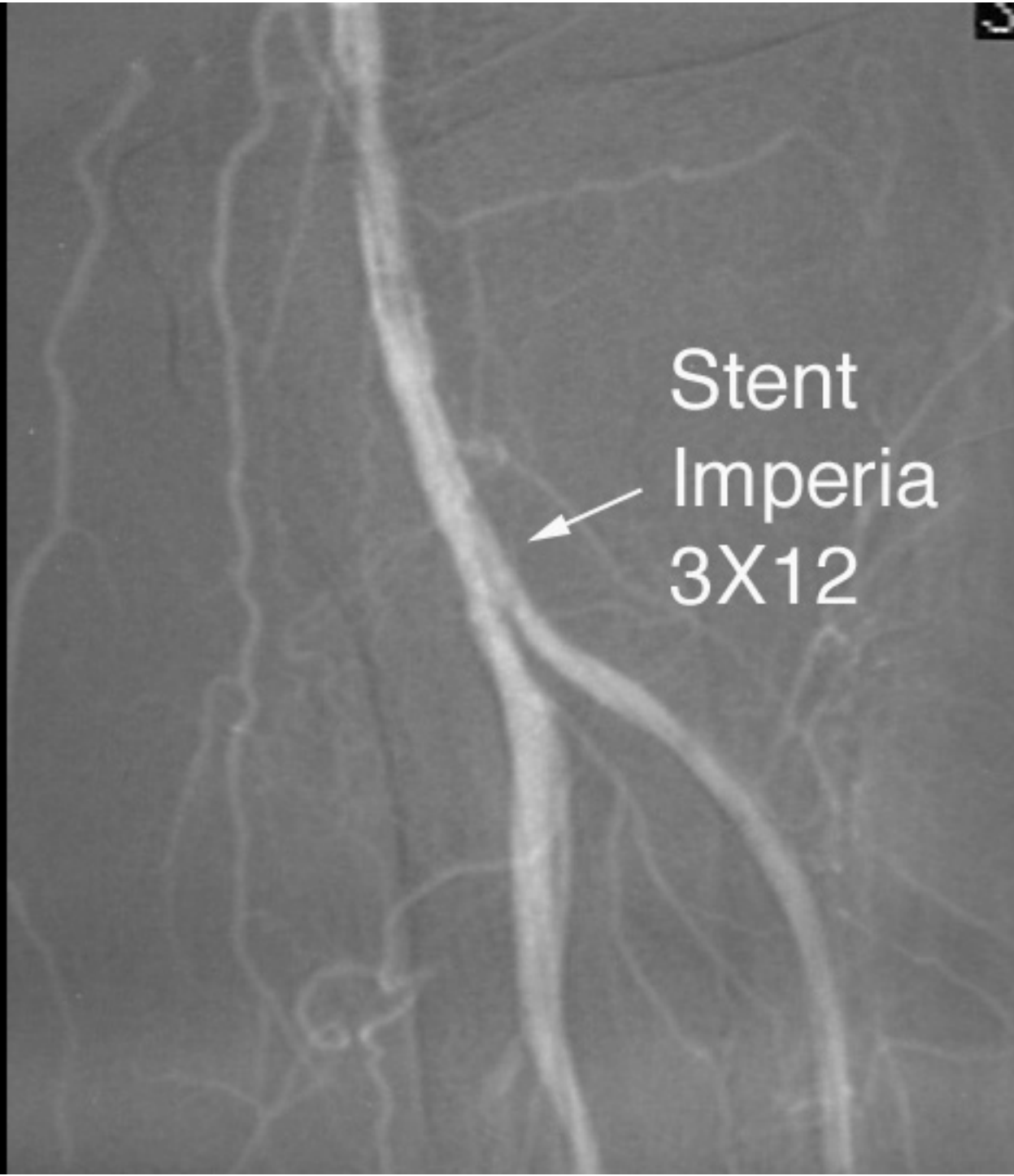
Kissing 0,014



Ballon 3
X12

Ballon 3,5
X18





Stent
Imperia
3X12



Distal angioplasty

DOMITILE
PHILIPPE

BIDAUT

Hôpital SUD AMIENS

20.06.2008

09:42:22



57 kVp
1,84 mA
18

55 ☀

64 ●

OEC

DOMITILE
PHILIPPE

BIDAUT

Hôpital SUD AMIENS

20.06.2008

09:48:13



63 kVp
4,42 mA
19

42-☀

17-●

OEC

DOMITILE
PHILIPPE

BIDAUT

Hôpital SUD AMIENS

20.06.2008

09:53:29



63 kVp
4,07 mA
14

55 ☀
64 ●
OEC

DOMITILE
PHILIPPE

BIDAUT

Hôpital SUD AMIENS

20.06.2008

09:54:57



63 kVp
4,18 mA
17

55 ☀

64 ●

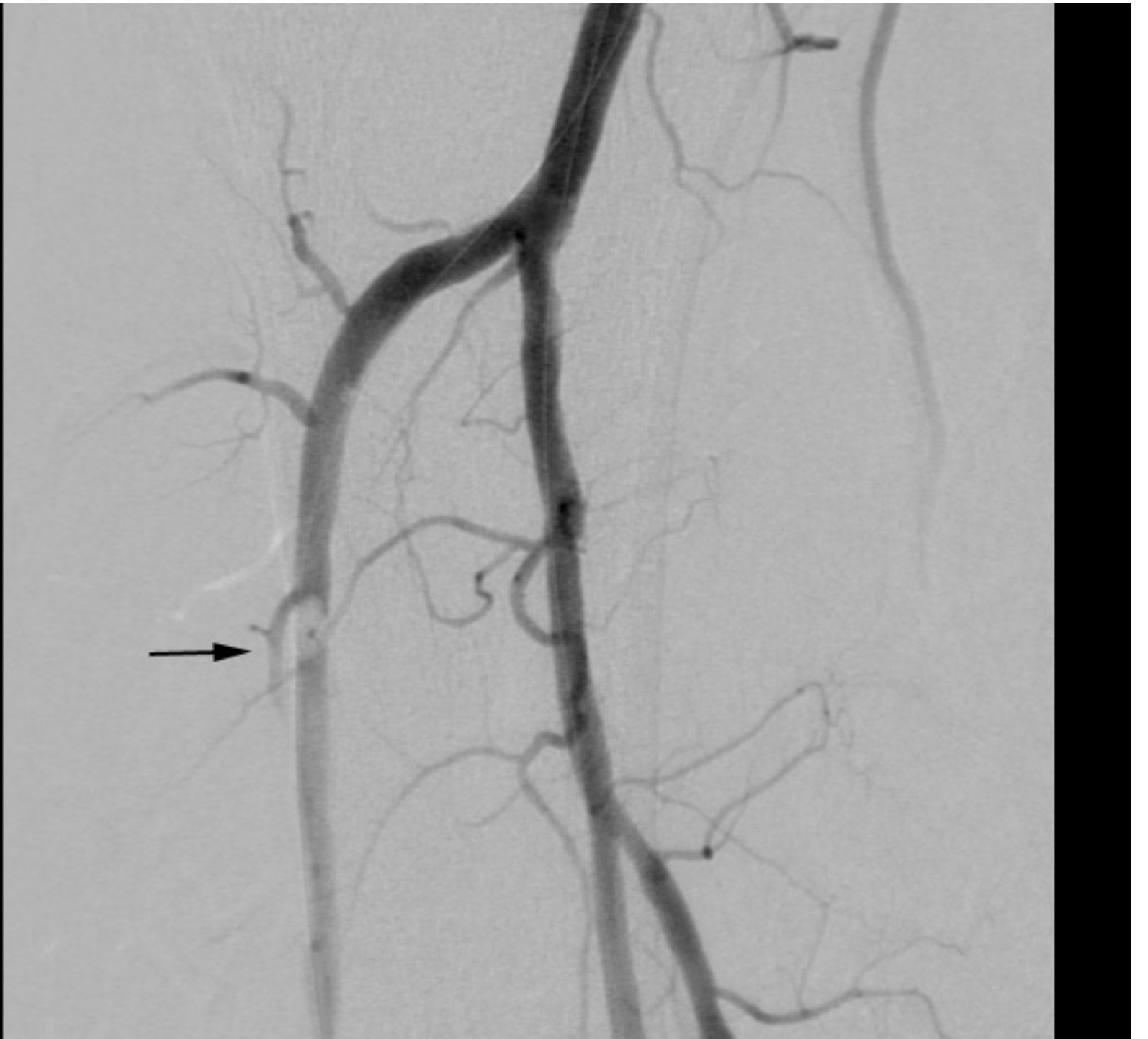
OEC

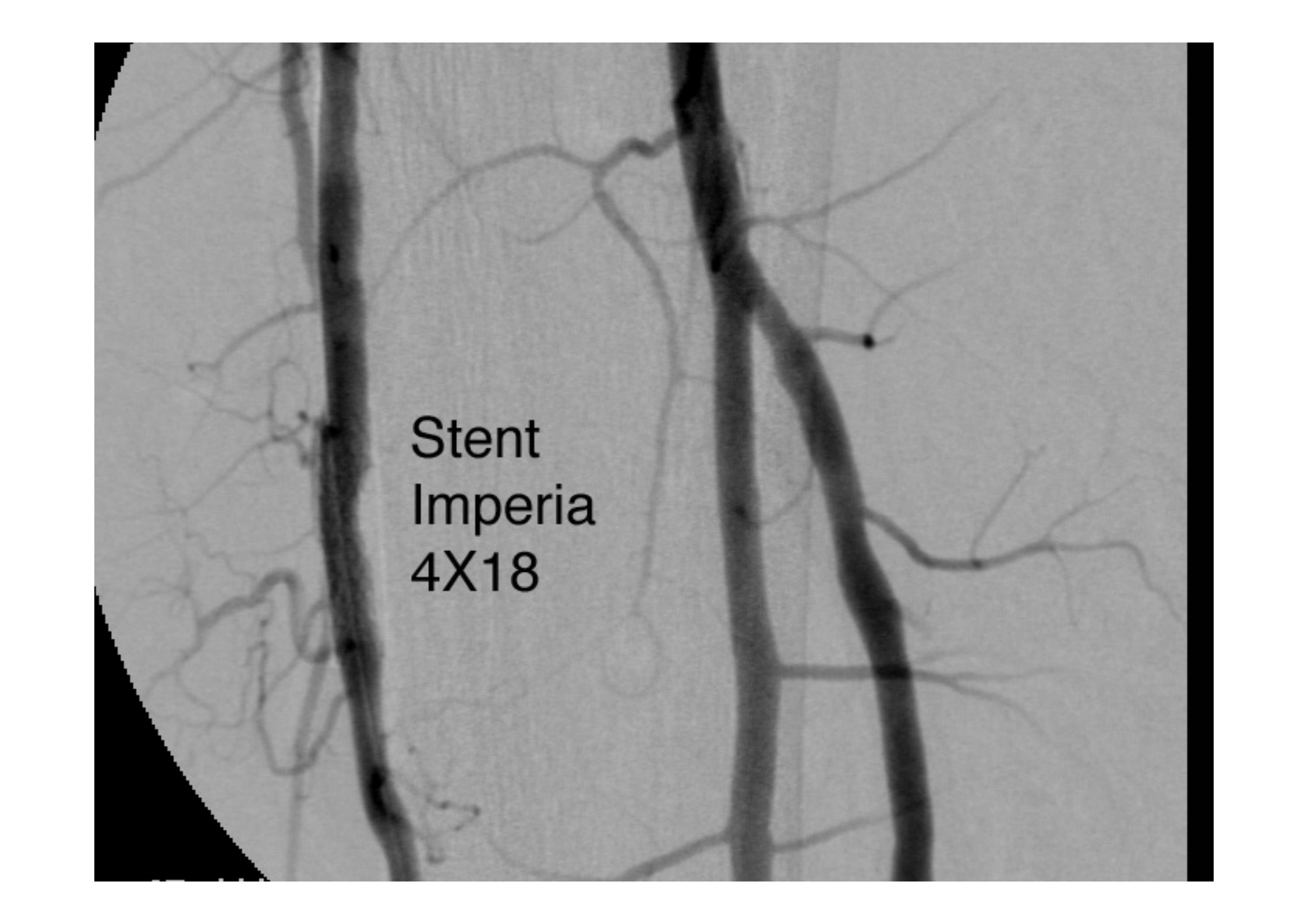
Emboly



Atl
4,5X20
X2

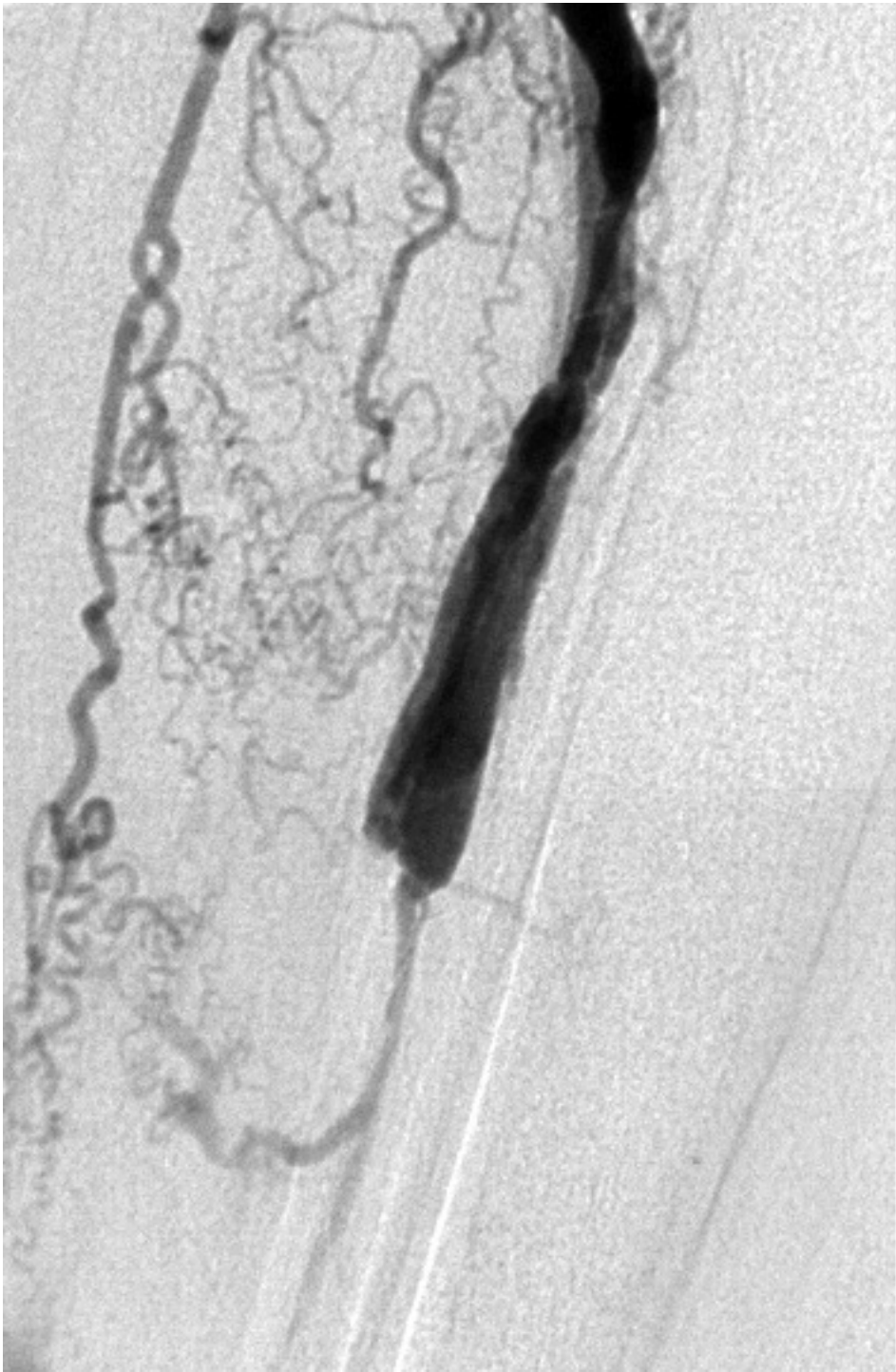




An angiogram showing a coronary artery with a stent. The stent is a dark, cylindrical structure placed within the artery. The surrounding coronary artery network is visible as a complex web of thin, branching vessels. The text "Stent Imperia 4X18" is overlaid on the image, indicating the type and size of the stent.

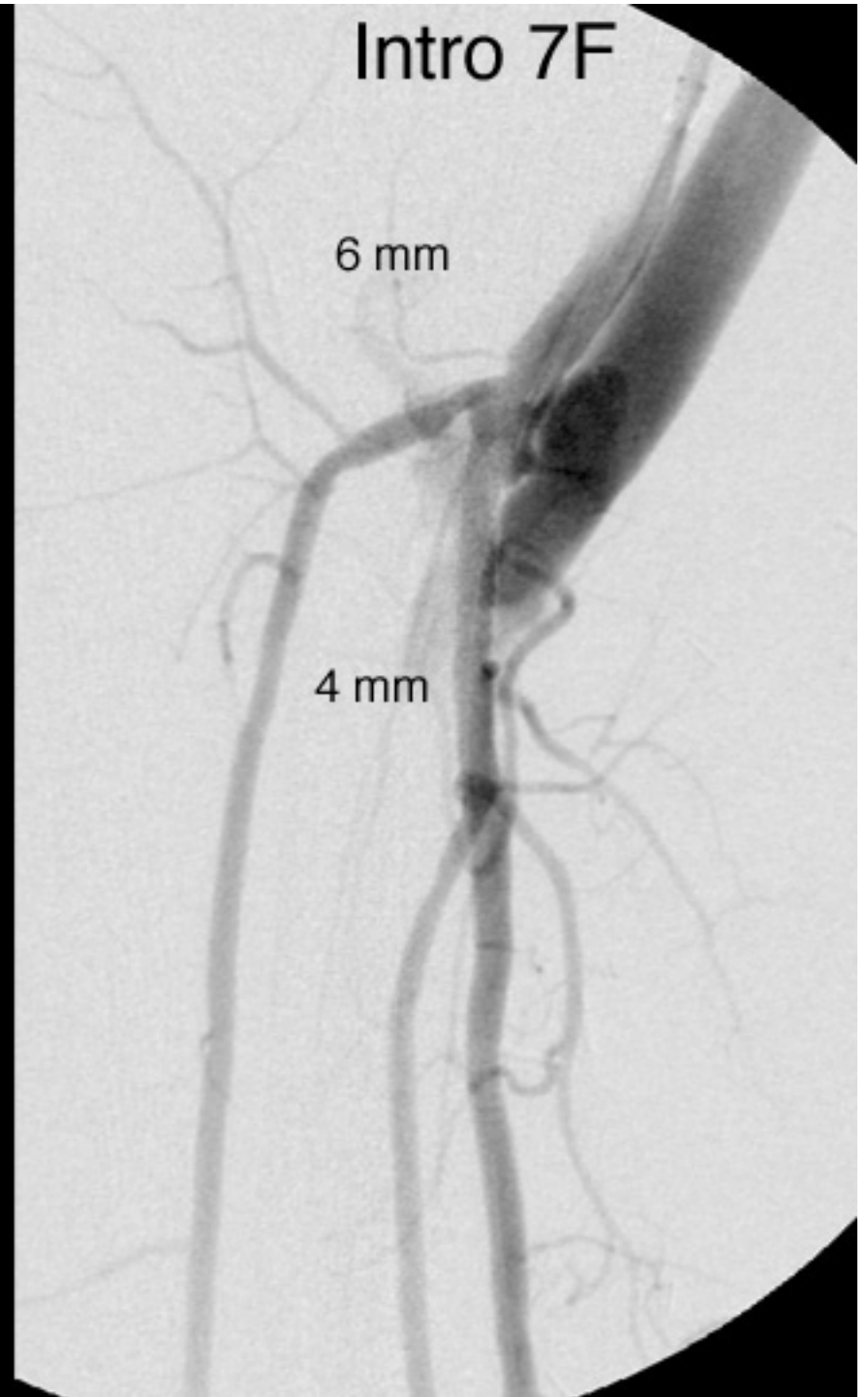
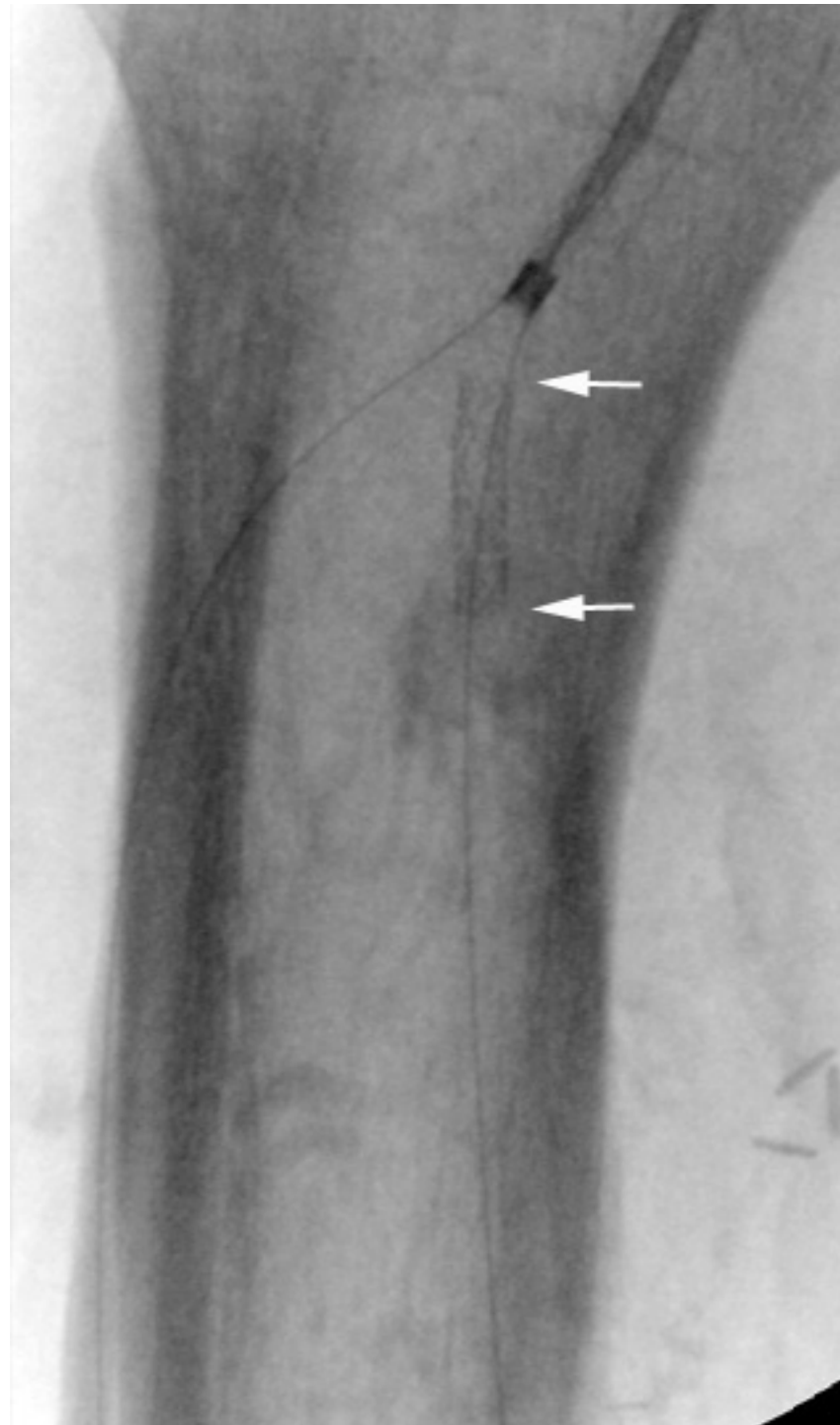
Stent
Imperia
4X18

CLI & AVF

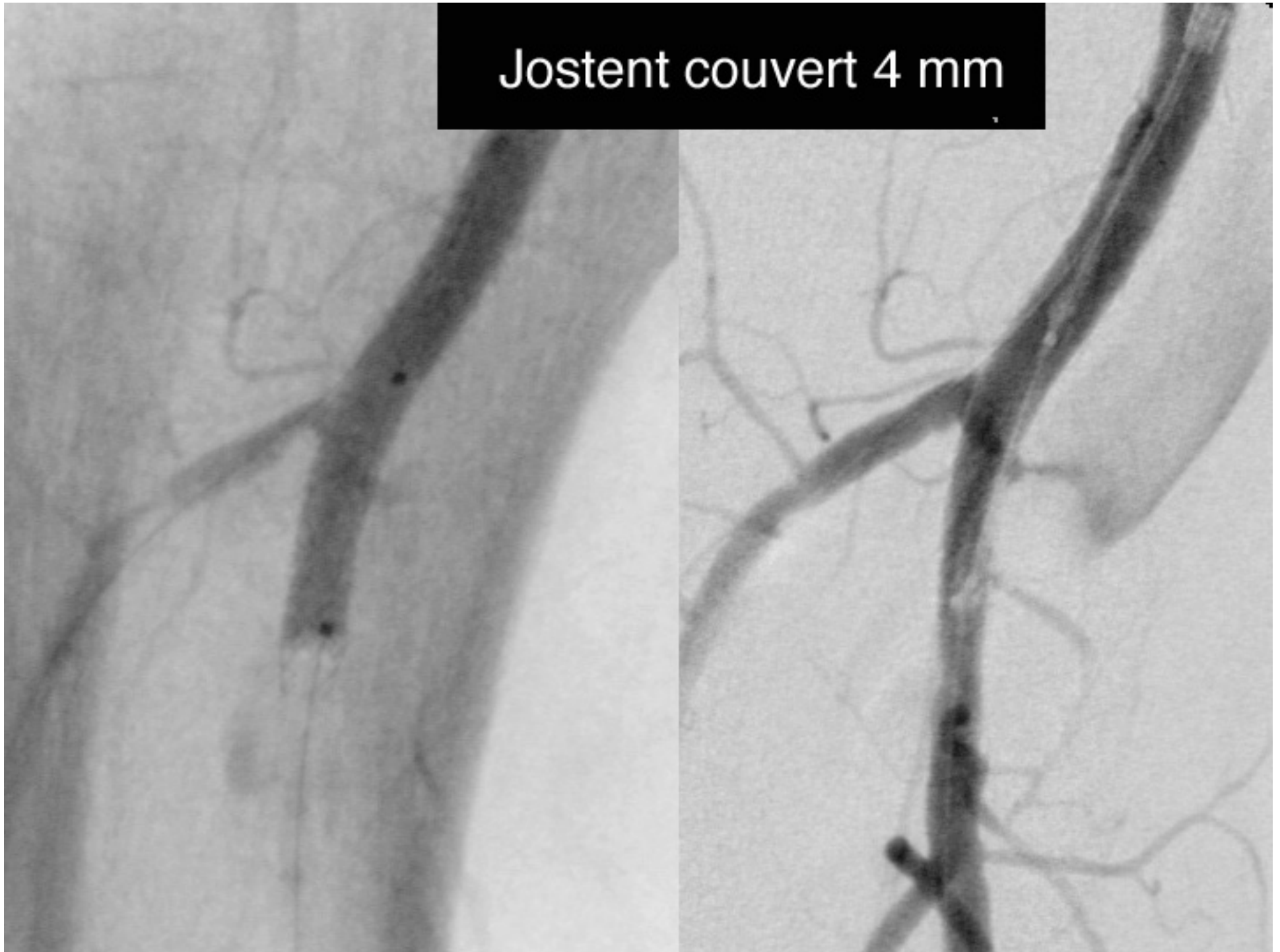


Wallgraft
6X40X3





Jostent couvert 4 mm



14:07:53

PR REIX
STENT COUVERT FAV DT

66 kVp
3,14 mA

55-☉
64-☉



Hybrid procedures

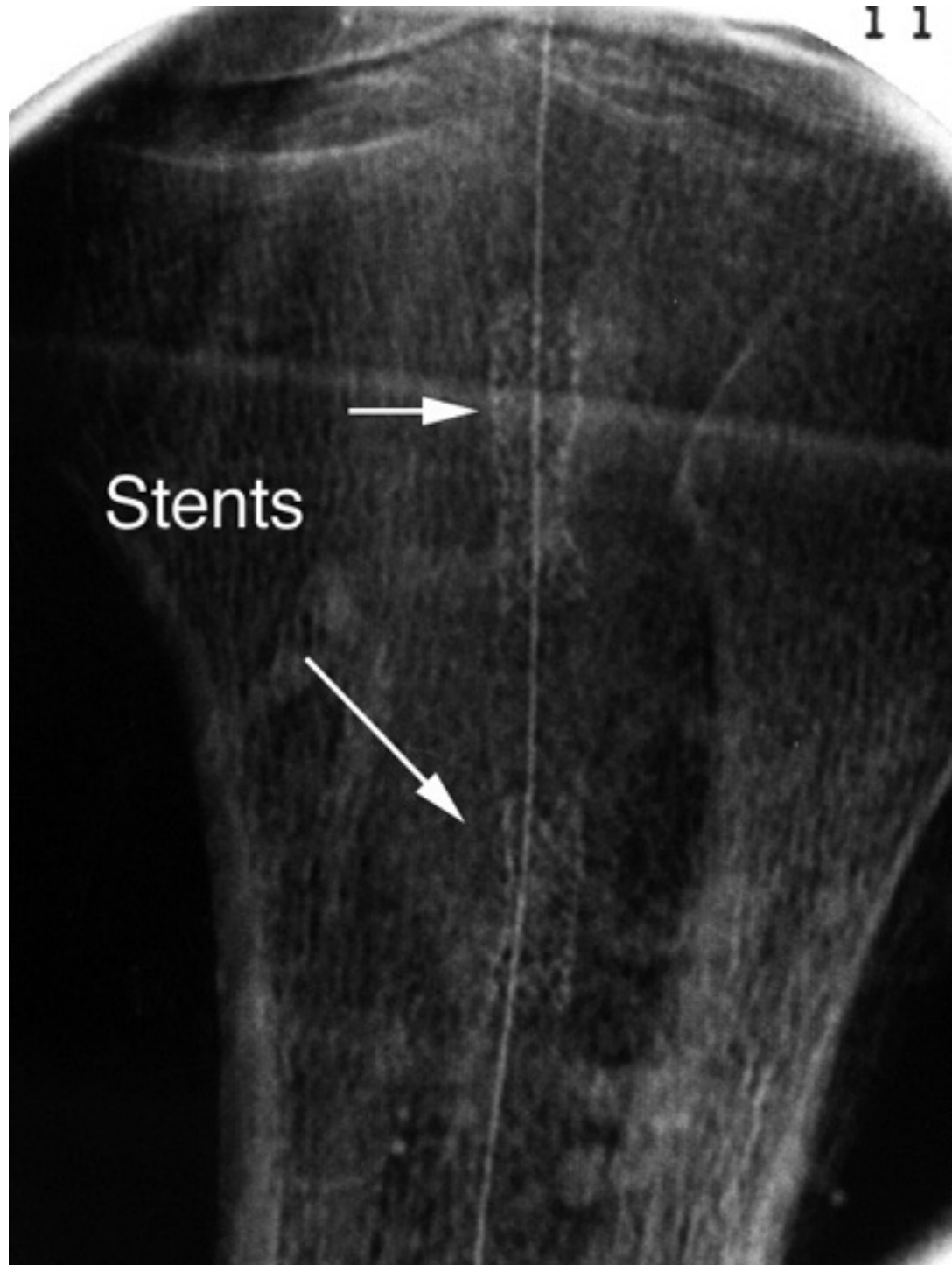


Greffe veineuse
fémoro-poplitée
+ ATL jambière
per-op





1 1



Conclusion

- Angioplasty is more and more frequently used to treat CLI
- Due to progress of the devices
- More diabetics and elderly patients
- Shorter procedure time OR and decreased hospitalization
- Post-operative intensive surveillance because of high frequency of restenosis