REINQ 2017

Approche pratique des accès vasculaires dysfonctionnels

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PLAN

- INTRODUCTION
- FISTULE ARTERIO-VEINEUSE
- CATHETER D'HEMODIALYSE
- CONCLUSION
- QUESTIONS

INTRODUCTION

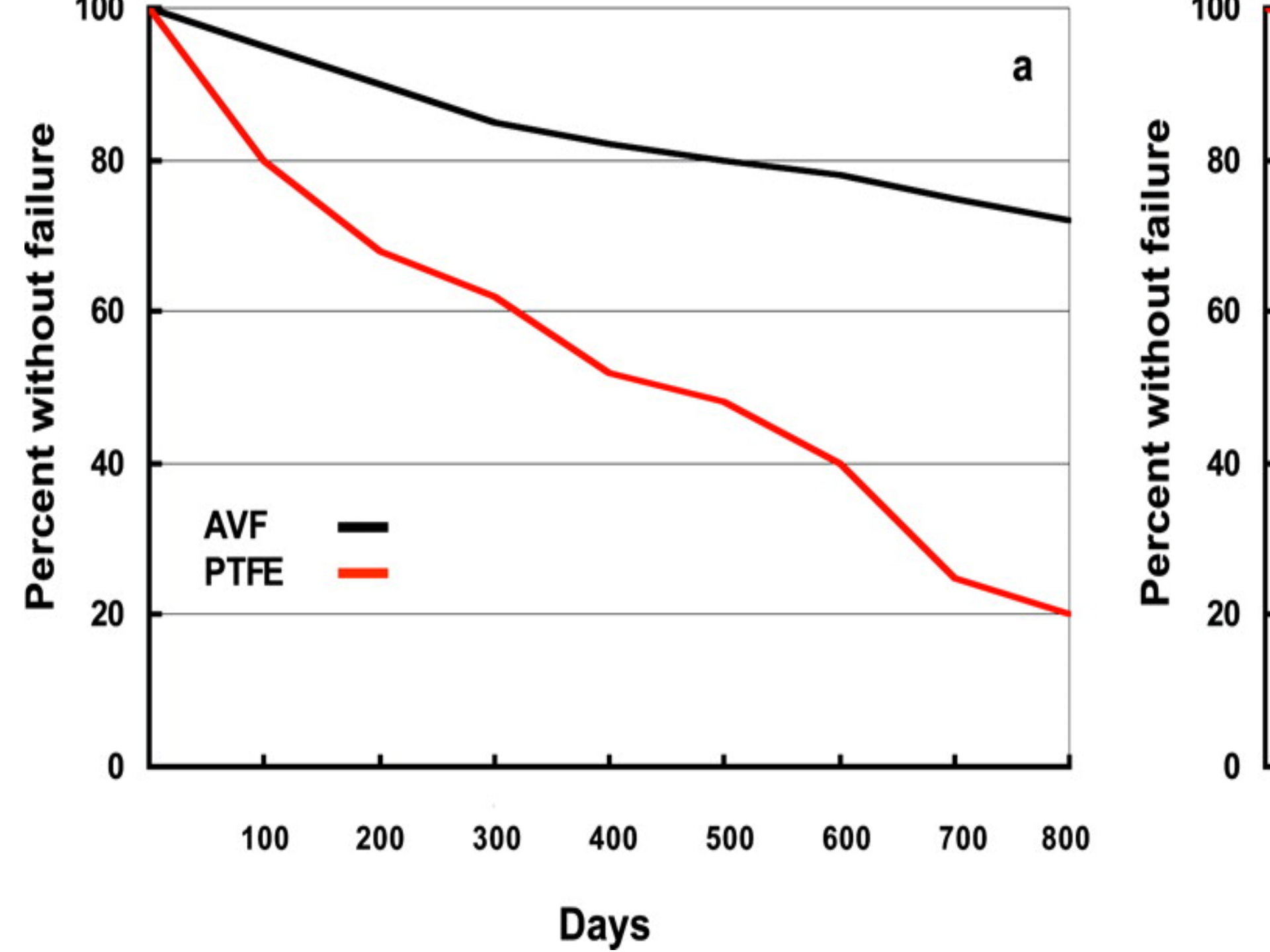
- Hémodialyse chronique=longue aventure
- Planification
- Préservation du potentiel veineux
- Education

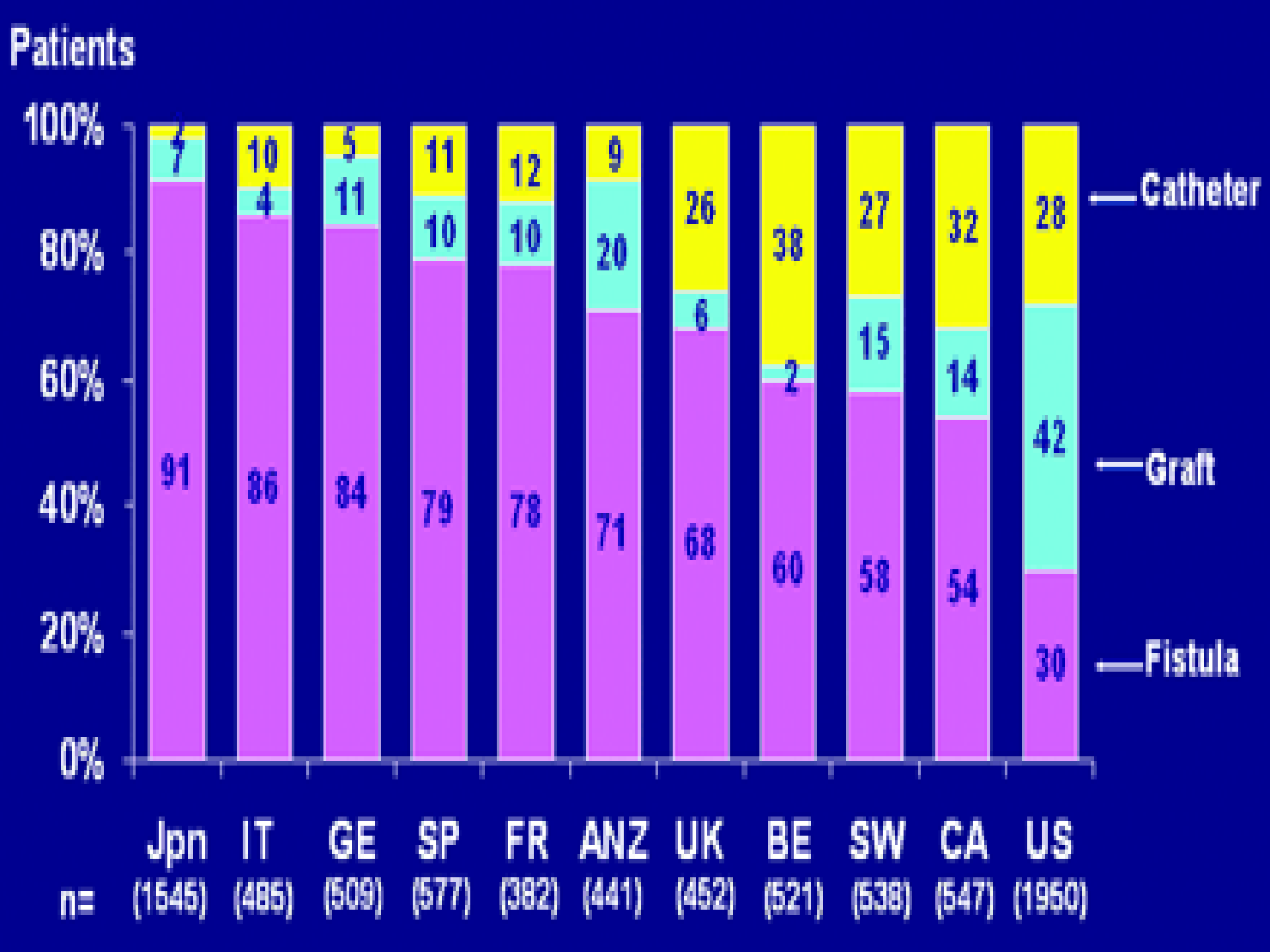
FISTULE A-V

- Planification
- Maturation
- Fonction
- Fistule dysfonctionnelle
- Options thérapeutiques

PLANIFICATION

- Evaluation du potentiel veineux
  questionnaire et examen physique
  étude doppler
  phlébographie
- Bras non dominant
- Le plus périphérique possible
- Native >>>synthétique


a
Percent without failure
100
80
60
40
20
0
AVF
PTFE
100
200
300
400
500
600
700
800
Days


Patients
100%
80%
60%
40%
20%
0%
Catheter
Graft
Fistula
Jpn
IT
GE
SP
FR
ANZ
UK
BE
SW
CA
US
n=
(1545)
(485)
(509)
(577)
(382)
(441)
(452)
(521)
(538)
(647)
(1950)
7
91
10
4
86
5
11
84
11
10
79
12
10
78
9
20
71
26
6
68
38
2
60
27
15
58
32
14
54
28
42
30

QUESTIONNAIRE

- Cathéter
- pacemaker
- Chirurgie
- Chimiothérapie
- Piccline
- Thrombophlébite

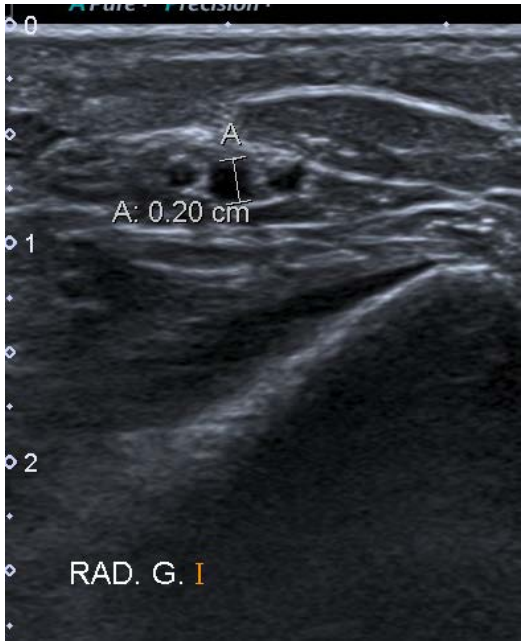
EXAMEN PHYSIQUE

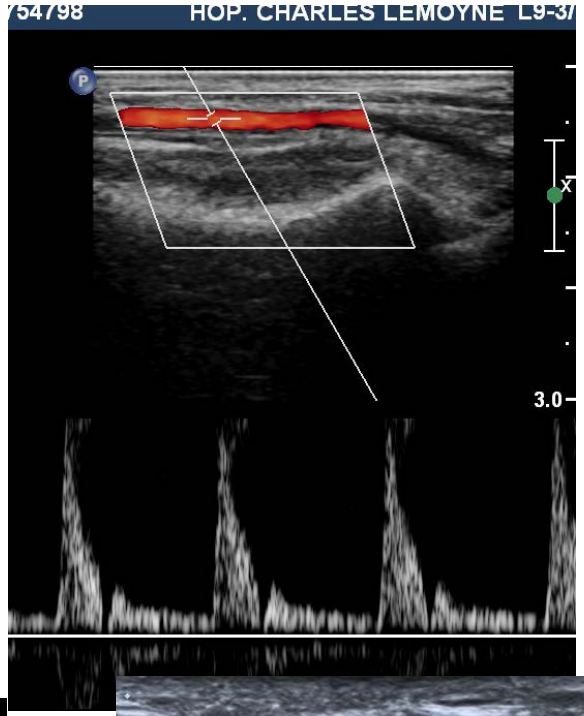
- Cicatrices
- Sans puis avec garrot
- Signes d’obstruction
- Volume des veines superficielles
- pouls

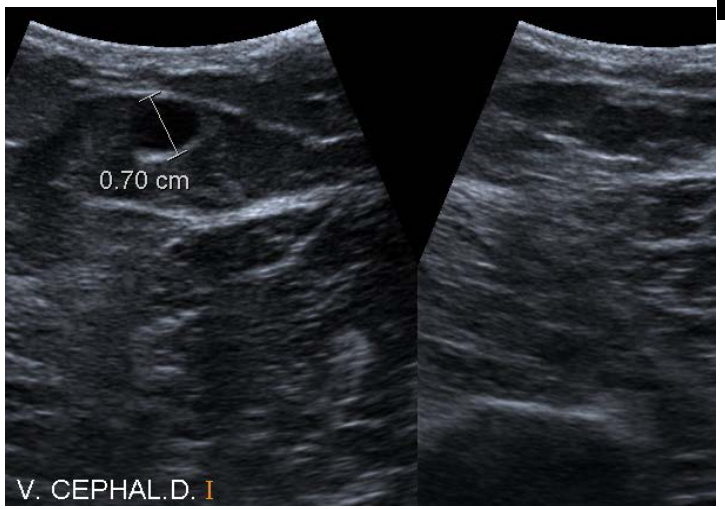
ECHOGRAPHIE ET DOPPLER

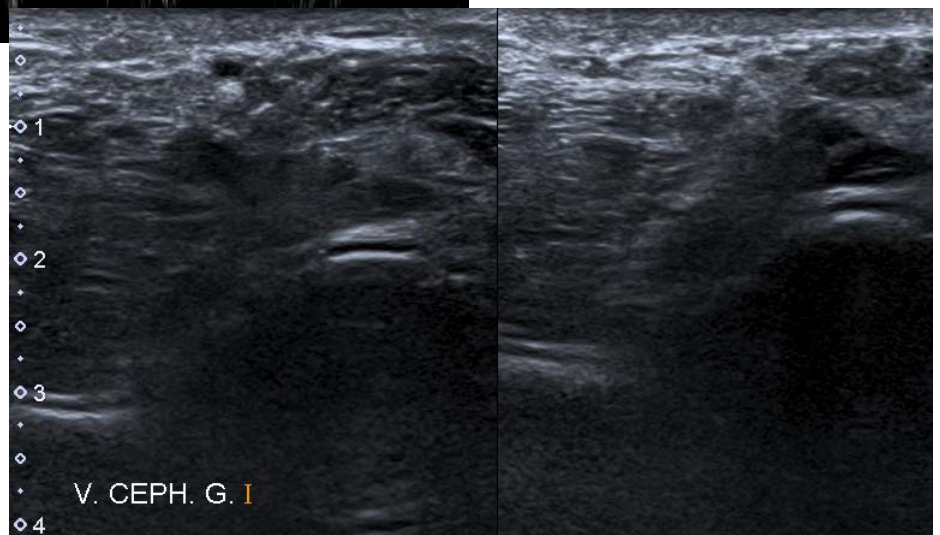
- Étude artérielle
- Étude veineuse périphérique
  sans et avec garrot
  diamètre
  continuité
  profondeur
- Veines centrales non accessibles

Doppler pré-création de fistule









PHLEBOGRAPHIE
évaluation des veines centrales

- Kt dans le passé
- pacemaker
- Turgescence veineuse
- Oedème du bras
- TPP

MATURATION

- Importance du suivi clinique
- Examen clinique

  visuel

  palpation

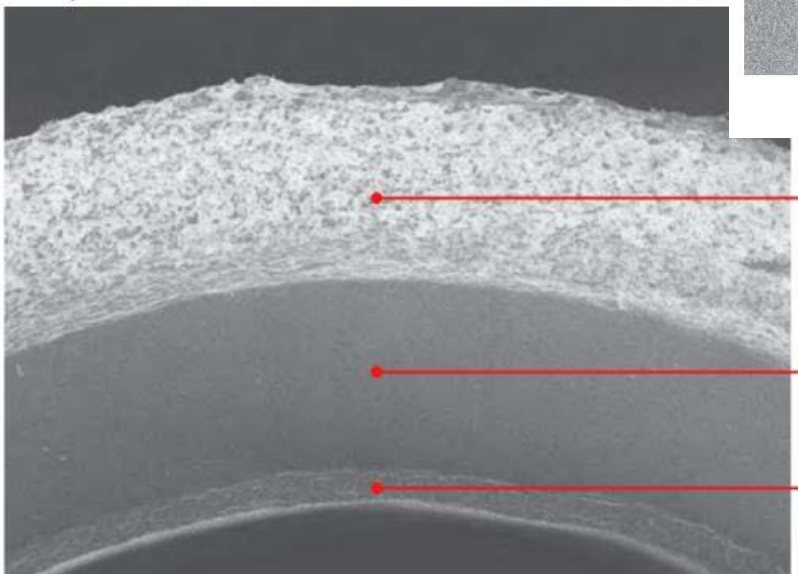
  auscultation
- Identification précoce des sténoses et traitement agressif

MATURATION

- FISTULE NATIVE 3 mois
- FISTULE SYNTHÉTIQUE 4 semaines
- GORE ACUSEAL 24 heures

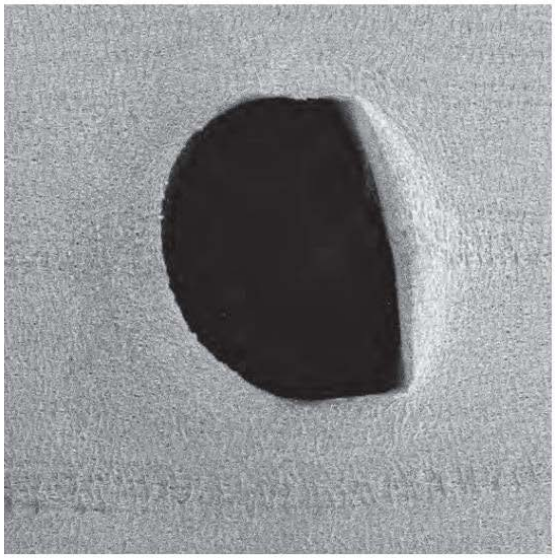
GORE ACUSEAL

Tri-layer construction of a GORE® ACUSEAL Vascular Graft



Low Bleed **vs** **Bleed**

GORE® ACUSEAL Vascular Graft *Standard ePTFE Graft*

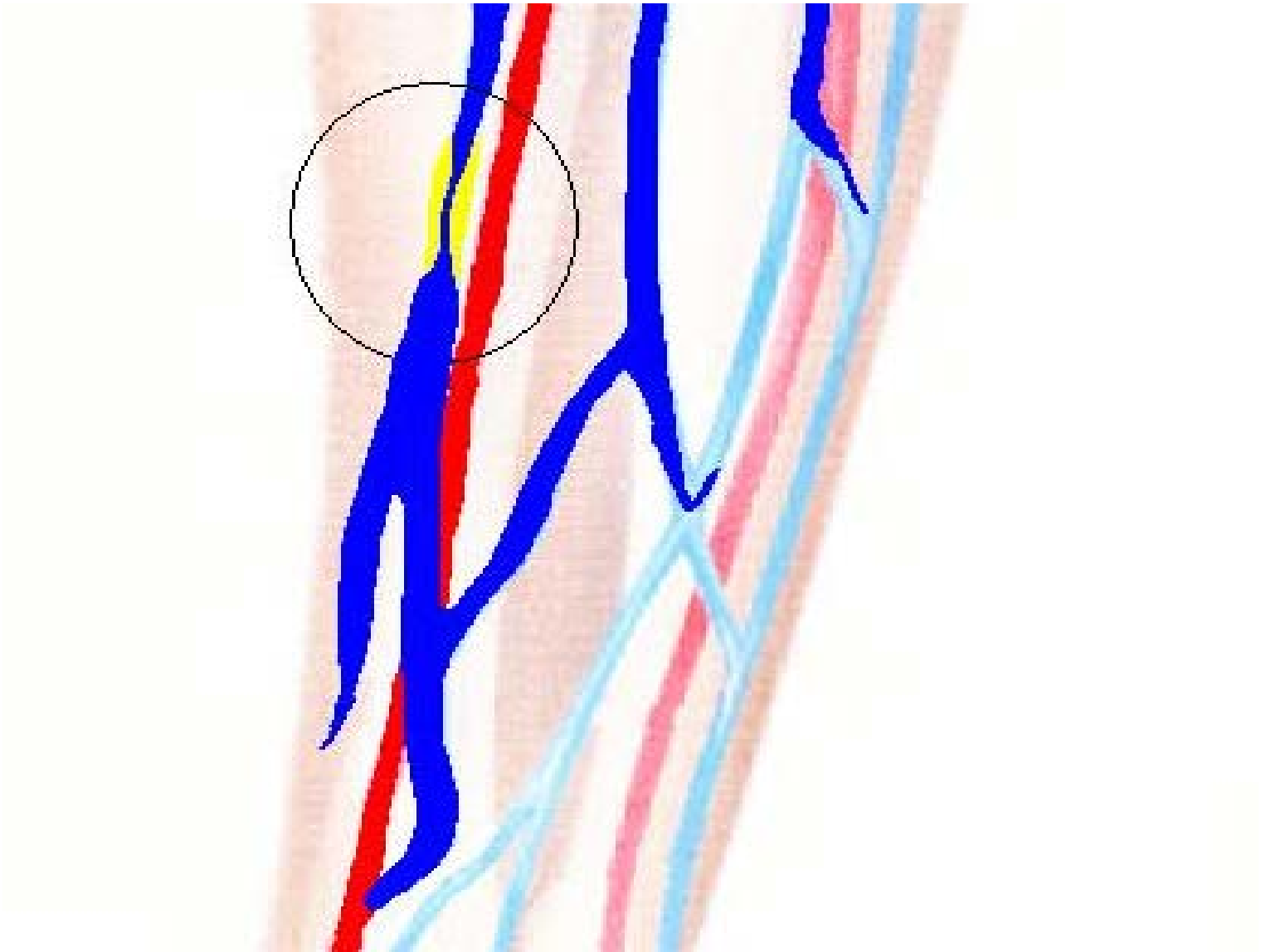


Post cannulation of the luminal surface with a 16 gauge needle

NON MATURATION

- Artère trop petite
- Veine trop petite
- Technique chirurgicale
- Hyperplasie néo-intimale
- Veines accessoires

HYPERPLASIE INTIMALE



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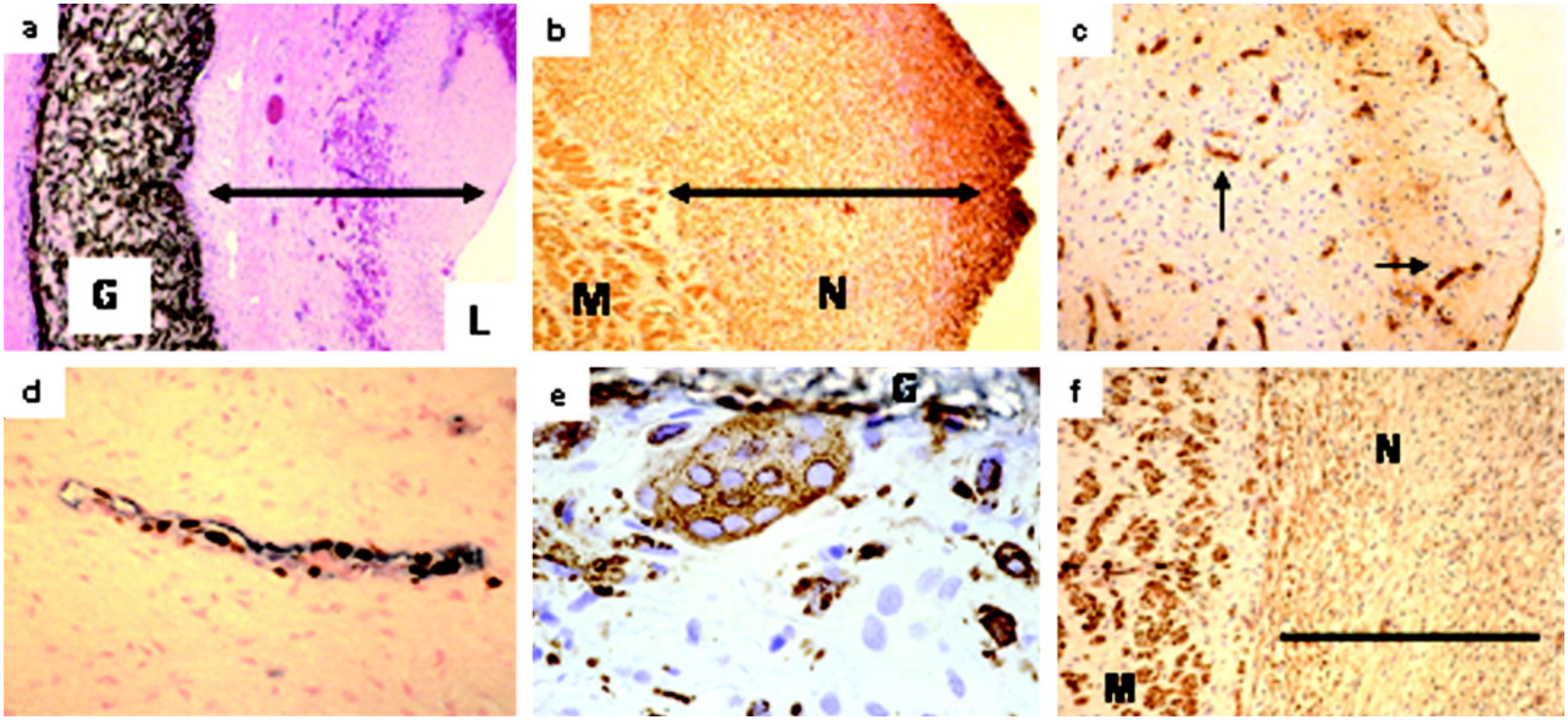
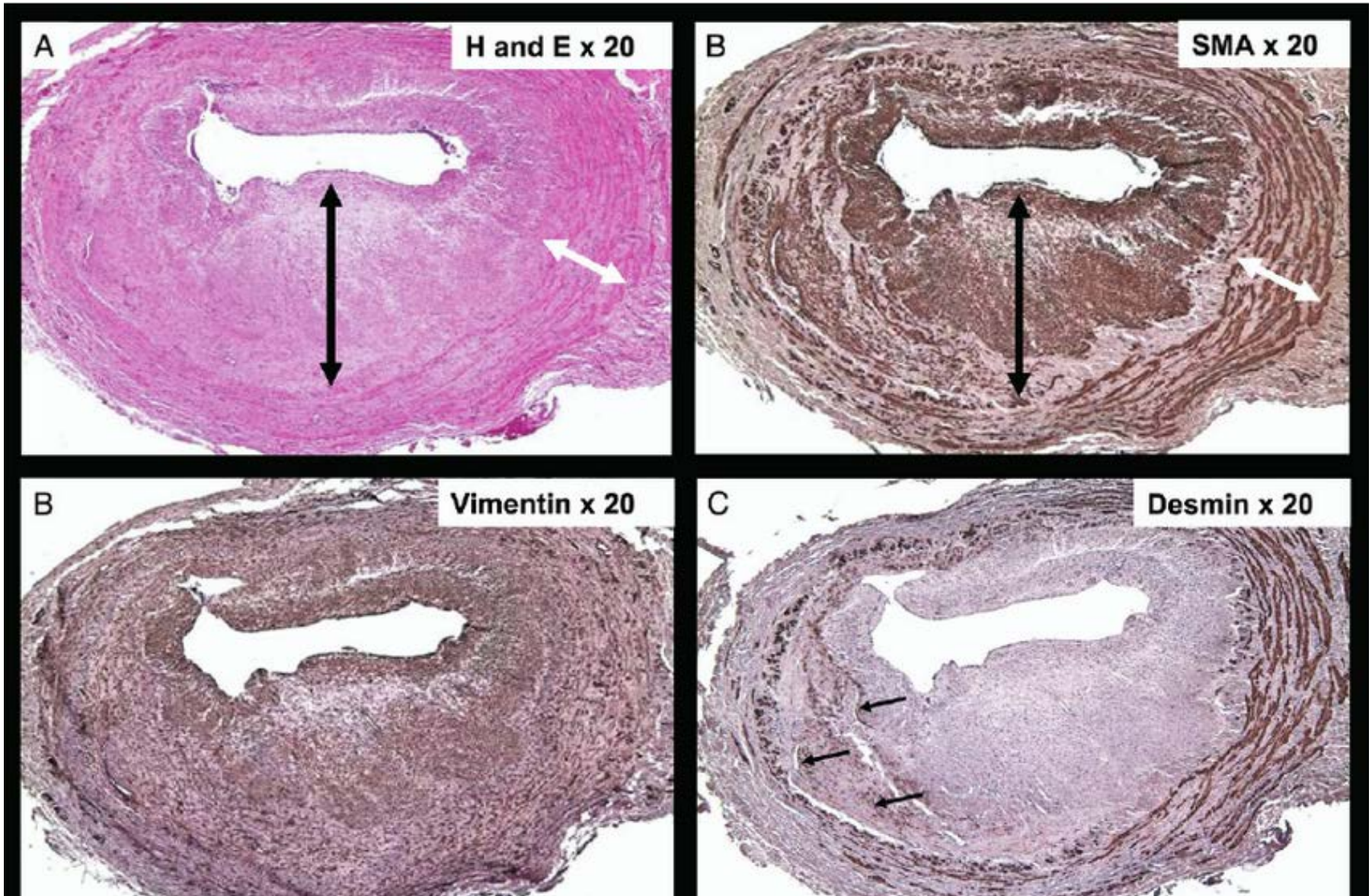


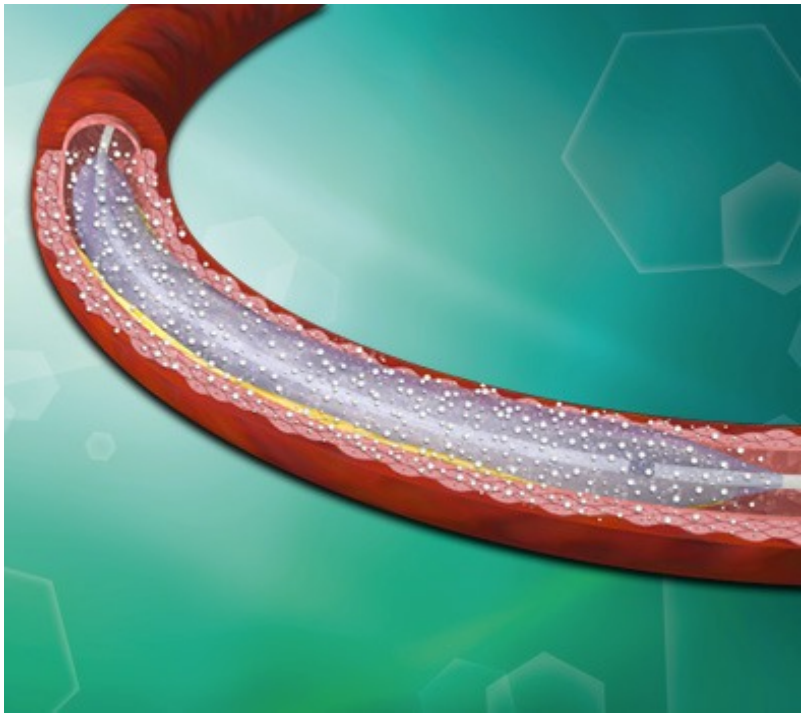
HYPERPLASIE INTIMALE

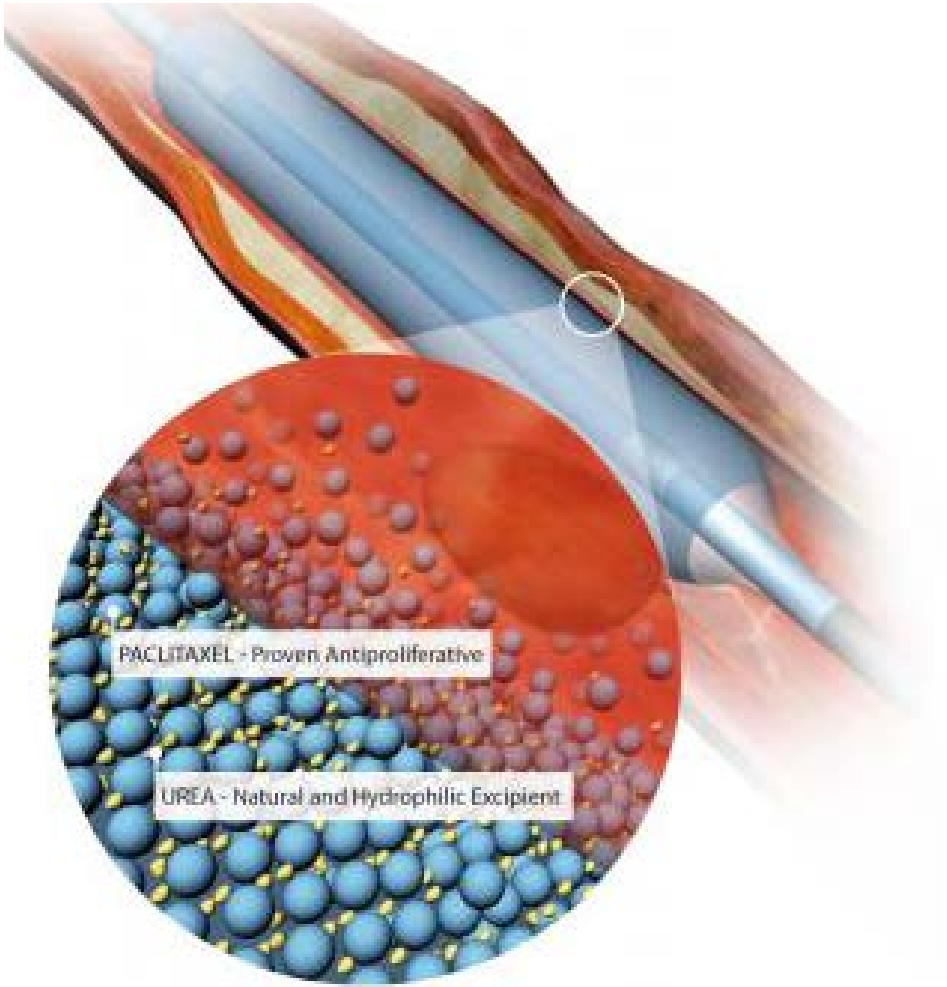


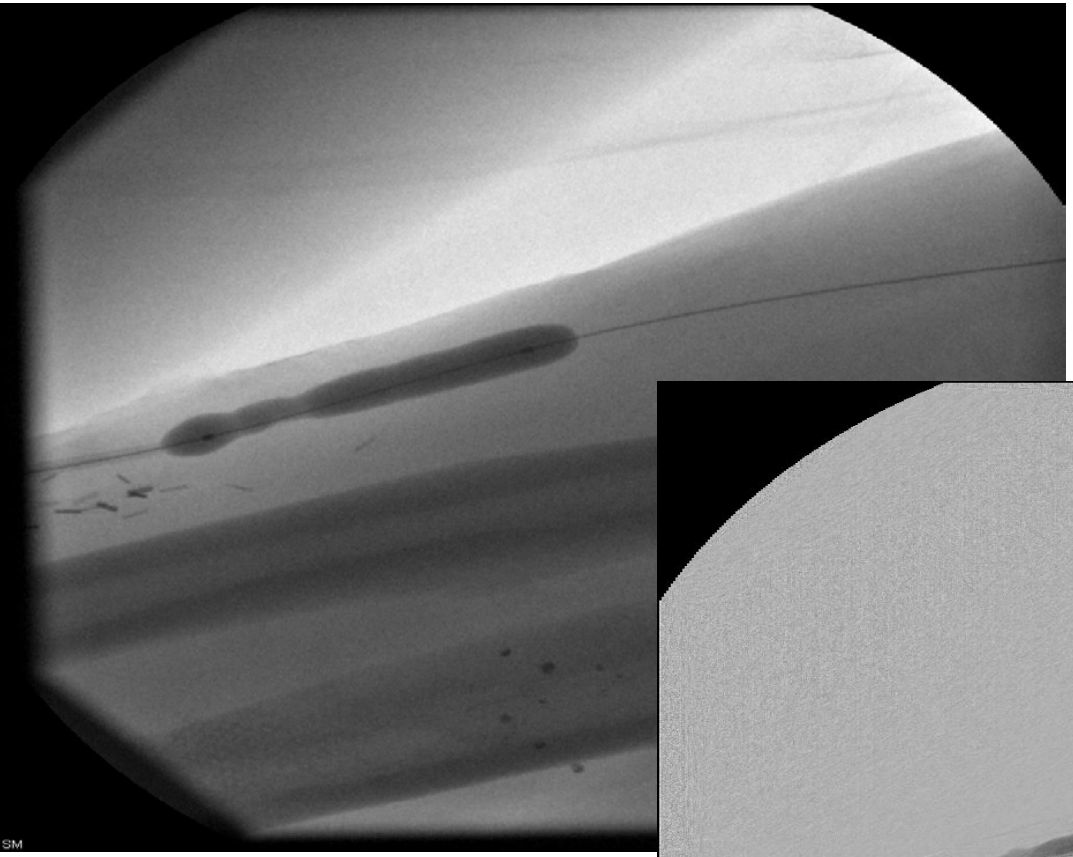
HYPERPLASIE INTIMALE
prévention

- TECHNIQUE CHIRUGICALE
- ANTI-PLAQUETTAIRES
- RADIOTHÉRAPIE
- STENT OU BALLON MÉDICAMENTÉ

BALLON MÉDICAMENTÉ



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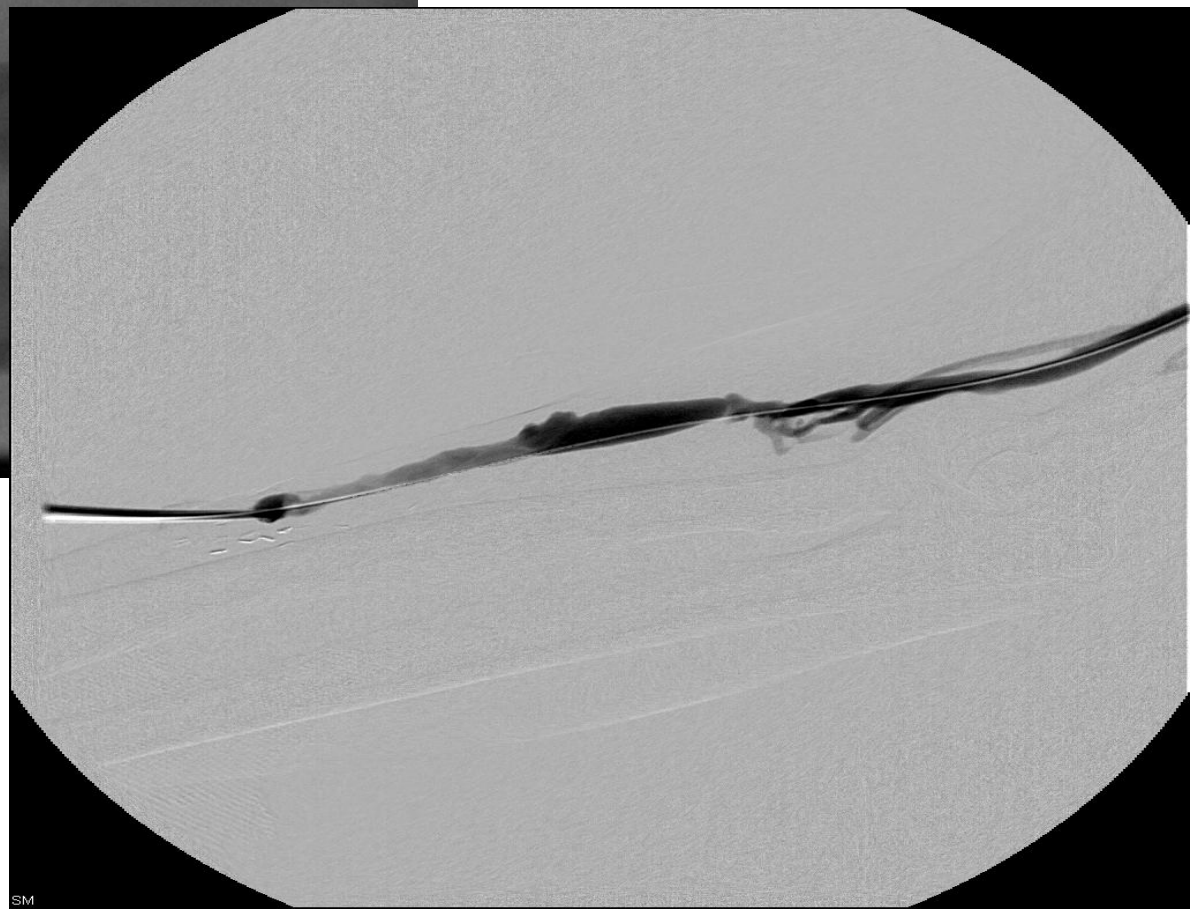
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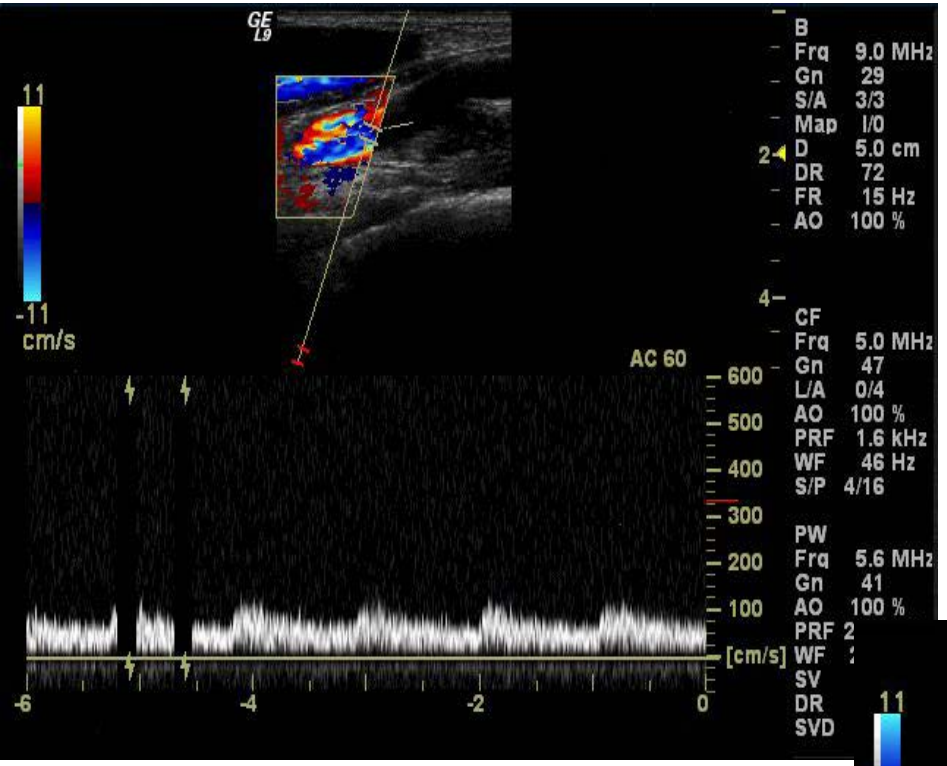
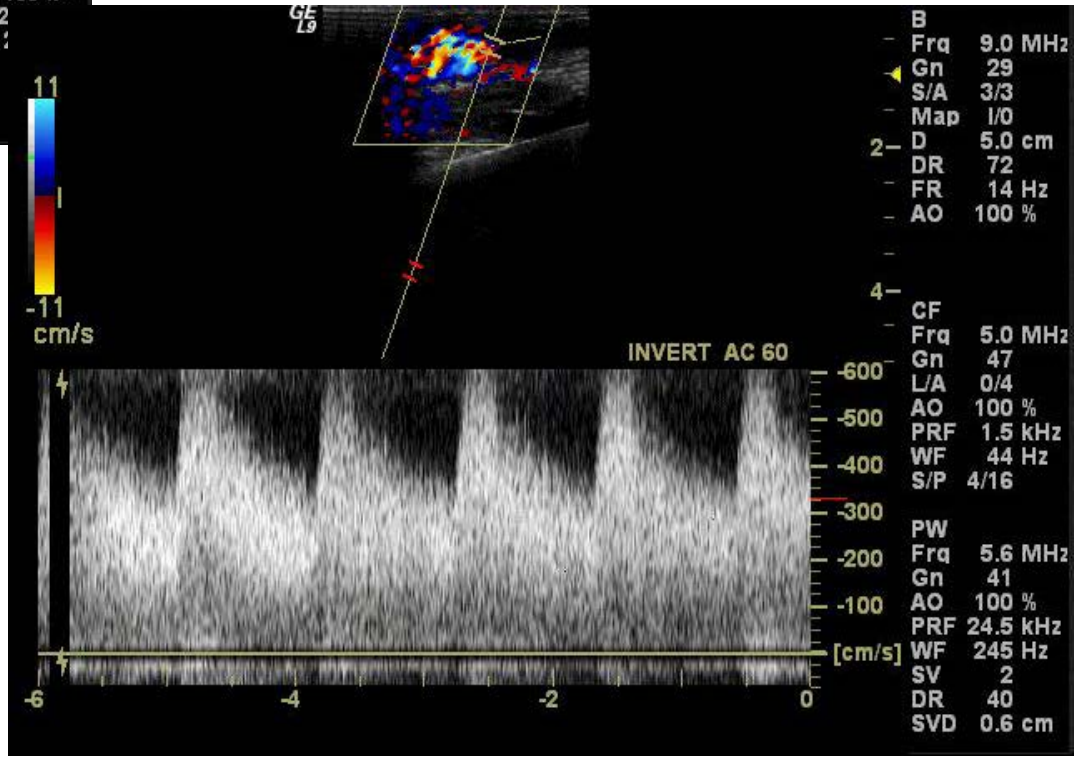

GE
L9
11
-11
cm/s
AC 60
600
500
400
300
200
100
[cm/s]
-6
-4
-2
0
B
Frq 9.0 MHz
Gn 29
S/A 3/3
Map I/0
D 5.0 cm
DR 72
FR 15 Hz
AO 100 %
2
4
CF
Frq 5.0 MHz
Gn 47
L/A 0/4
AO 100 %
PRF 1.6 kHz
WF 46 Hz
S/P 4/16
PW
Frq 5.6 MHz
Gn 41
AO 100 %
PRF 2
WF
SV
DR
SVD


GE
L9
11
-11
cm/s
INVERT AC 60
-600
-500
-400
-300
-200
-100
[cm/s]
-6
-4
-2
0
B
Frq 9.0 MHz
Gn 29
S/A 3/3
Map I/0
D 5.0 cm
DR 72
FR 14 Hz
AO 100 %
2
4
CF
Frq 5.0 MHz
Gn 47
L/A 0/4
AO 100 %
PRF 1.5 kHz
WF 44 Hz
S/P 4/16
PW
Frq 5.6 MHz
Gn 41
AO 100 %
PRF 24.5 kHz
WF 245 Hz
SV 2
DR 40
SVD 0.6 cm

4 ans

FISTULE FONCTIONNELLE

- BIEN TOLÉRÉE
- FACILEMENT PONCTIONNABLE
- PAS DE SAIGNEMENT
- BON « THRILL »
- DEBIT SUFFISANT ET CONSTANT
- BON KT/V

PAS TOUCHE

FISTULE DYFONCTIONNELLE

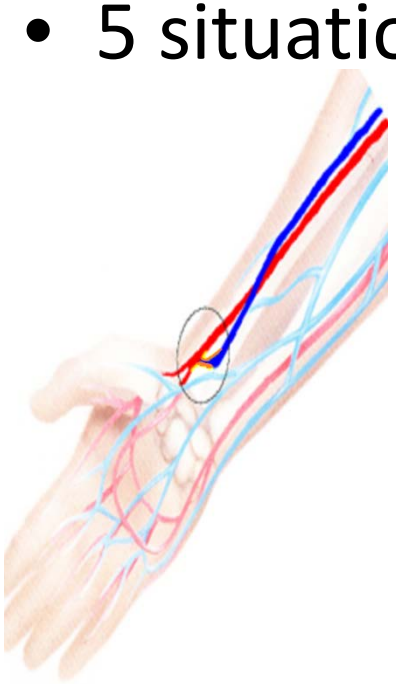
CLINIQUE

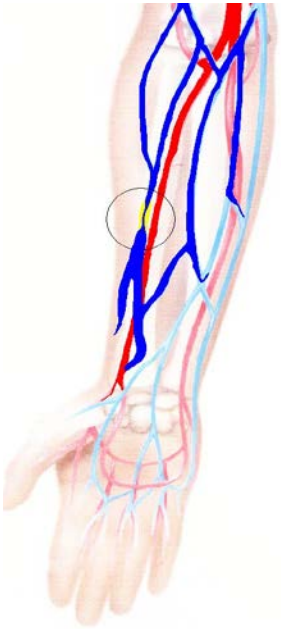
IMAGERIE

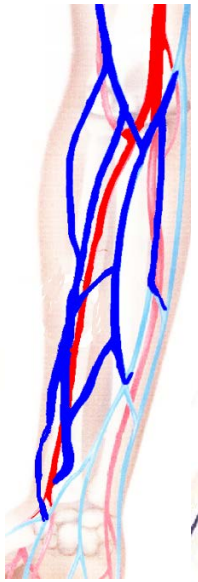
TRAITEMENT

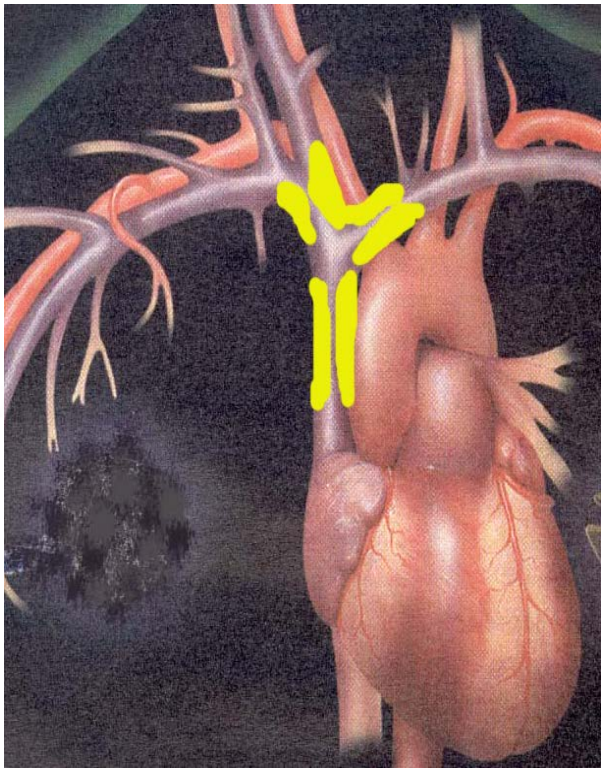
Fistule native dysfonctionnelle approche systématique

- 5 situations









Fistule native dysfonctionnelle approche systématique

- Anamnèse
- Examen clinique
- Doppler
- Fistulographie
- Traitement ciblé

FISTULE DYSFONCTIONNELLE
identification du problème

- Diminution du débit
- Saignement prolongé
- Œdème
- Anévrisme
- Thrombose
- Infection

FISTULE DYSFONCTIONNELLE
examen clinique

- Visuelle
- Palpation
- auscultation

FISTULE DYSFONCTIONNELLE
examen visuel

- Cicatrice
- Taille de la fistule
- Voussure
- Collatérales
- Œdème
- Rougeur

FISTULE DYSFONCTIONNELLE
palpation

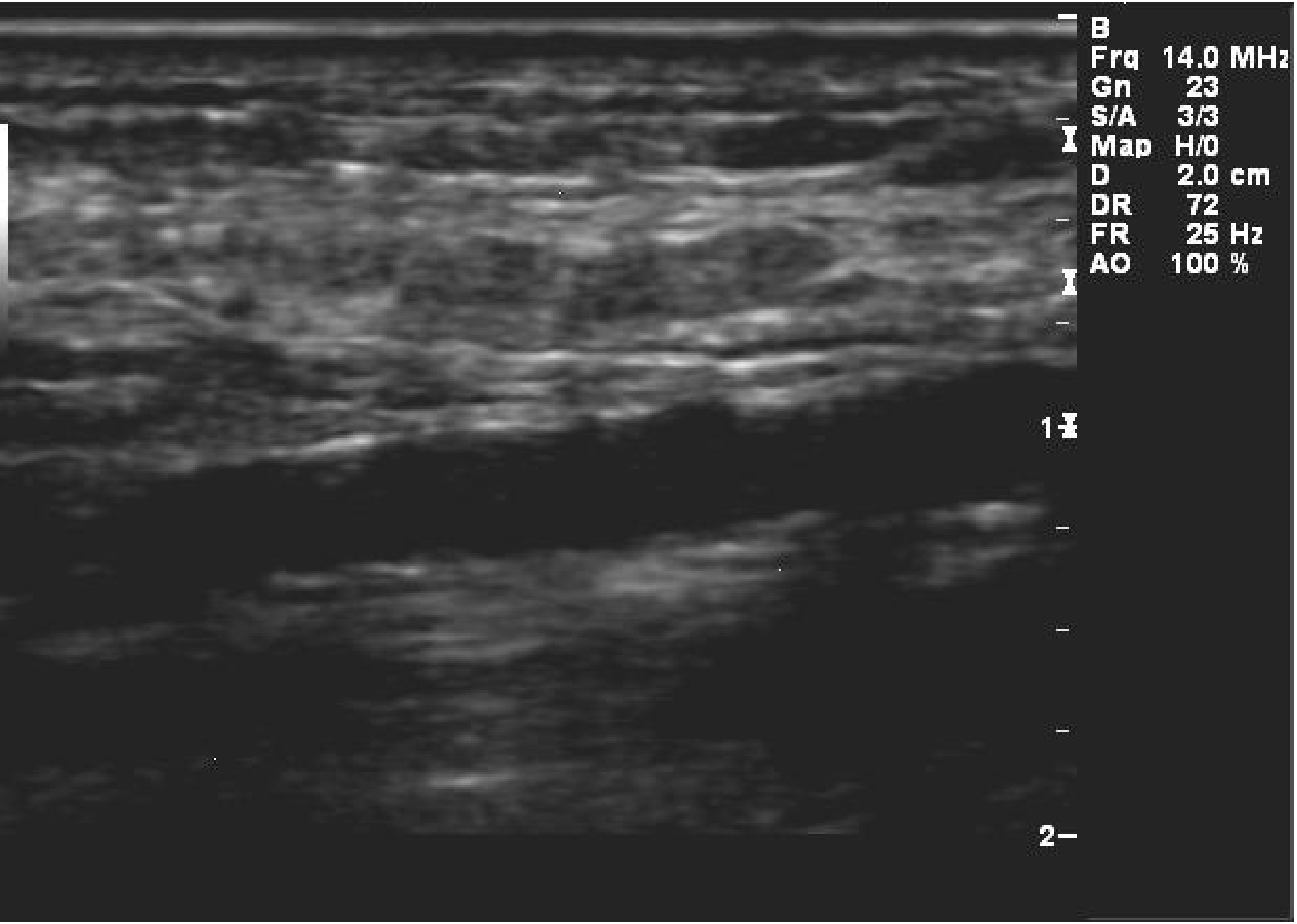
- Thrill
- Pulsatilité
- Compression
- Douleur
- voussure

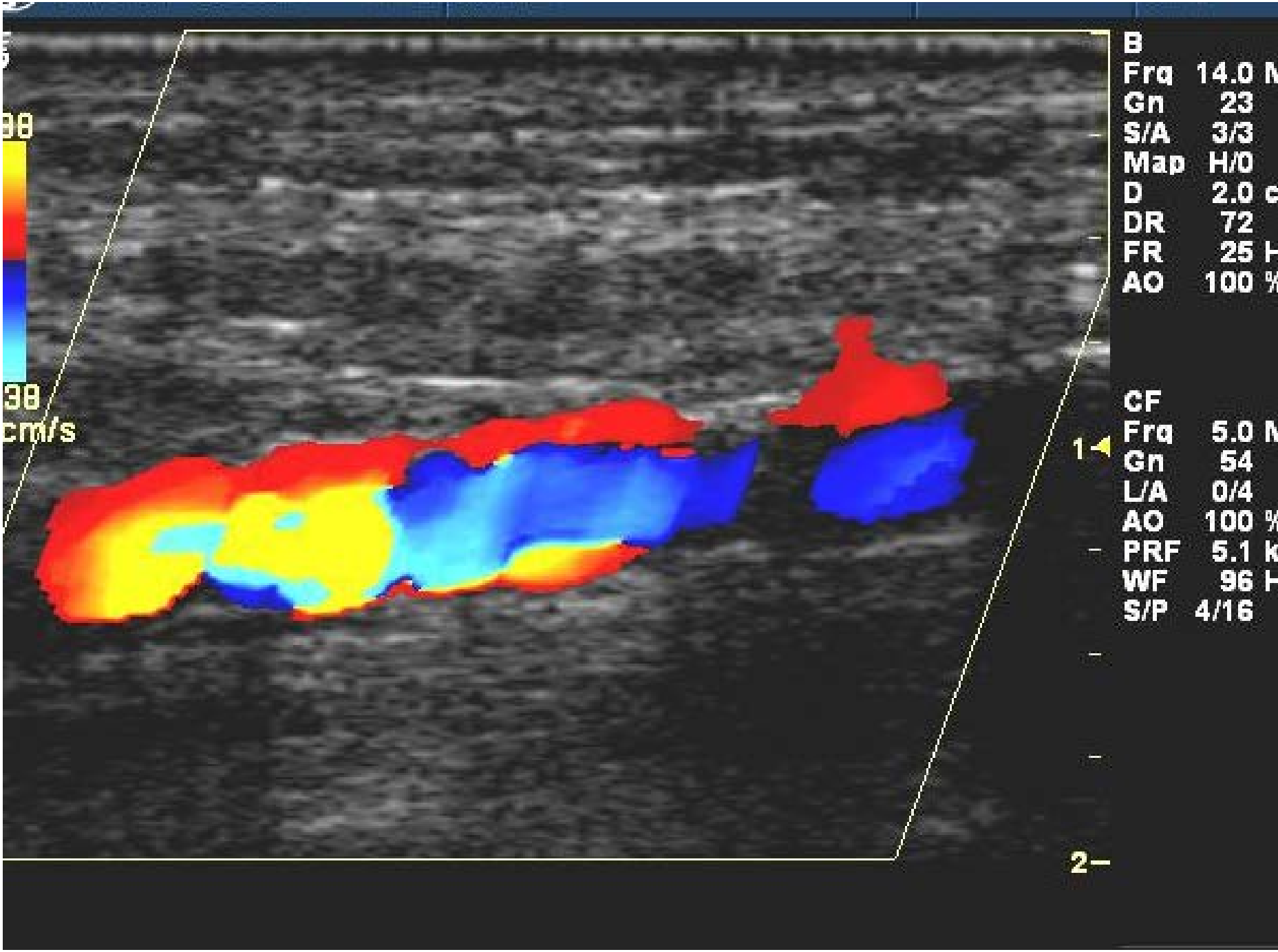
FISTULE DYSFONCTIONNELLE
étude doppler

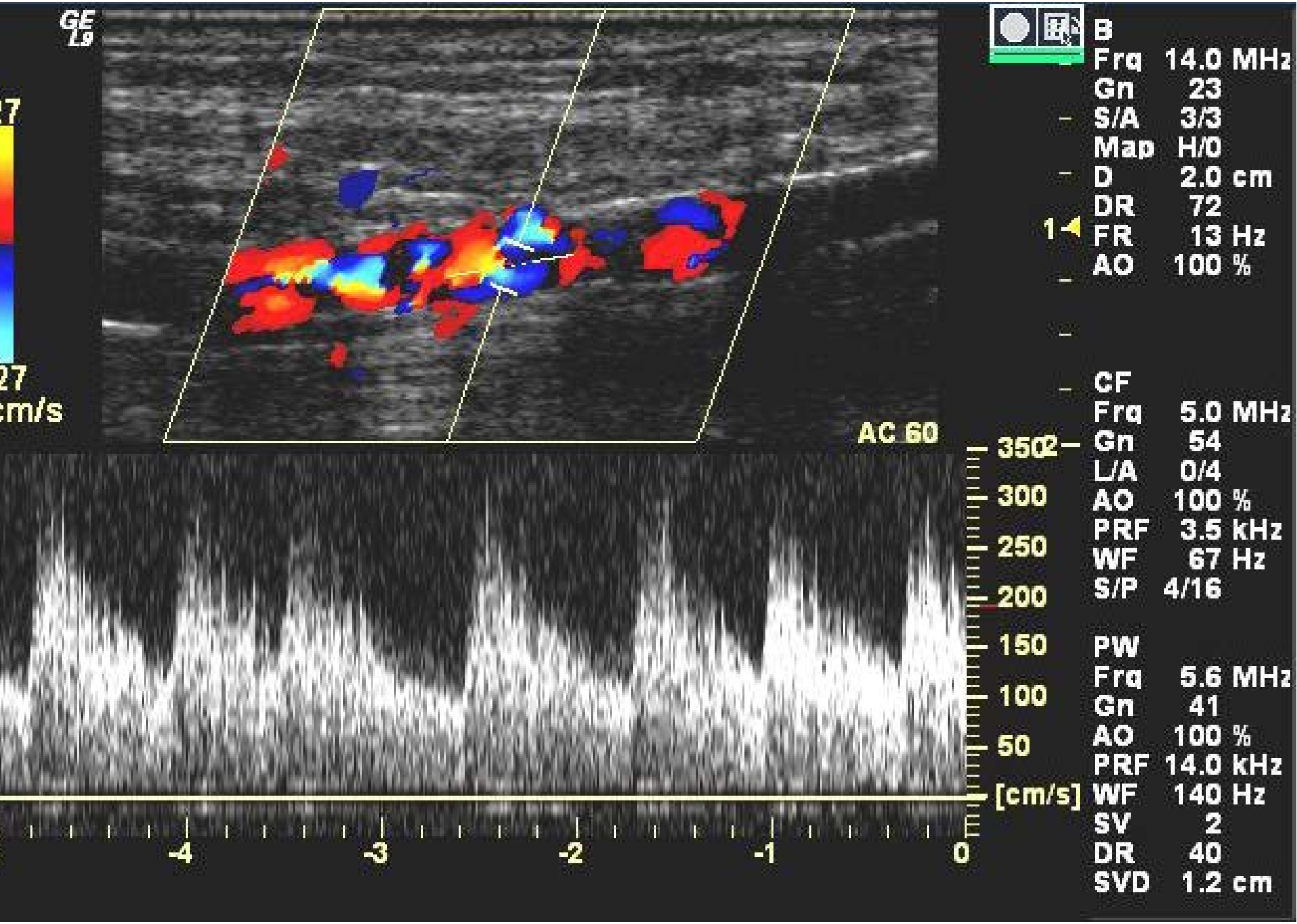
- Renseignements cliniques
- Etude anatomique
- Etude des vélocités
- Planification du traitement

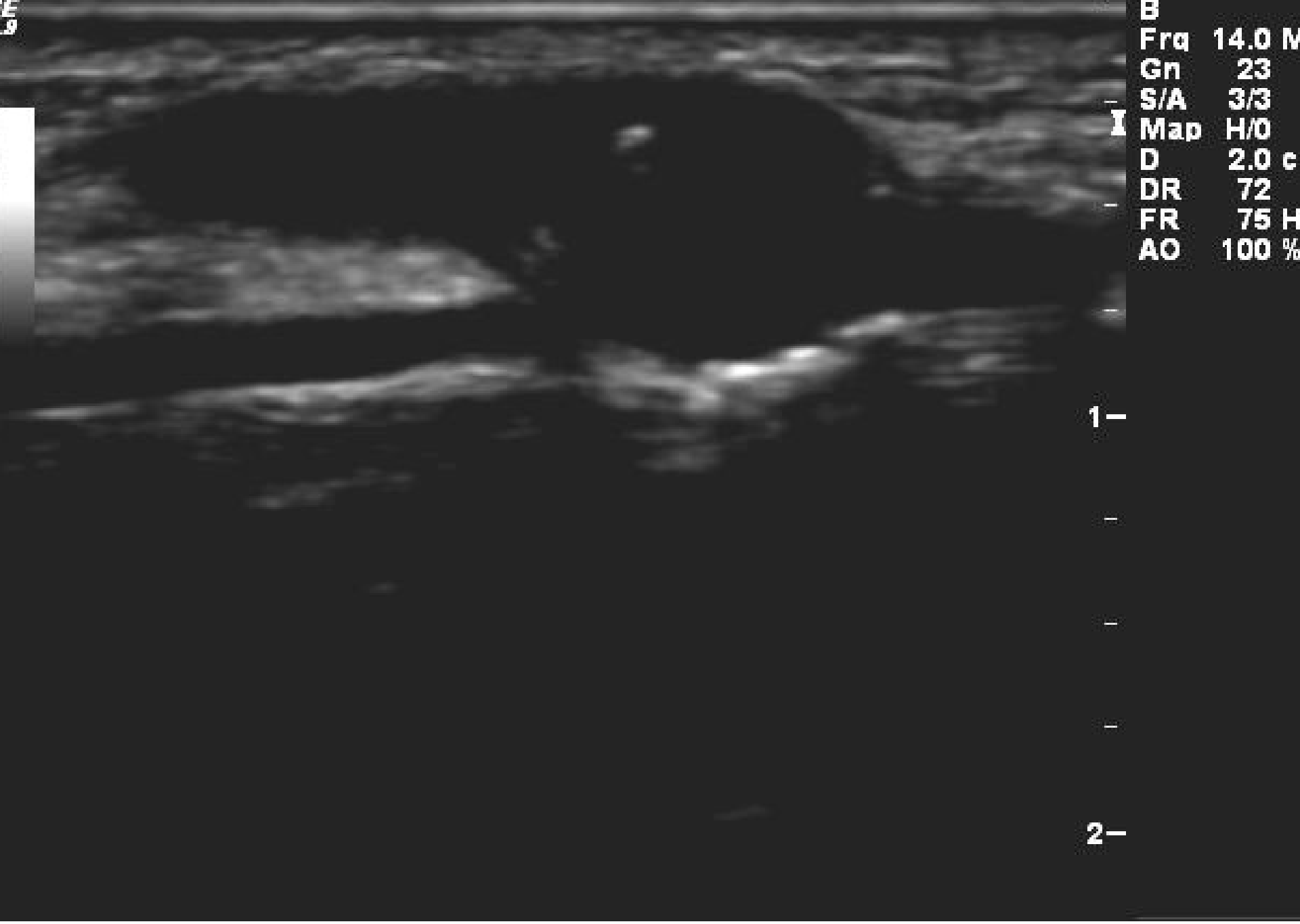
FISTULE DYSFONCTIONNELLE
fistulographie

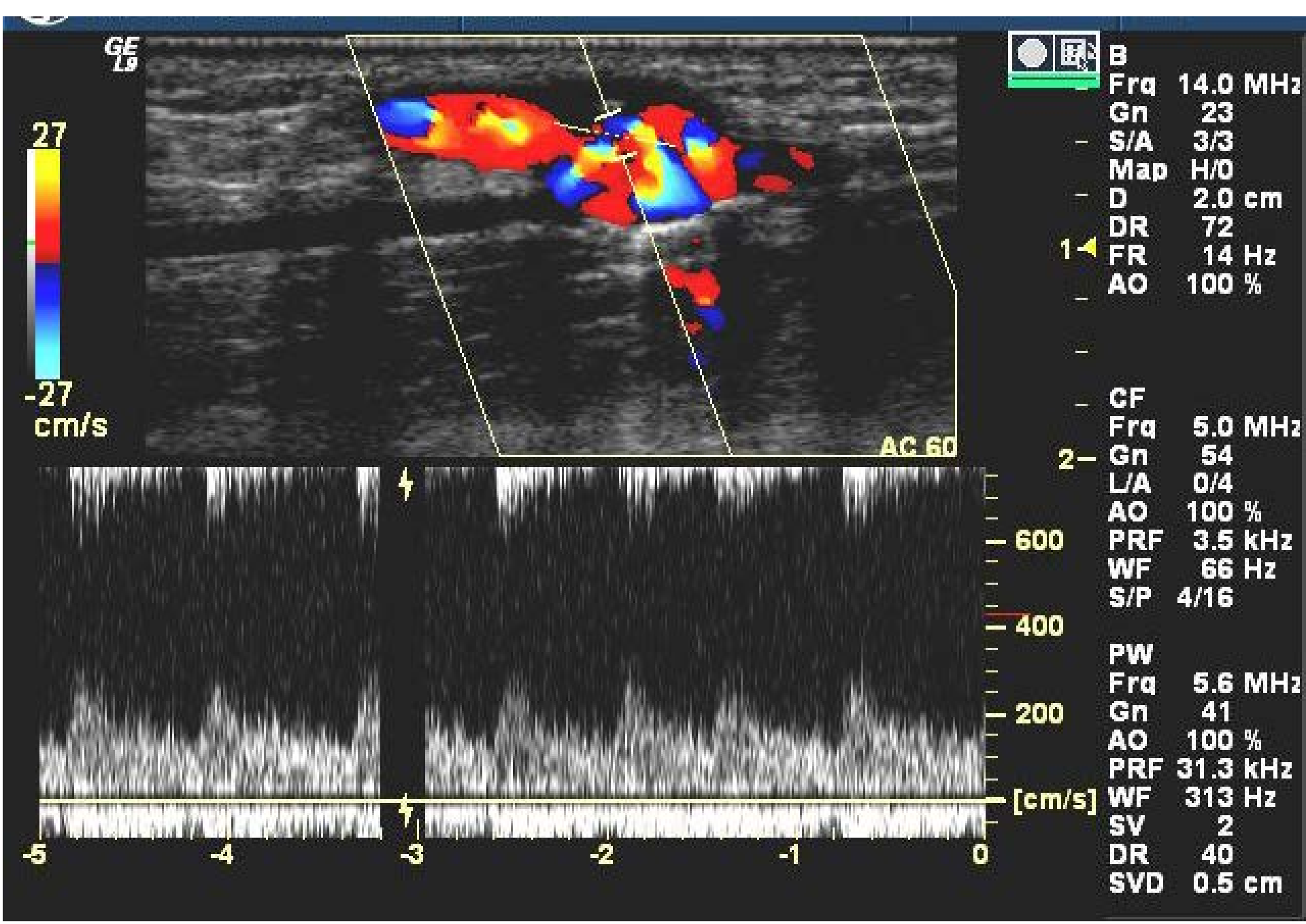
- Ponction artérielle
- Ponction fistule
- Vue d’ensemble
- Recherche de sténose
- collatérales

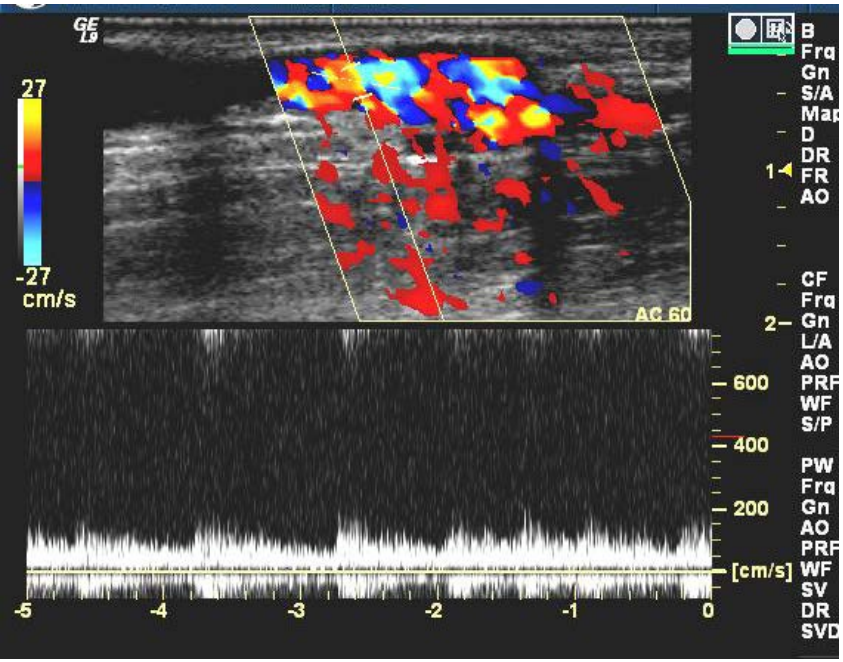

B
Frq 14.0 MHz
Gn 23
S/A 3/3
Map H/0
D 2.0 cm
DR 72
FR 25 Hz
AO 100 %
1
2

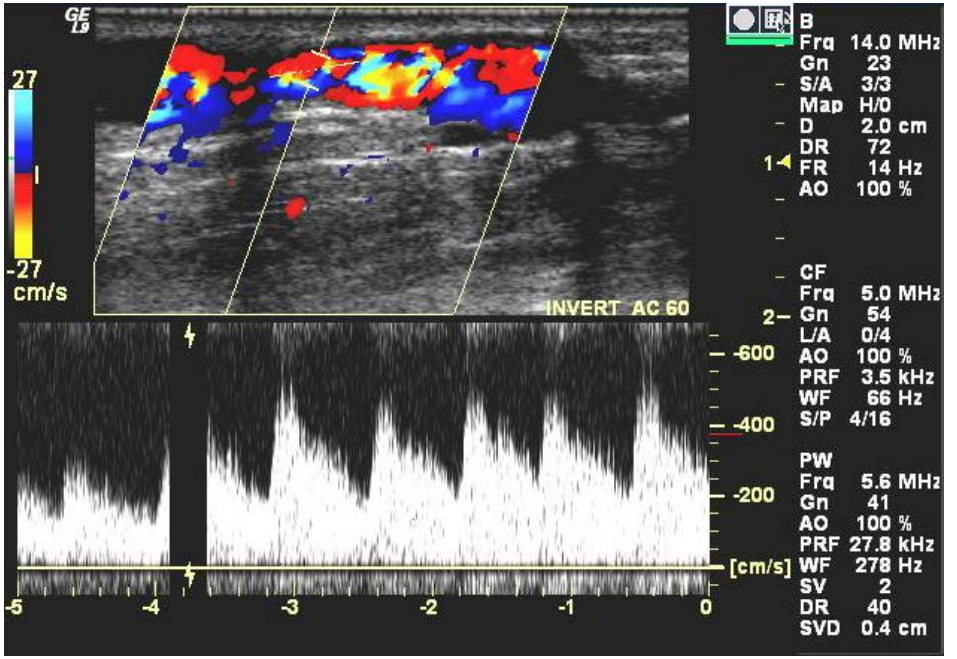

B
Frq 14.0 M
Gn 23
S/A 3/3
Map H/0
D 2.0 c
DR 72
FR 25 H
AO 100 %
CF
Frq 5.0 M
Gn 54
L/A 0/4
AO 100 %
PRF 5.1 k
WF 96 H
S/P 4/16
cm/s

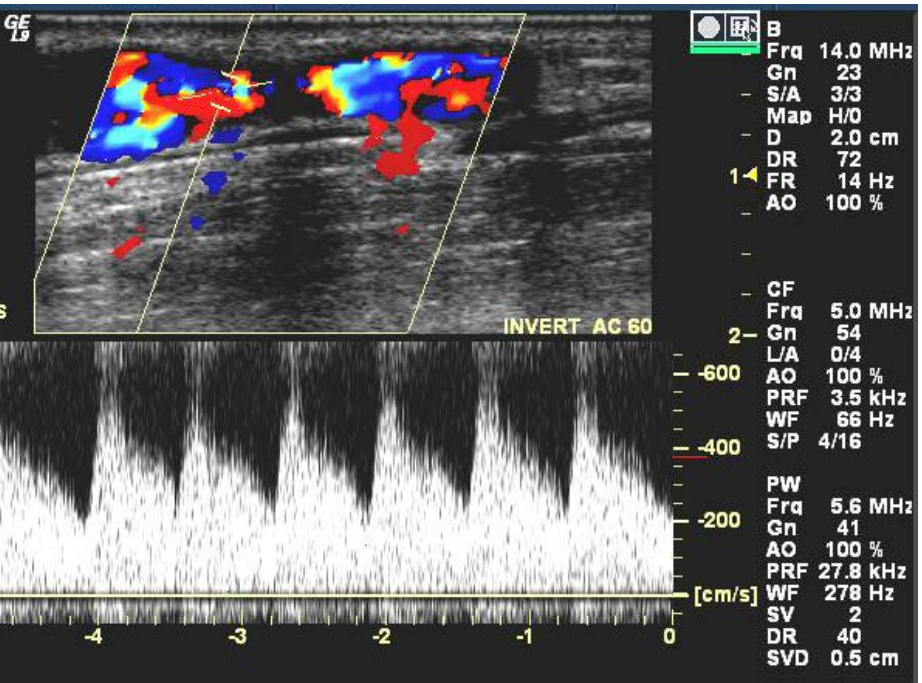

GE
L9
27
cm/s
AC 60
350
300
250
200
150
100
50
[cm/s]
-4
-3
-2
-1
0
B
Frq 14.0 MHz
Gn 23
S/A 3/3
Map H/0
D 2.0 cm
DR 72
1 FR 13 Hz
AO 100 %
CF
Frq 5.0 MHz
Gn 54
L/A 0/4
AO 100 %
PRF 3.5 kHz
WF 67 Hz
S/P 4/16
PW
Frq 5.6 MHz
Gn 41
AO 100 %
PRF 14.0 kHz
WF 140 Hz
SV 2
DR 40
SVD 1.2 cm

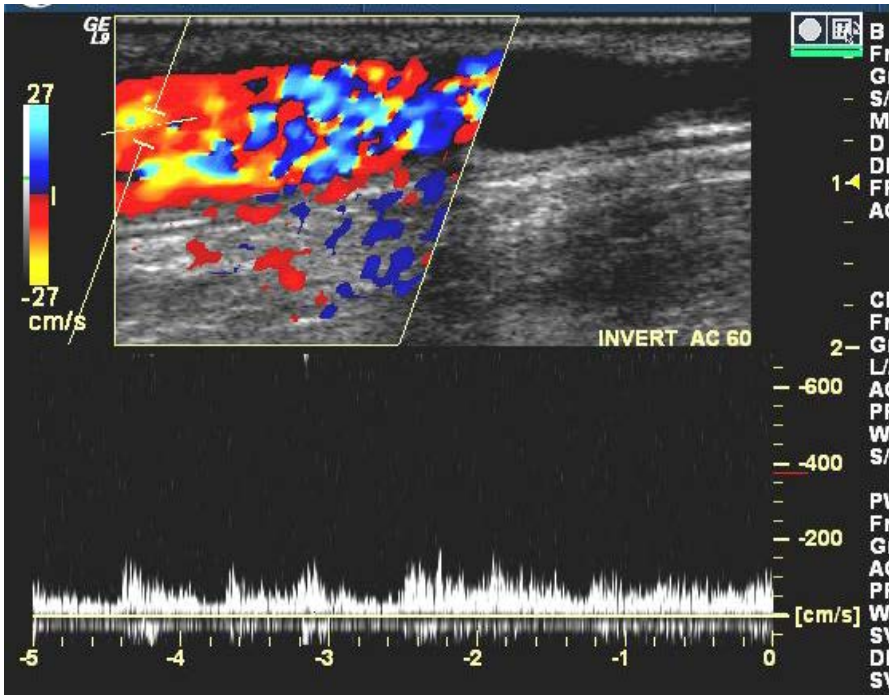

B
Frq 14.0 M
Gn 23
S/A 3/3
Map H/0
D 2.0 c
DR 72
FR 75 H
AO 100 %
1
2

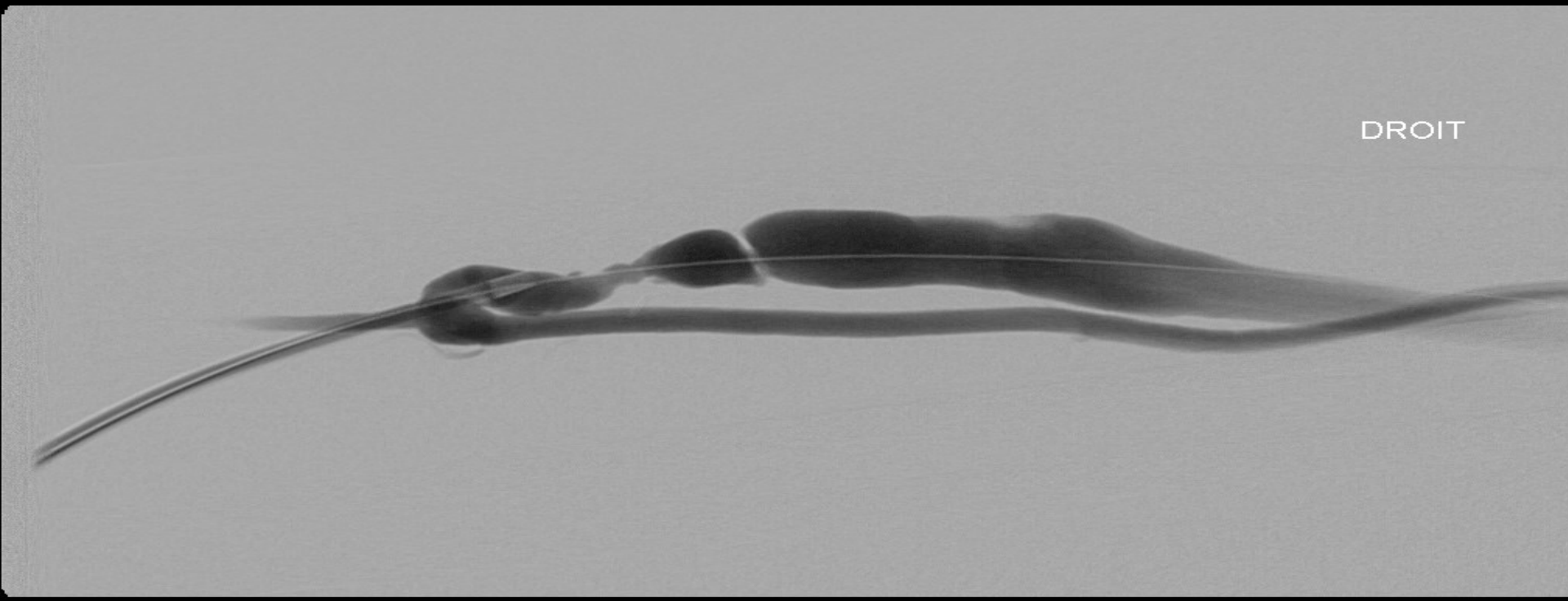

GE
27
-27
cm/s
AC 60
B
Frq 14.0 MHz
Gn 23
S/A 3/3
Map H/0
D 2.0 cm
DR 72
1
FR 14 Hz
AO 100 %
CF
Frq 5.0 MHz
2
Gn 54
L/A 0/4
AO 100 %
PRF 3.5 kHz
WF 66 Hz
S/P 4/16
PW
Frq 5.6 MHz
Gn 41
AO 100 %
PRF 31.3 kHz
WF 313 Hz
SV 2
DR 40
SVD 0.5 cm
600
400
200
[cm/s]
-5
-4
-3
-2
-1
0


GE L9
27
-27
cm/s
AC 60
B
Frq
Gn
S/A
Map
D
DR
FR
AO
CF
Frq
Gn
L/A
AO
PRF
WF
S/P
PW
Frq
Gn
AO
PRF
WF
SV
DR
SVD
600
400
200
[cm/s]
-5
-4
-3
-2
-1
0

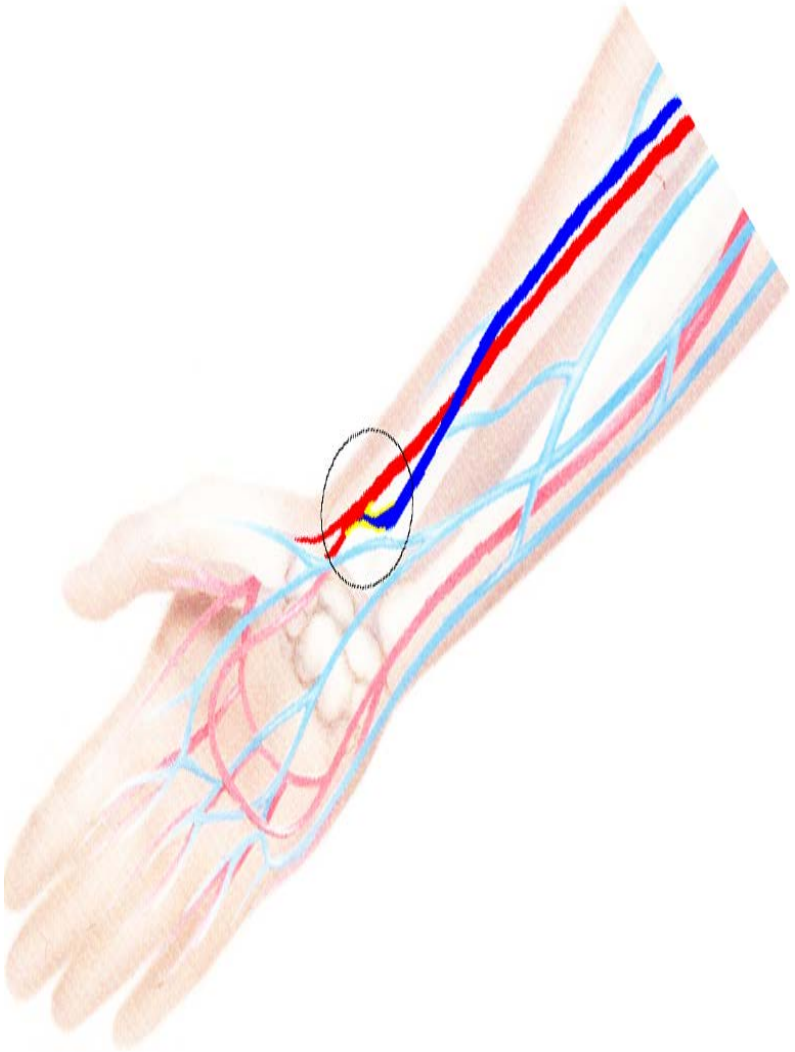

GE L9
27
-27
cm/s
INVERT AC 60
B
Frq 14.0 MHz
Gn 23
S/A 3/3
Map H/0
D 2.0 cm
DR 72
FR 14 Hz
AO 100 %
CF
Frq 5.0 MHz
Gn 54
L/A 0/4
AO 100 %
PRF 3.5 kHz
WF 66 Hz
S/P 4/16
PW
Frq 5.6 MHz
Gn 41
AO 100 %
PRF 27.8 kHz
WF 278 Hz
SV 2
DR 40
SVD 0.4 cm
-600
-400
-200
[cm/s]
-5
-4
-3
-2
-1
0


GE L9
INVERT AC 60
B
Frq 14.0 MHz
Gn 23
S/A 3/3
Map H/0
D 2.0 cm
DR 72
FR 14 Hz
AO 100 %
CF
Frq 5.0 MHz
Gn 54
L/A 0/4
AO 100 %
PRF 3.5 kHz
WF 66 Hz
S/P 4/16
PW
Frq 5.6 MHz
Gn 41
AO 100 %
PRF 27.8 kHz
WF 278 Hz
SV 2
DR 40
SVD 0.5 cm
-600
-400
-200
[cm/s]
-4
-3
-2
-1
0


GE L9
27
-27
cm/s
INVERT AC 60
-600
-400
-200
[cm/s]
-5
-4
-3
-2
-1
0


DROIT

Situation 1



- Difficulté de ponction
- Débit à la baisse

- EXAMEN PHYSIQUE

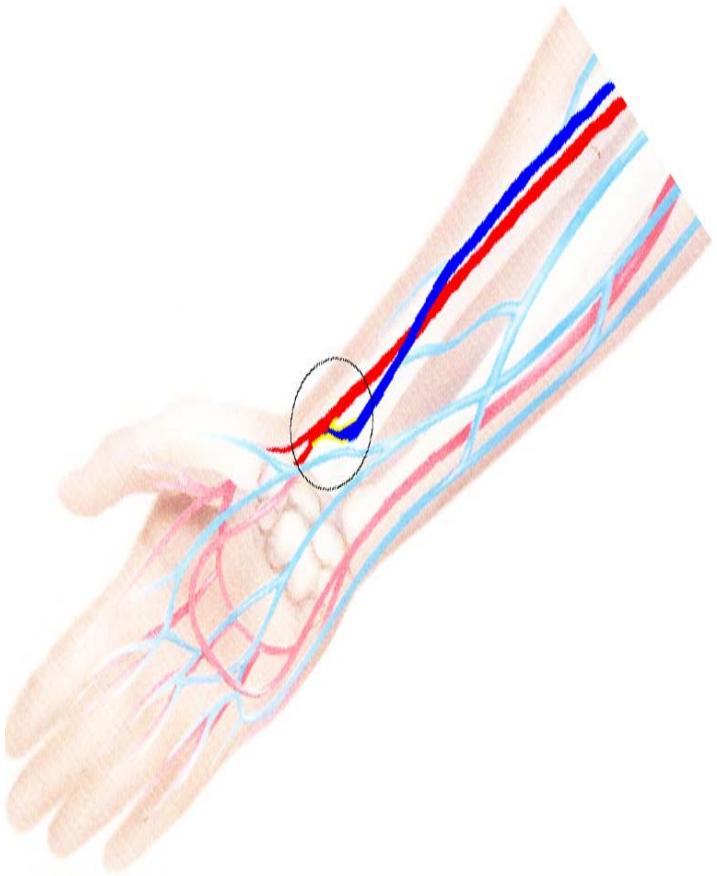
  fistule sans thrill

  non pulsatile

  souvent petite

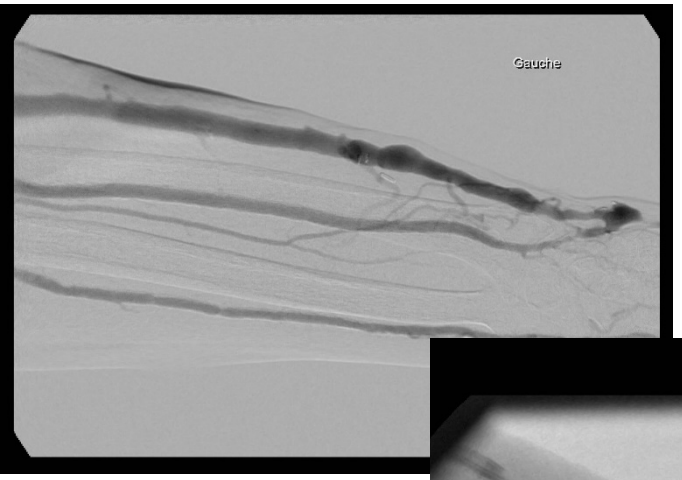
  souffle région anastomose

Situation 1

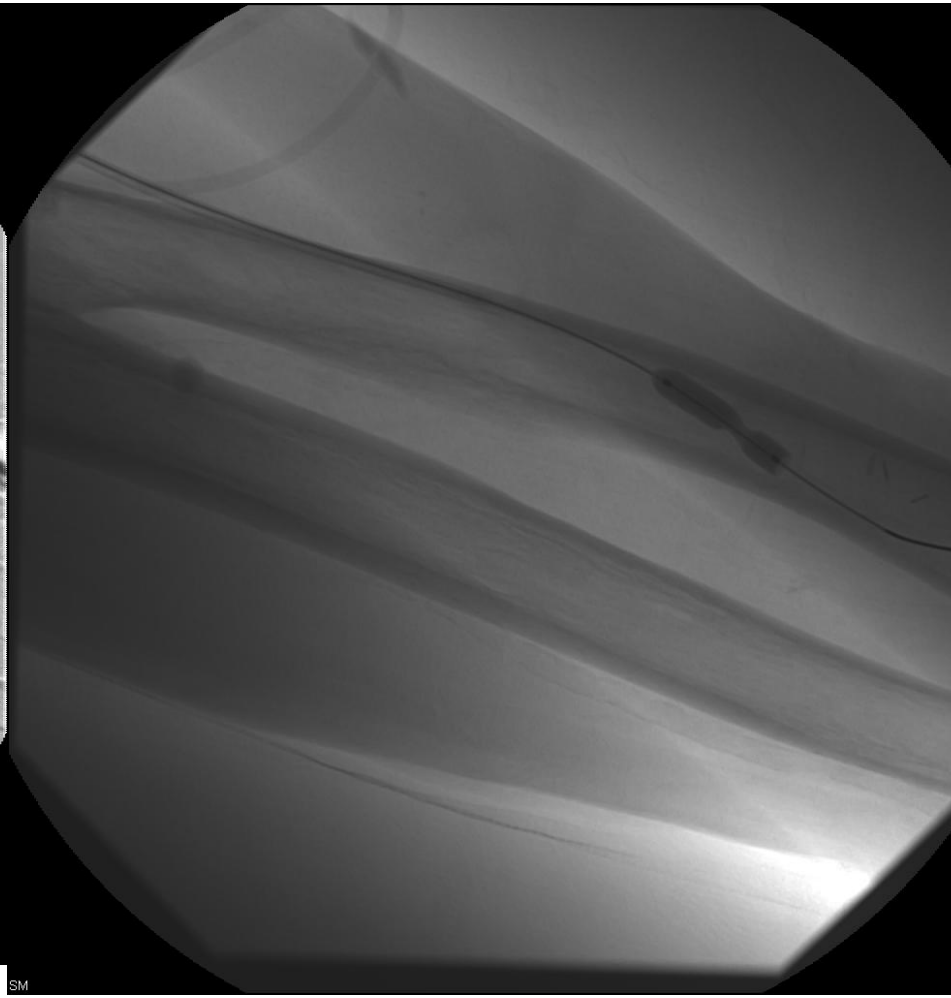


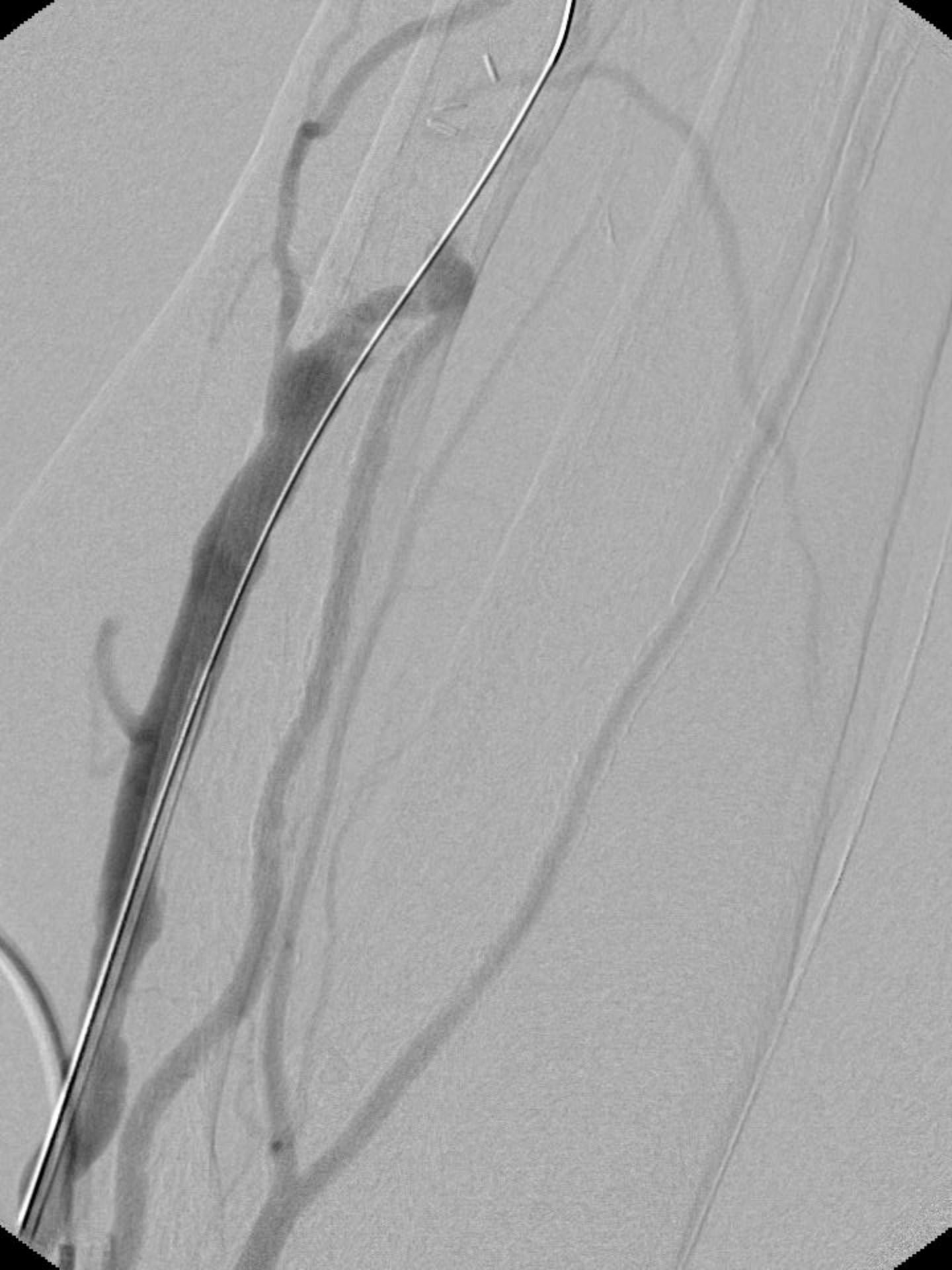
- TRAITEMENT
  1-ANGIOPLASTIE
  2-CHIRURGIE

STÉNOSE ARTÉRIELLE
difficulté de ponction et faible débit



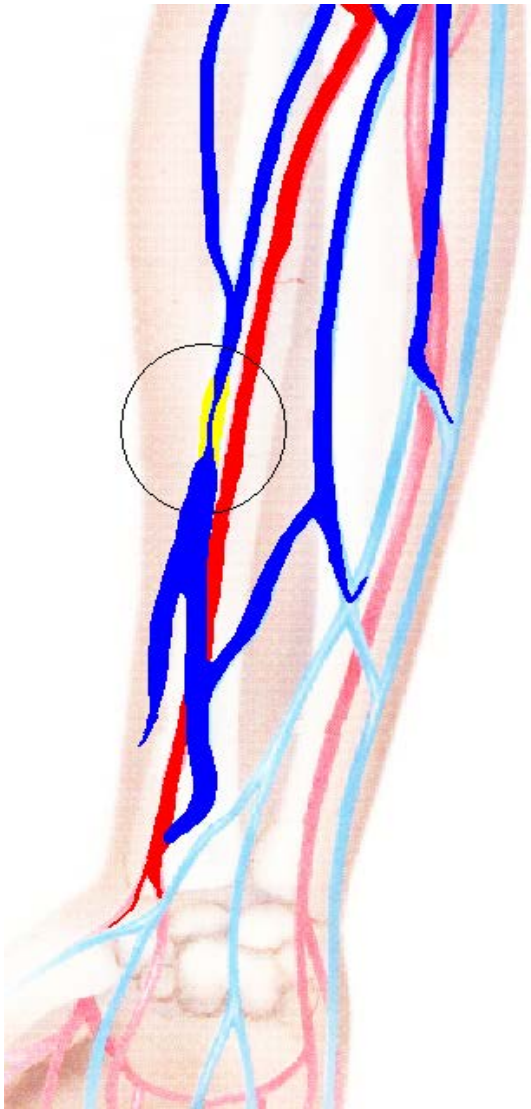
FISTULE DYSFONCTIONNELLE
situation 1





situation 2

- Difficulté de ponction
- Baisse de débit
- Saignement prolongé
- Recirculation
- ↑ Pression veineuse



situation 2

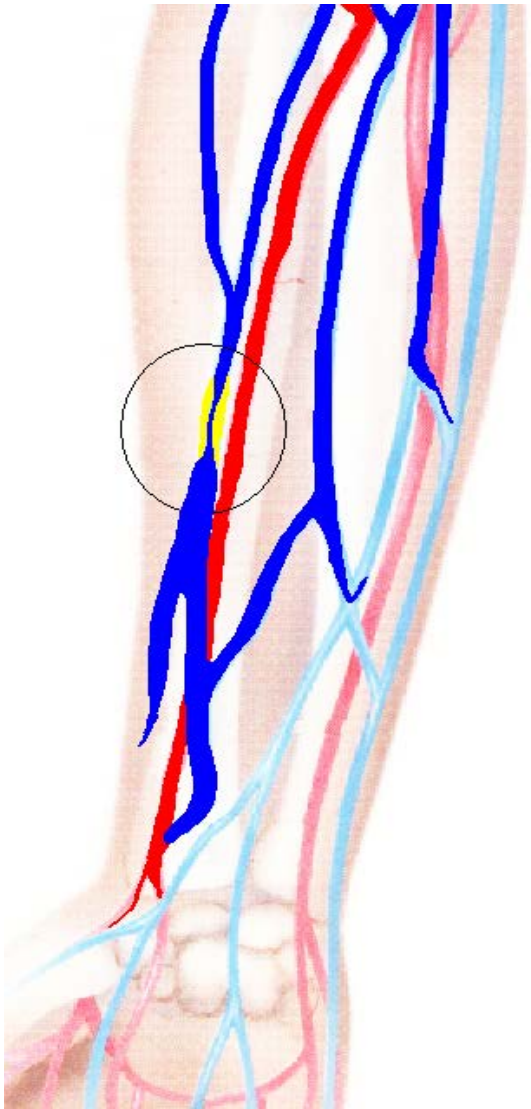
- EXAMEN CLINIQUE

  pulsatile en amont

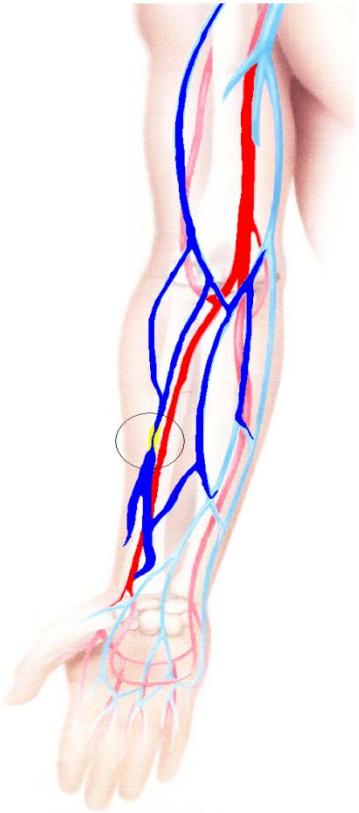
  court thrill

  difficile à palper en aval

  souffle au site de sténose



situation 2



- TRAITEMENT

  1-angioplastie

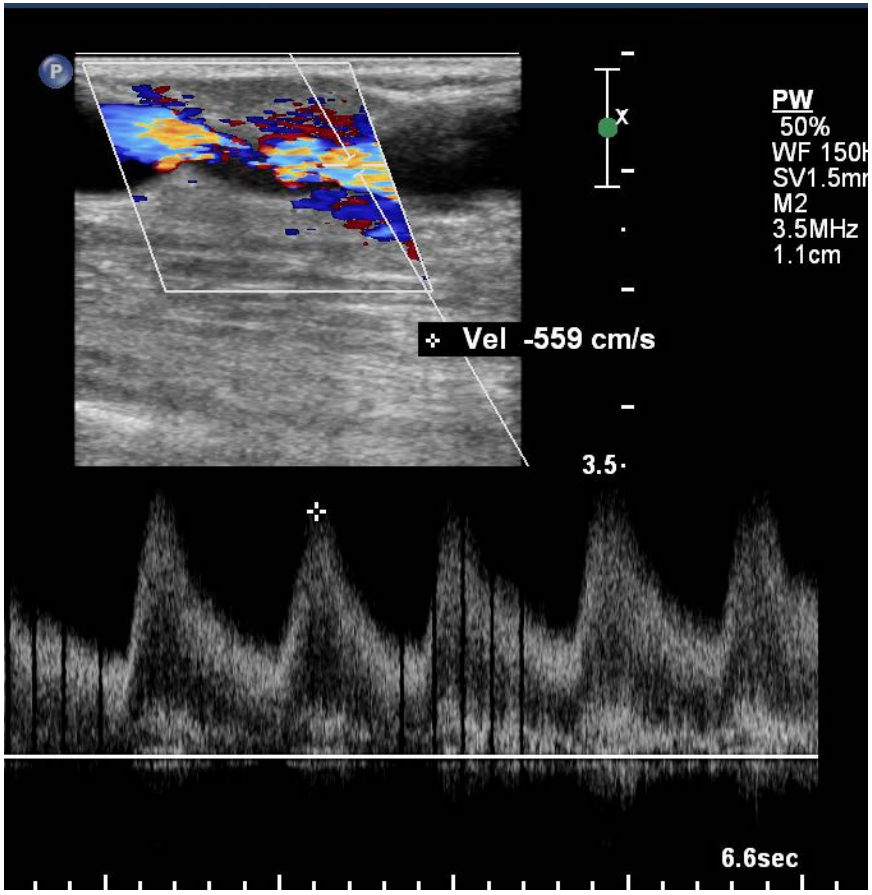
  2-ballon médicamenté

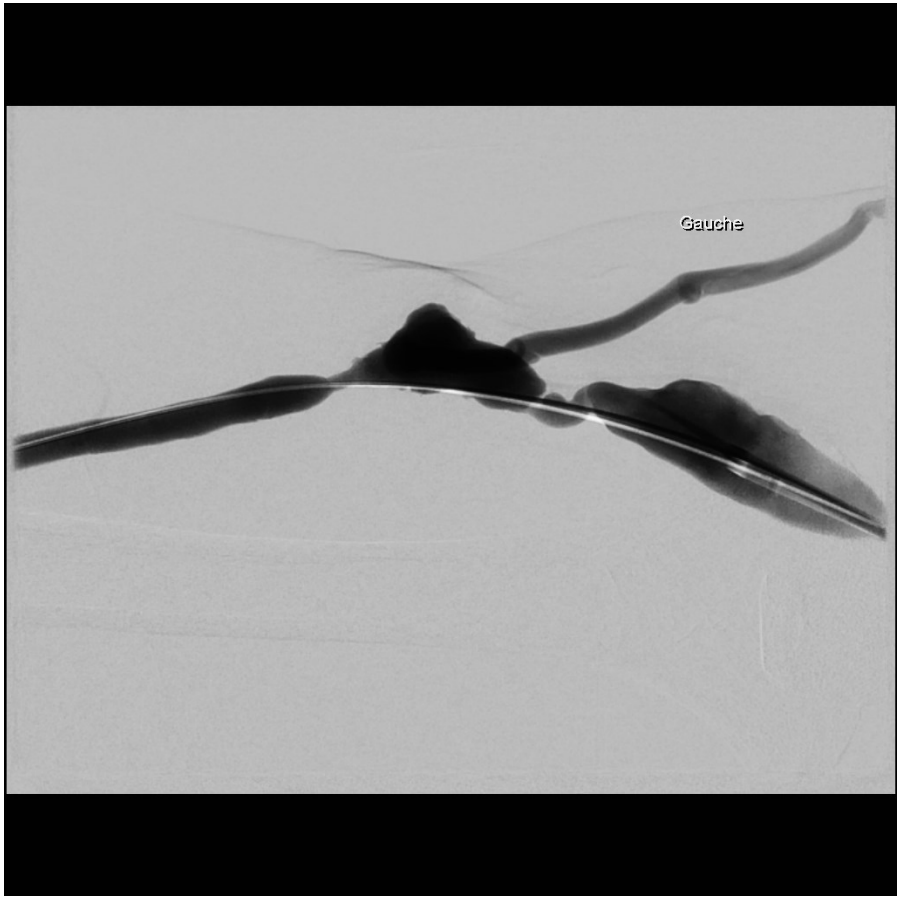
  3-stent

  4-cutting balloon

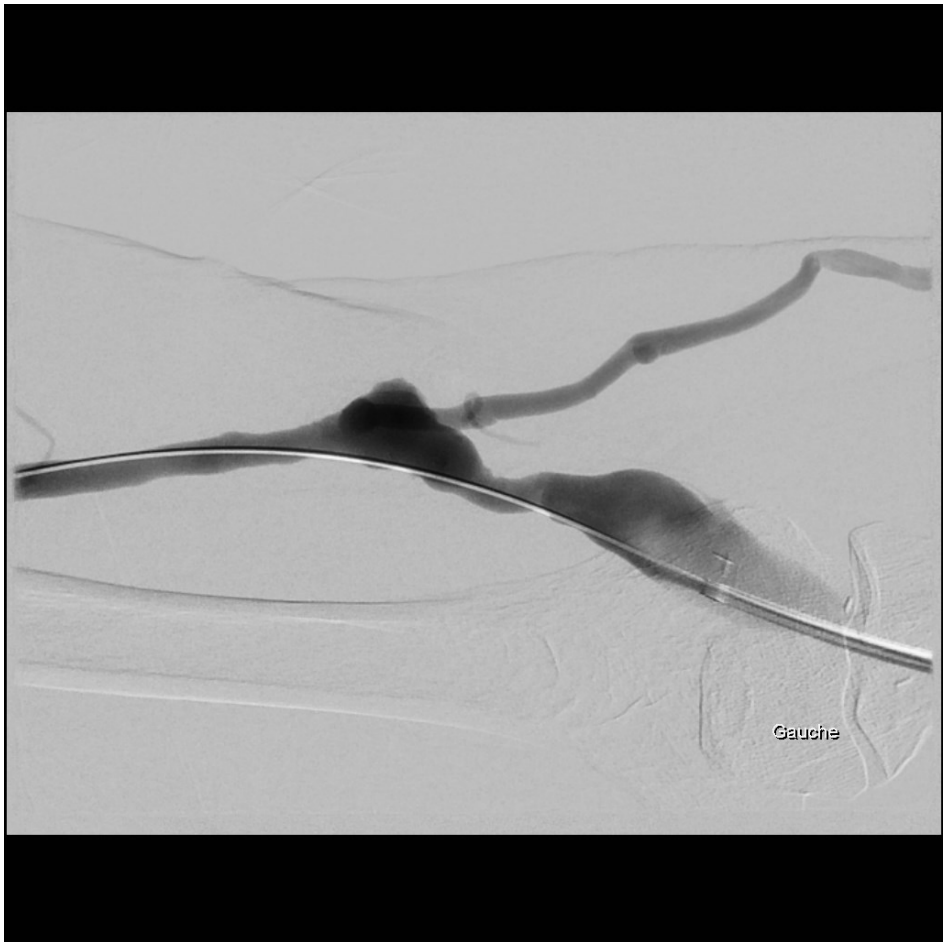
  5-stent couvert

Situation 2
saignement prolongé et diminution de débit

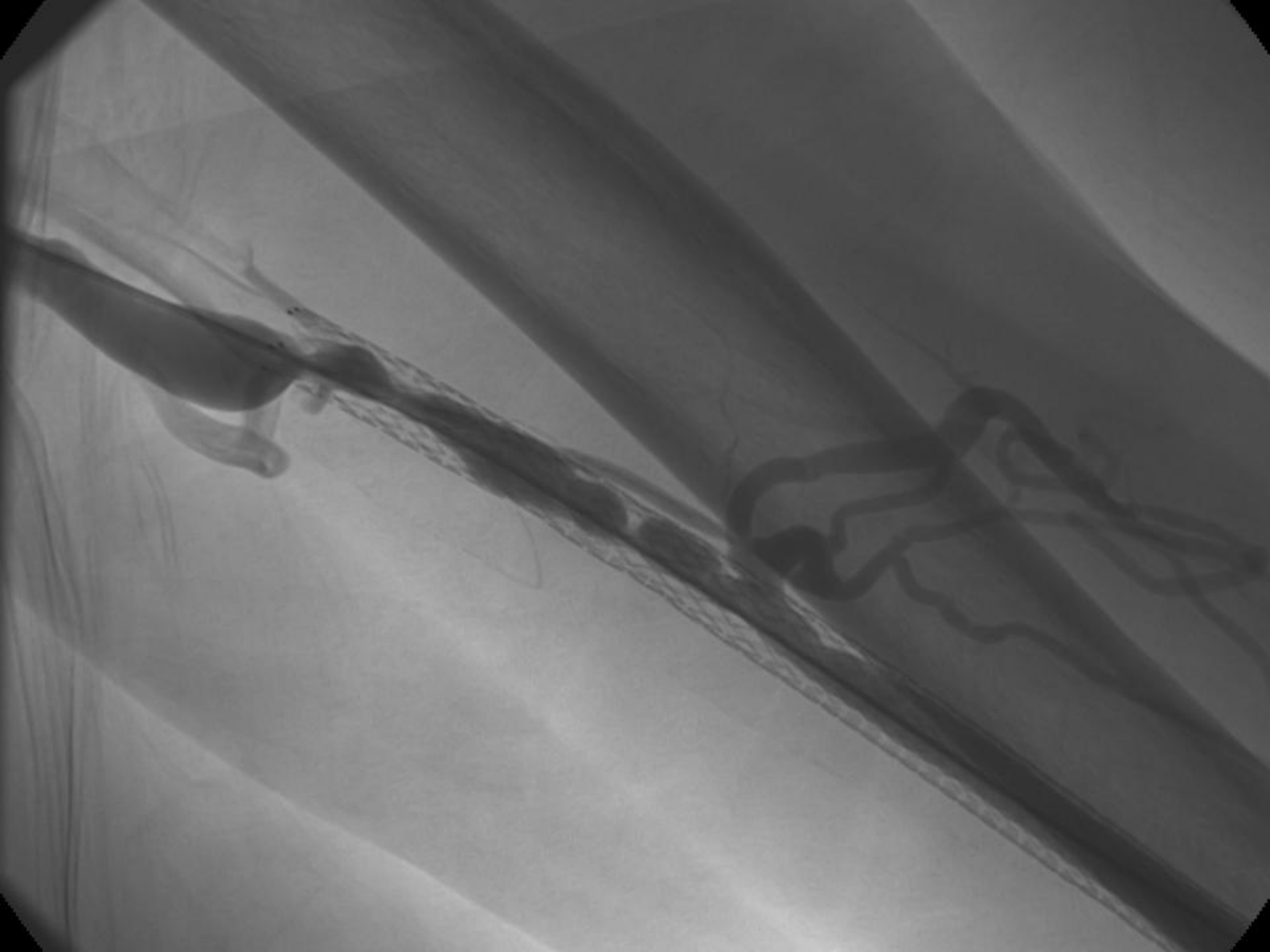




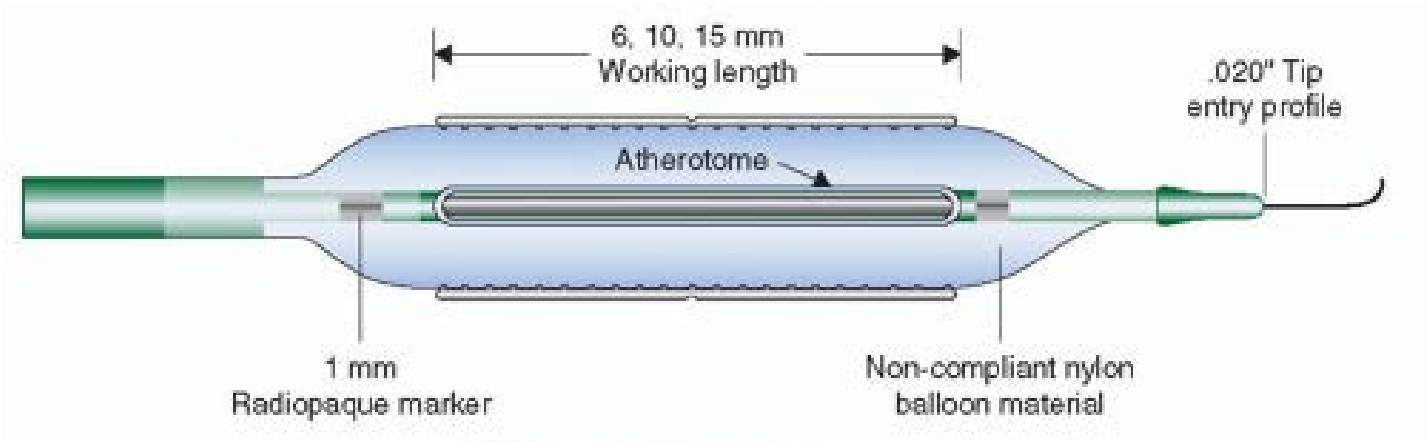
Situation 2
saignement prolongé et diminution de débit

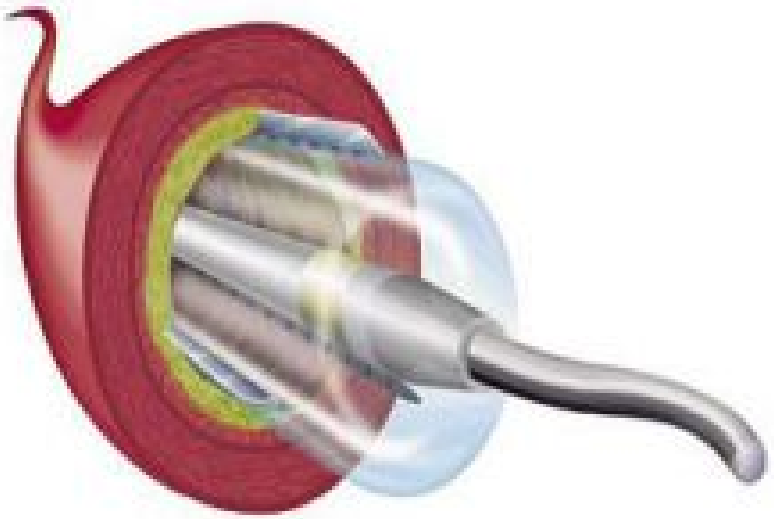


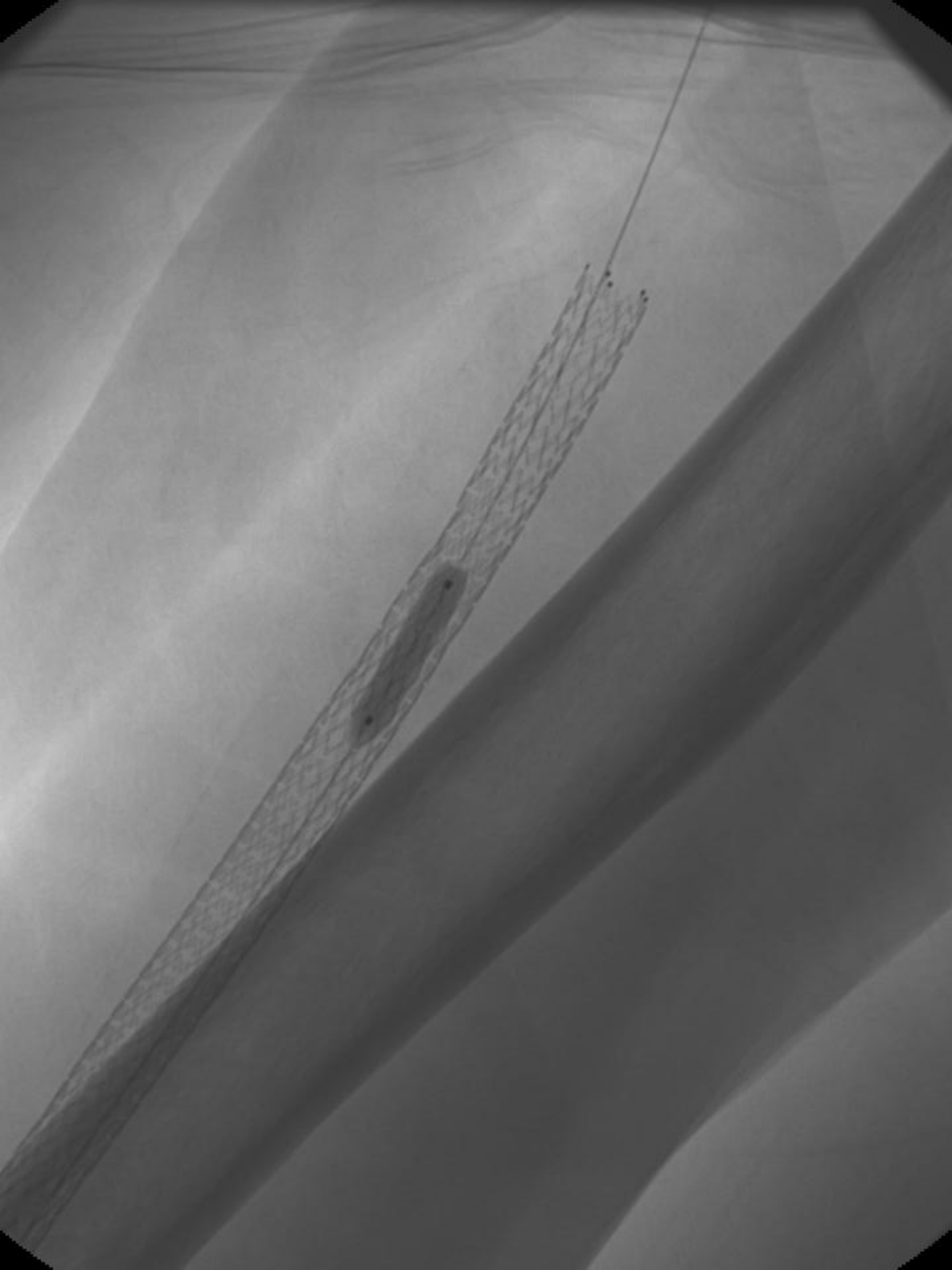
diminution de débit

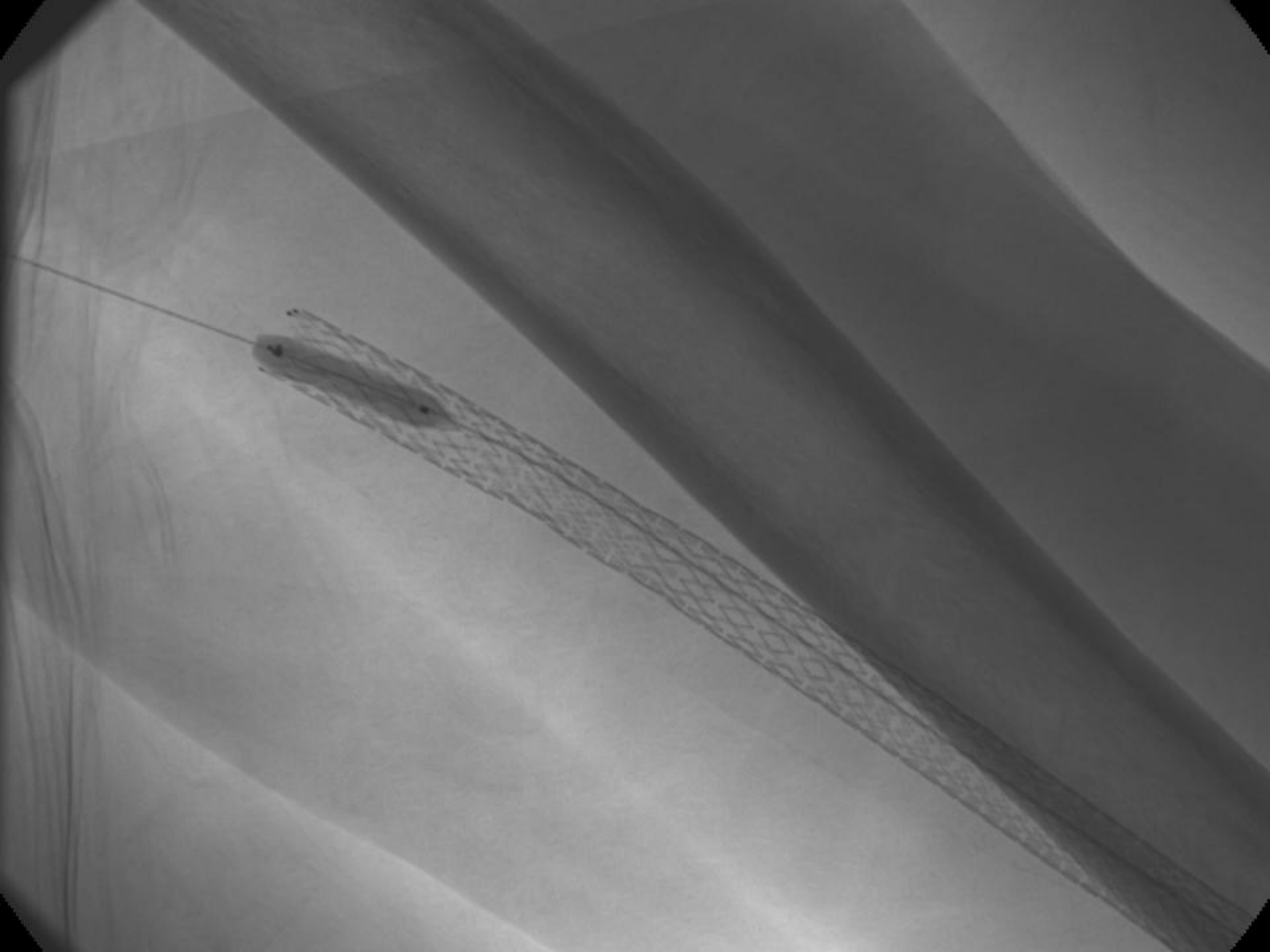


Cutting balloon



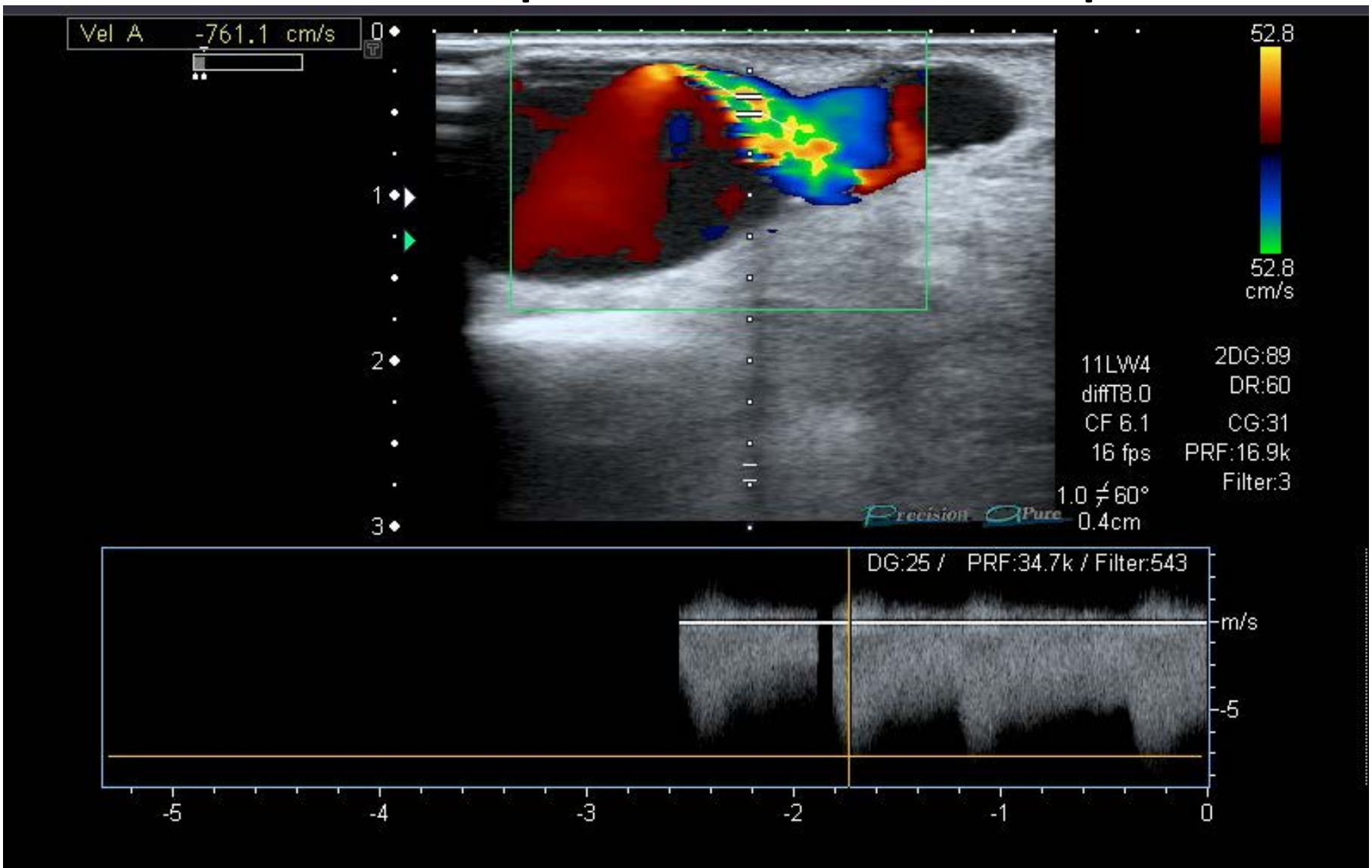




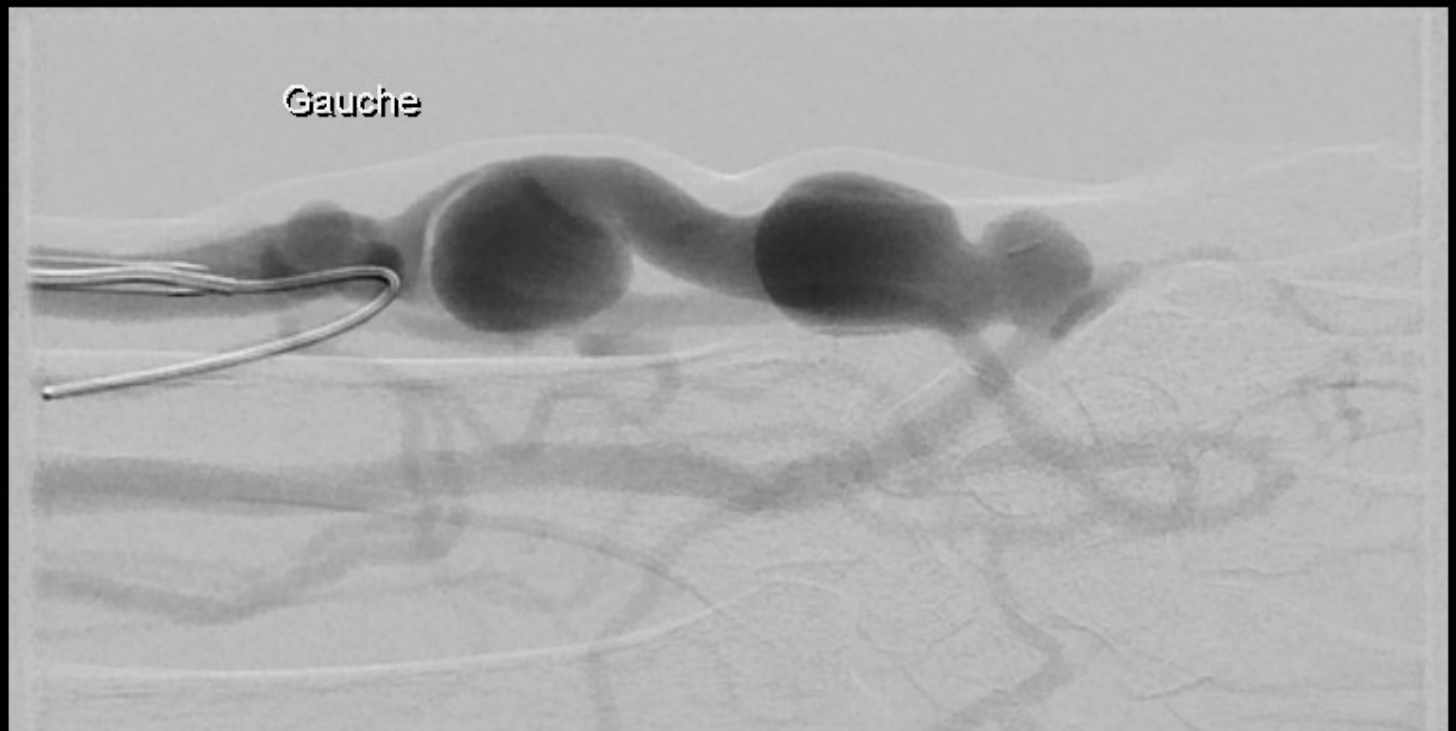


CUTTING BALLOON

Diminution de débit
voussure post-anastomotique

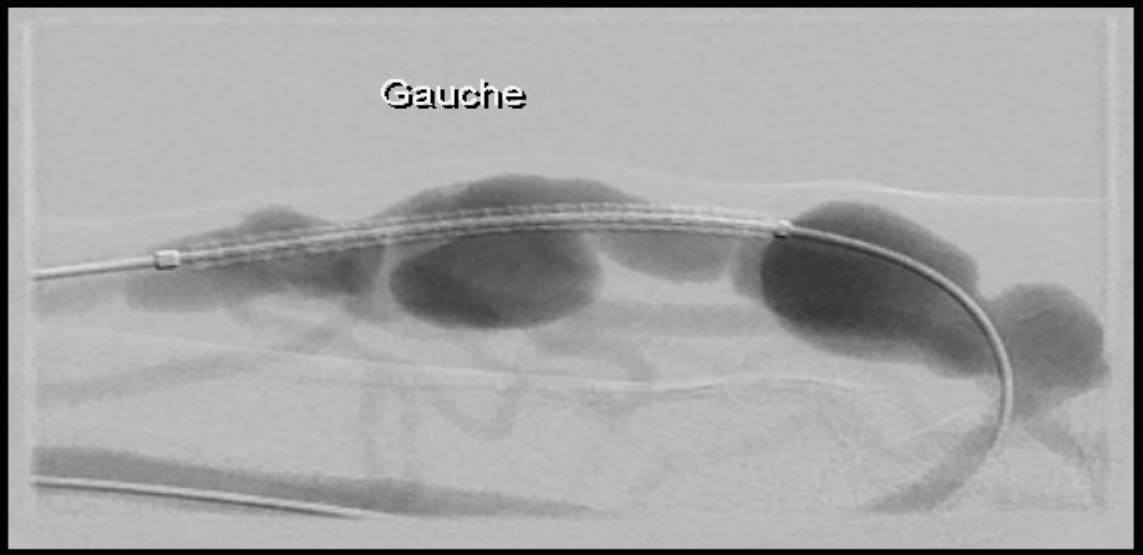


fistulographie

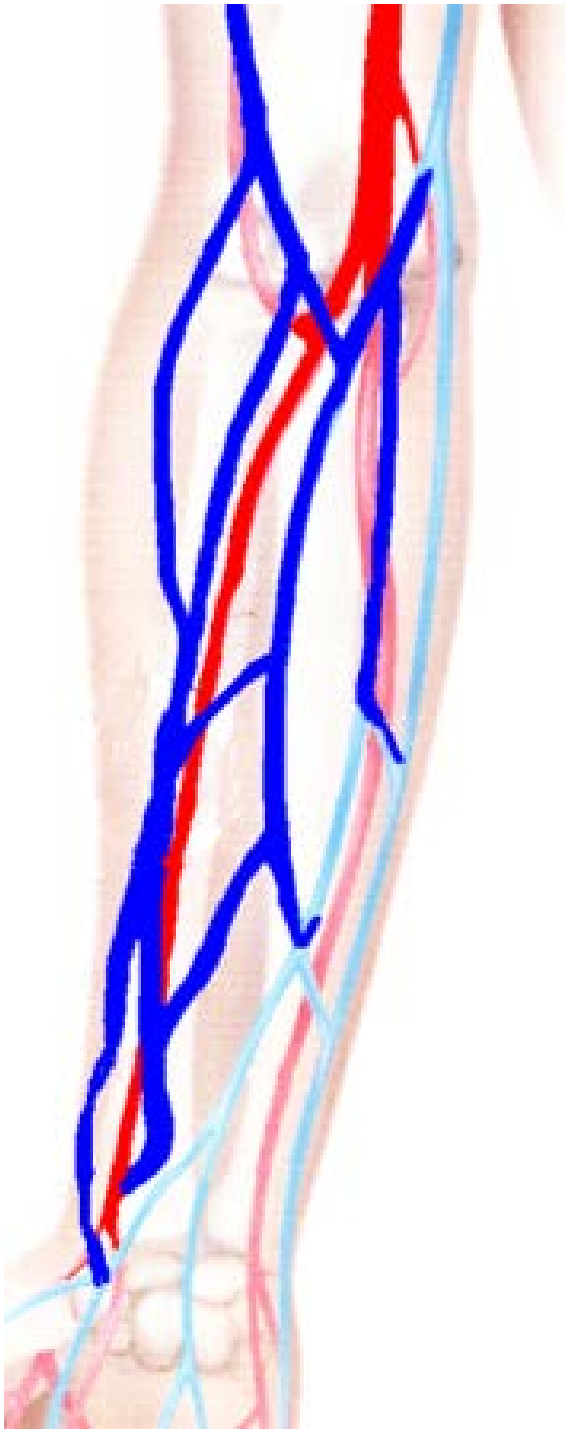


STENT COUVERT

STENT COUVERT



STENT COUVERT



situation 3

Problème clinique

difficulté de ponction

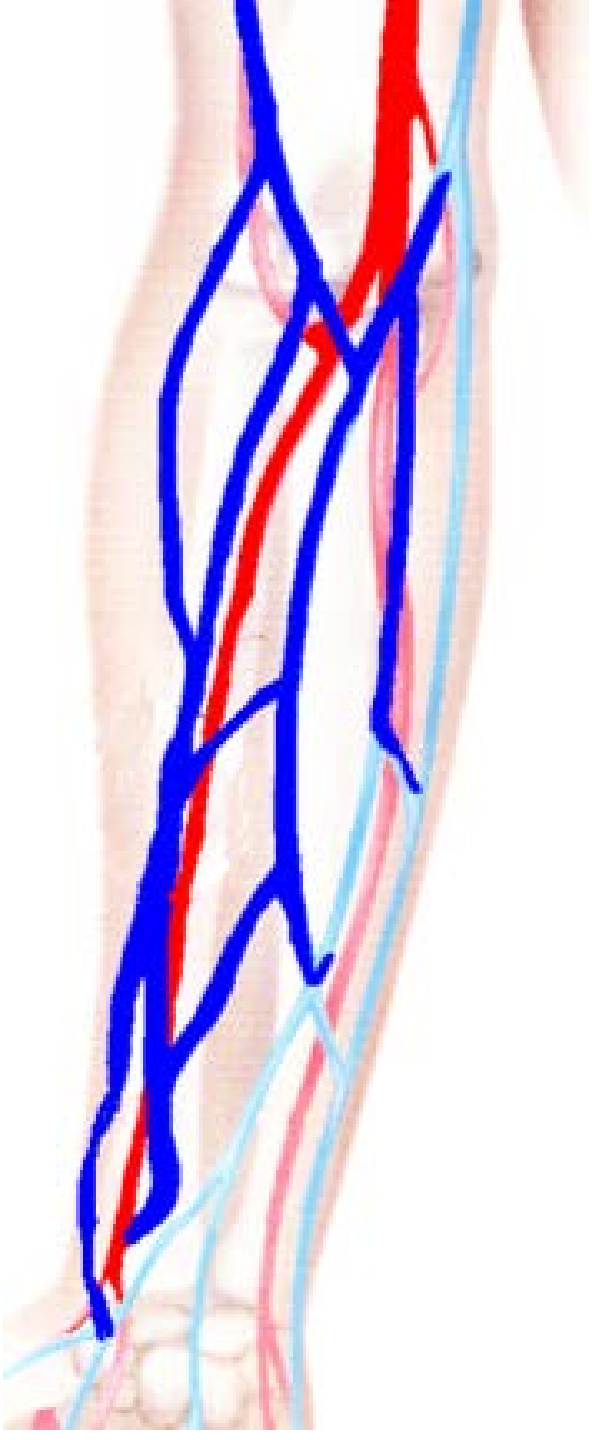
faible débit

Examen clinique

thrill sur les premiers cm

difficile à palper par la suite

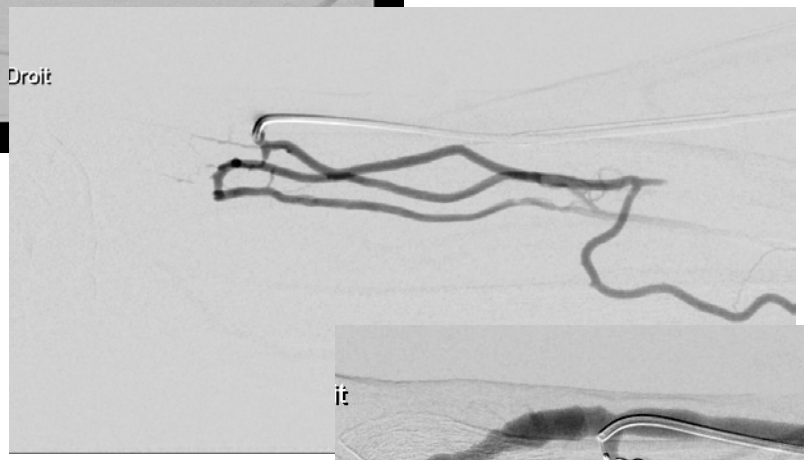
pas de souffle à l'auscultation

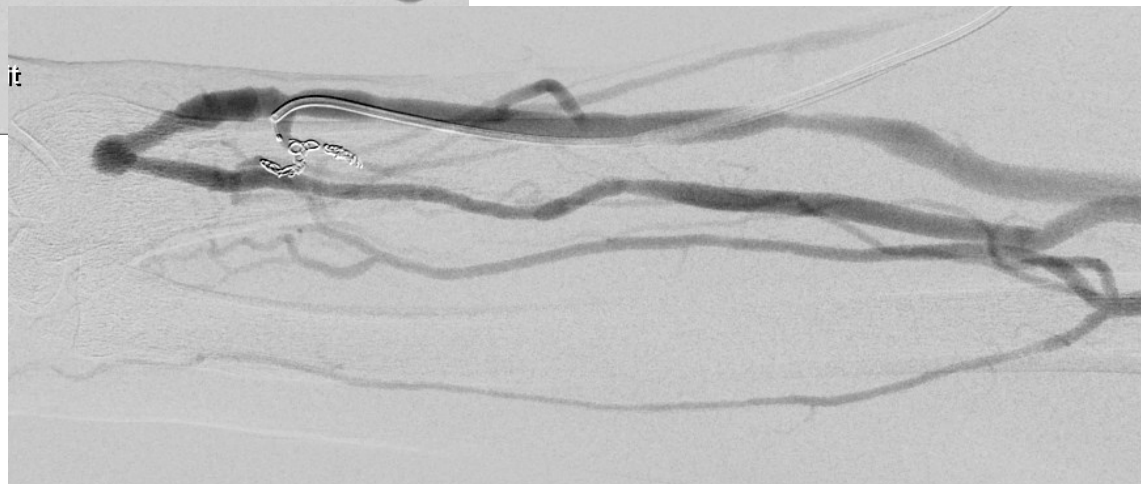


situation 3

- TRAITEMENT
- Ligature de collatérales
- embolisation

situation 3
difficulté de ponction

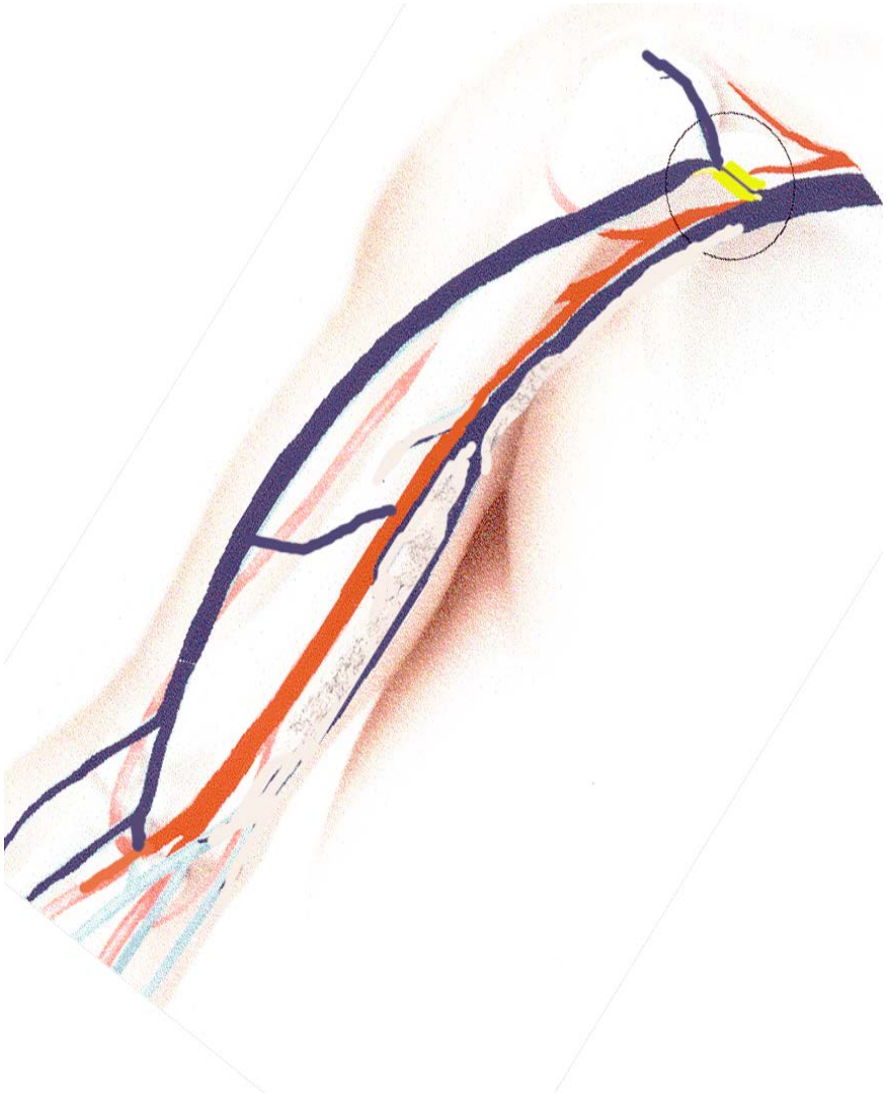




situation 4

- Saignement prolongé
- Pseudo-anévrisme
- Baisse de débit
- Augmentation de la pression veineuse

situation 4



EXAMEN

1-Fistule pulsatile

2-Turgescente

3-Peu ou pas d’oedème

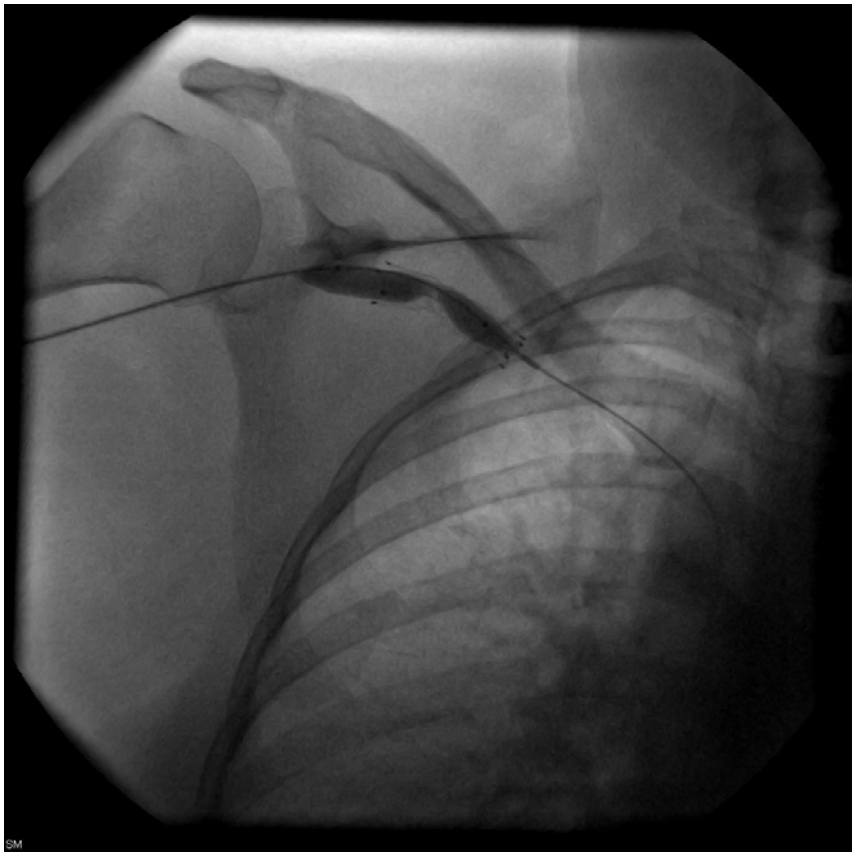
situation 4

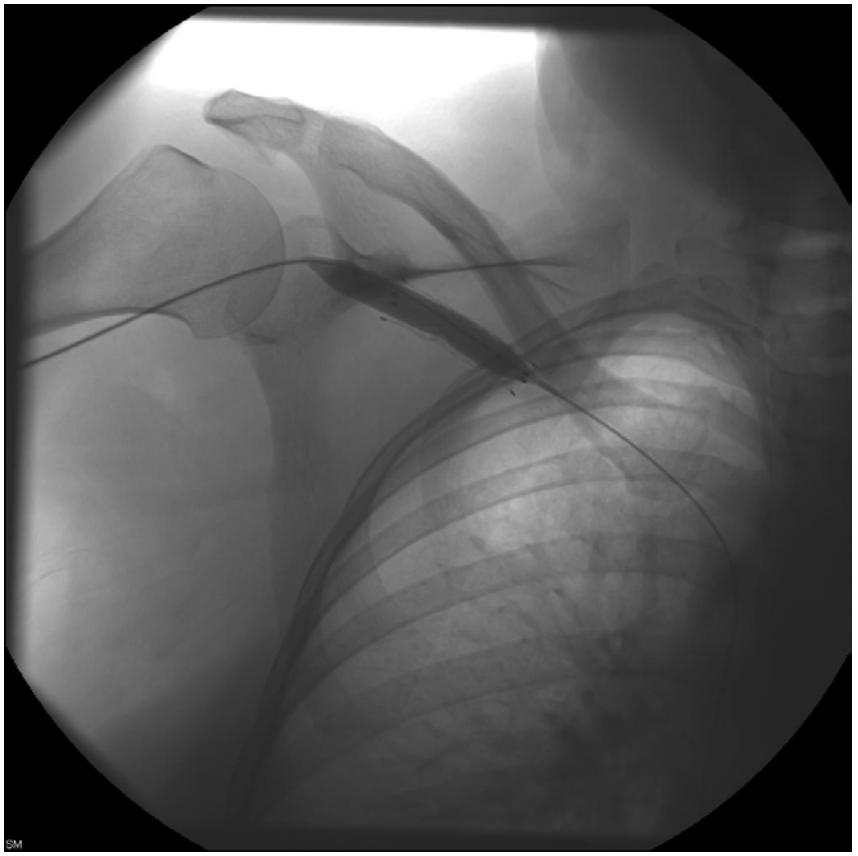
- TRAITEMENT
  1-angioplastie
  2-stent
  3-cutting balloon
  4-stent couvert

Situation 4

↑ temps de saignement et ↓ débit

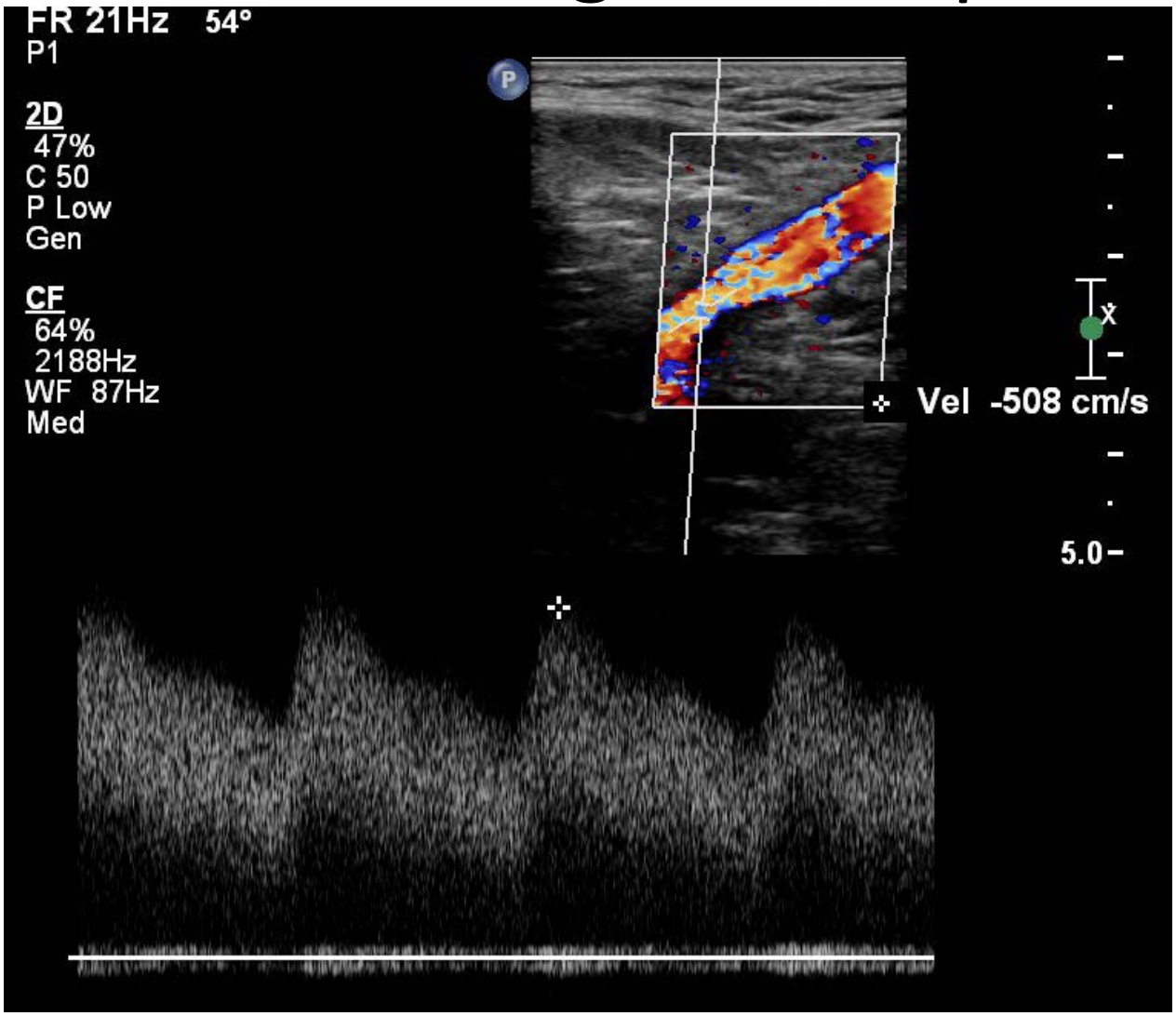
SITUATION 4
angioplastie intra-stent



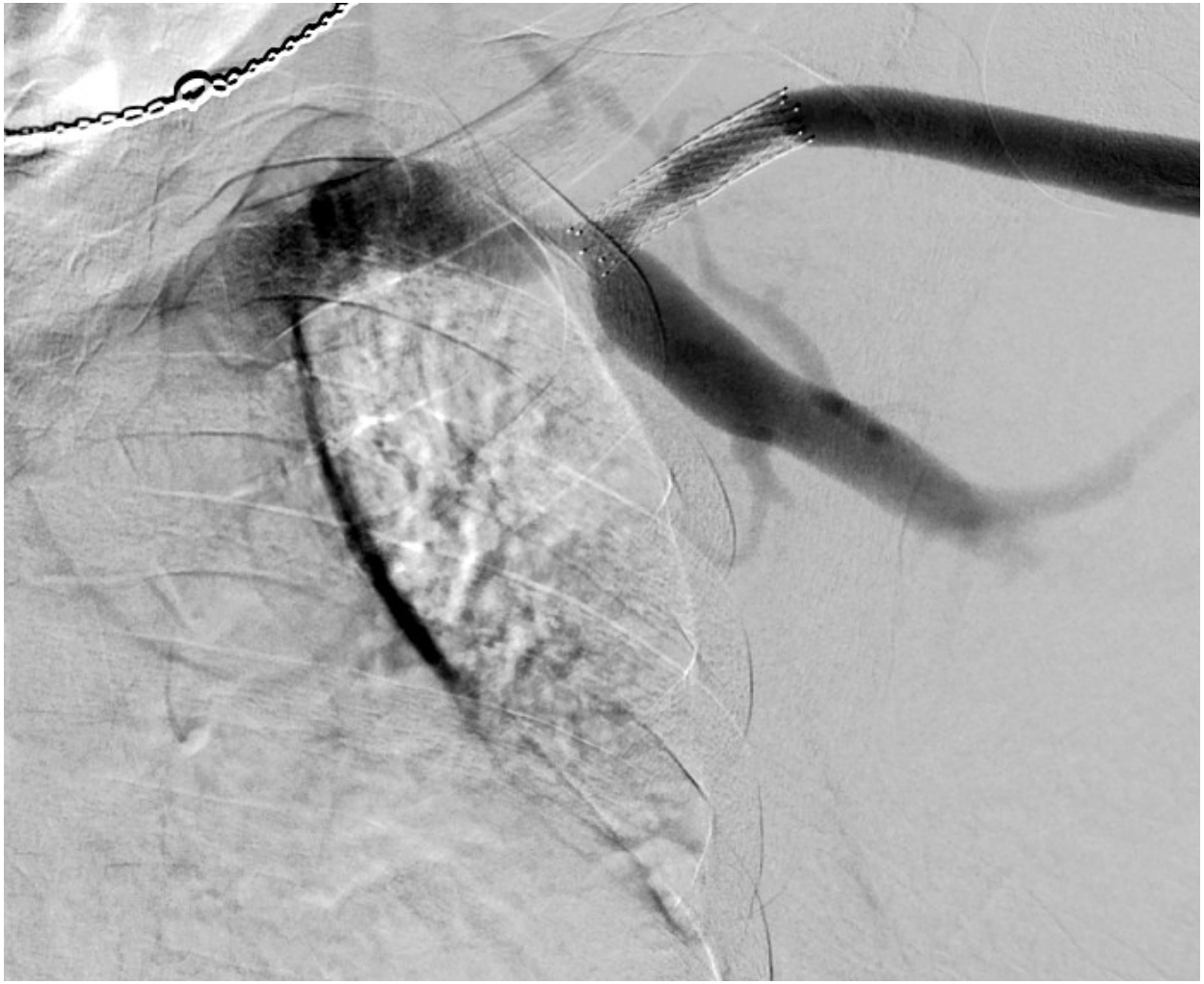


Situation 4
post traitement

Situation 4
œdème et saignement prolongé

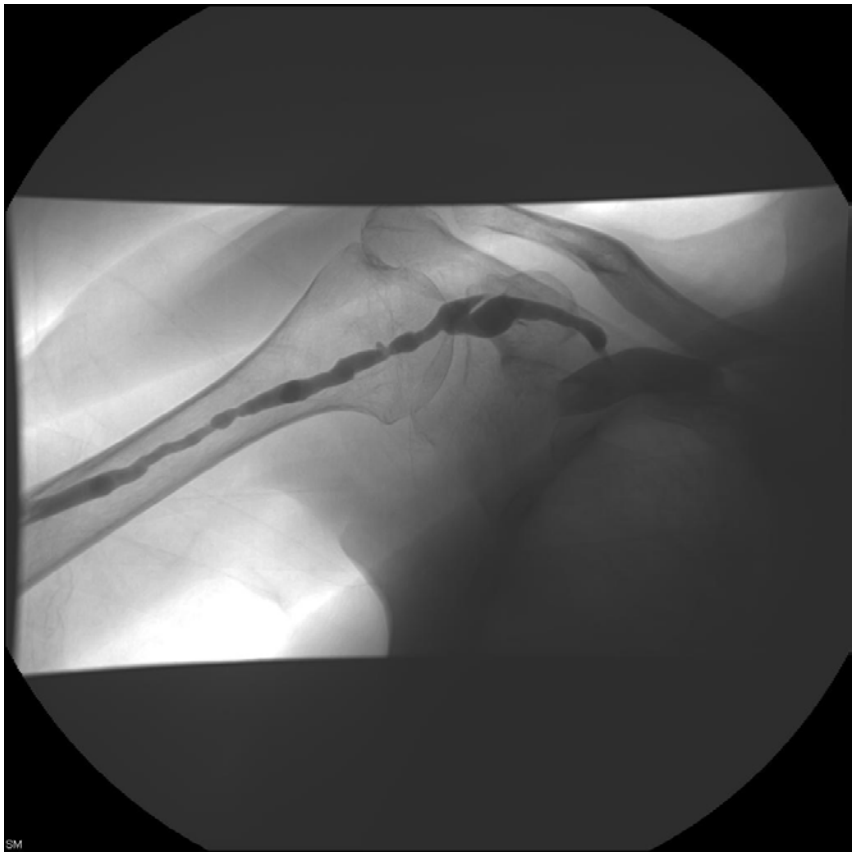


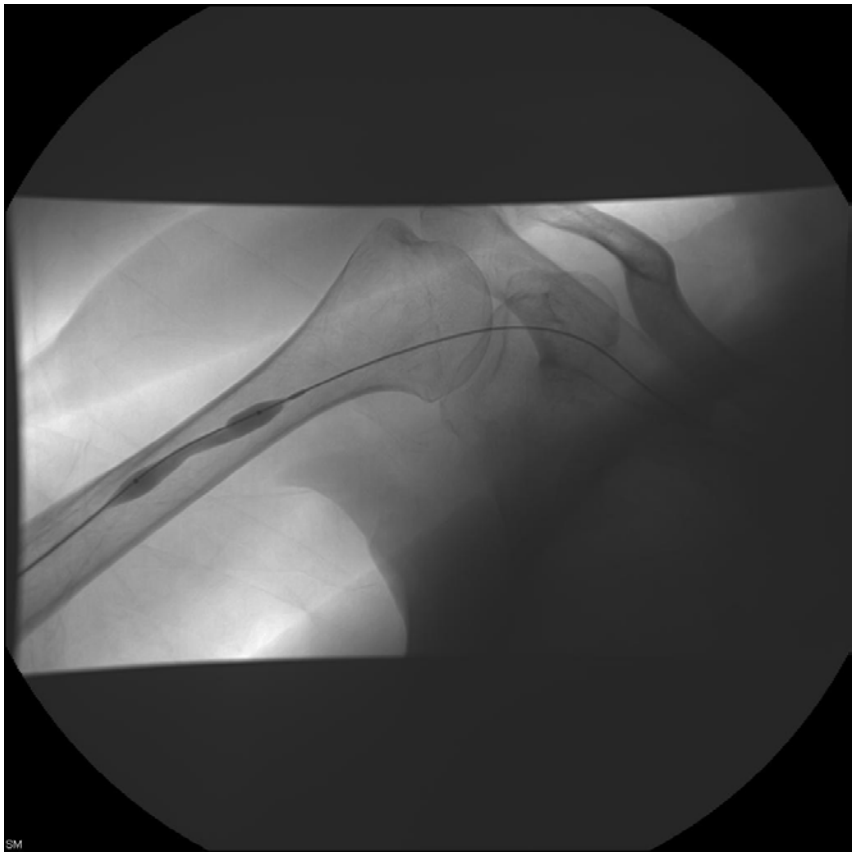
Situation 4
œdème et saignement prolongé

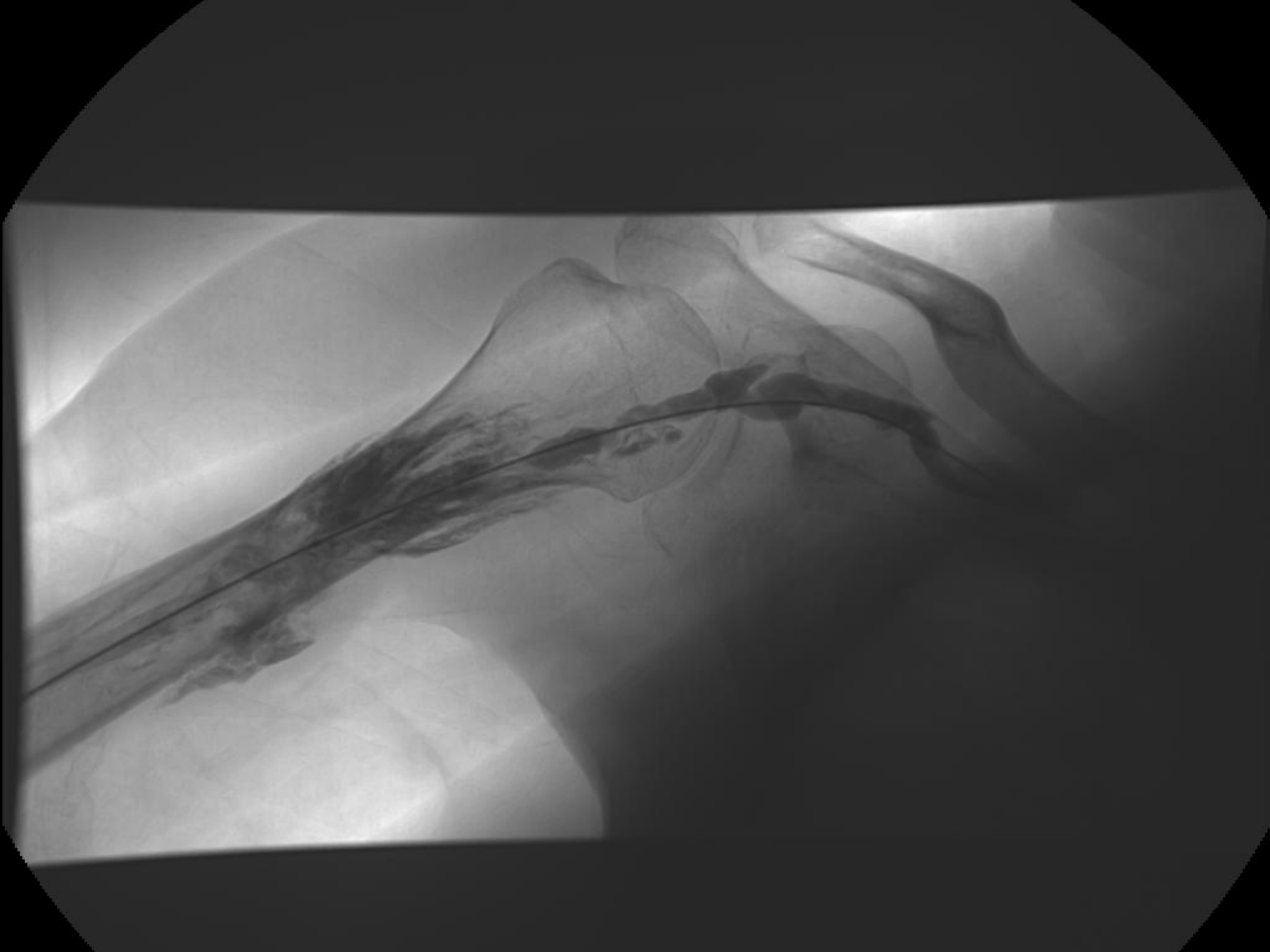


Situation 4
œdème et saignement prolongé

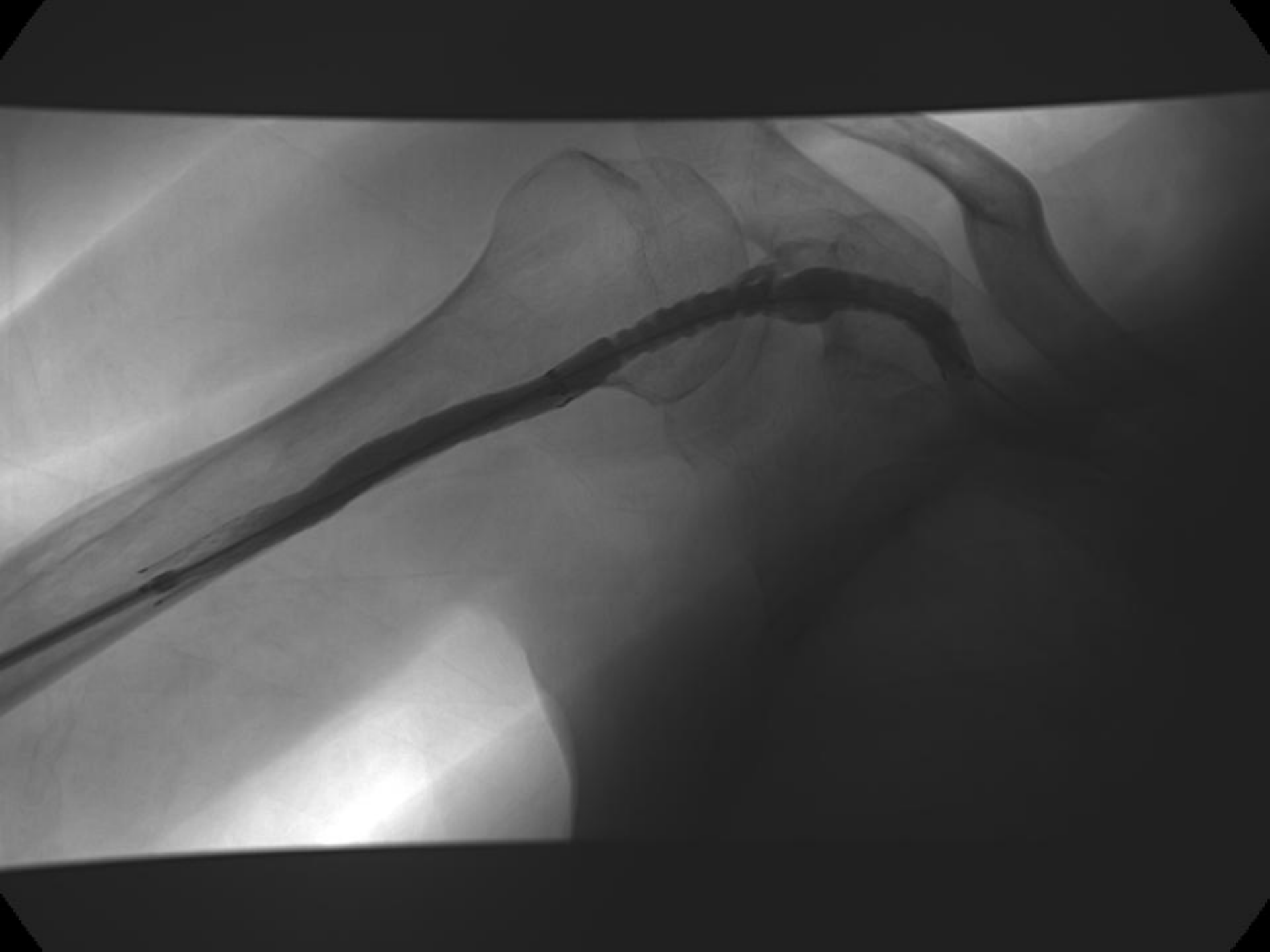
SITUATION MIXTE
temps de saignement prolongé



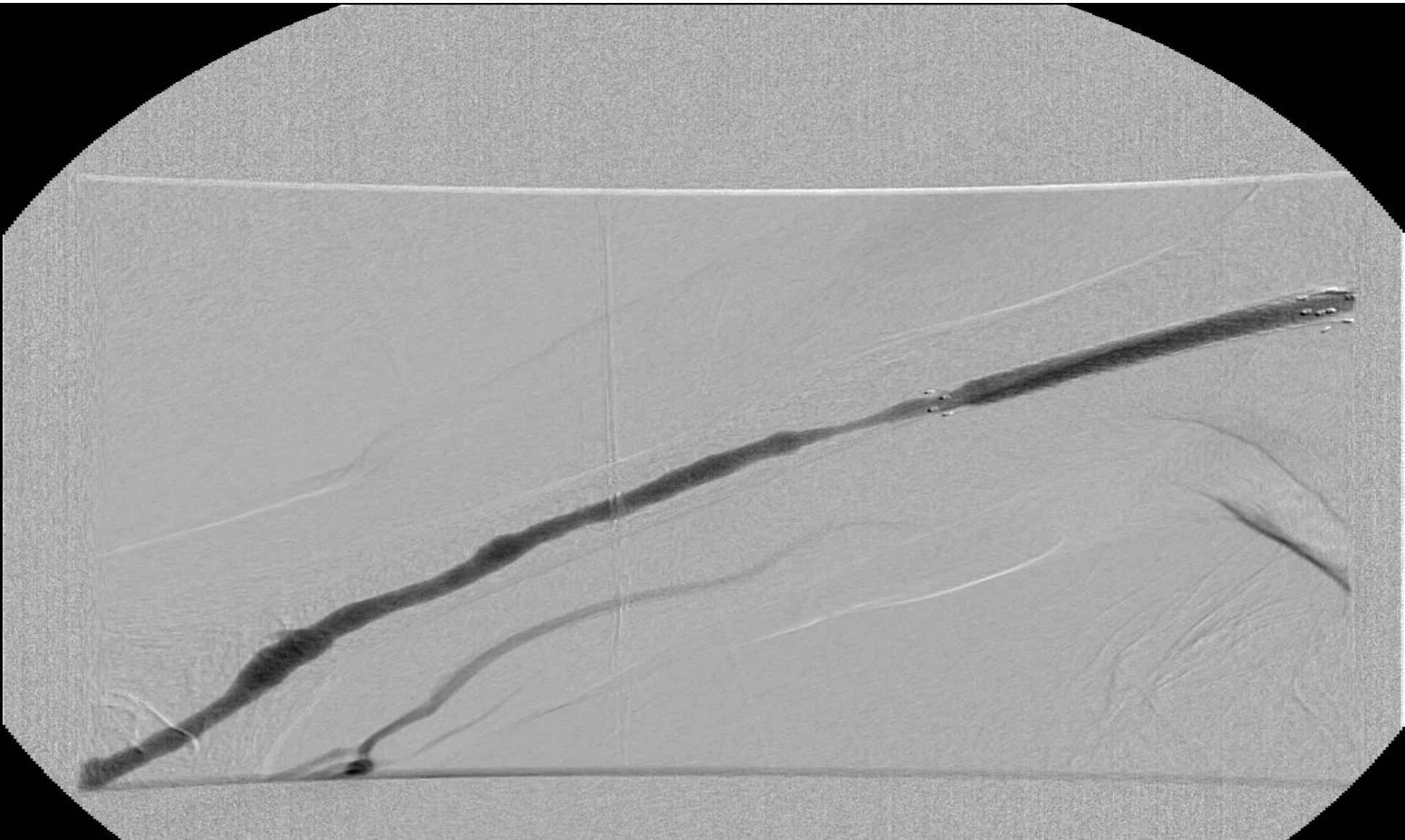




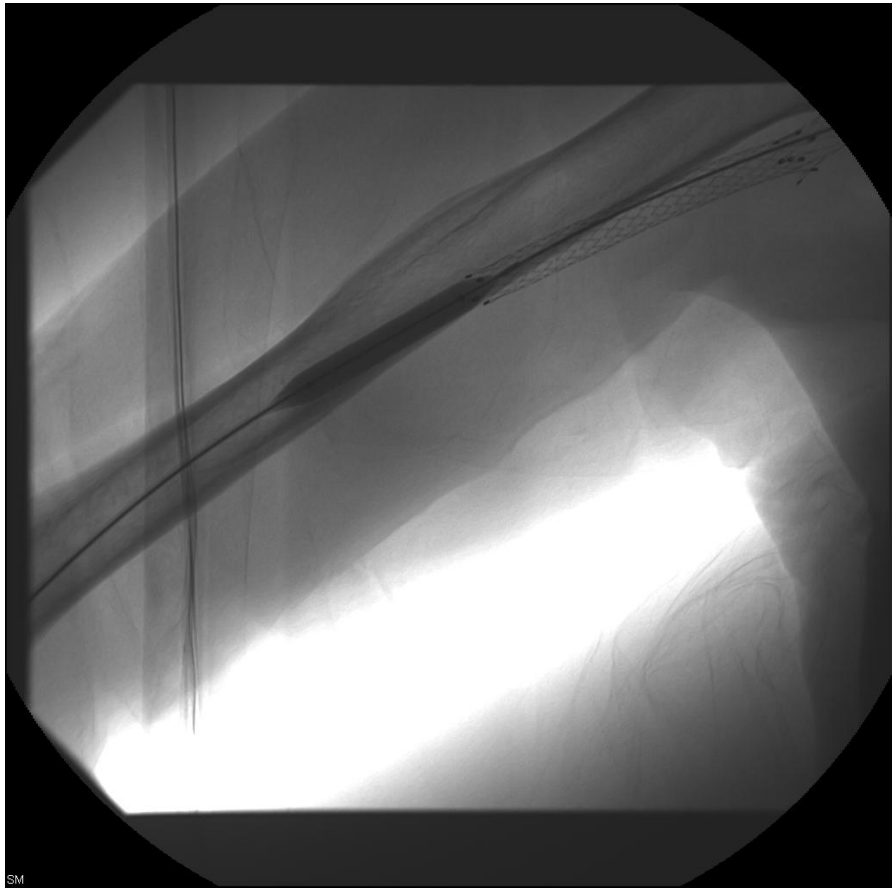
STENT COUVERT



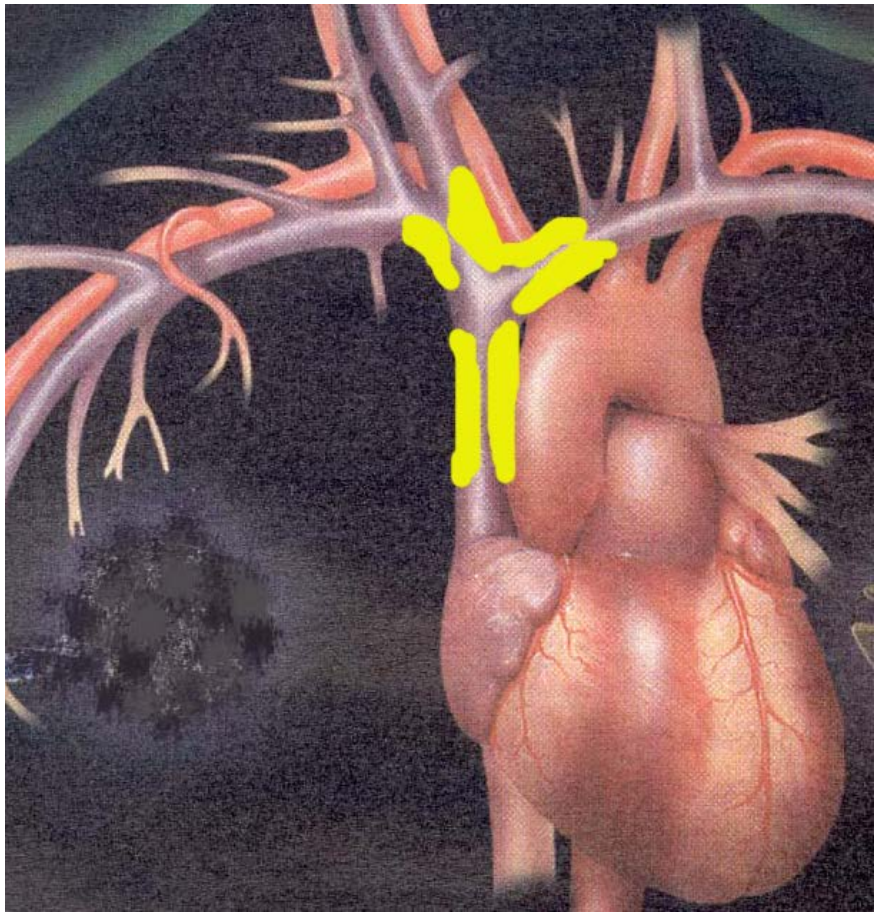
Suivi à 2 ans



Suivi à 5ans



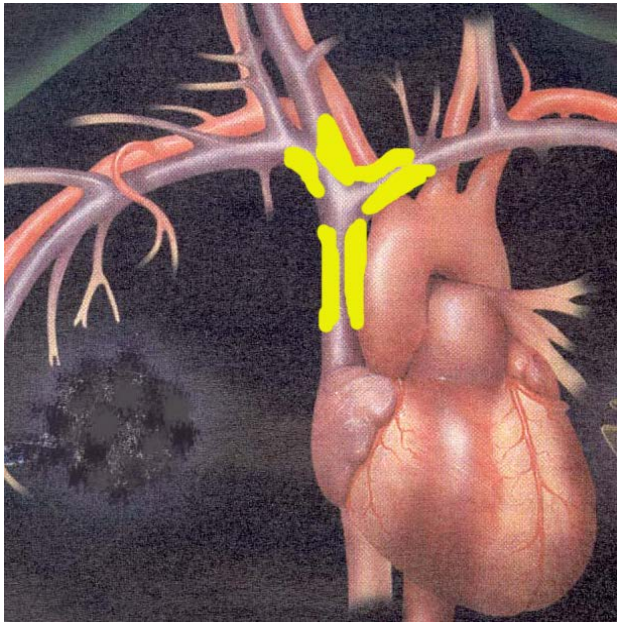
Situation 5
sténose veineuse centrale



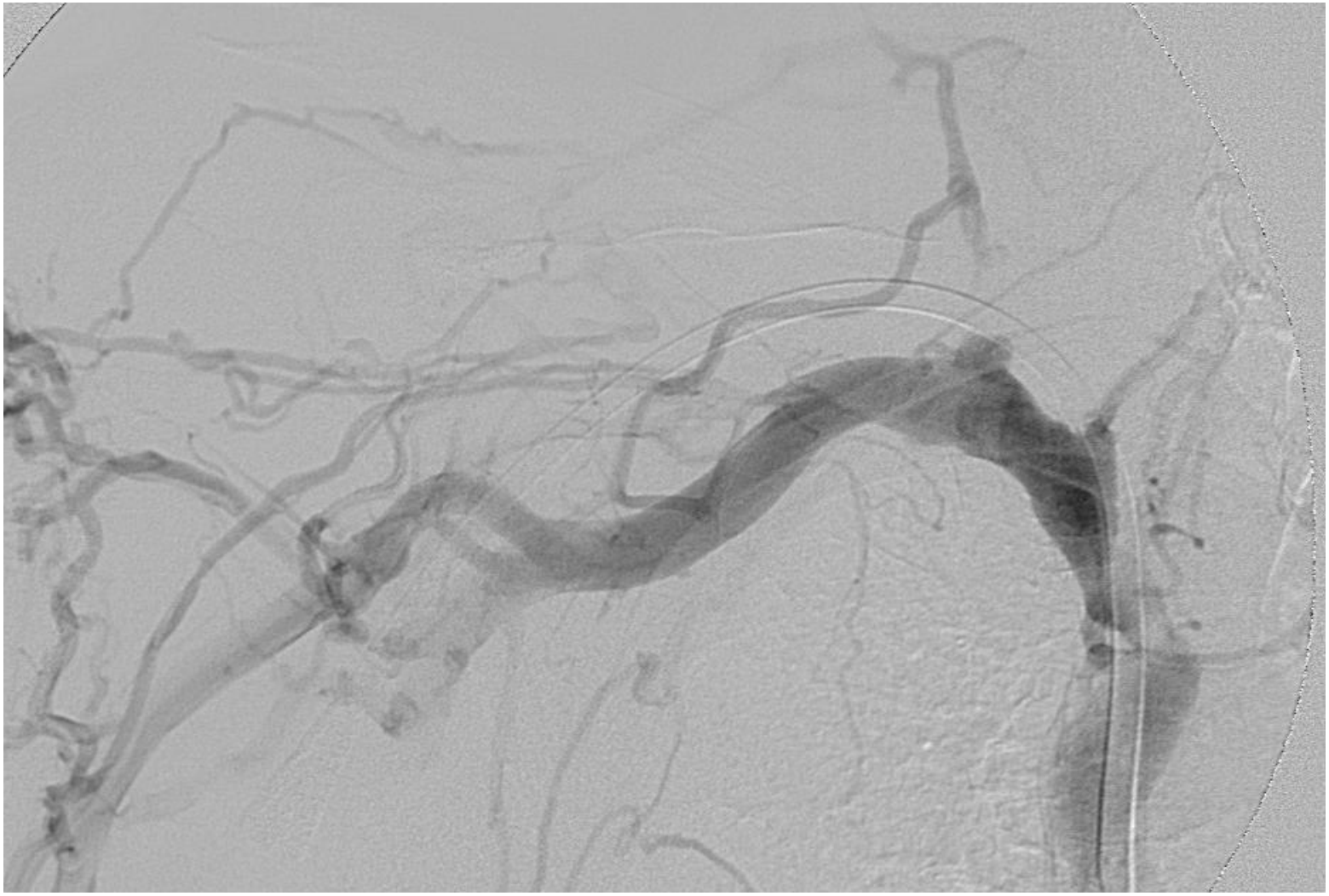
- Œdème
- Saignement prolongé
- Diminution de débit
- Pression veineuse
- Doppler peu utile

Situation 5
sténose veineuse centrale
Traitement

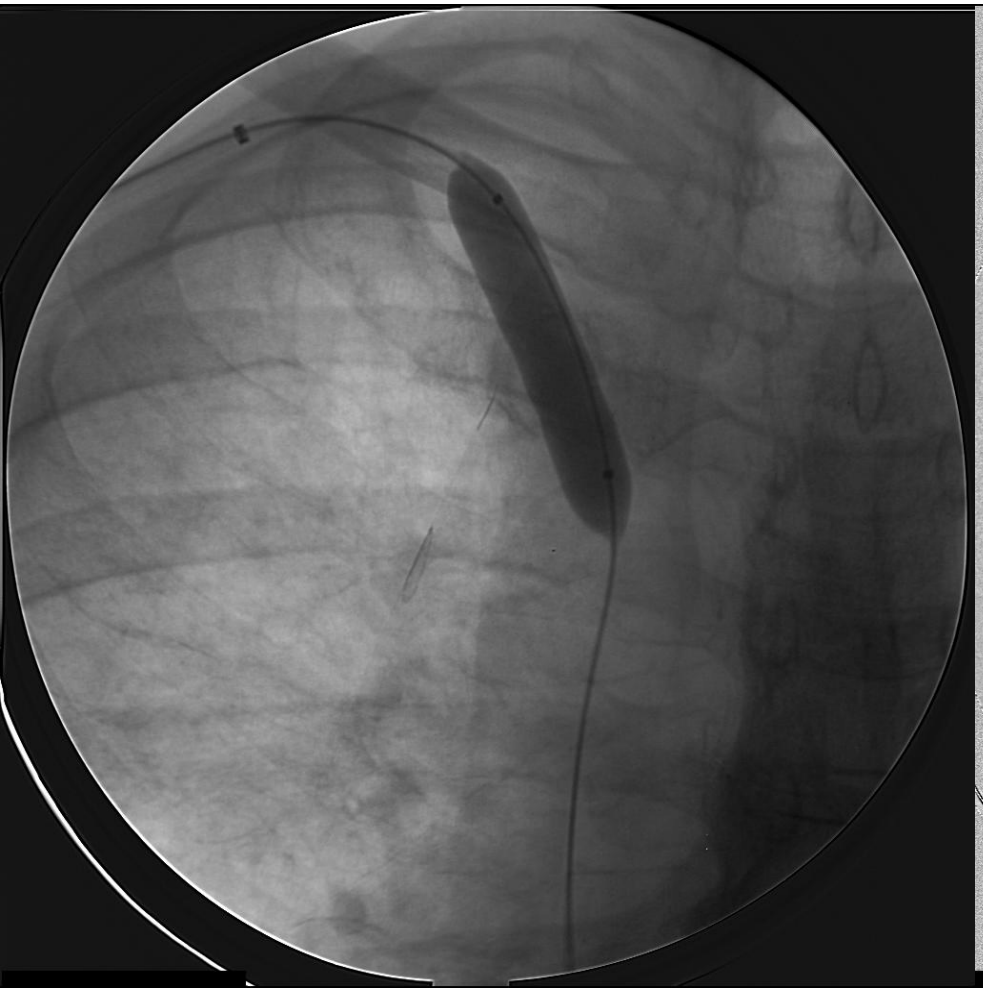
- Angioplastie (gros ballon)
- Stent (considération spéciale)
- Option hybride (catheter HeRO)



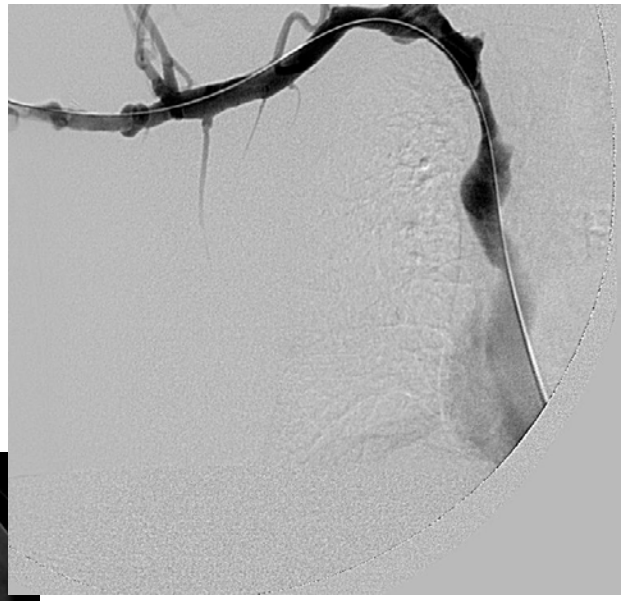
Œdème bras et visage

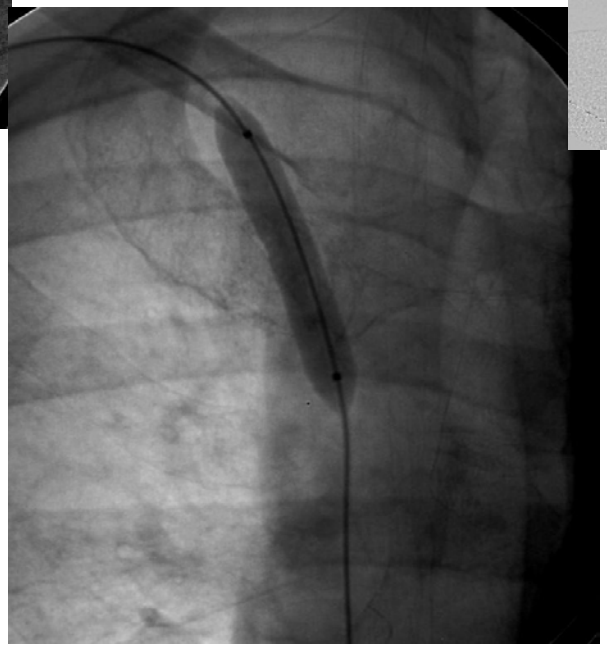


Angioplastie

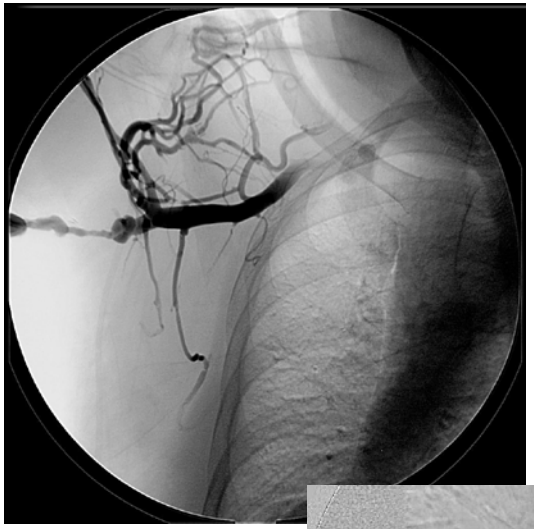


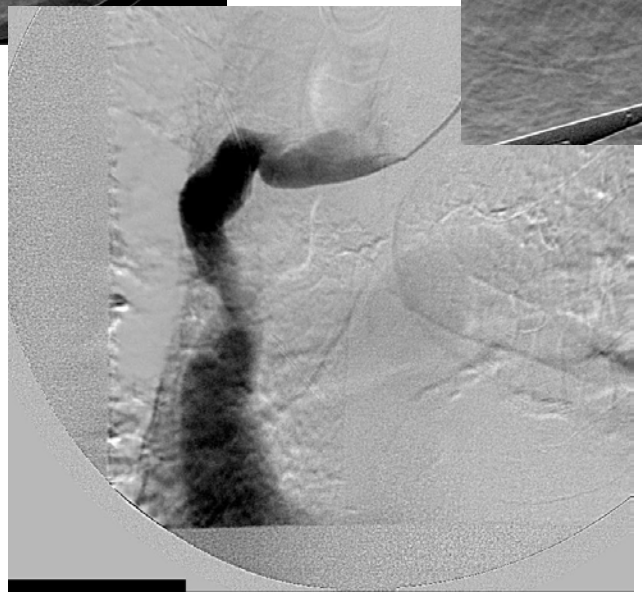
Récidive des symptômes
1 an plus tard





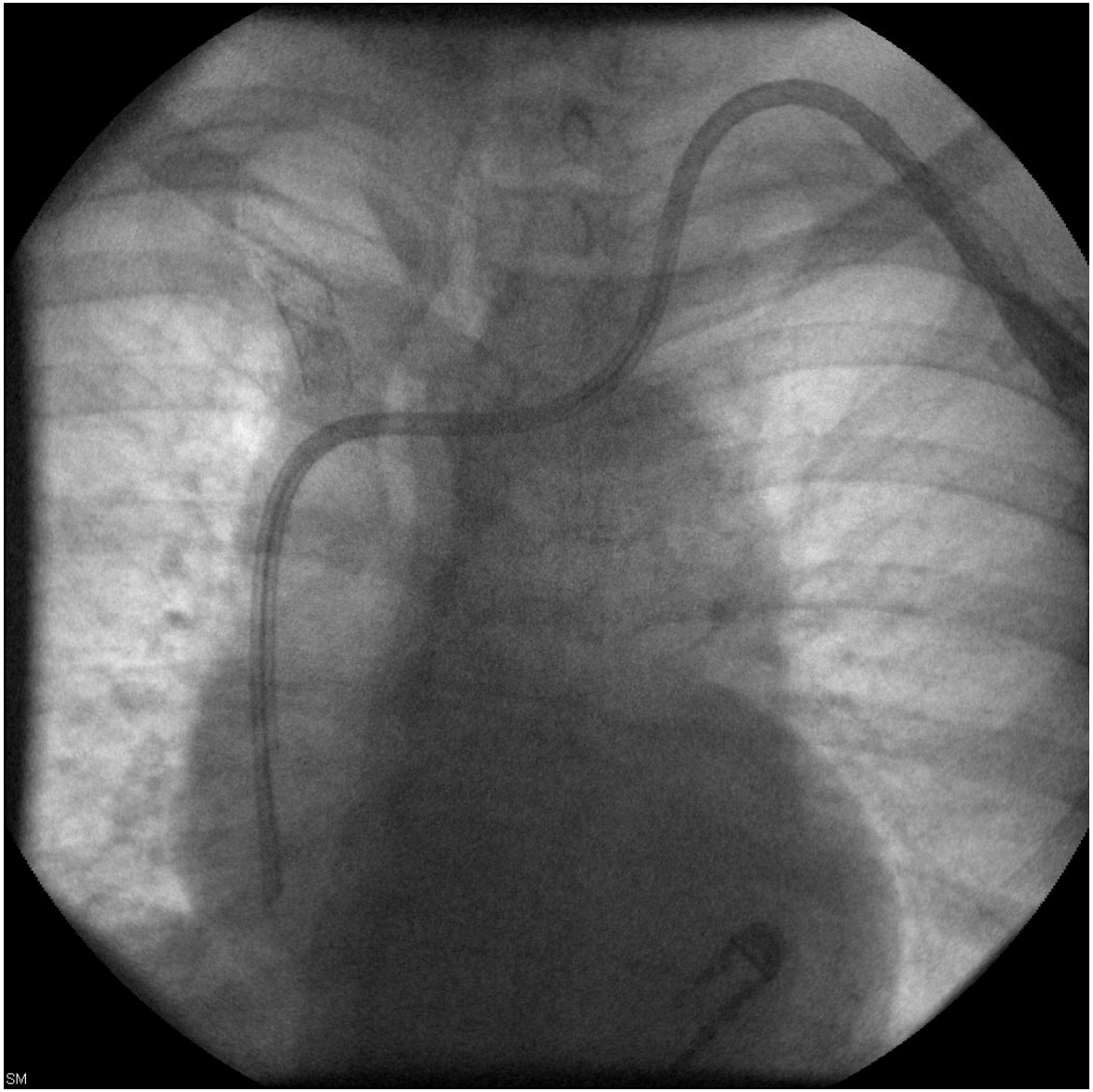
Récidive quelques semaines plus tard plan: traiter problème aigu en préservant le potentiel veineux



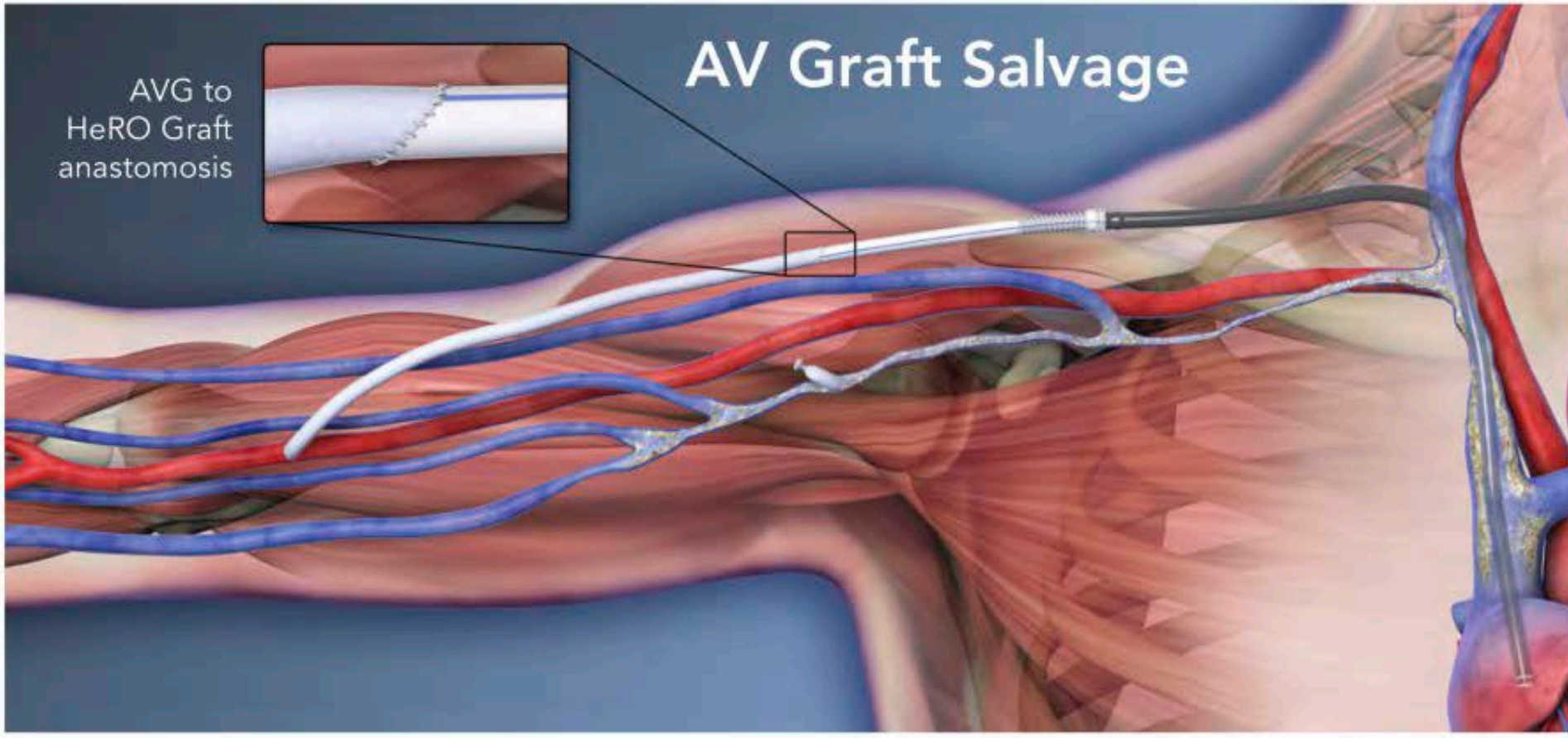


4 ans plus tard
recanalisation et angioplastie

6 ans plus tard

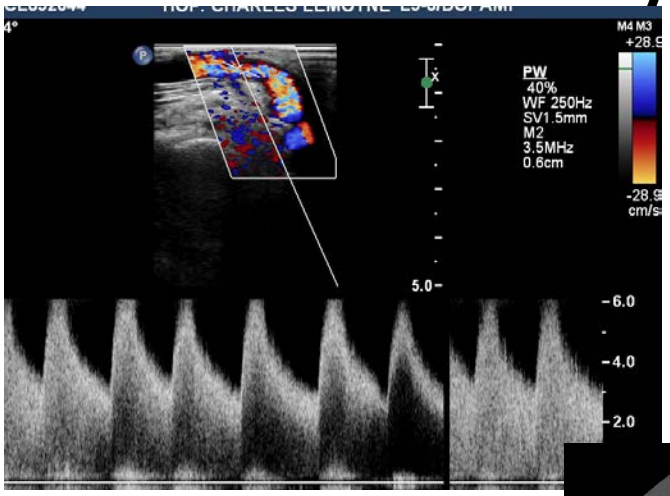


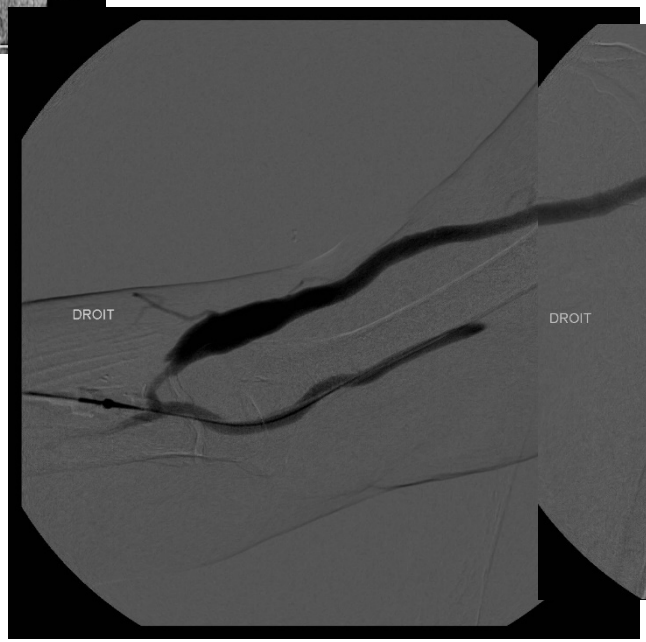
HeRO graft

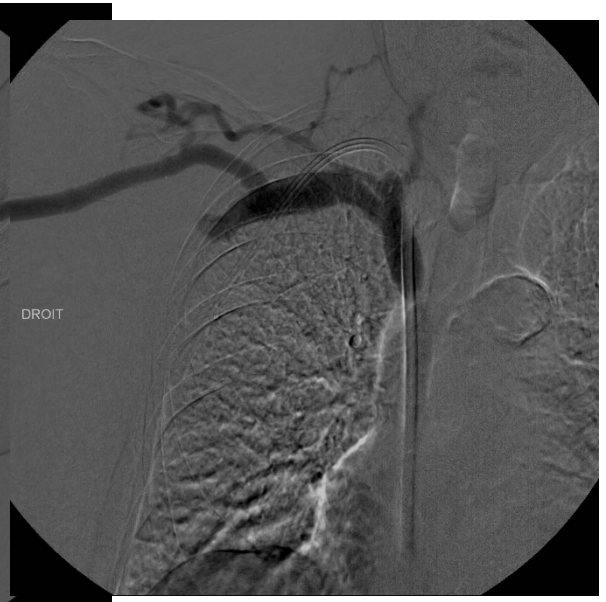


CryoLife
Life Restoring Technologie

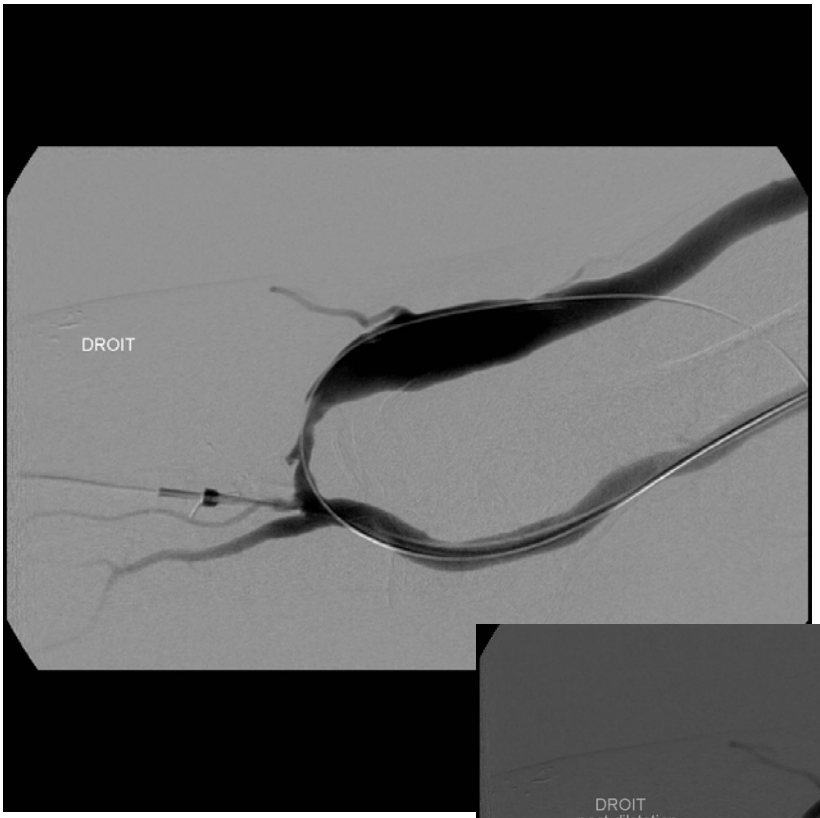
Sténoses multiples laquelle est responsable des symptômes?

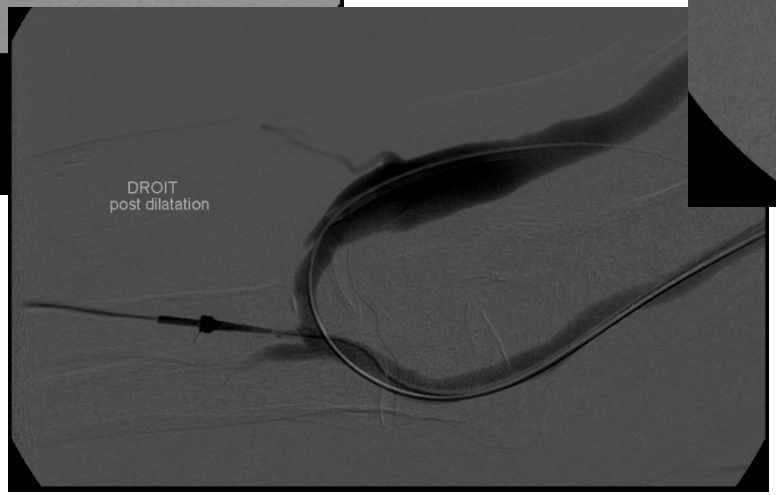






Difficulté de ponction





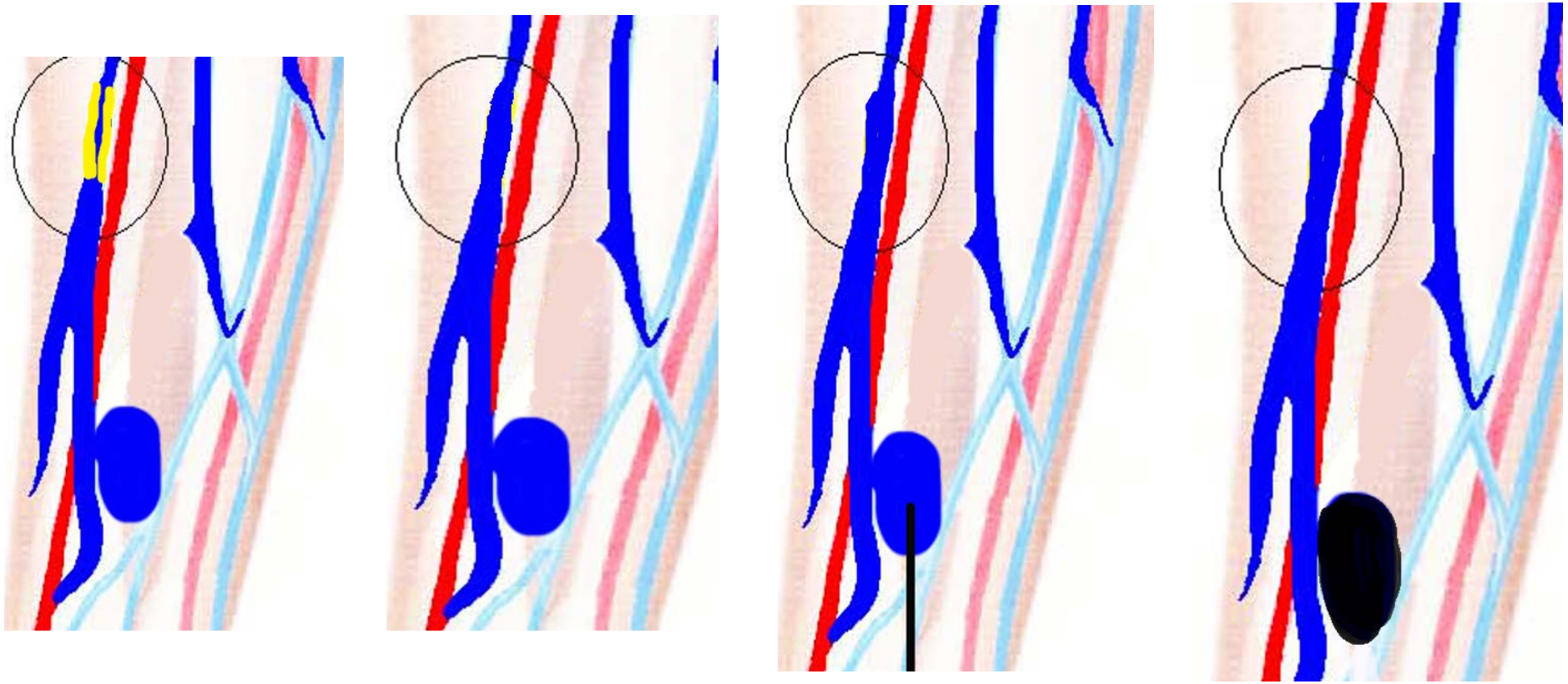
FISTULE DYSFONCTIONNELLE
ischémie de la main

- Fistule à haut débit
- Douleur disparait à la compression de la fistule
- Traitement chirurgical

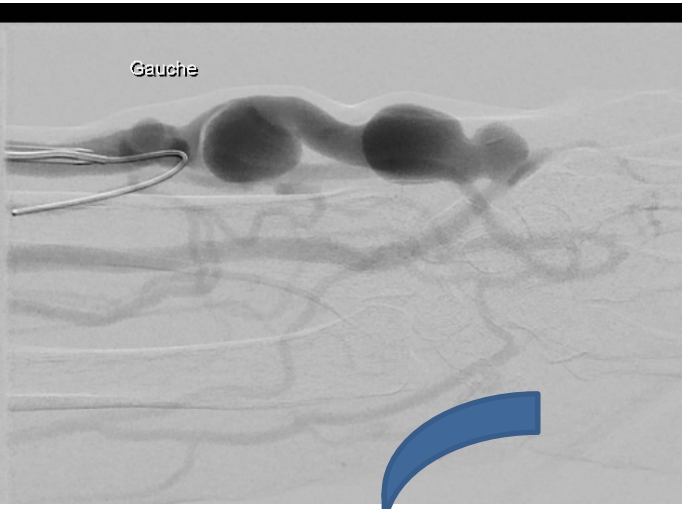
FISTULE DYSFONCTIONNELLE
anévrisme ou pseudo-anévrisme

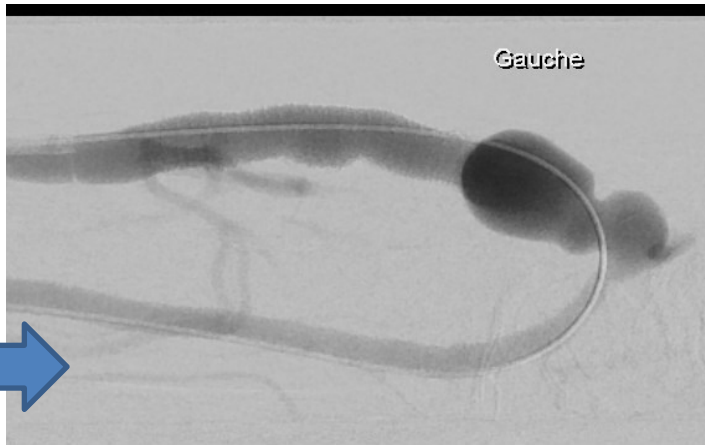
- Masse pulsatile
- Rarement un problème isolé
- Options thérapeutiques
- 1- traiter la sténose
- 2- injection de thrombine
- 3- stent couvert

Pseudo-anévrisme
injection de thrombine



anévrisme
stent couvert





MESSAGE

ANÉVRISME = STÉNOSE EN AMONT

FISTULE THROMBOSÉE

- Prévention
- Causes
  sténose
  compression
  para-néoplasique
  déshydratation

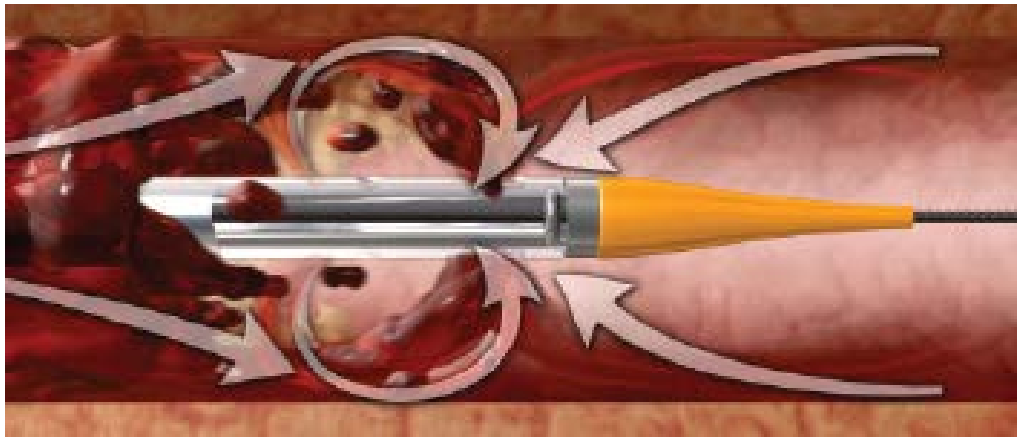
- Diagnostic clinique doppler

FISTULE OU GREFFON THROMBOSÉ

- Etude doppler
- R-tpa (optionnel)
- Thrombolyse mécanique
- Thrombectomie
- Angioplastie ± endoprothèse
- Évaluation du potentiel de récidive

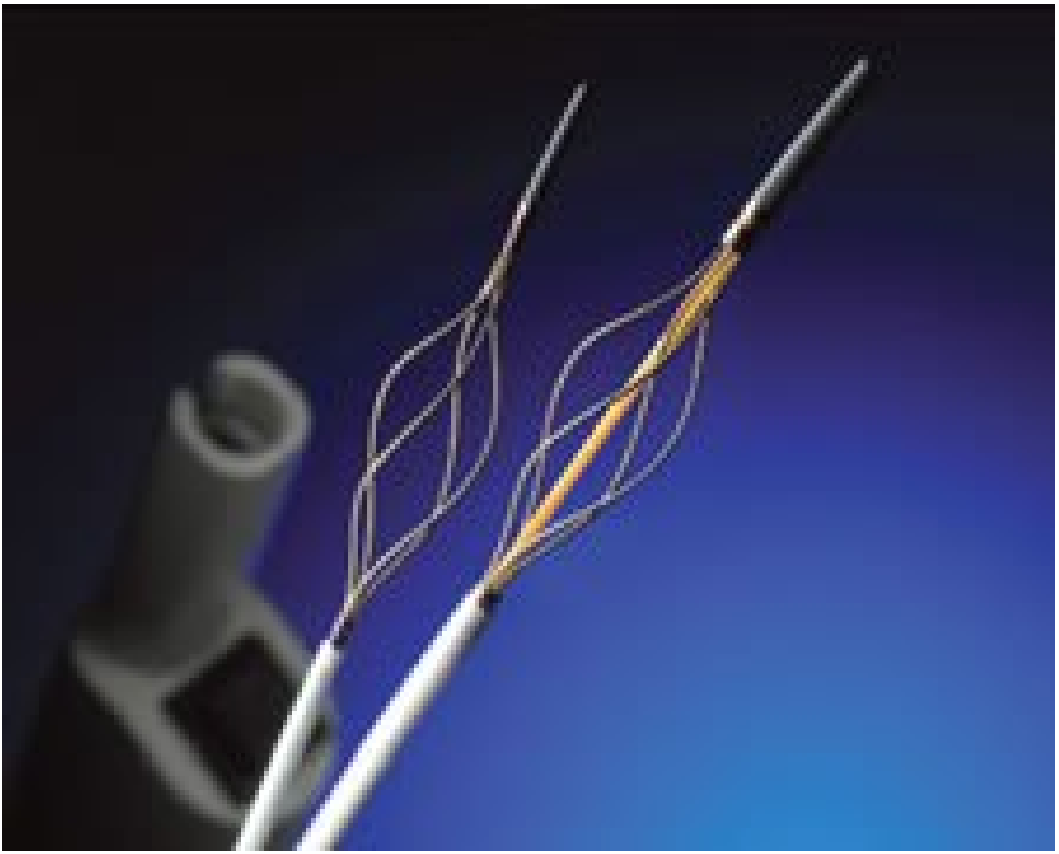
FISTULE OU GREFFON THROMBOSÉ

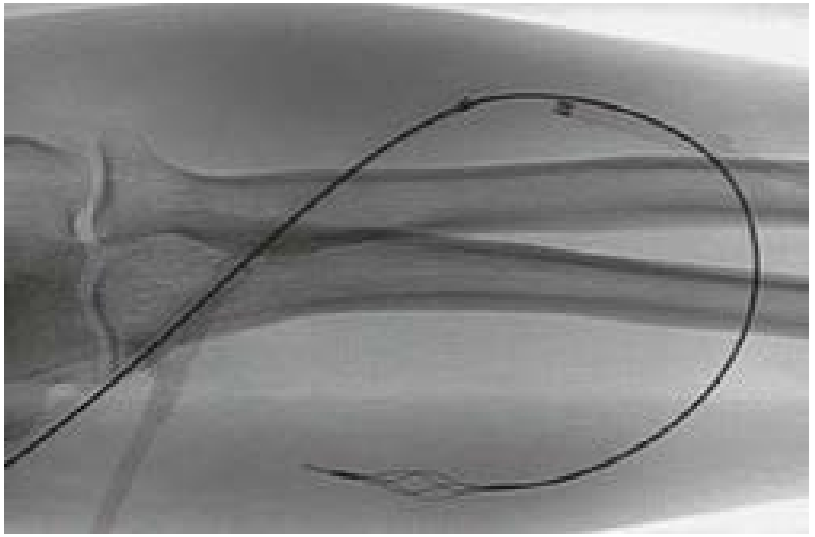
- ANGIOJET



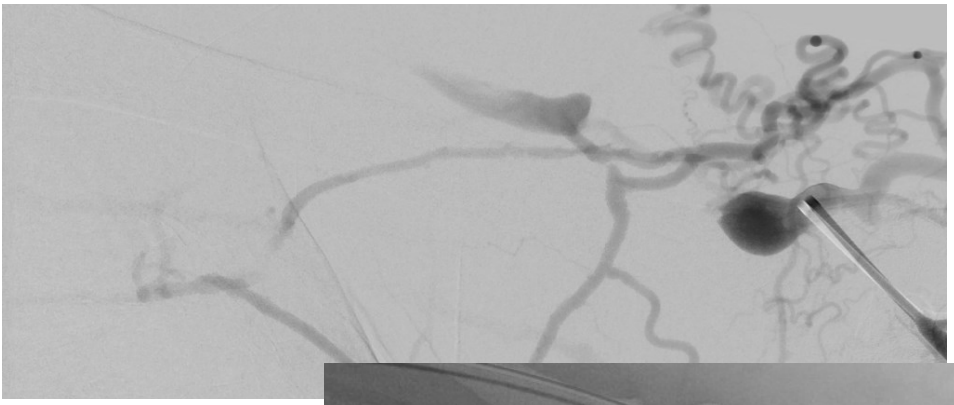
FISTULE OU GREFFON THROMBOSÉ

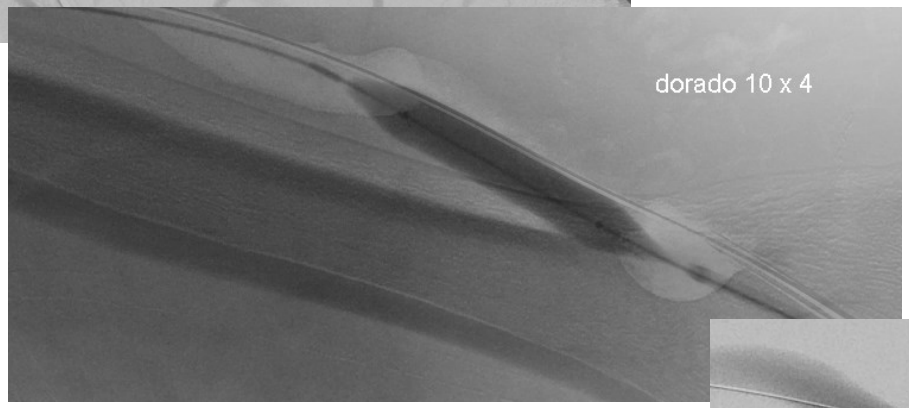
- CATHETER ARROW TREROTOLA PTD

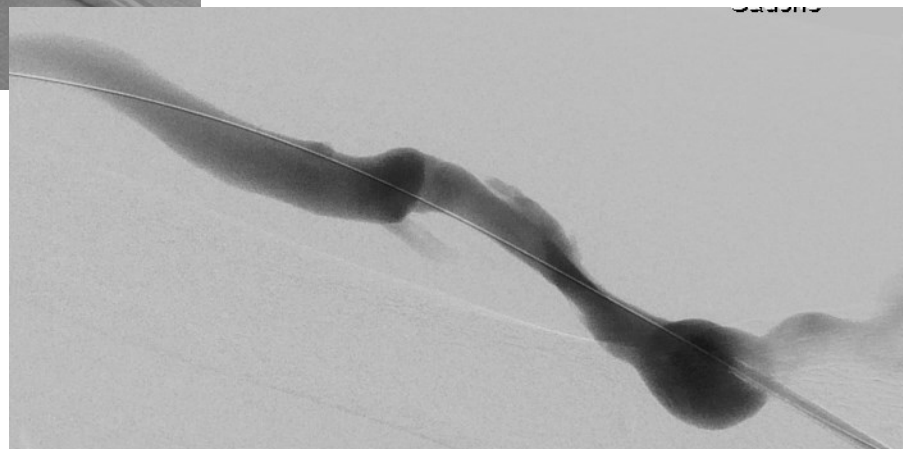




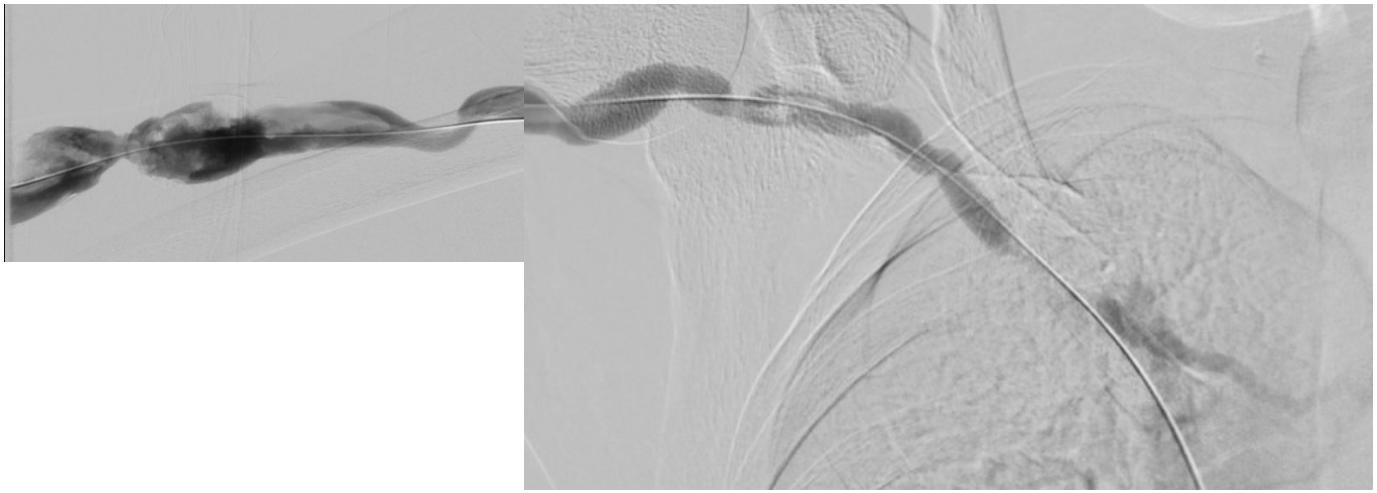
COURTE THROMBOSE

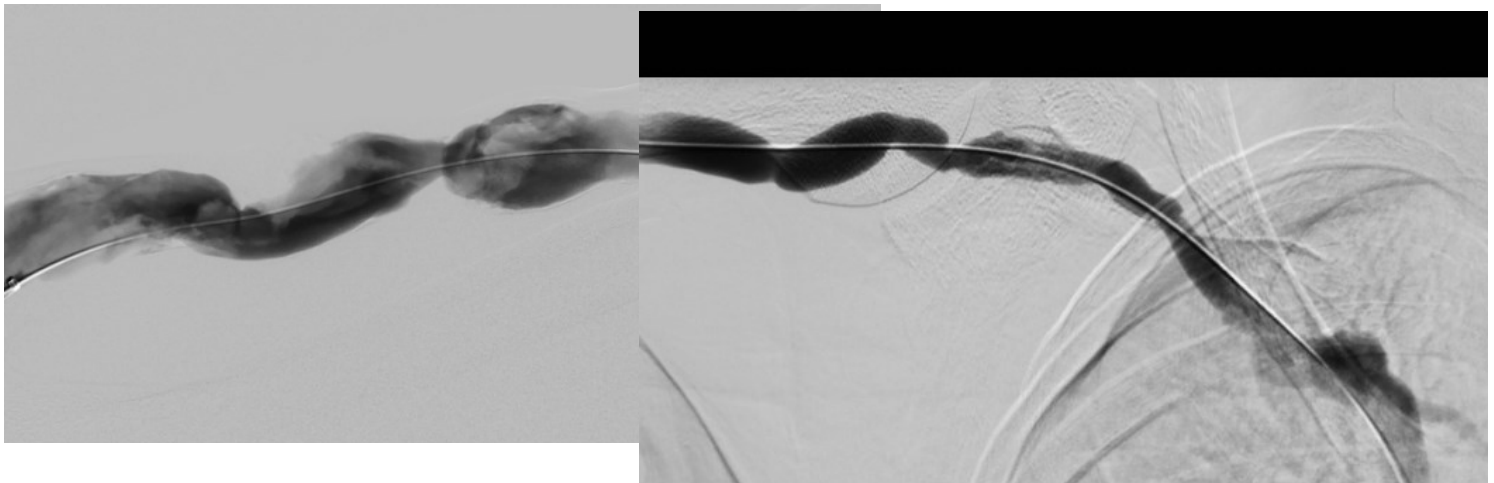




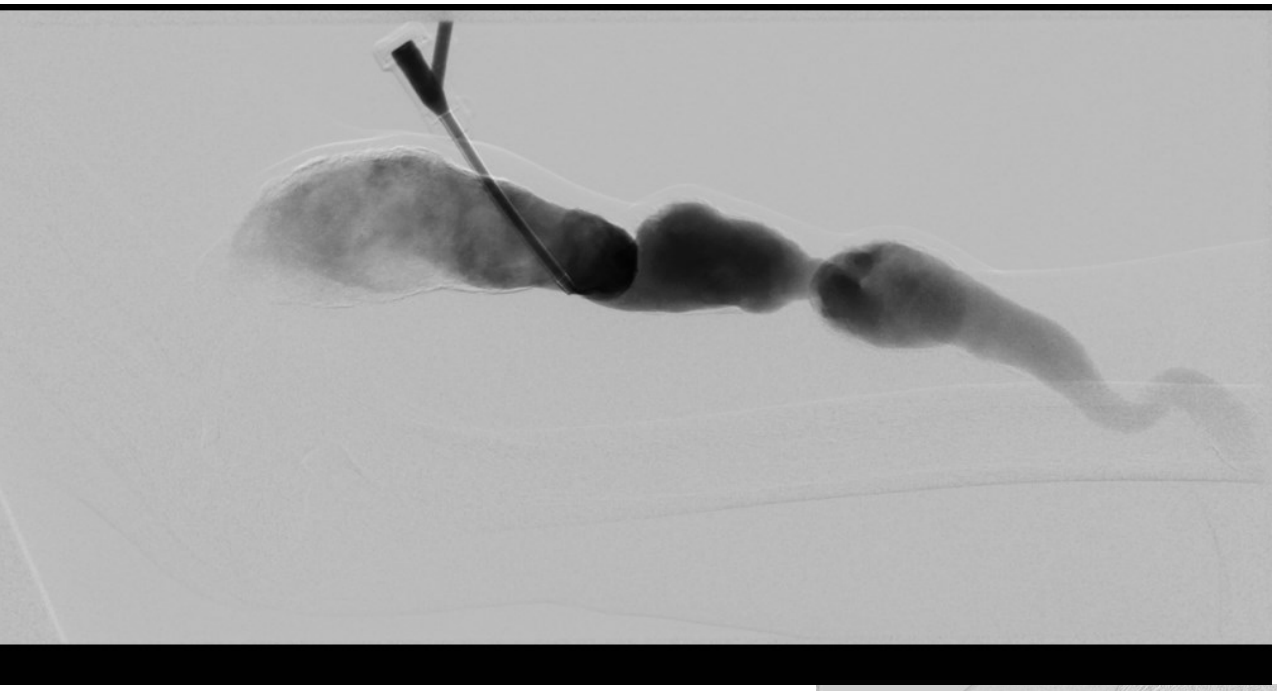


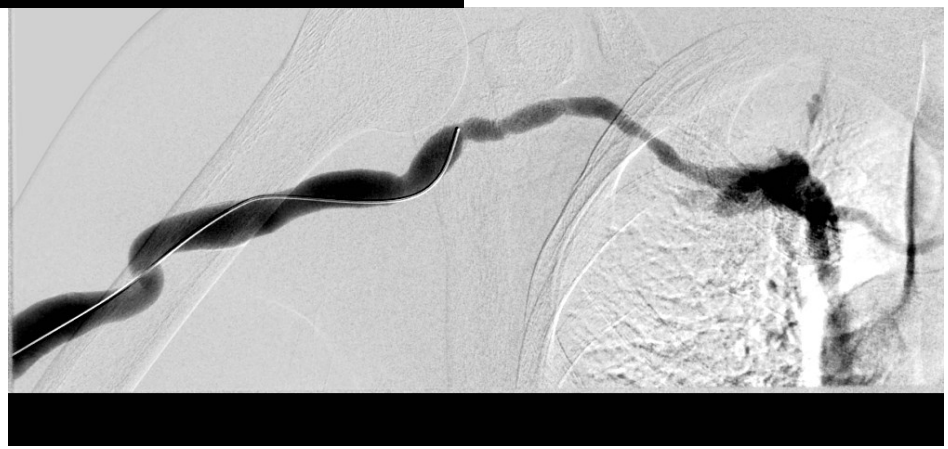
THROMBOSE EXTENSIVE





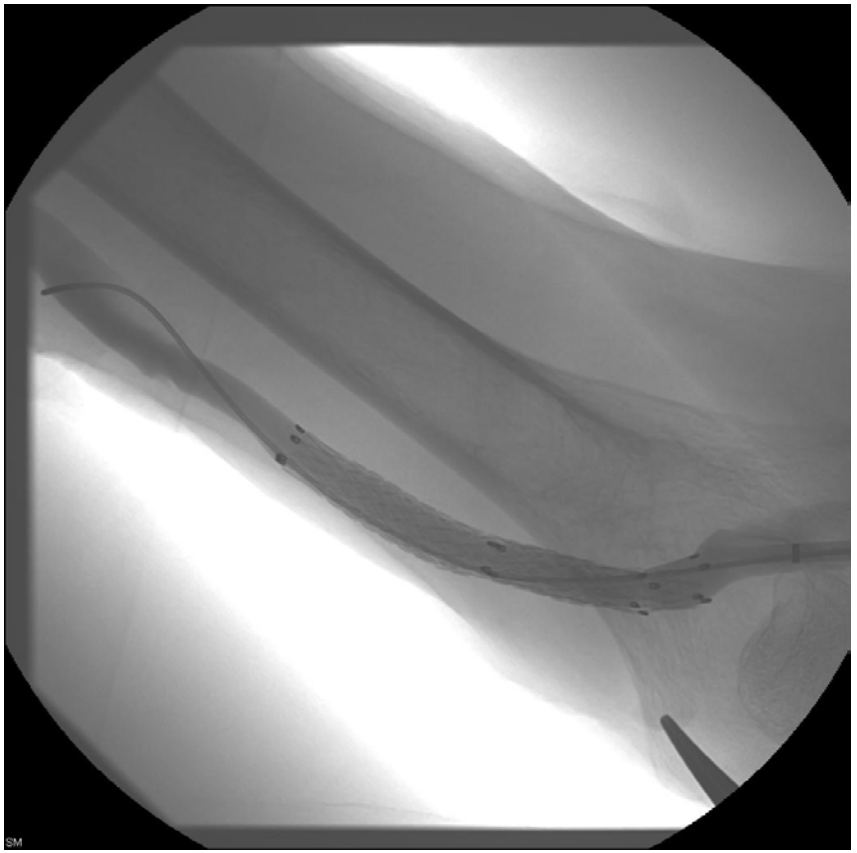
2 ans





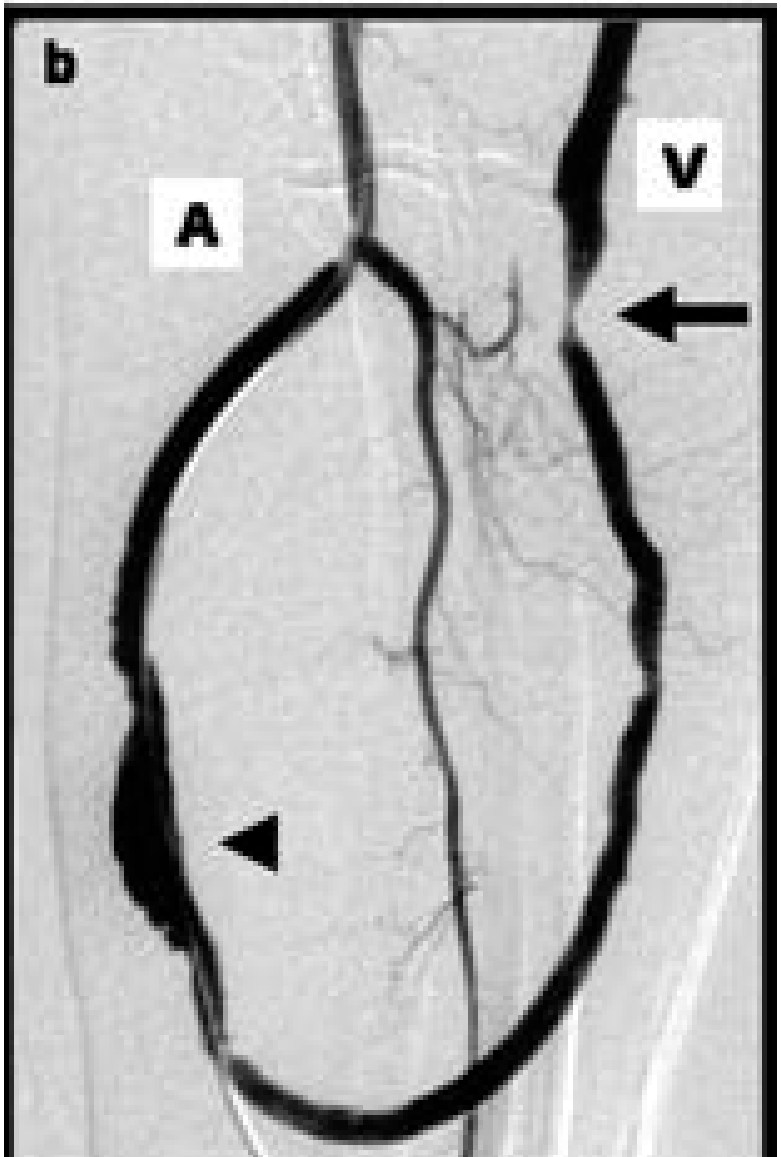
FISTULE THROMBOSÉE
recanalisation

THROMBOSE
ENDOPROTHÈSE COUVERTE



GREFFON DYSFONCTIONNEL
physiopathologie

- Sténose veineuse
- Flux très turbulent
- Traumatisme chirurgical
- Hyperplasie intimale



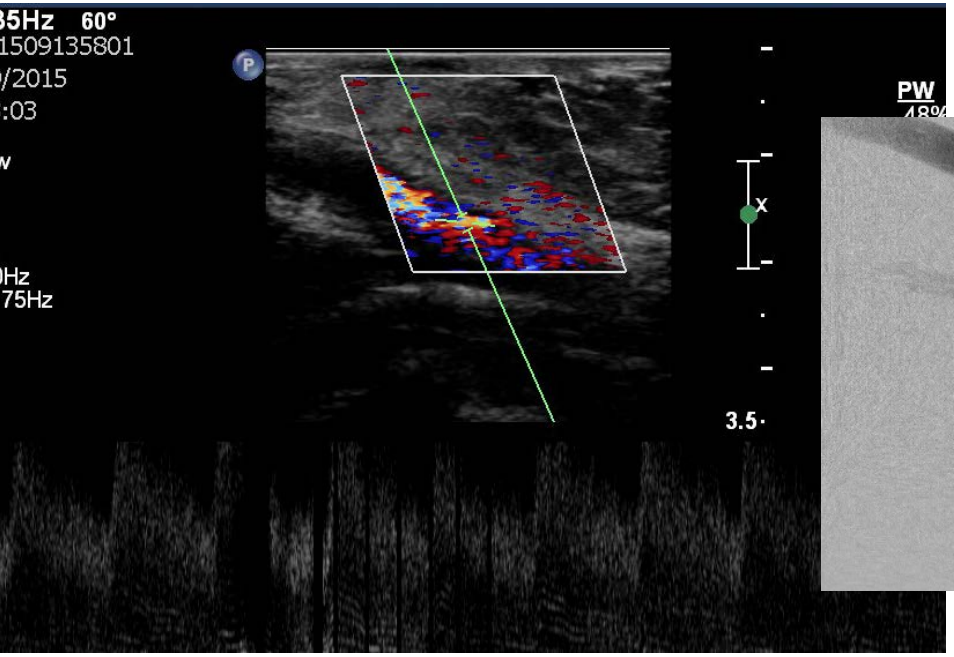
GREFFON DYSFONCTIONNEL
sténose anastomose veineuse

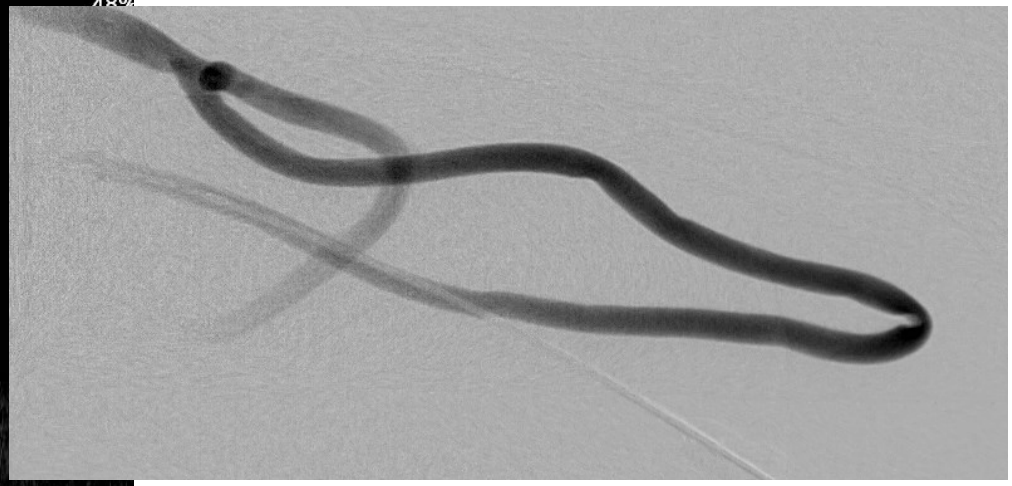
- Diminution de débit, recirculation
- Augmentation pression veineuse
- Temps de saignement prolongé
- Examen clinique
- Etude doppler
- Traitement aggressif pour éviter la thrombose

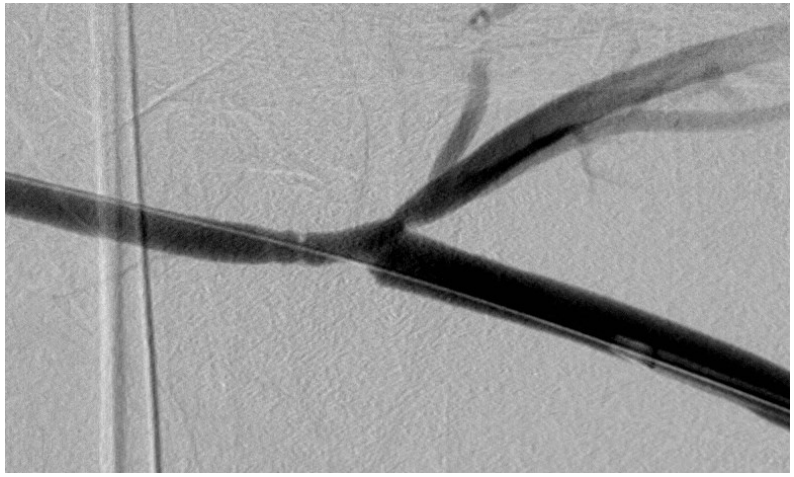
GREFFON DYSFONCTIONNEL
traitement

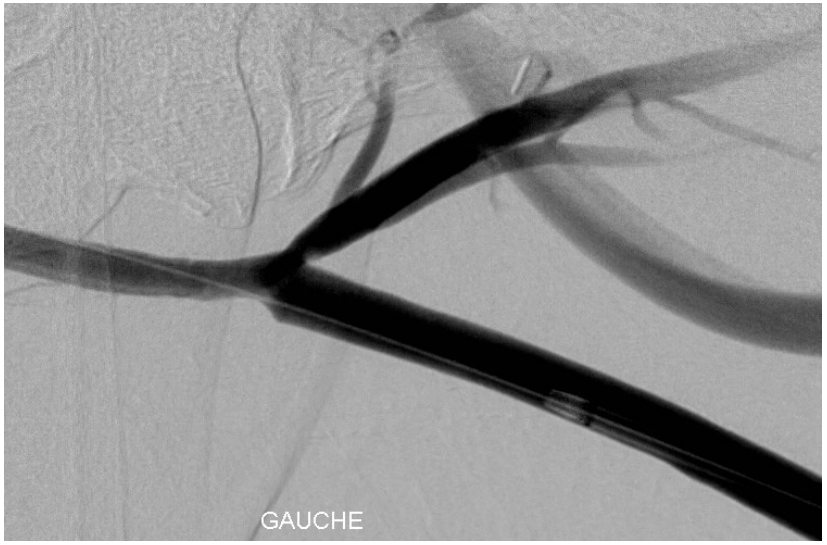
- Angioplastie conventionnelle
- Ballon haute pression
- Cutting balloon
- Endoprothèse
- Endoprothèse couverte

Sténose anastomose artérielle

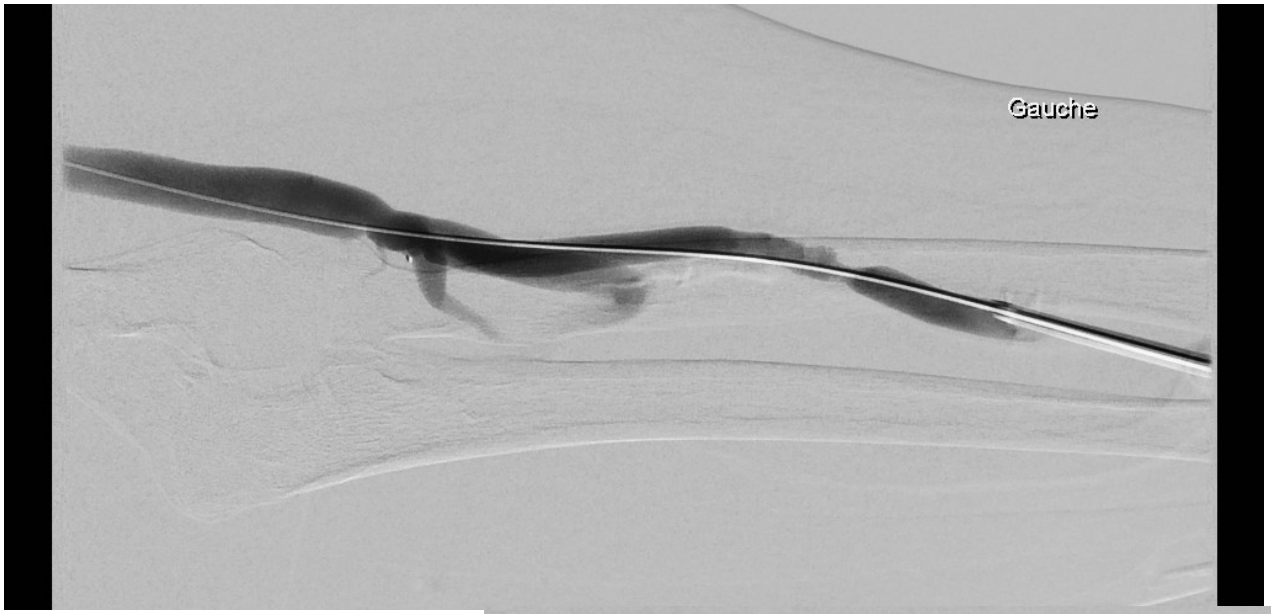


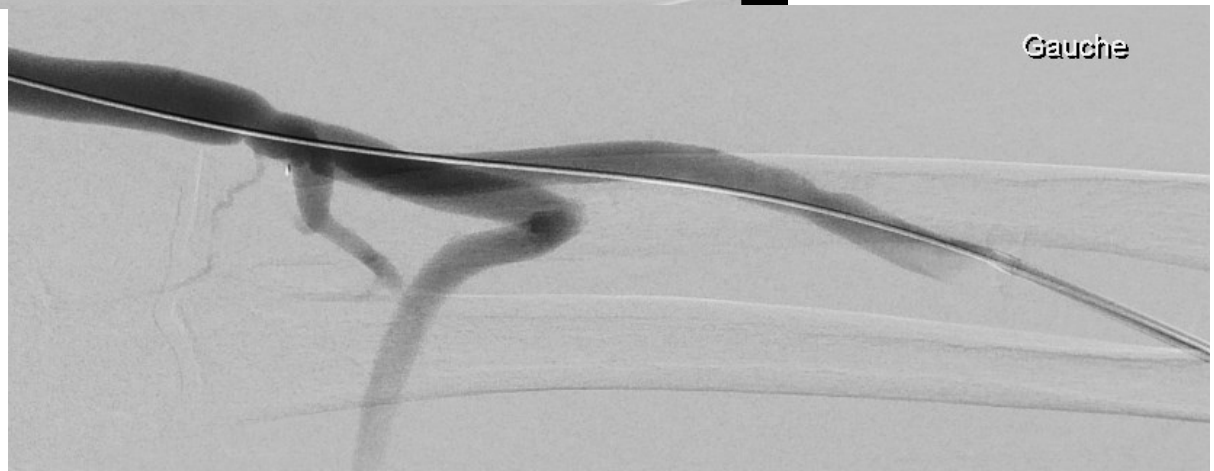




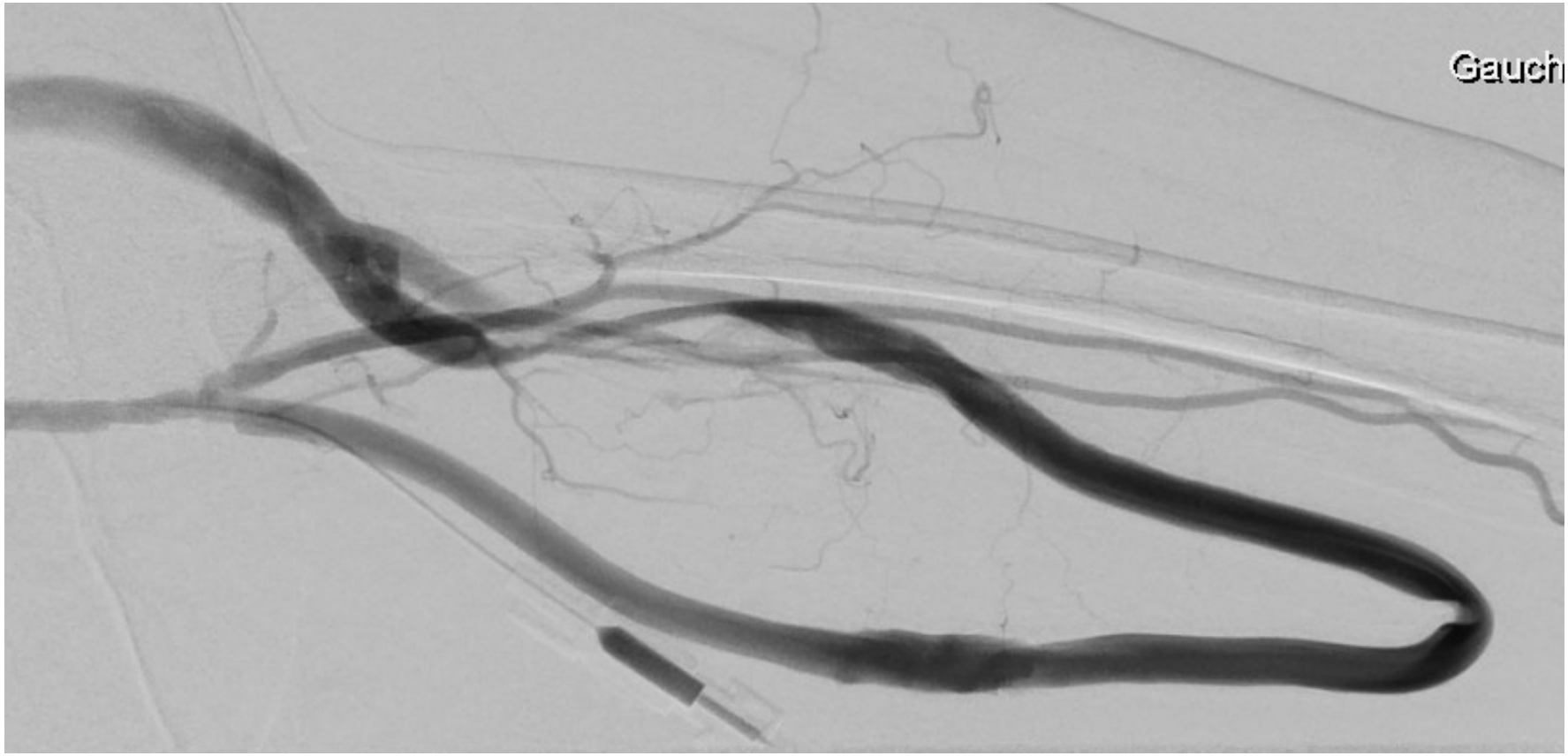


1 an plus tard
diminution de débit

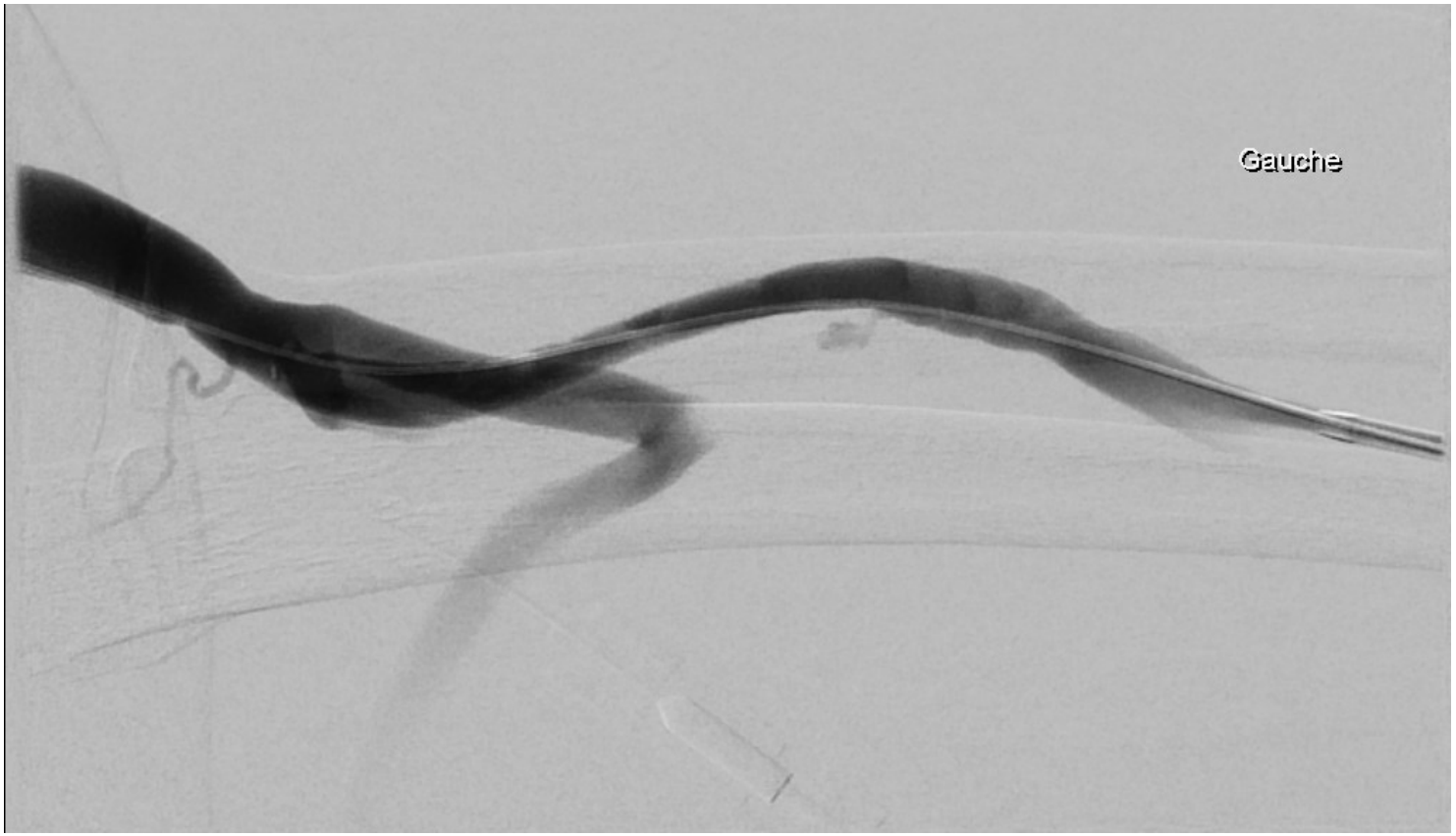




2 ans plus tard
hémorragie active

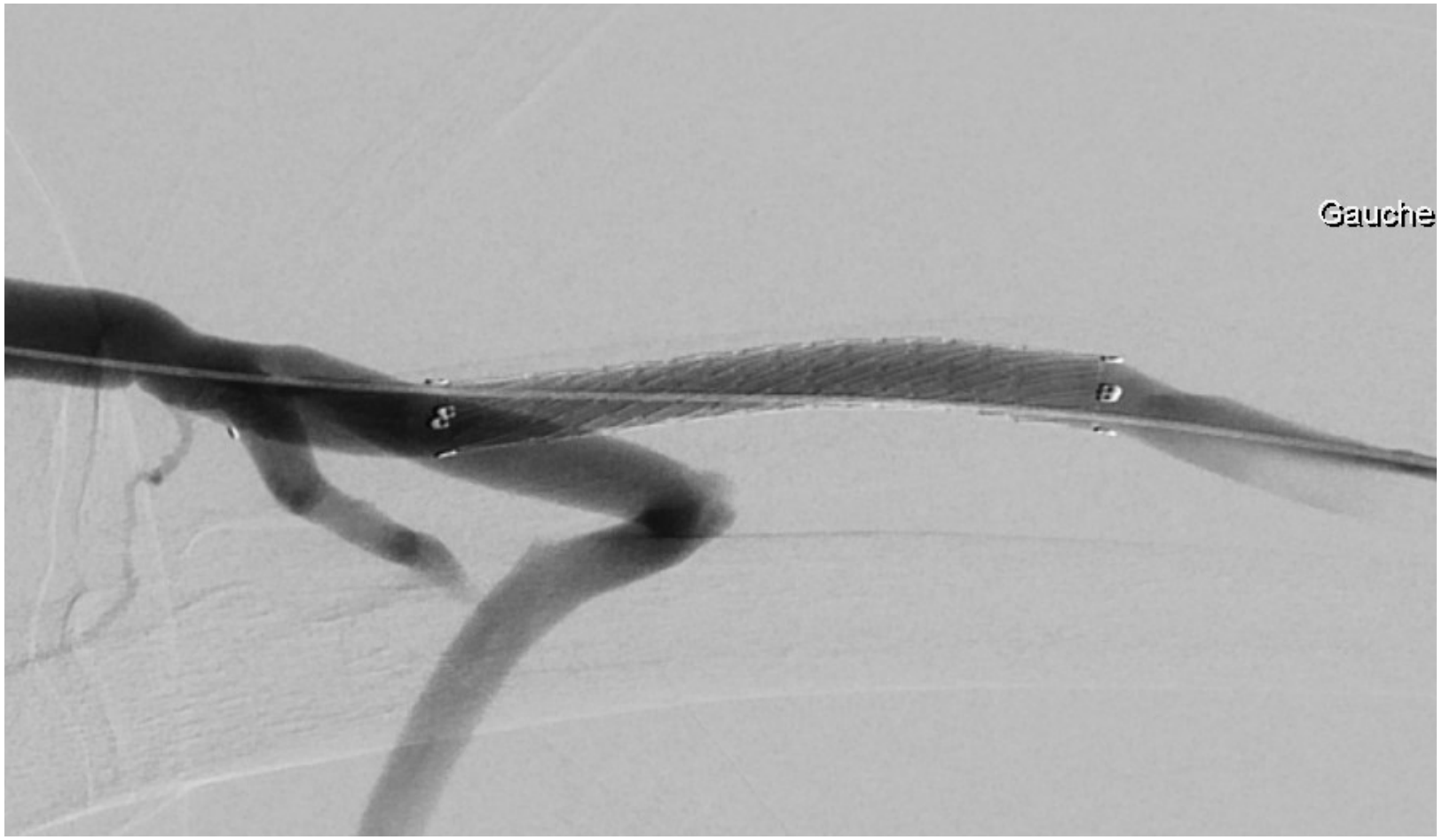


2 ans plus tard
hémorragie active



STENT COUVERT

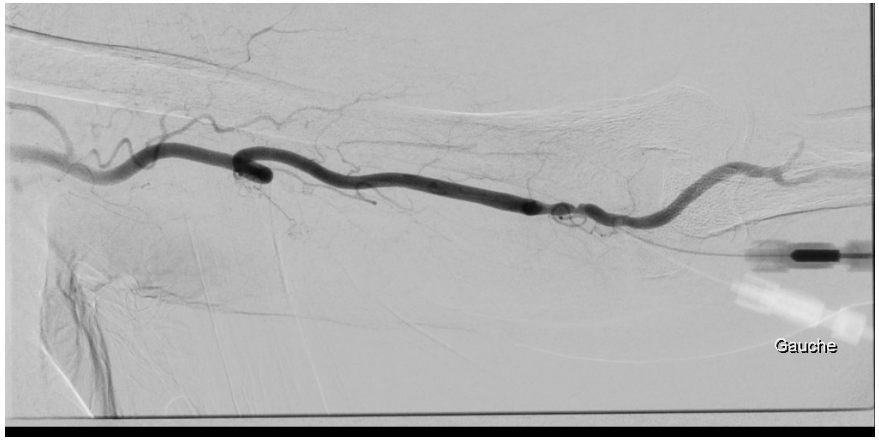
Traitement
stent couvert

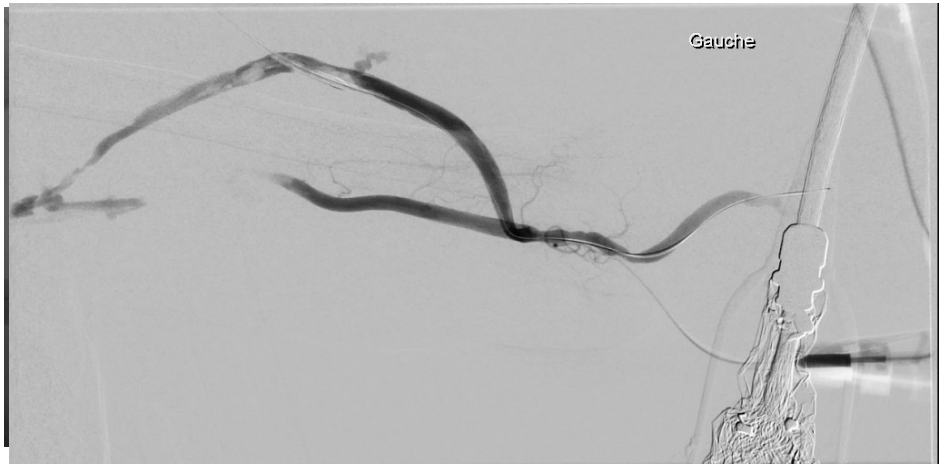


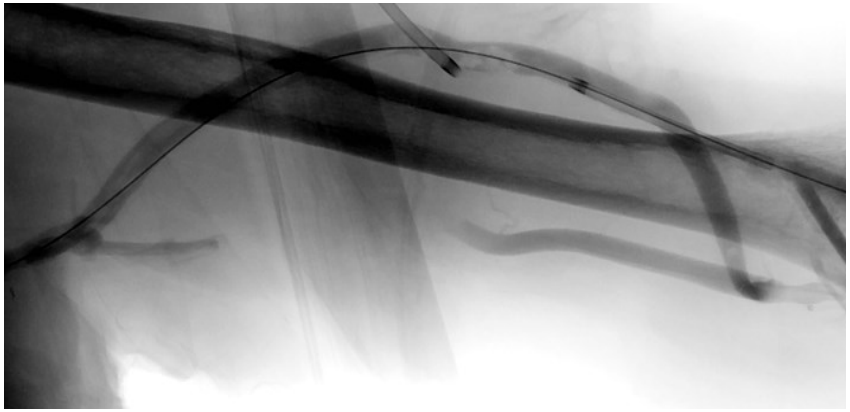
Point à retenir

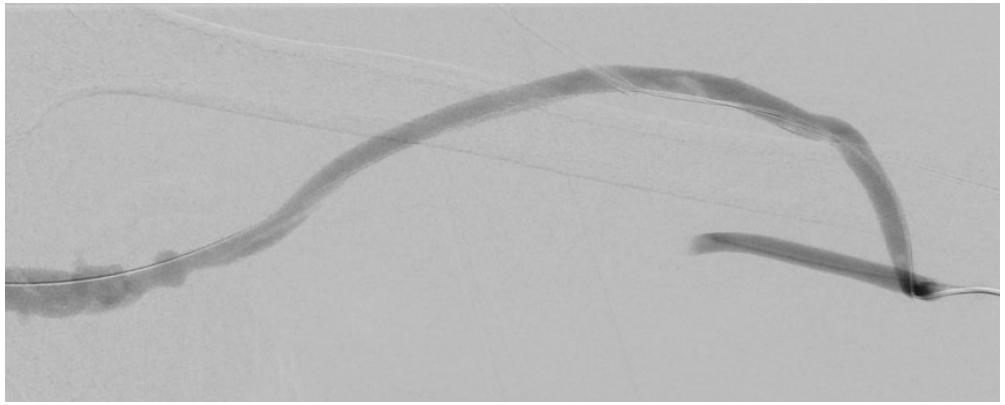
Varier site de ponction

Thrombose greffon









CATHETER

- ENNEMI ESSENTIEL

CATHETER

- INFECTION
- BRIS
- DYSFONCTION

INFECTION KT
local

- Tunnelite
- 7-10 jours (installation)
- Tardif (hygiène, entretien, immunosuppression)
- Traitement
  retrait du kt
  antibiothérapie

INFECTION KT
systémique

- Fièvre
- Leucocytose
- Hémocultures +
- TRAITEMENT
  changement sur guide
  antibiothérapie

BRIS DE KT

- RISQUE D’EMBOLIE GAZEUSE OU DE SAIGNEMENT

- CHANGEMENT SUR GUIDE

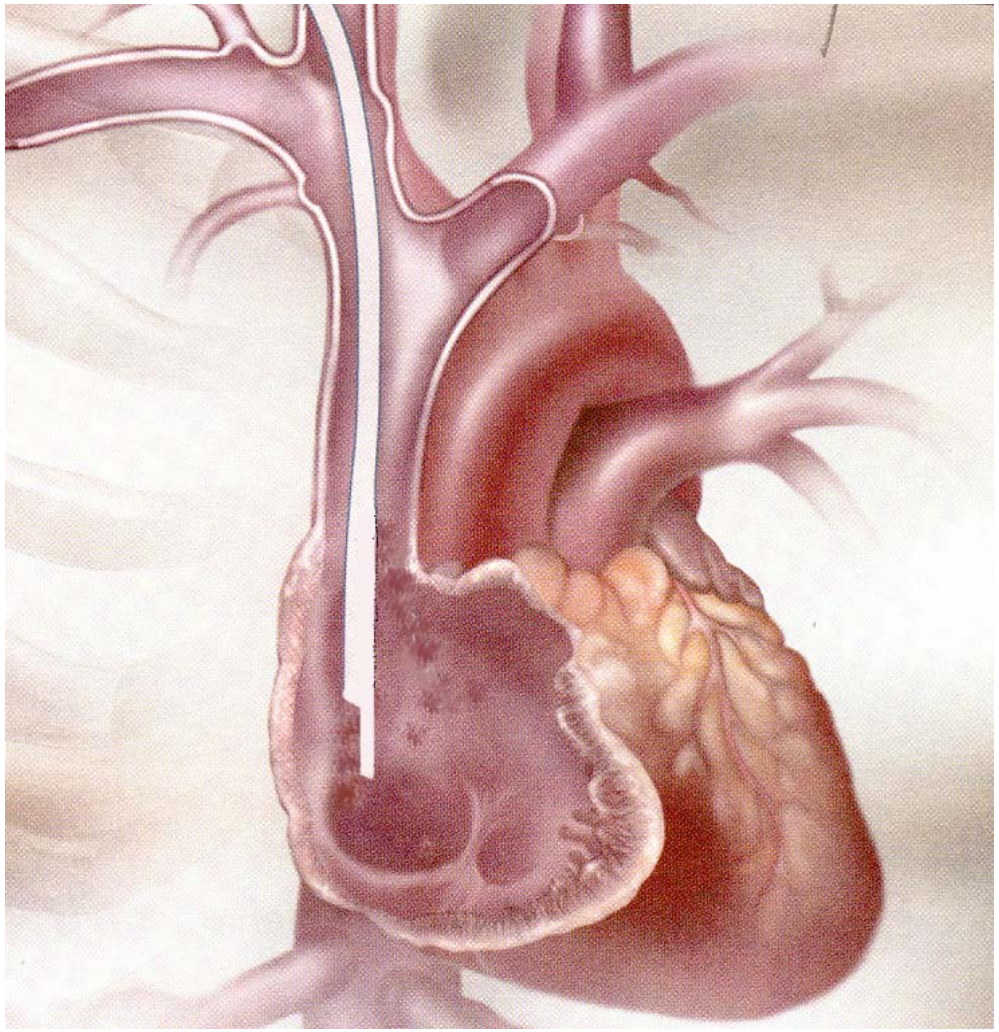
DYSFONCTION DE KT

causes

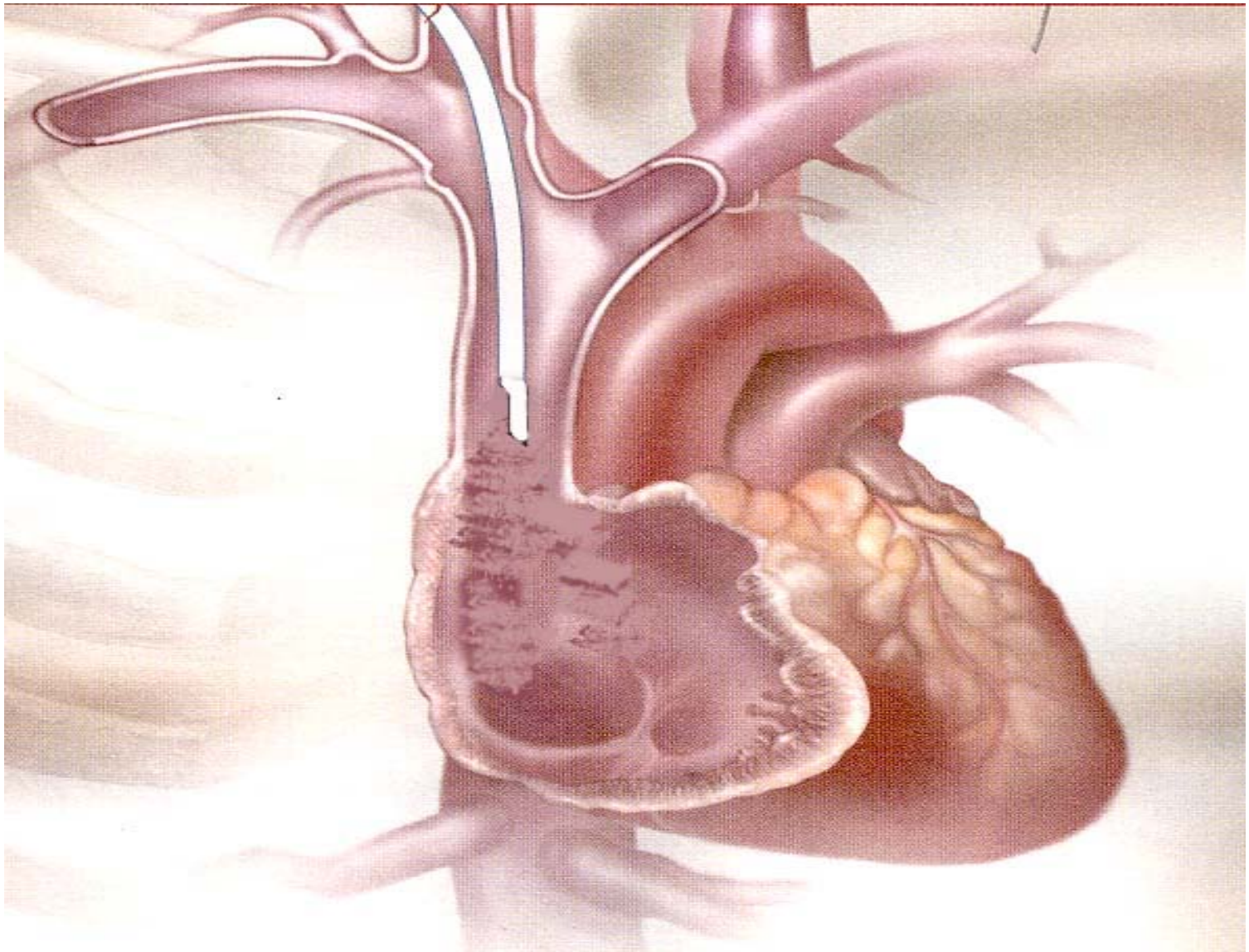
- Positionnement
- Coudure
- Thrombose veineuse
- Sténose veineuse centrale

- GAINE DE FIBRINE

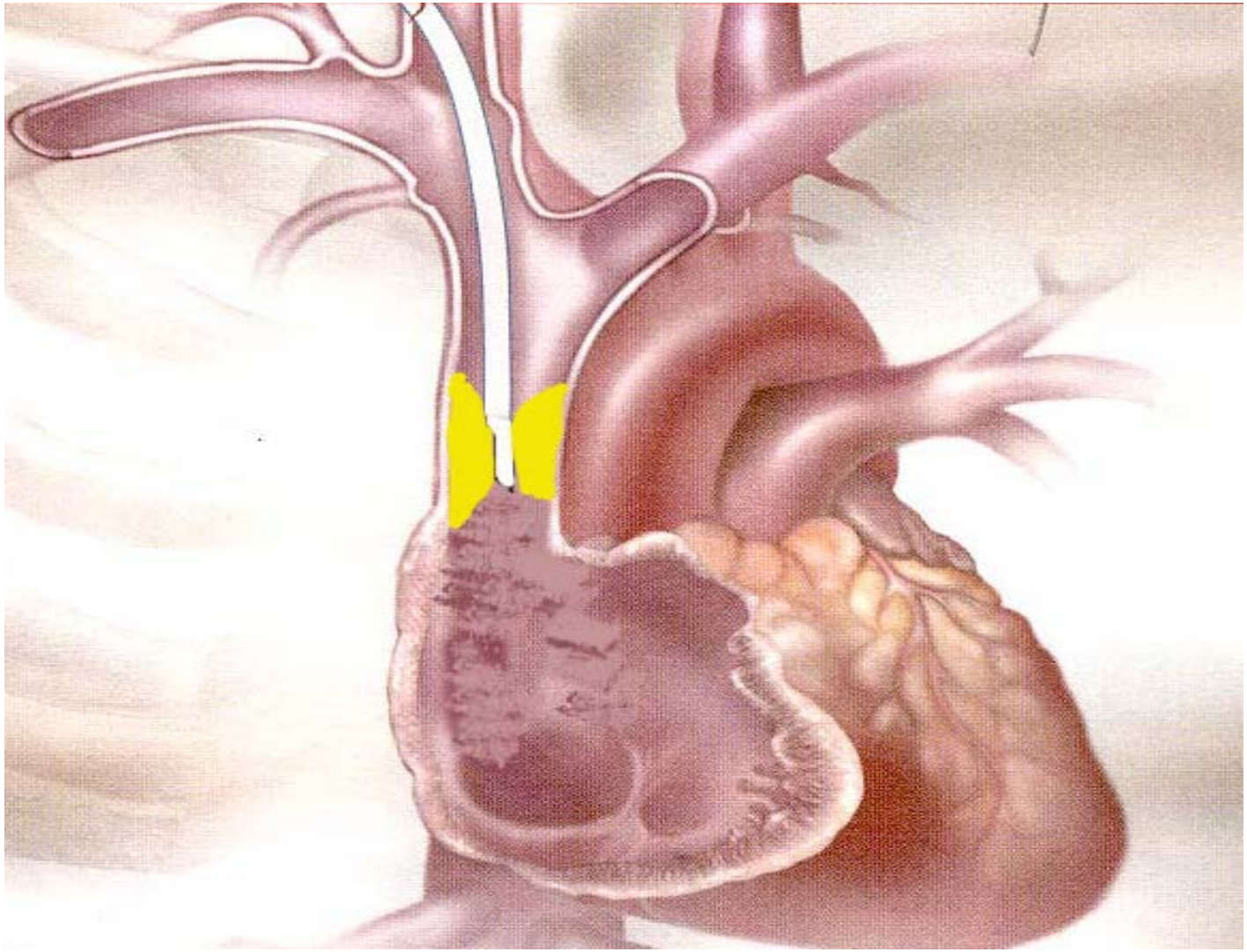
POSITION IDEALE



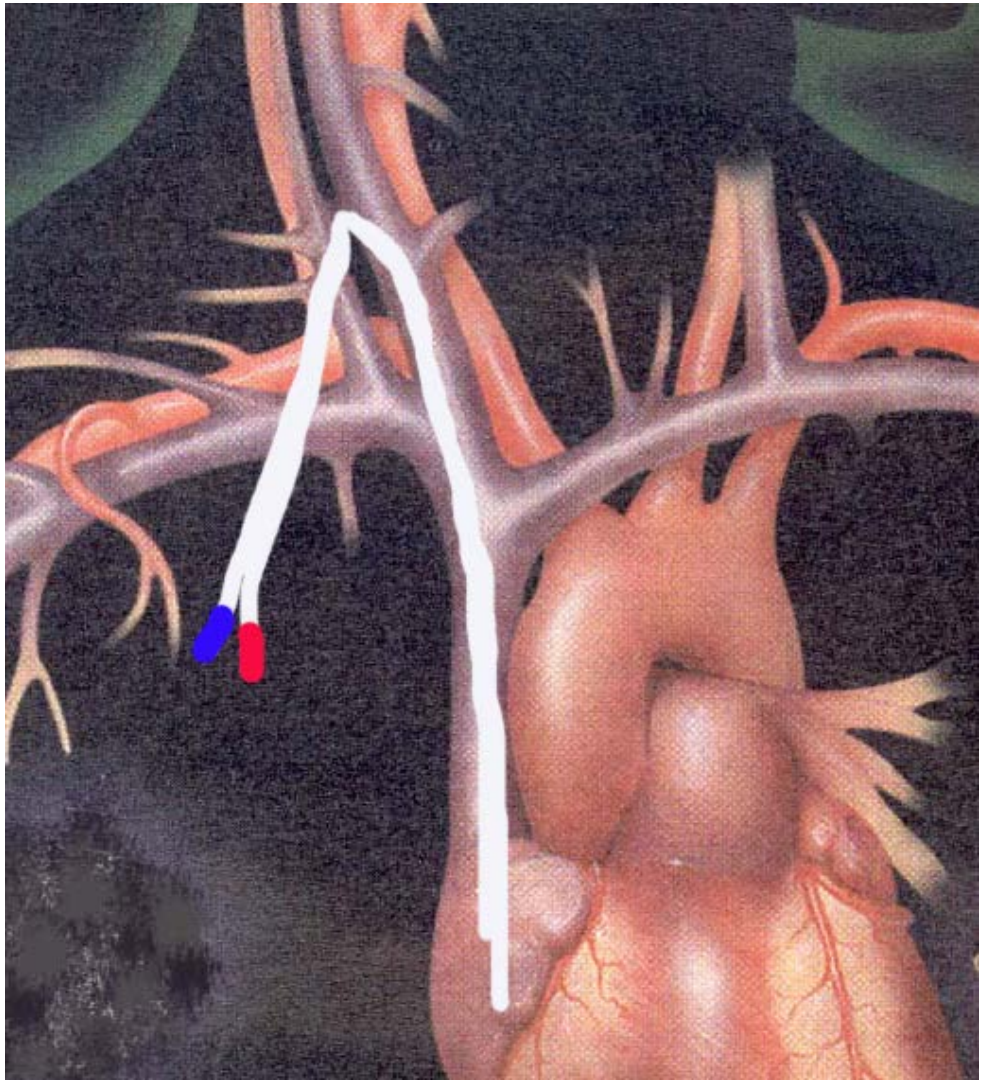
Position inadéquate



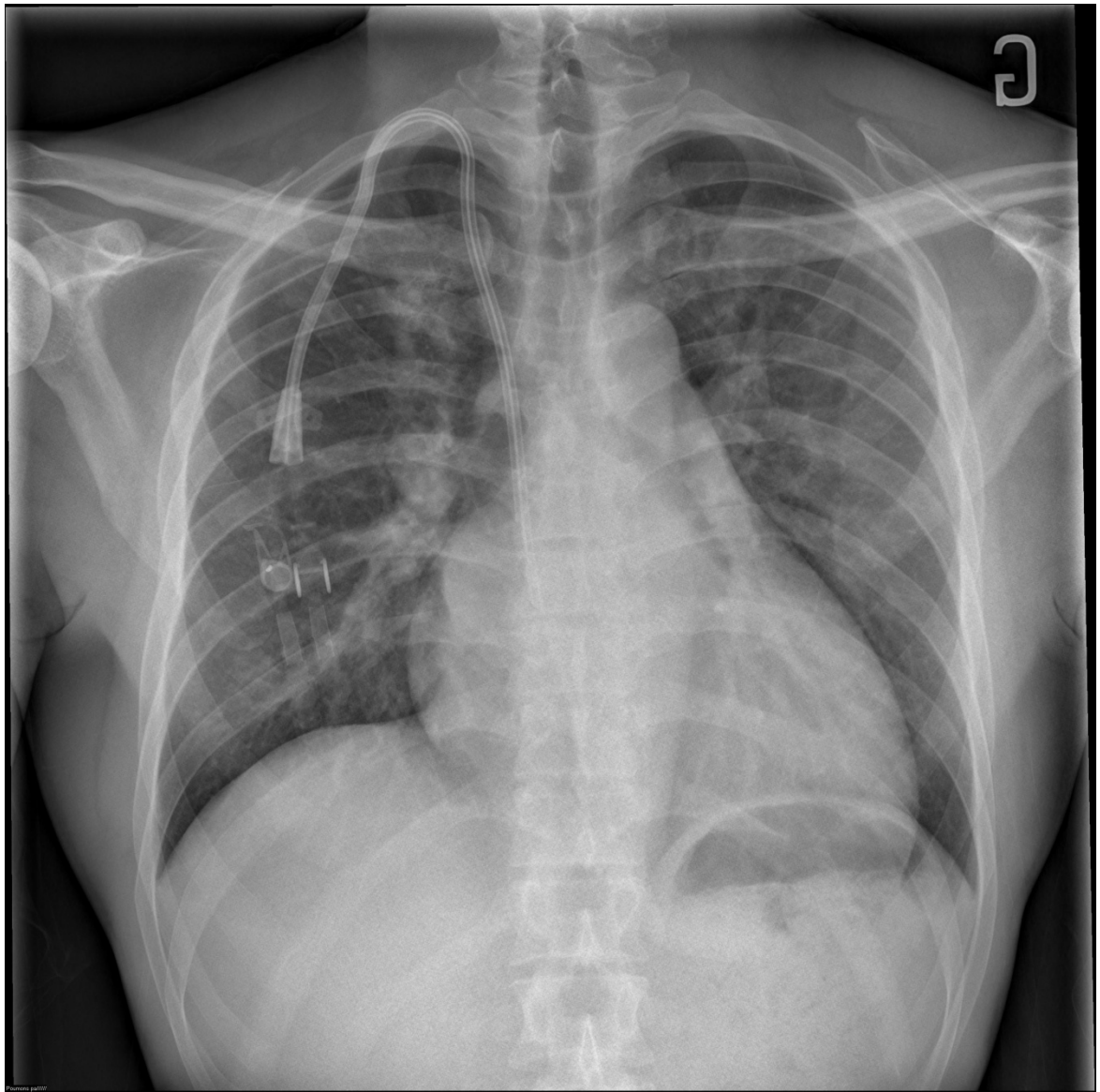
Position inadéquate



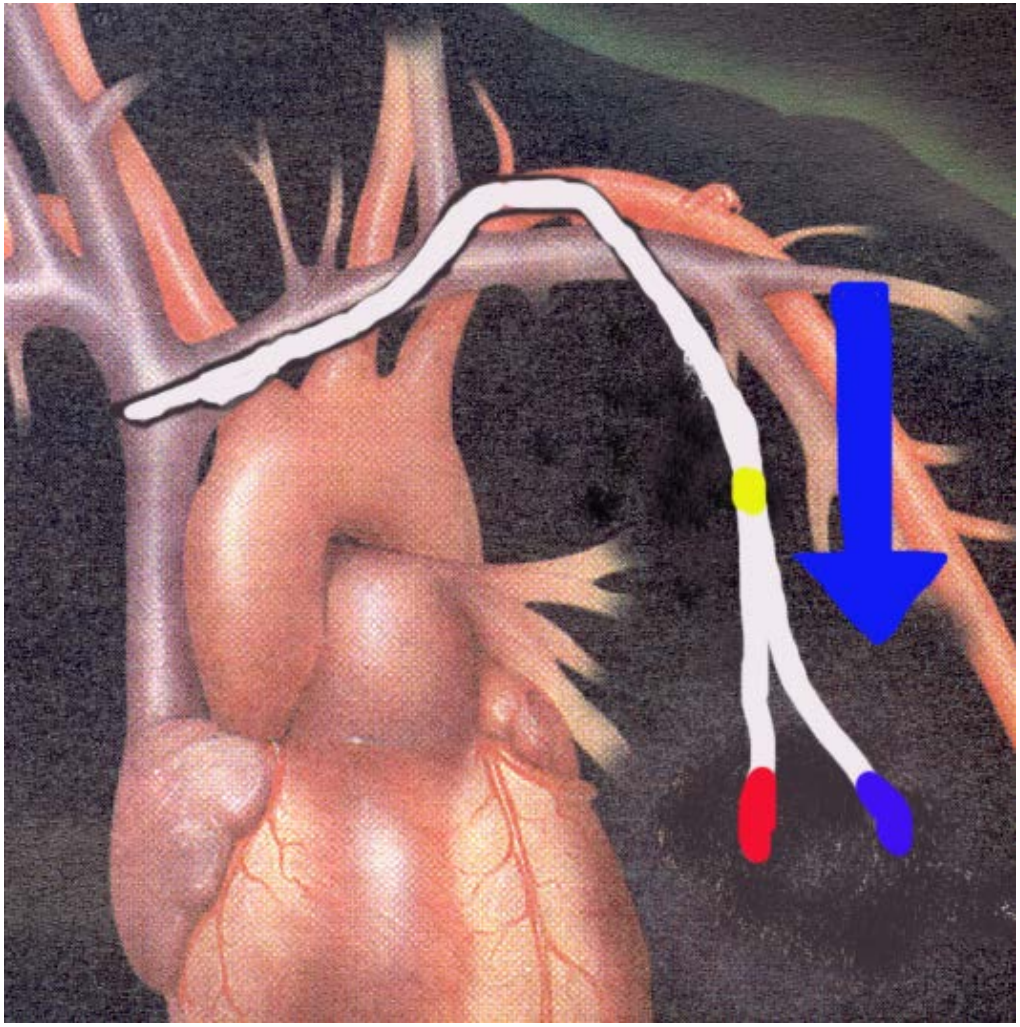
Position inadéquate



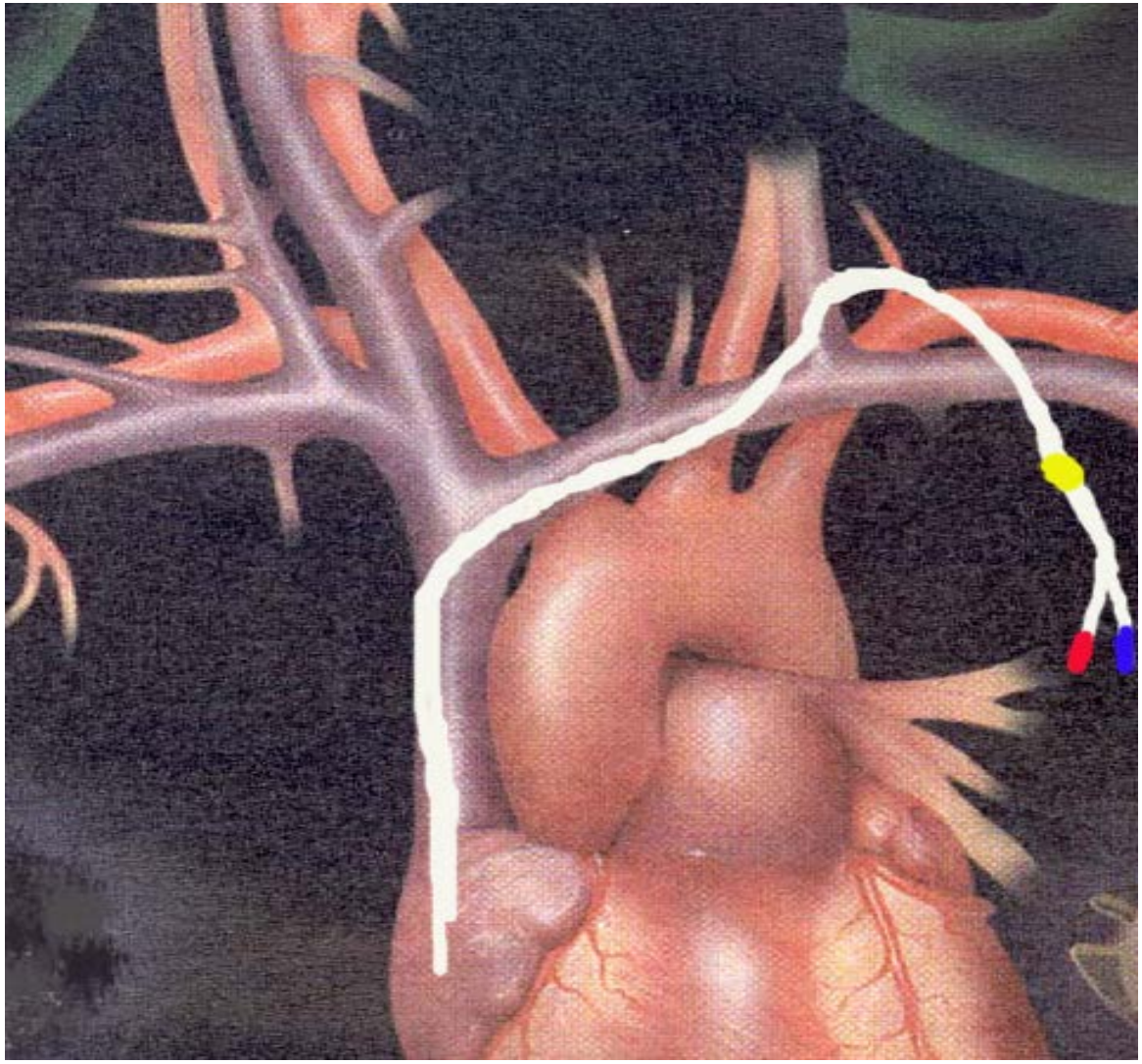
KT PRÉ-COURBÉ



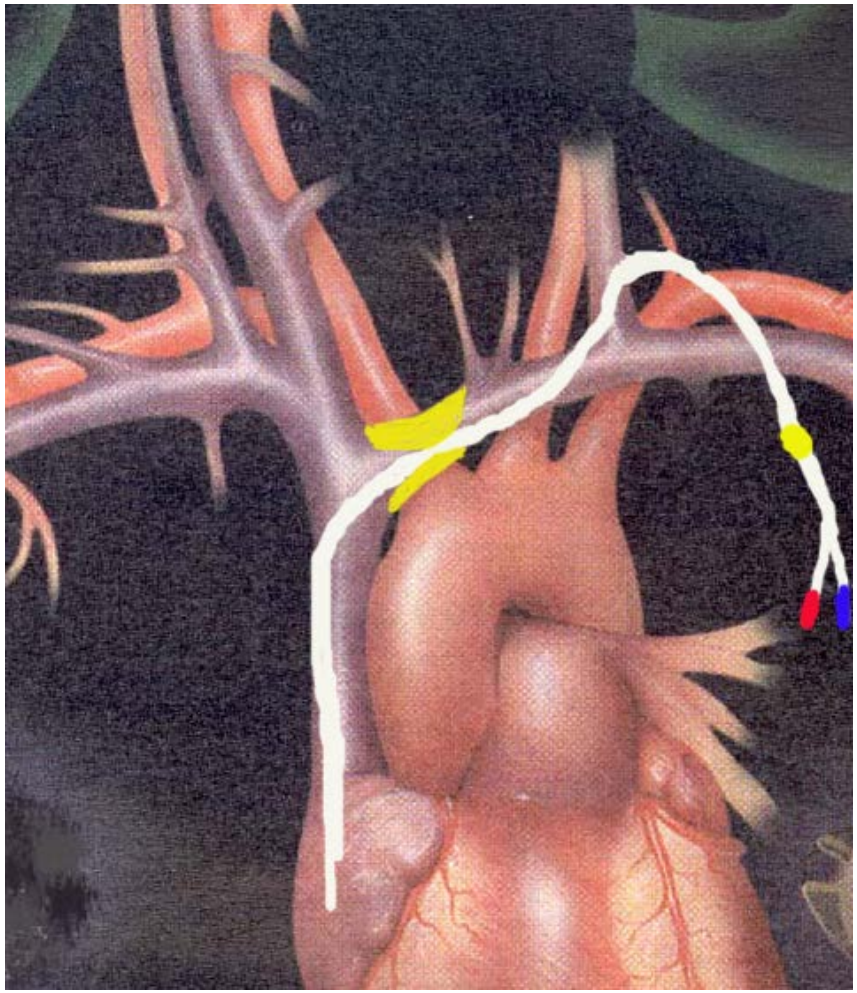
Position inadéquate



CHANGEMENT DE KT PLUS LONG



Jugulaire gauche



KT DYSFONCTIONNEL
physiopathologie

- Traumatisme au site insertion

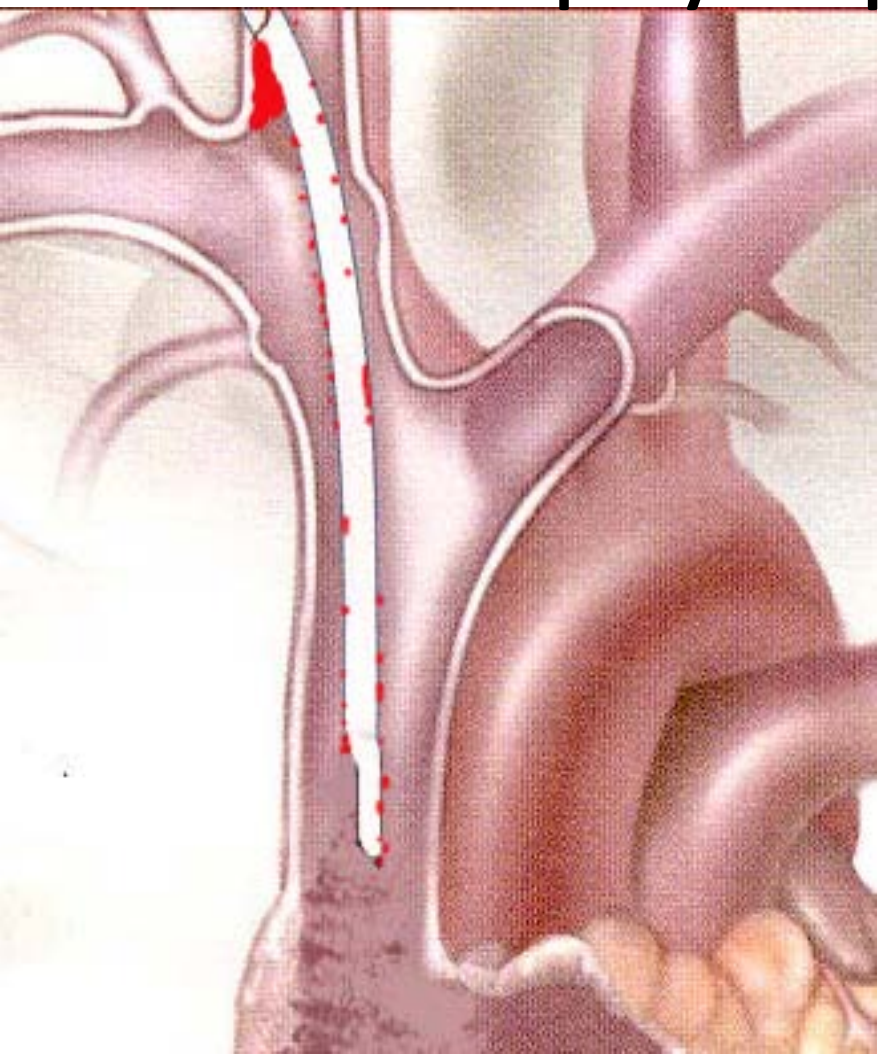
- Formation de thrombus

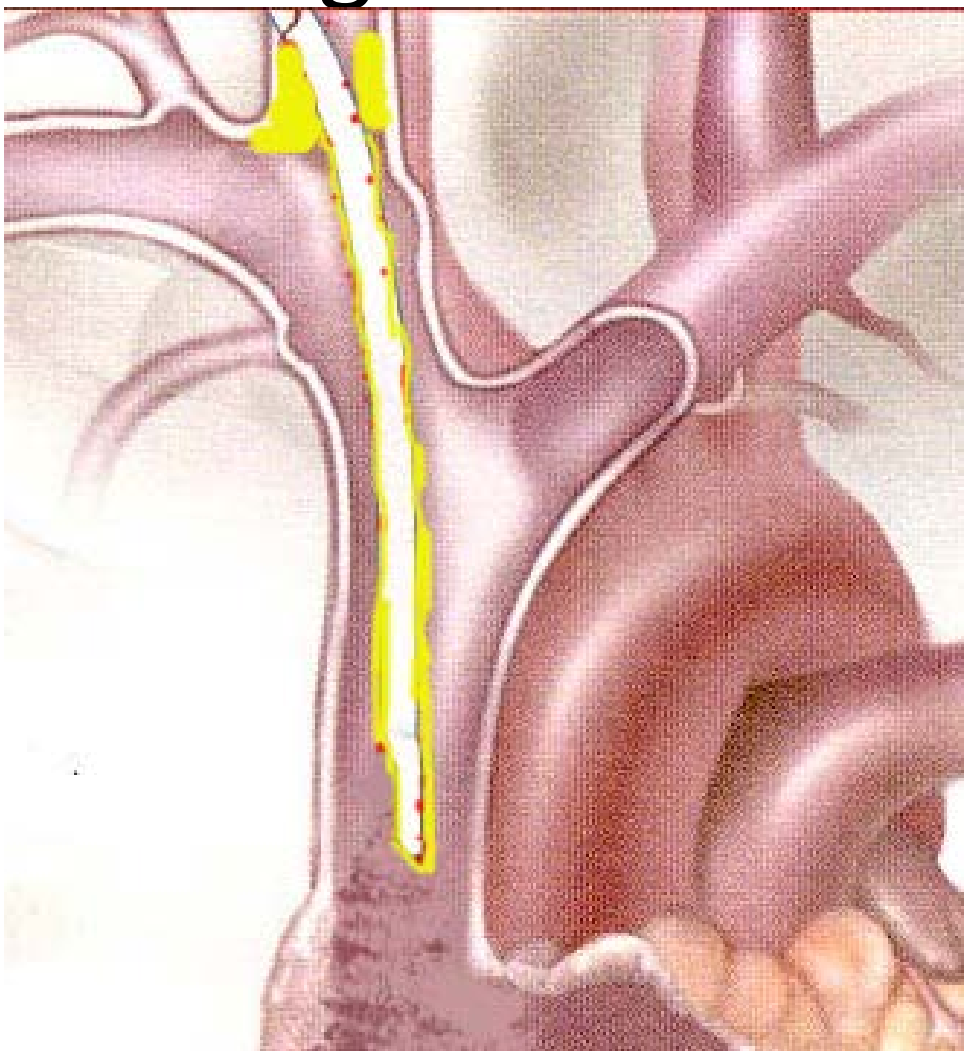
- Organisation du thrombus

  gaine de fibrine

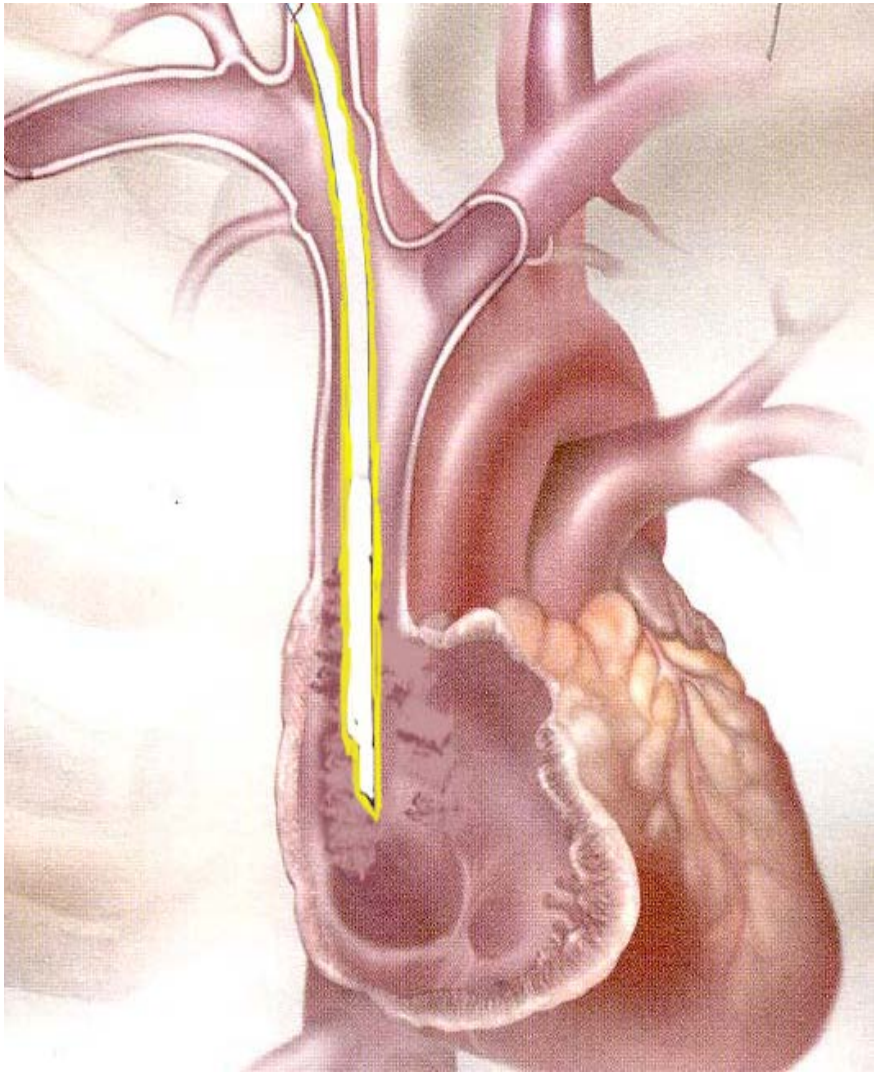
  sténose veineuse

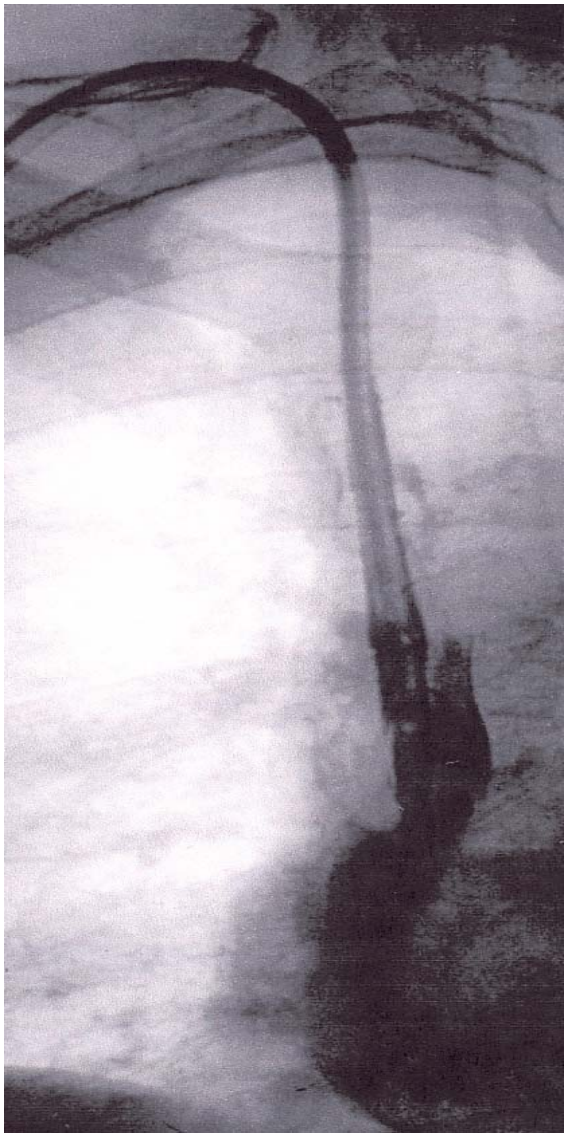
physiopathologie



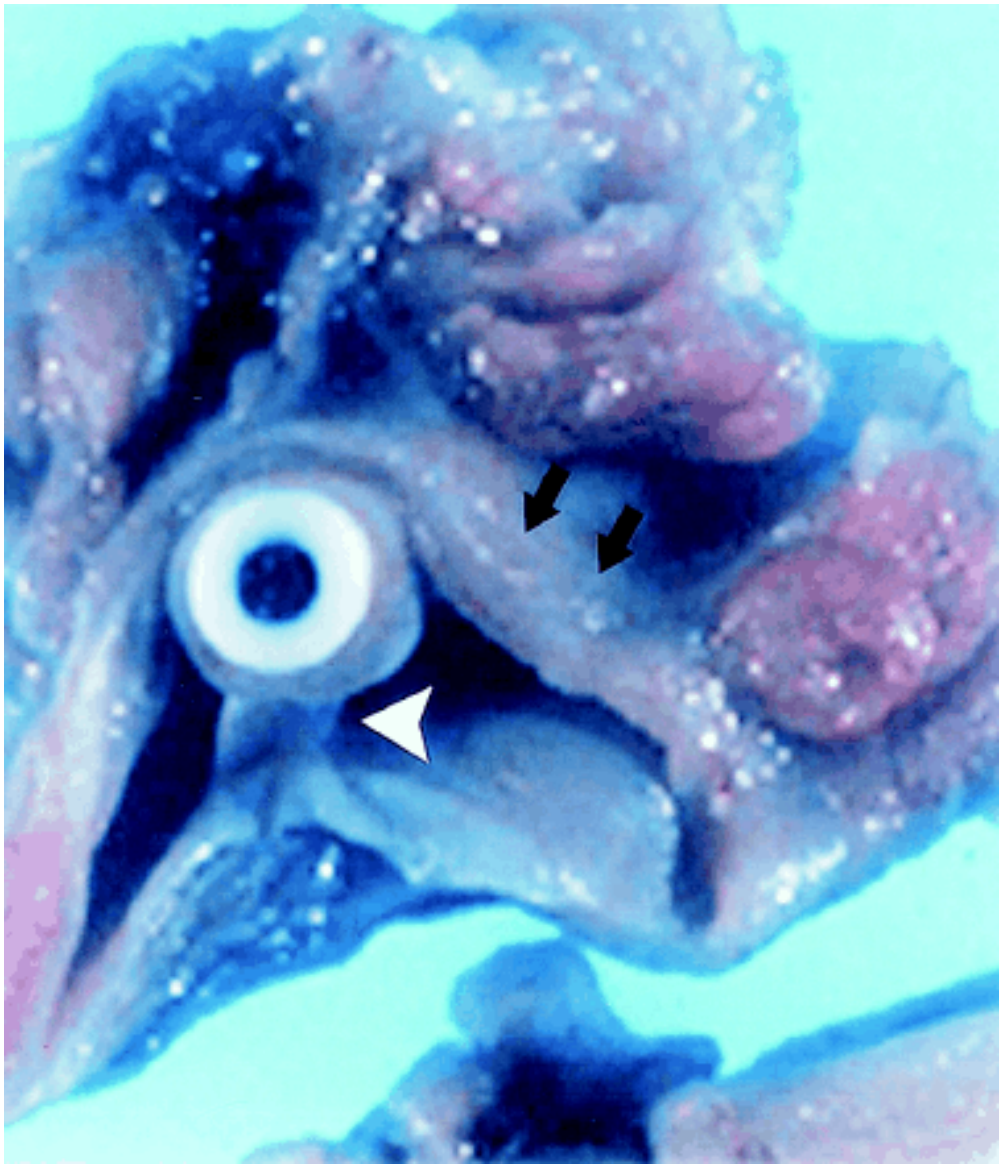


Gaine de fibrine



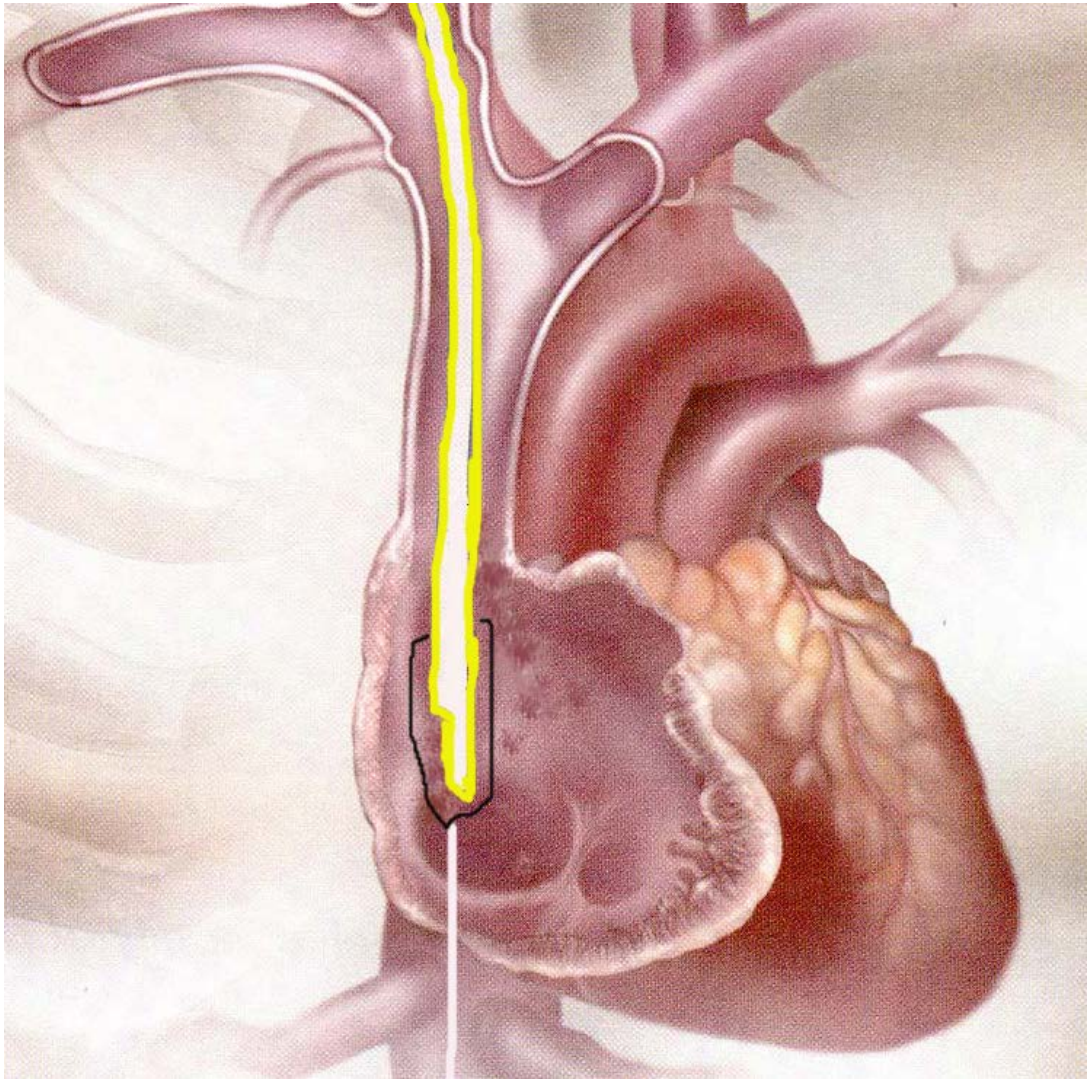


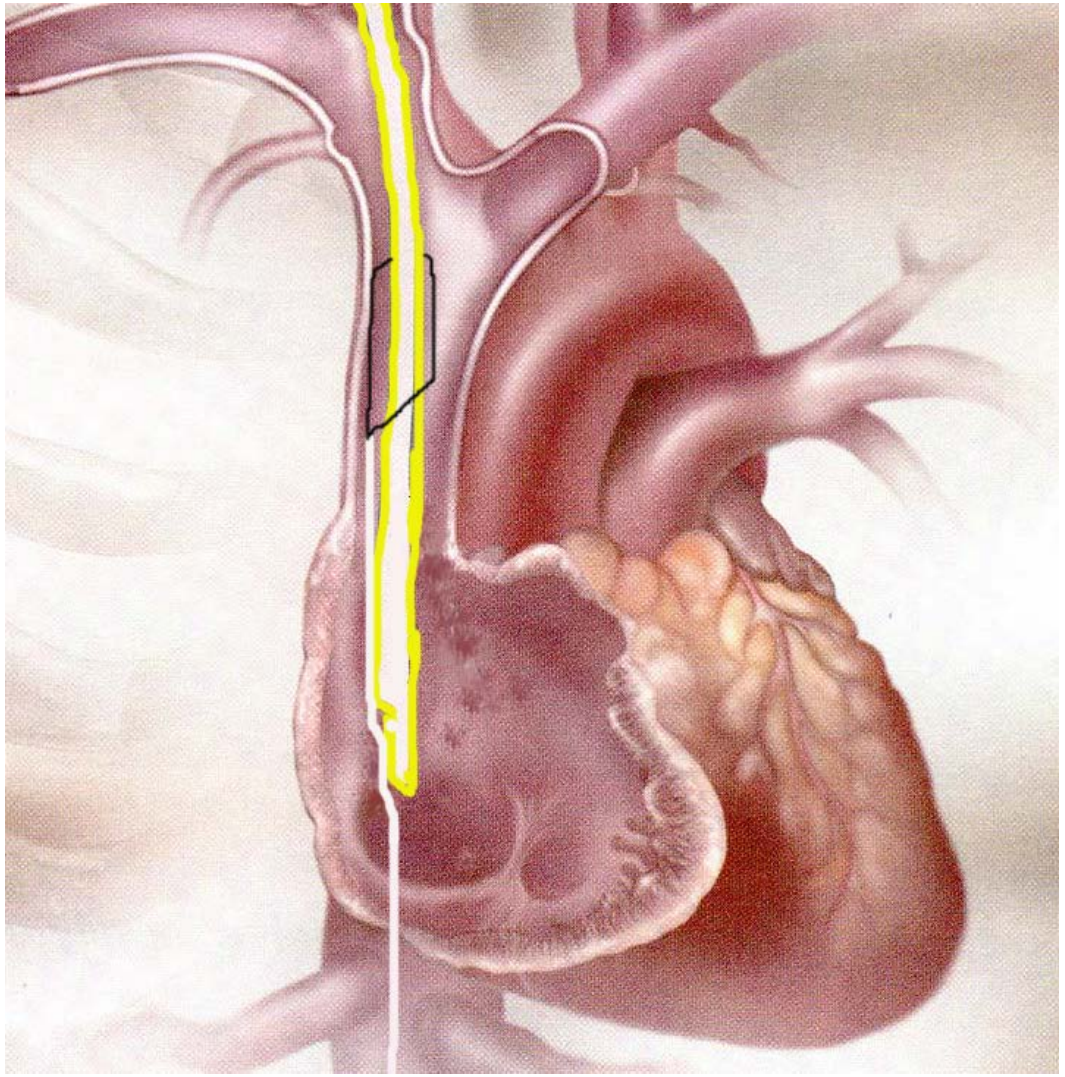
GAINE DE FIBRINE

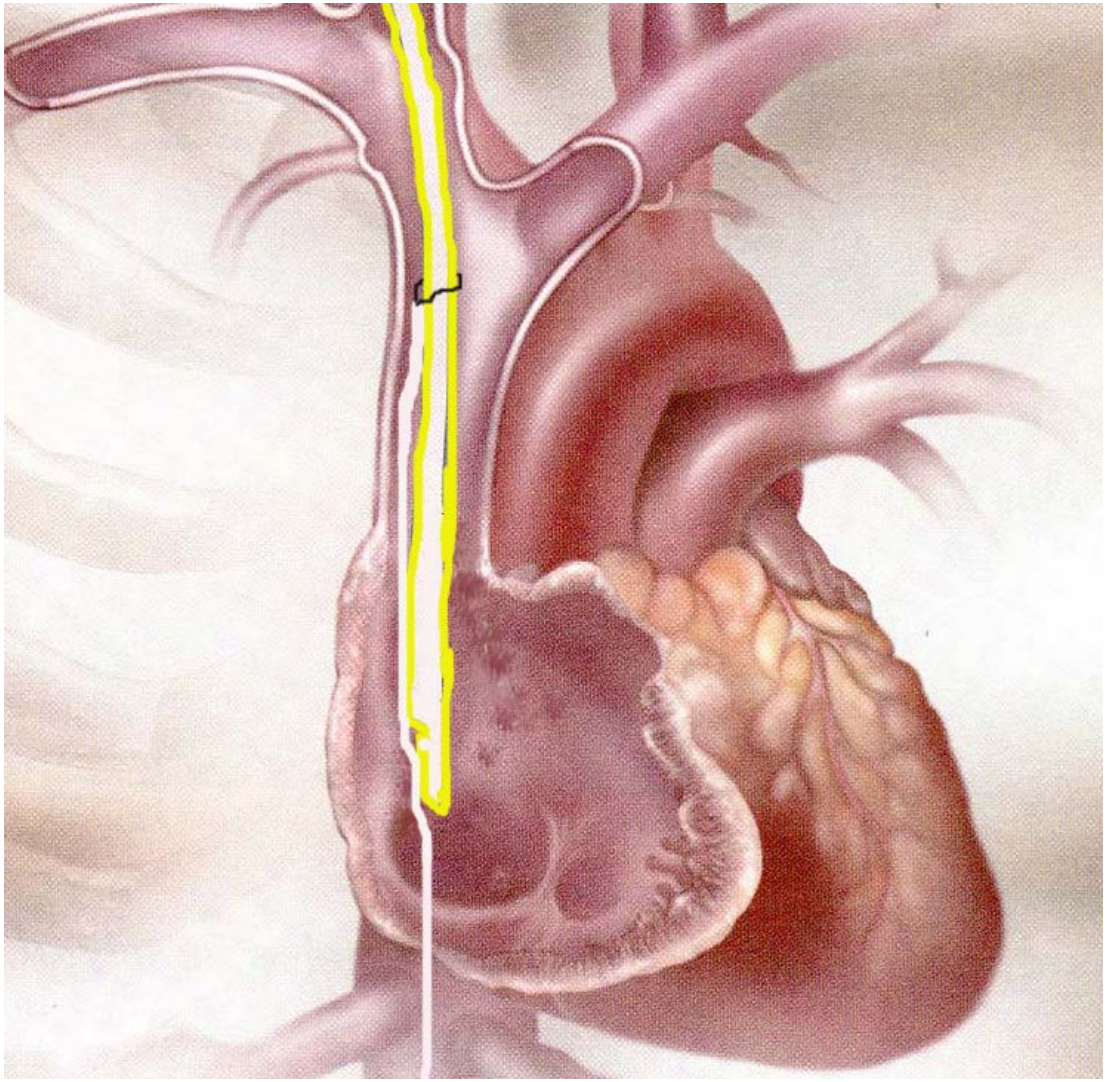


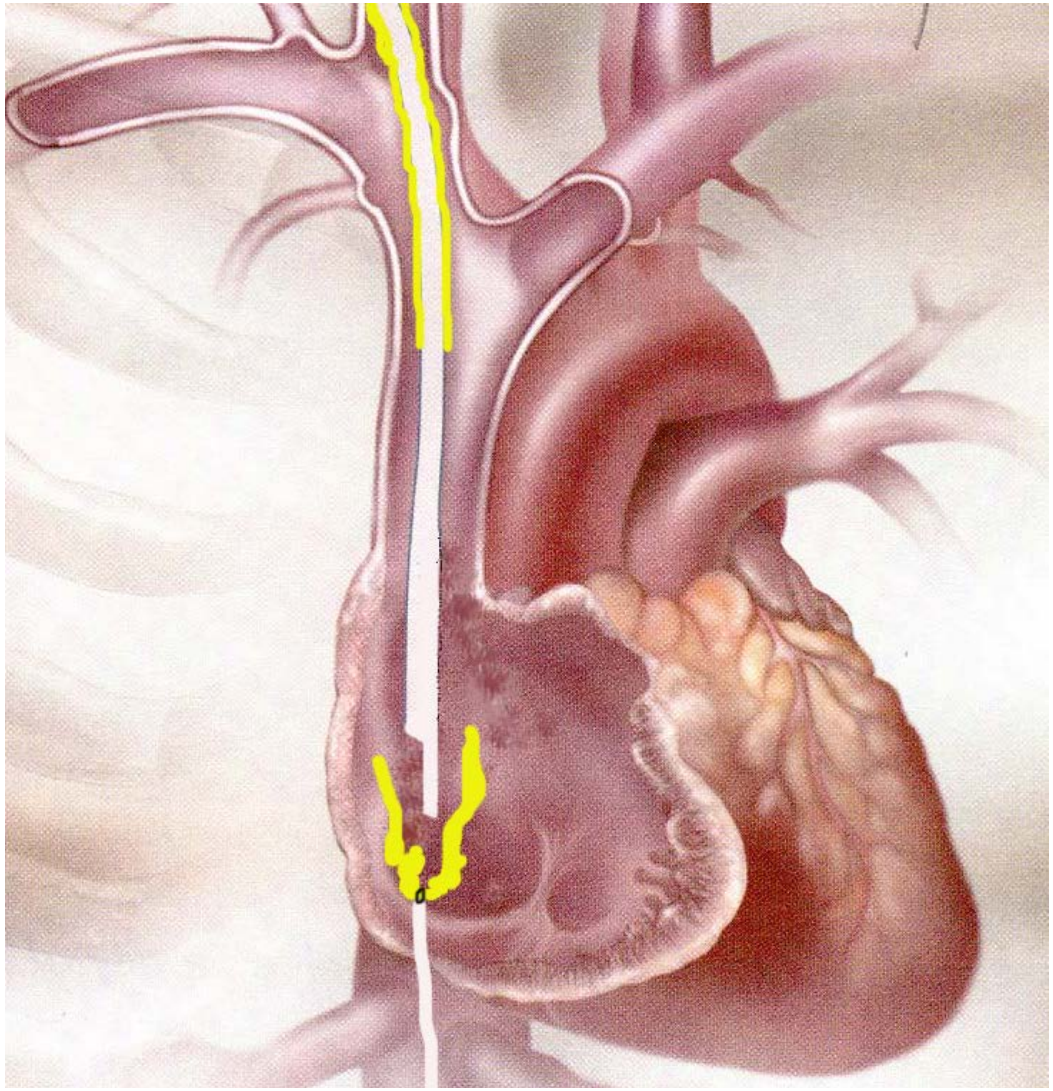
GAINE DE FIBRINE
option thérapeutique

- R-tpa
- Stripping par voie fémorale
- Changement de kt sur guide
- **Changement de kt avec angioplastie**

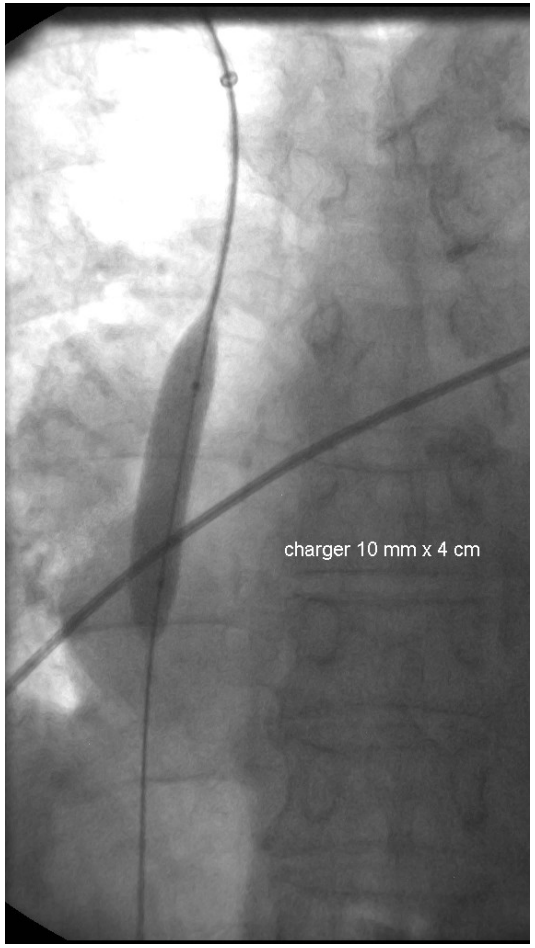


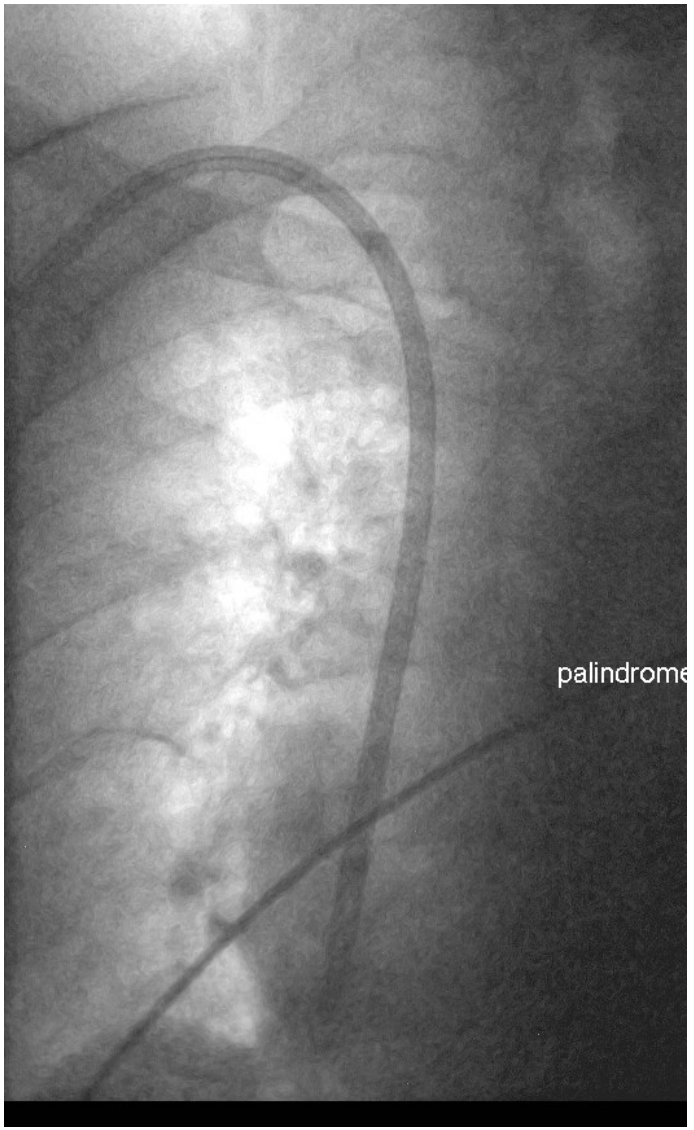






Angioplastie gaine de fibrine





CONCLUSION

- Travail d’équipe
- Vision long terme
- Clinique guide le traitement