Ensemble, imaginons la cardiologie de demain

Les outils censés nous aider…à manier avec prudence

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Présentation clinique

- F 68 ans, retraitée mais très active

- Dyslipidémie, coronaropathie familiale.
- Sans antécédents notables.

- Angor d'effort de novo depuis 3 semaines, angor devenant de plus marqué pour des efforts de moins en moins importants.

- Examen physique Normal.

- ECG: RRS , sans anomalies.

- Biologie: bonne fonction rénale, bilan lipidique et glycémique normal

ETT: FE VG normale, pas de troubles de la cinétique.

Angor instable/ DT typique

ASPEGIC + STATINE

Coronarographie

Désilet radial droit 6 F
Belle circonflexe 3 Mg,
Reprise de la Dte

Sténose serrée de l’IVA 1

Bifurcation 1 1 0

Sténose serrée de la Dg1

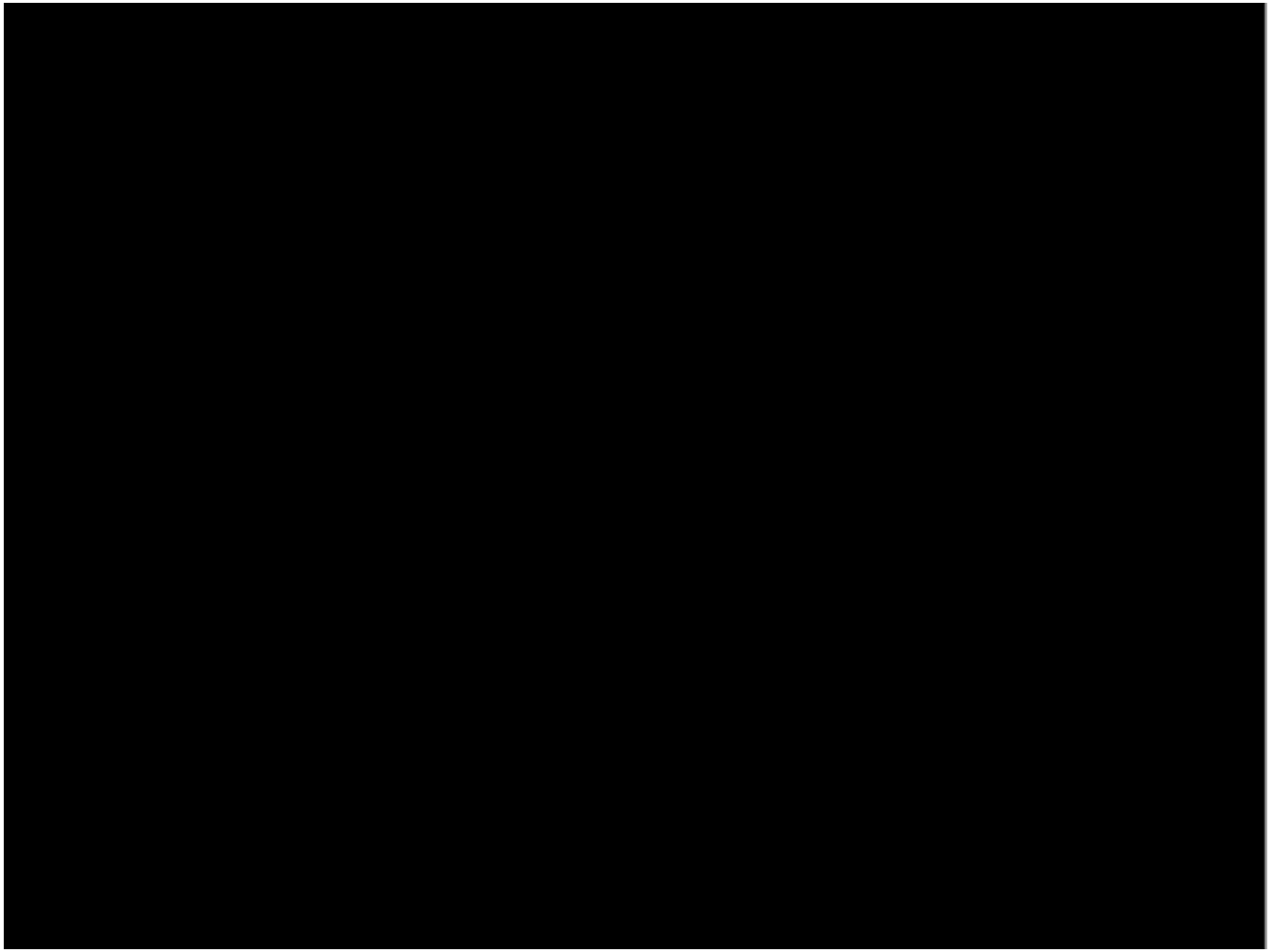
J-CTO score à 1
Longueur > 20 mm/ moignon
Complexité intermédiaire

Comment revasculariser?

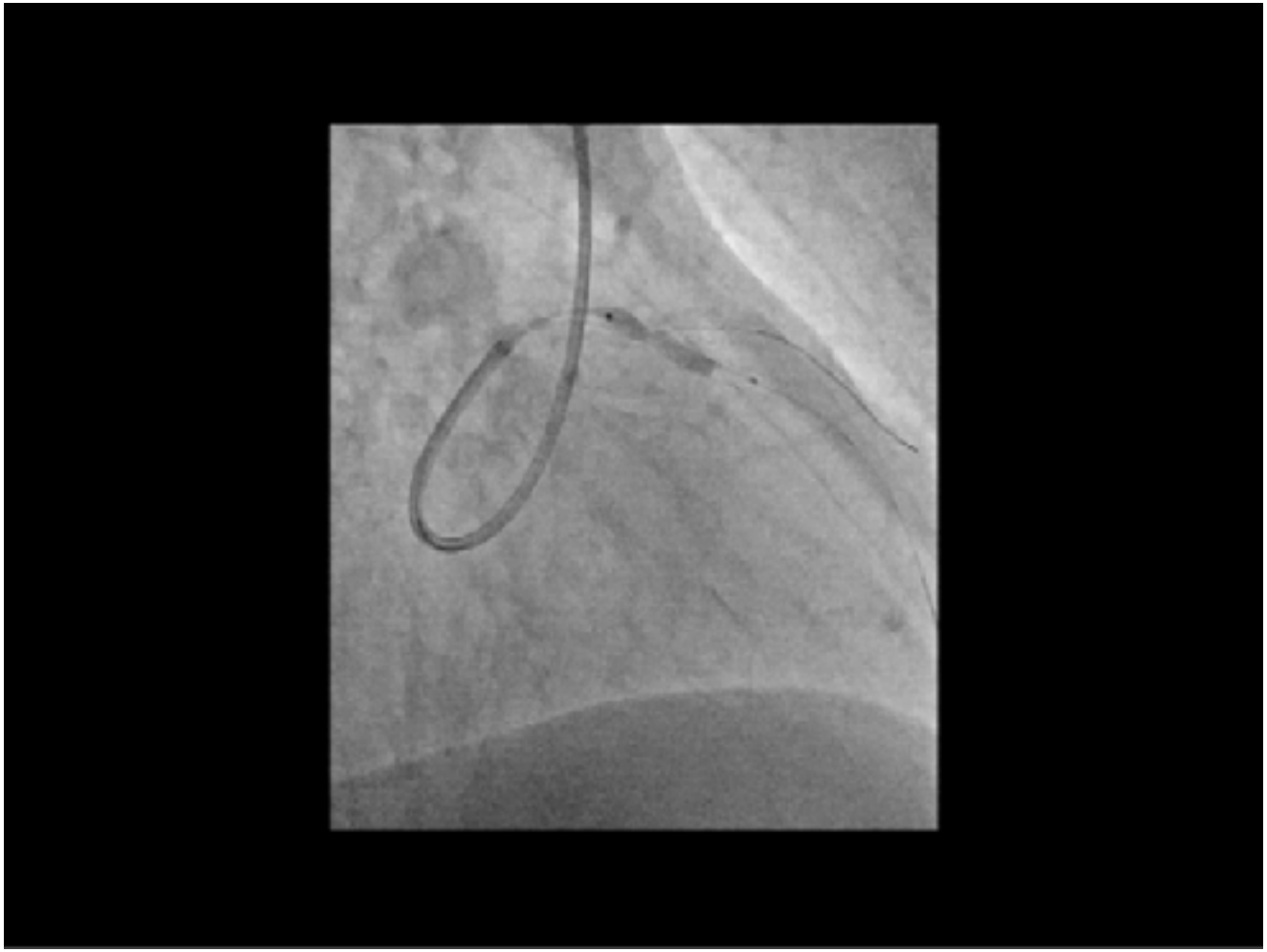
- Patiente ayant un angor instable, bitronculaire.
- Réseau équilibré, CTO de la coronaire relativement simple
- Sténose critique de l'IVA responsable de l'angor instable.
- On décide de tenter une désobstruction de l'IVA ad HOC

- CANGRELOR (DDC et d’entretien)
- EBU 3,75
- Bif 1-1-0 et ss Dg1
- Deux guides 014

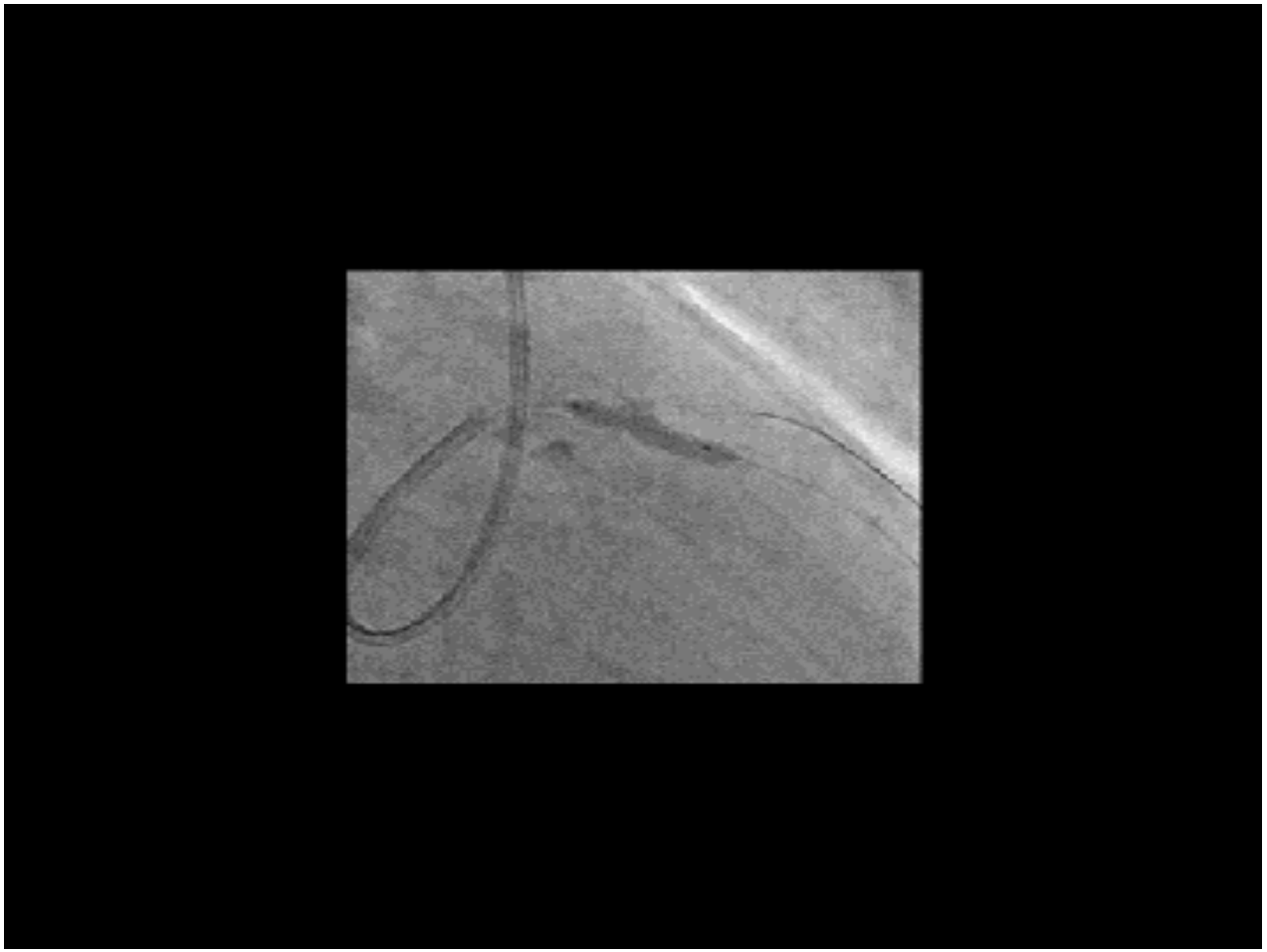
- 2 WhisperES
- BioMatrix Flex 2.75 x 14 mm,



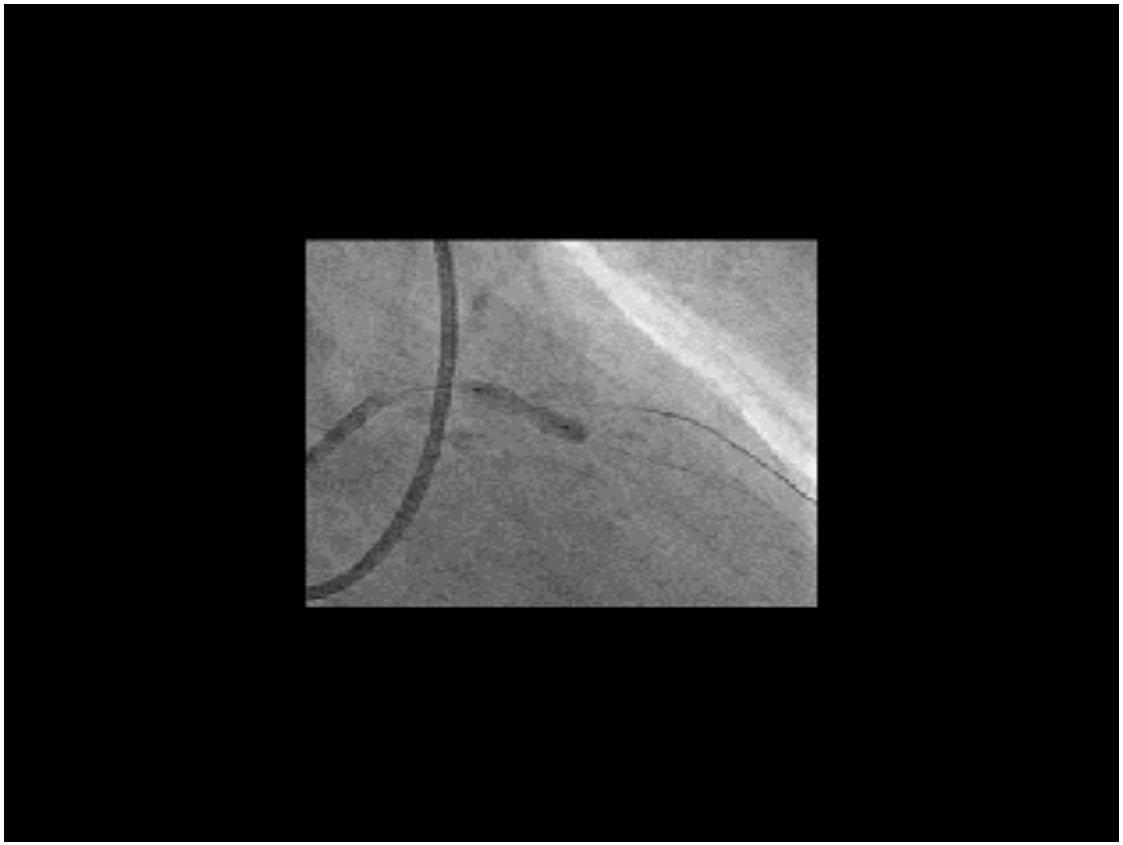
- Provisional stenting
- Bio matrix Flex 2,75 x 18 mm IVA dilaté à 18 atm
- aspect en sablier



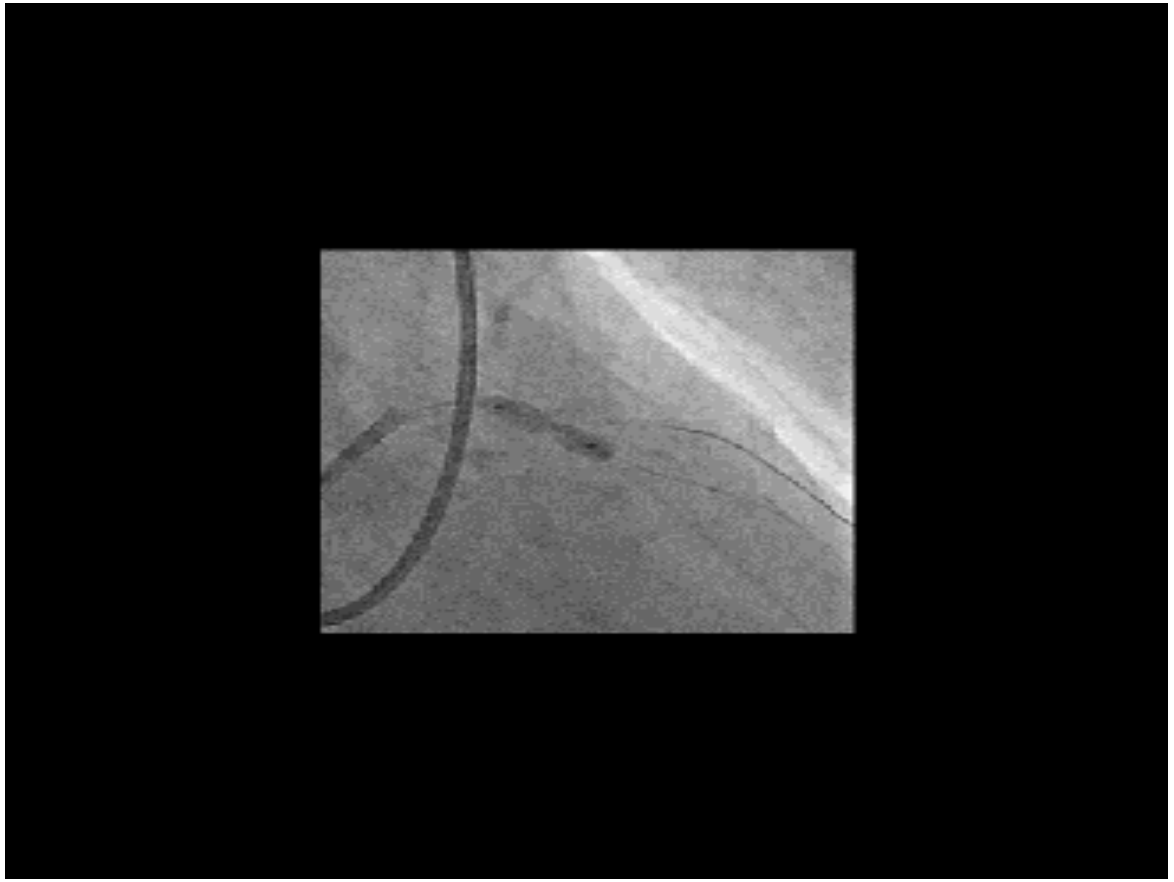
BNC ACCUFORCE 3X 15 dilaté 18 atm



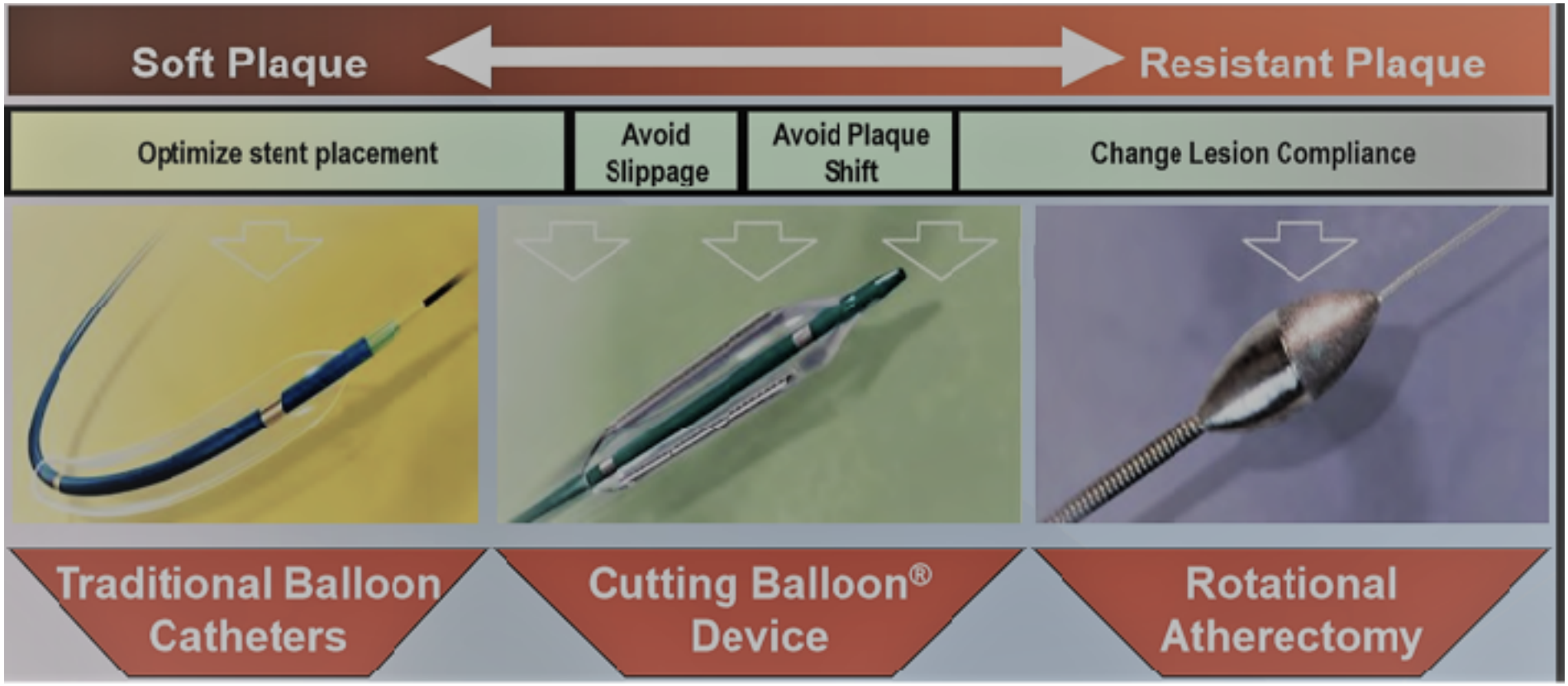
BNC ACCUFORCE 3,25 x 12 mm à 25 atm



BNC ACCUFORCE 3,5 X 8 mm



Techniques utilisées dans le traitement des lésions résistantes



- Les ballons non compliants…
- Le Buddy wire Technique « ANGIOSCULPT »..
- Cutting balloon..
- ROTABLATOR
- le SchockWave: lithotripsie intra coronaire, délivre des ondes ultrasonores pulsatiles permettant de fracturer le calcium de la paroi coronaire au travers d'un ballon gonflé à basse pression

Ballonnets pour ACTP OPN NC® – Super Haute pression

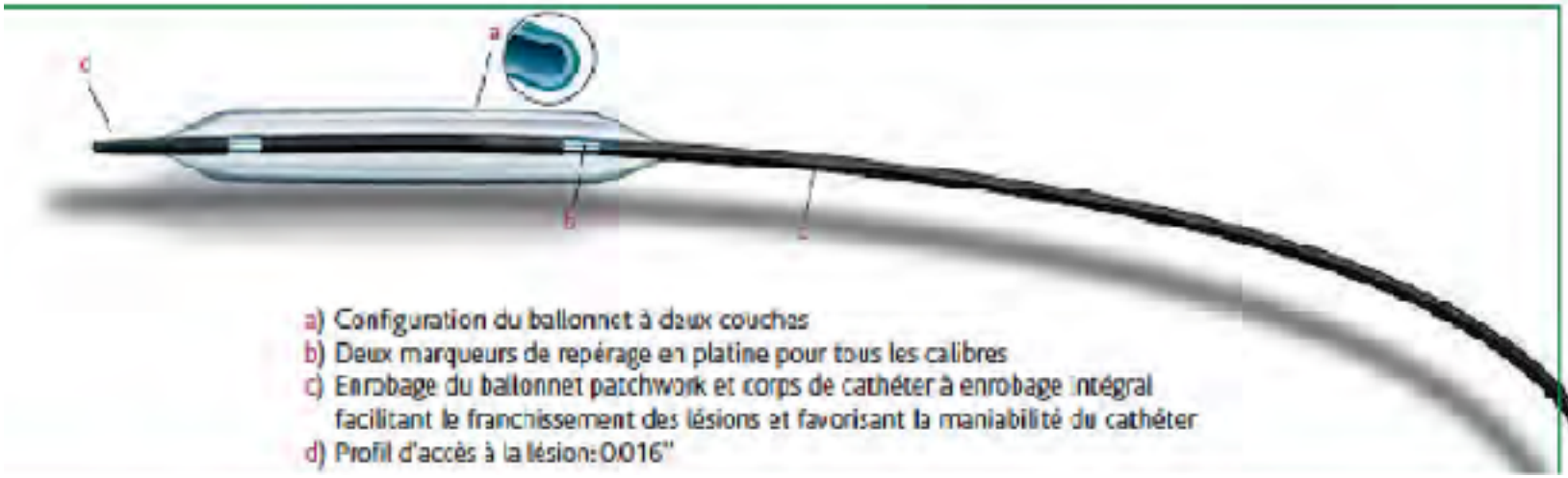
Pression de rupture maximale nominale de 35 bars

Indications:

- Traitement des lésions calcifiées
- Post-dilatation des stents

Avantages:

- Résistance maximale à la pression: 35 bars
- Performance inégalée sur les lésions hautement calcifiées
- Technologie de ballonnet à deux couches (brevet déposé)
- Pas d'effet en «os de chien» des modèles à deux ballonnets mais la garantie d'un diamètre de ballonnet uniforme, quelle que soit la pression



a) Configuration du ballonnet à deux couches
b) Deux marqueurs de repérage en platine pour tous les calibres
c) Enrobage du ballonnet patchwork et corps de cathéter à enrobage intégral facilitant le franchissement des lésions et favorisant la maniabilité du cathéter
d) Profil d'accès à la lésion: 0.016"

…. Seulement la plupart de ces techniques s'appliquent à une lésion résistante où le stent n'est pas encore largué…

Que faire?

Continuer d'autres techniques de PCI??

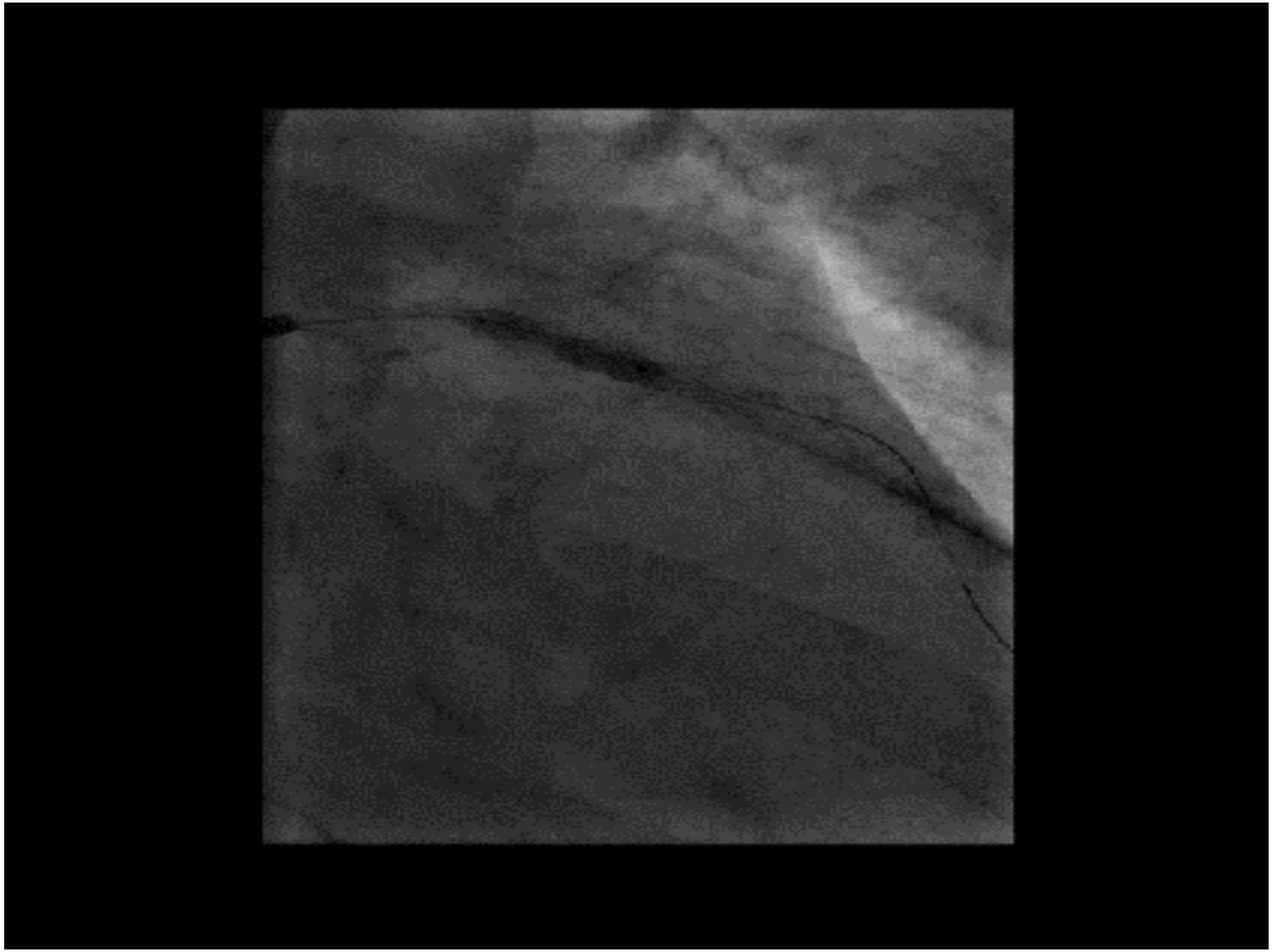
Adresser en Chirurgie??

On décide de s'arrêter là ce jour là et de réfléchir…

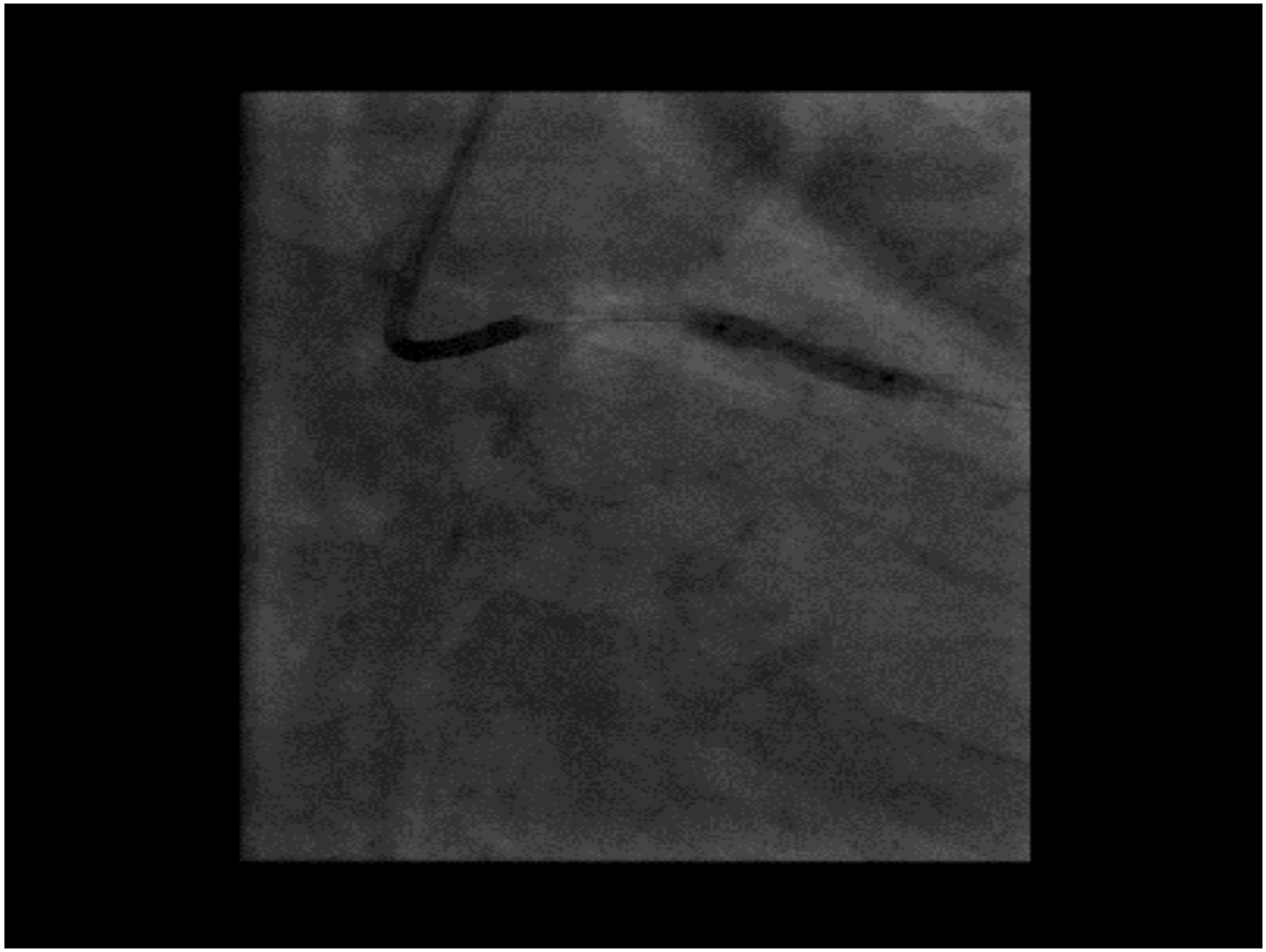
Dix jours plus tard on reprend la patiente …

ARD 6 F
EBU 3,75

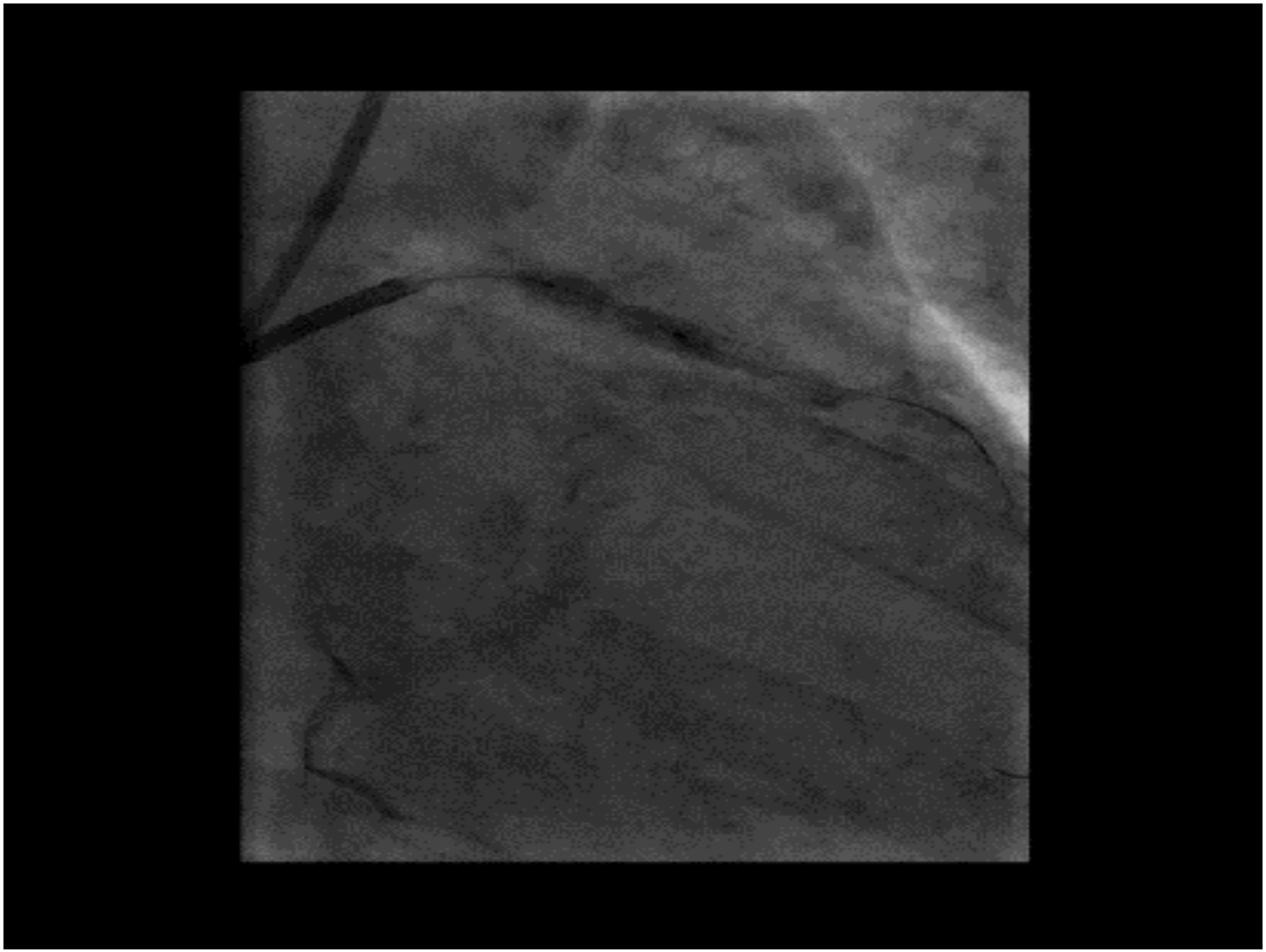
- ACCUFORCE 3 X 15 mm 25 atm



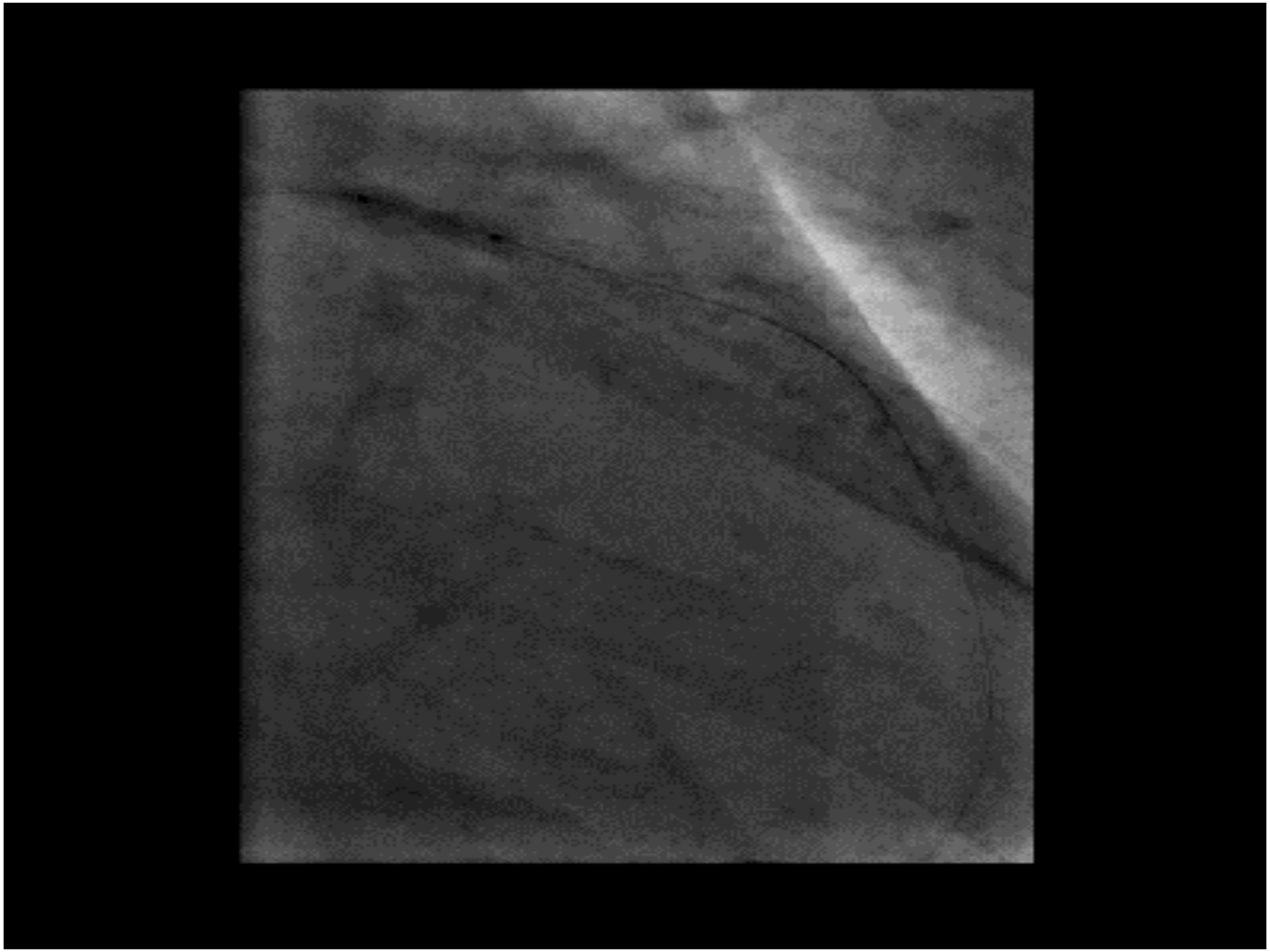
- ACCUFORCE 3,5 X 15 mm à 20 atm



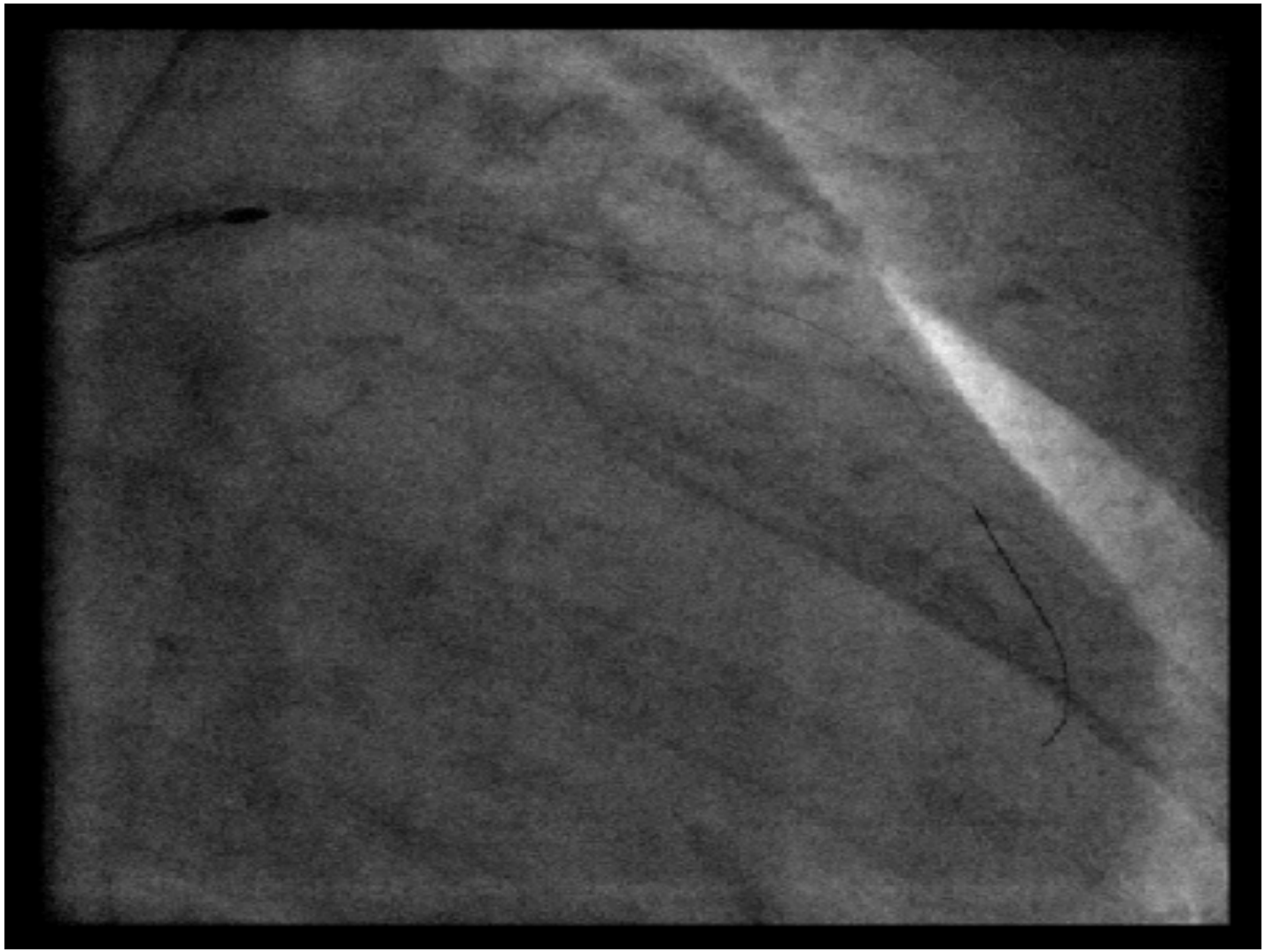
ACCUFORCE 3,5 X 12 mm à 20 atm

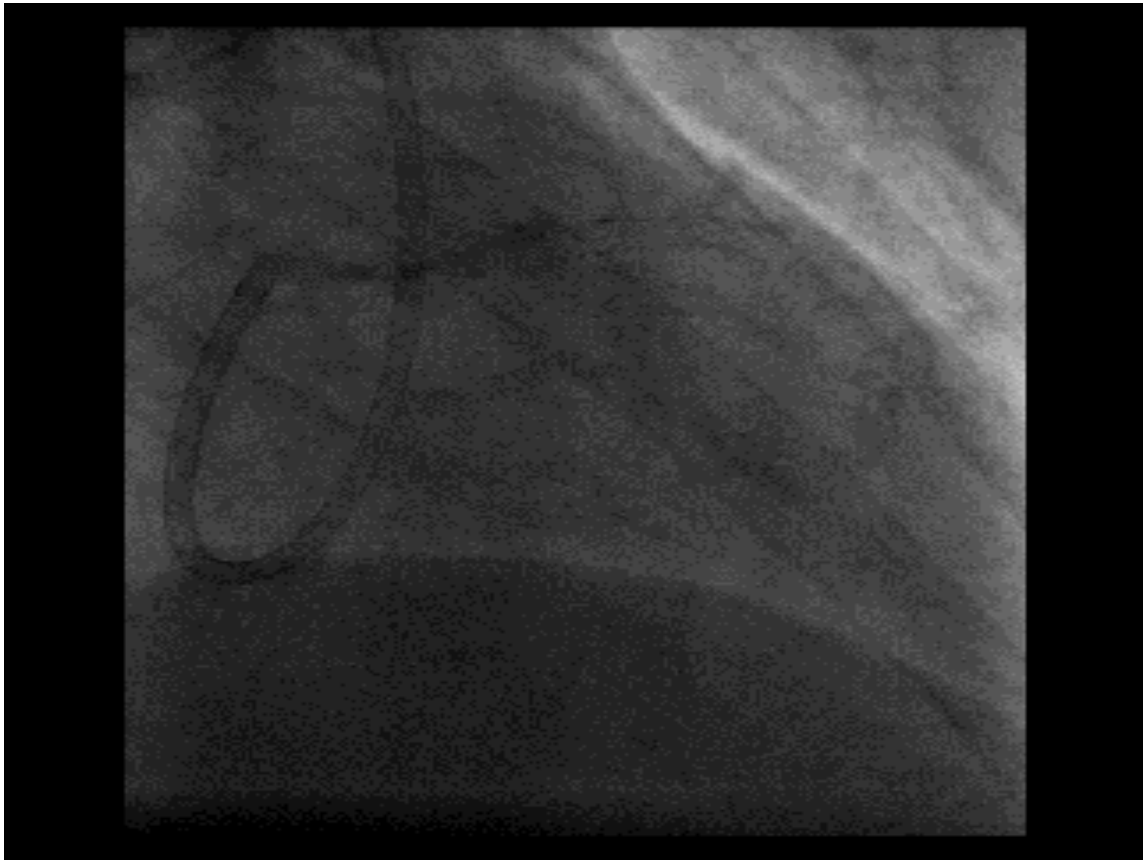


FLEXTOME 3 X 10 mm à 14 atm

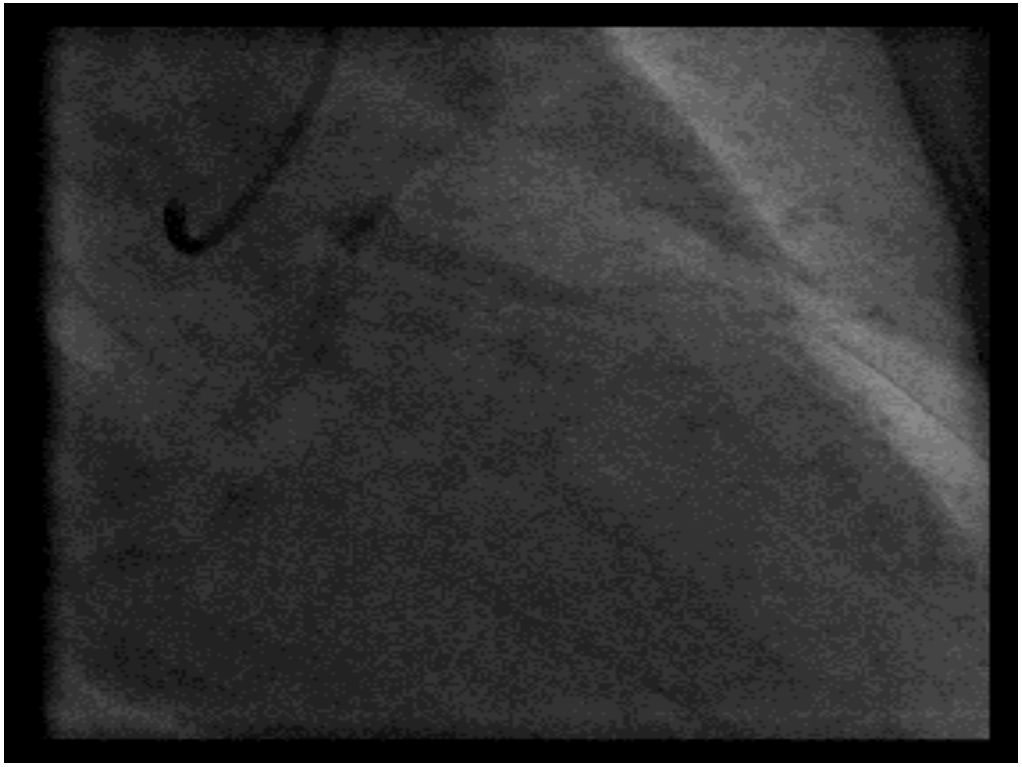


Fraise de 1,75 mm
Durée 30 sec
200 000 tours/mn

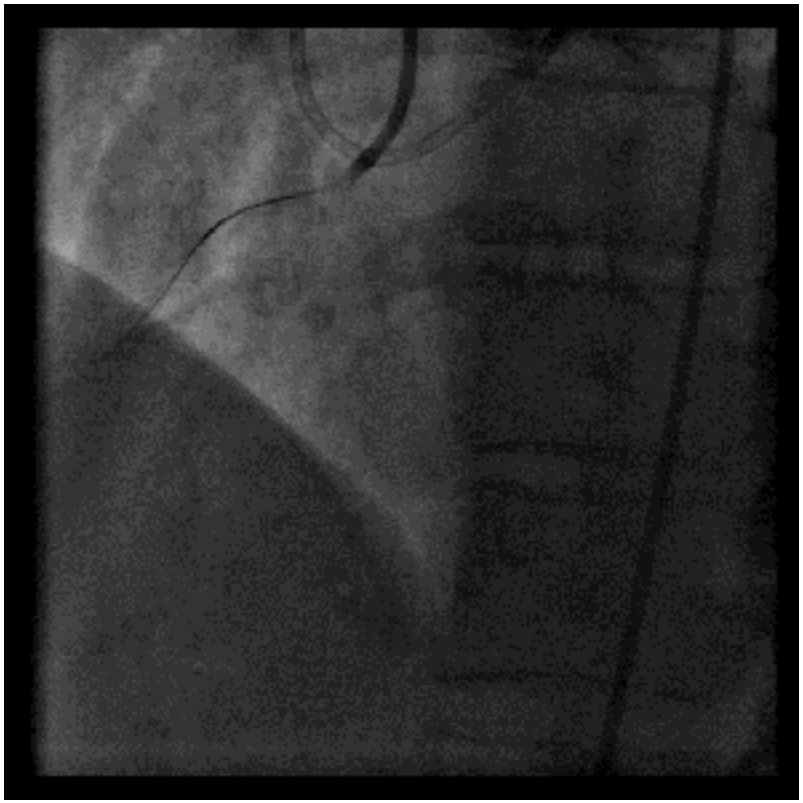


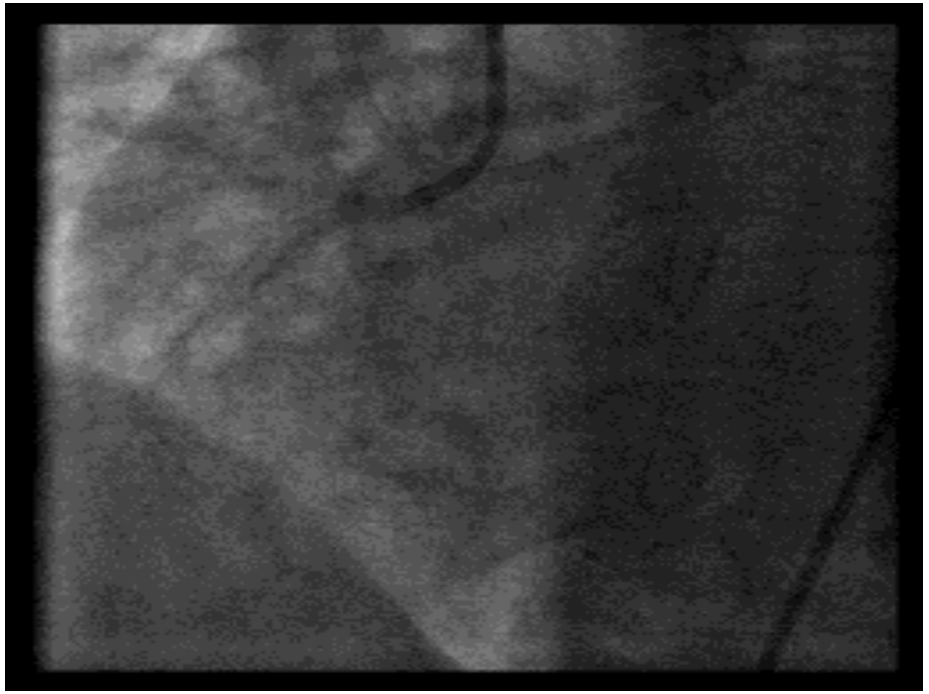


Un mois plus tard la CTO…



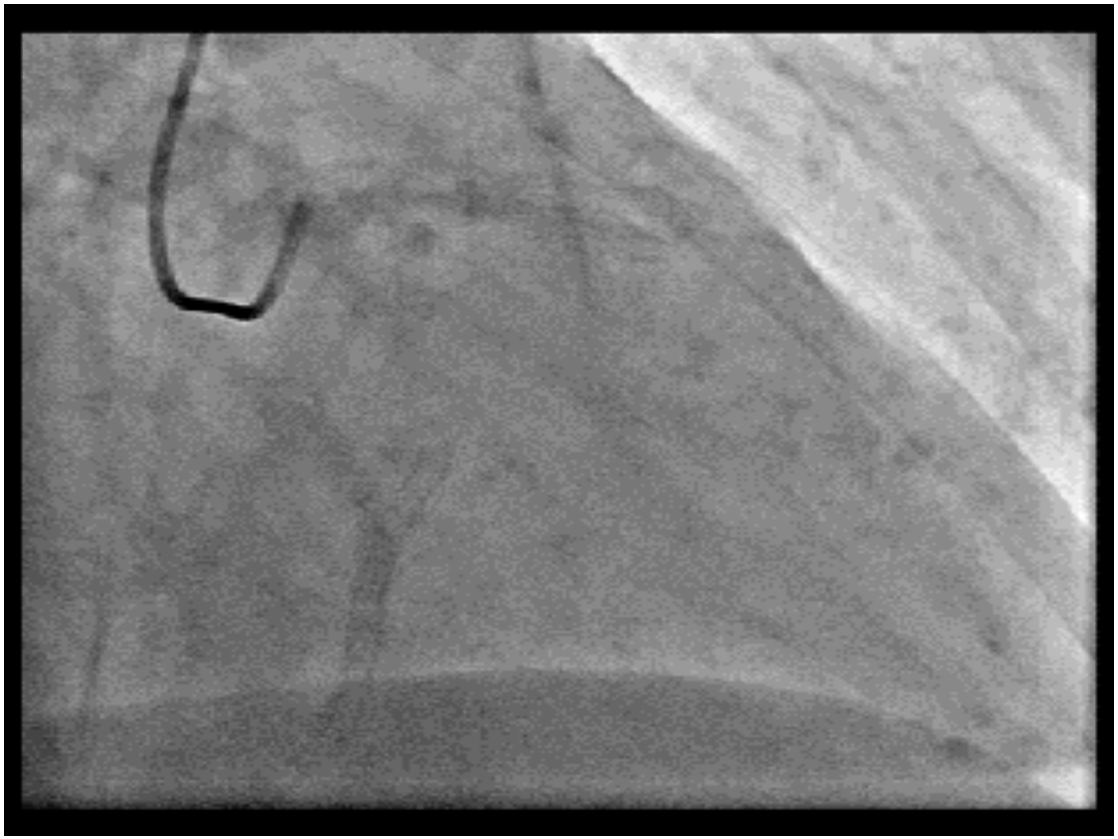
Double voie d’abord radiale et fémorale droite.
EBU 3, 75 et un Guiding JR4 en 6 F
Fielder XT A, Microcatheter CARAVEL
3 stents 2,75 X 38, un 2,75 x 15 et un 2,75 X 24 mm.

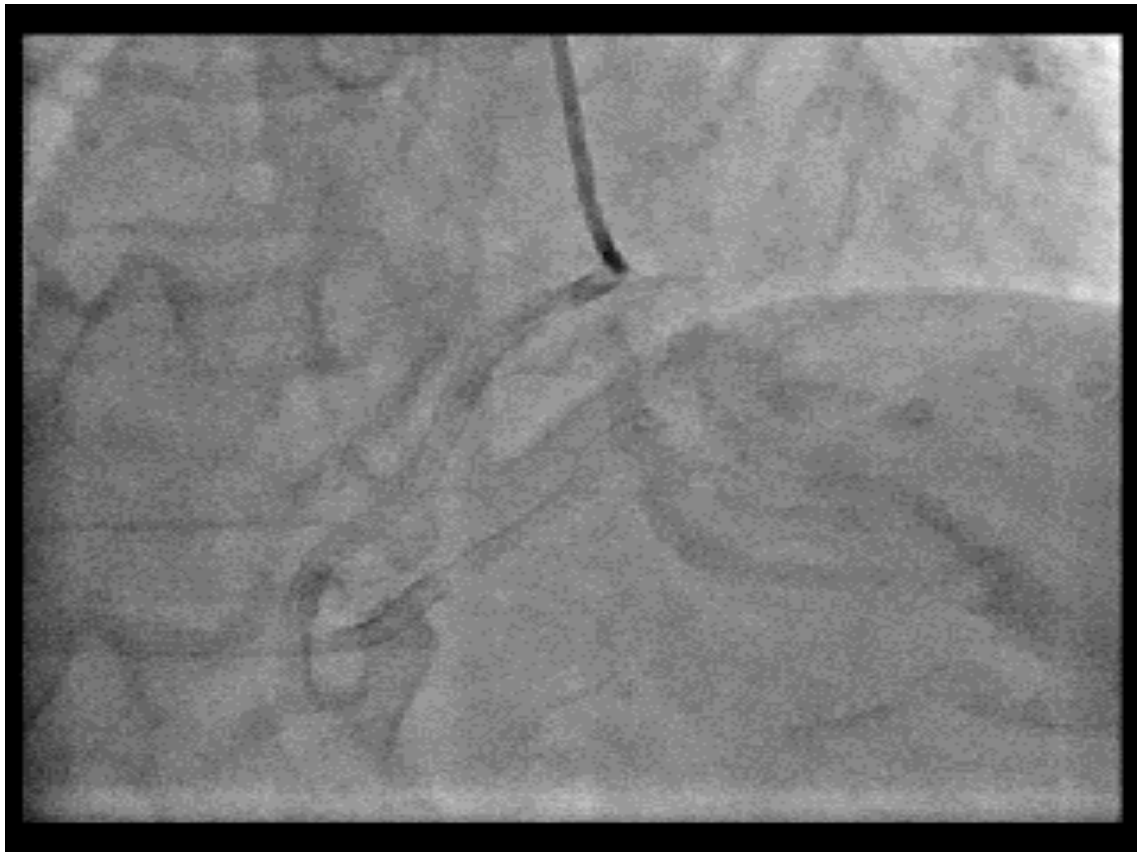




6 mois plus tard…

- Elle revient en consultation se plaignant d'une DE 2 de la NYHA, de blockpnée
- Scintigraphie myocardique d'effort négative
- … Mais devant la complexité de la procédure, on lui refait un contrôle coronarographique quand même, pour se rassurer.





Bibliographie
Rotablator intrastent

- Beaucoup de cas de Rotablator intra stent à distance de l'angioplastie, pour le traitement de la resténose..

- Mais seulement quelques cas retrouvés de Rotablator intra stent fraichement implanté…

PubMed

Advanced

Format: Abstract

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J Invasive Cardiol. 2014 Sep 25(9) E122-3.

Rotational atherectomy: if you do not do it before, you can do it after stenting.

Hernandez J[1], Gallede G, Moreno R

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Abstract

We report the treatment of three severely underexpanded freshly deployed stent layers in the proximal left anterior descending artery, despite 24 atm inflation pressure, due to heavily calcified plaque. Rotational atherectomy using a high rpm and a stepped burr strateg successfully ablated the stent layers and the protruding calcified plaque. Subsequently, balloon angioplasty resulted in stent expansion and the treated segment was scaffolded with another stent, finally obtaining an excellent angiographic result. The patient's evolution was satisfactory. This case shows that rotational atherectomy can be a useful tool in a compromising situation, such as severely underexpanded implanted stents.

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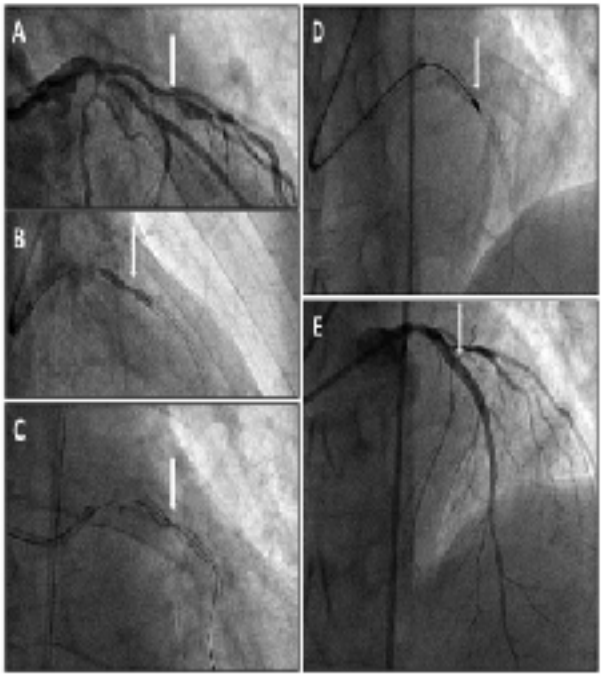

FIGURE 1. Arrows show the calcified lesion and/or stent underexpansion and the final angioplasty result in the proximal left anterior descending (LAD). (A) Initial angiogram of the left coronary artery in a postero-anterior projection. (B) Underexpansion of the proximal LAD stented lesion despite high-pressure inflation with an NC balloon. (C) Severe underexpansion of the three deployed stent layers. (D) Rotablator 1.5 mm burr passage through the stented proximal LAD. (E) Final angiographic result in a cranial projection.

Discussion. It is usually difficult to know beforehand whether a calcified lesion will need a "debulking" method, such as RA, for its dilation. Therefore, the decision to use RA is usually made after balloon dilatation is unsuccessful, before DES implantation. This is the first case to our knowledge in which RA has been successfully used for ablation of three layers of freshly implanted stents. Although passage of the Rotablator through a freshly implanted underexpanded stent is considered a probable risk factor for a rare but life-threatening complication (stuck rotablator), a low burr to artery ratio may help prevent this.[10] The use of high-speed ablation is also probably useful for a good result.

CASE REPORT Open Access

Optical coherence tomography findings after longitudinal ablation for an underexpanded stent in a heavily calcified lesion: a case report

Masahiro Koide*, Reiji Inoue, Akiko Matsuo and Hiroshi Fujita

Abstract

Background: Heavy coronary artery calcification is responsible for stent underexpansion, which is associated with increased in-stent restenosis. Here we report a case in which optical coherence tomography (OCT) demonstrated that the metal component of an underexpanded stent previously implanted in a heavy calcific lesion had been completely removed after ablation with rotational atherectomy.

Case presentation: An 89-year-old man with exertional angina was referred to our hospital. Coronary angiography revealed severe stenosis in the proximal portion of the right coronary artery and left circumflex artery and chronic total occlusion (CTO) in the mid portion of the left anterior descending artery (LAD). We performed complete revascularization with percutaneous coronary intervention. Because the CTO lesion in LAD contained napkin-ring heavy calcifications, rotational atherectomy with a 1.75-mm burr was undergone, followed by the deployment of drug-eluting stents and postdilation with a high-pressure balloon. However, expansion of the stent was incomplete. To address the recurrence of in-stent restenosis and resistance to the dilation with the high-pressure balloon, we decided to simultaneously ablate both the heavy calcification and underexpanded stent. Longitudinal stent ablation with 1.75- and 2.0-mm burrs was successful, and OCT demonstrated that the metallic component of the underexpanded stent had been completely removed.

Conclusions: If a stent fails to completely expand in heavy calcification, longitudinal stent ablation by rotational atherectomy could be an effective remedy.

Keywords: Coronary angiography, Optical coherence tomography, Percutaneous coronary intervention, Rotational atherectomy, Case report

After removing the 2.0-mm entrapped burr, the rotating speed of the 1.75-mm burr remarkably decreased at the proximal portion of the underexpanded stent. OCT examination revealed the stent turned inward in that portion, indicating that the 1.75-mm burr was ablating the deformed stent. Thus, if a marked reduction in rotating speed is observed at the proximal portion of an underexpanded stent during longitudinal stent ablation, balloon dilation should be used to adequately reform the stent strut.

We demonstrated that stent ablation with rotational atherectomy could be safely performed for an underexpanded stent in a heavily calcified lesion and that OCT revealed the complete removal of the stent strut. Stents should not be deployed in lesions in which it is impossible for a balloon to be completely expanded. However, if this situation unexpectedly occurs, longitudinal stent ablation using rotational atherectomy could be an effective remedy.

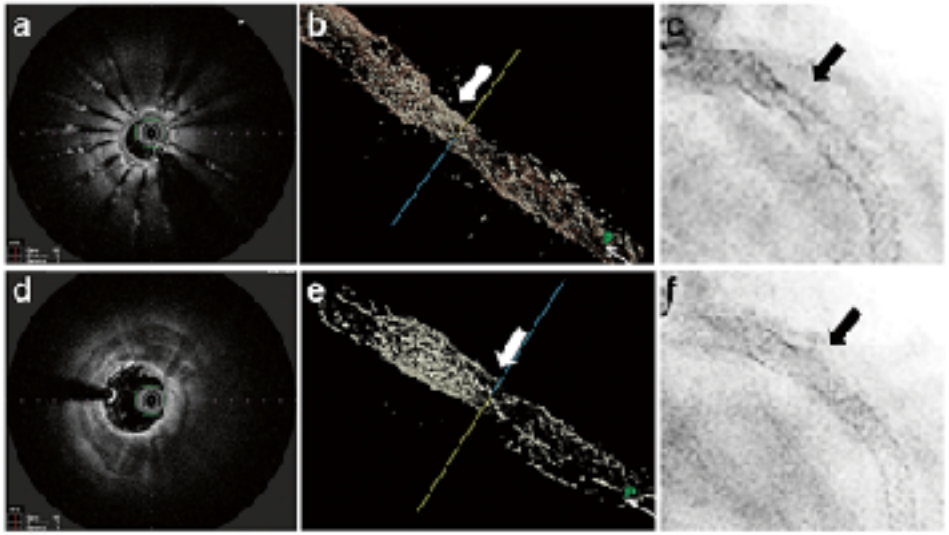

Fig. 4 Optical coherence tomography and fluoroscopy demonstrated the complete removal of the metallic component of the underexpanded stent. Before (**a**–**c**) and immediately after percutaneous coronary intervention (**d**–**f**)

Take Home messages

- Bien évaluer une lésion avant d'entamer le largage du stent+++
- Quand on a déjà posé le stent , et qu'on n'arrive pas à le déployer , l'athérectomie rotationnelle peut être envisagée comme une solution de sauvetage...
- Surtout avec une fraise plus petite que ne le voudrait le ratio 0,5/0,6 artère /fraise et avec une vitesse rotatoire élevée (« effet vibrations, schockwave like »).
- Intérêt de l'OCT en post Rotablator intra stent.
- Stenting de la lésion post Rotablator.

Merci pour votre attention

Des questions?