Coroflex ISAR

De la théorie à la pratique

Axel de Labriolle
Unité de cardiologie interventionnelle
Clinique du pont de chaume
montauban

Biarritz, le 08 juin 2016

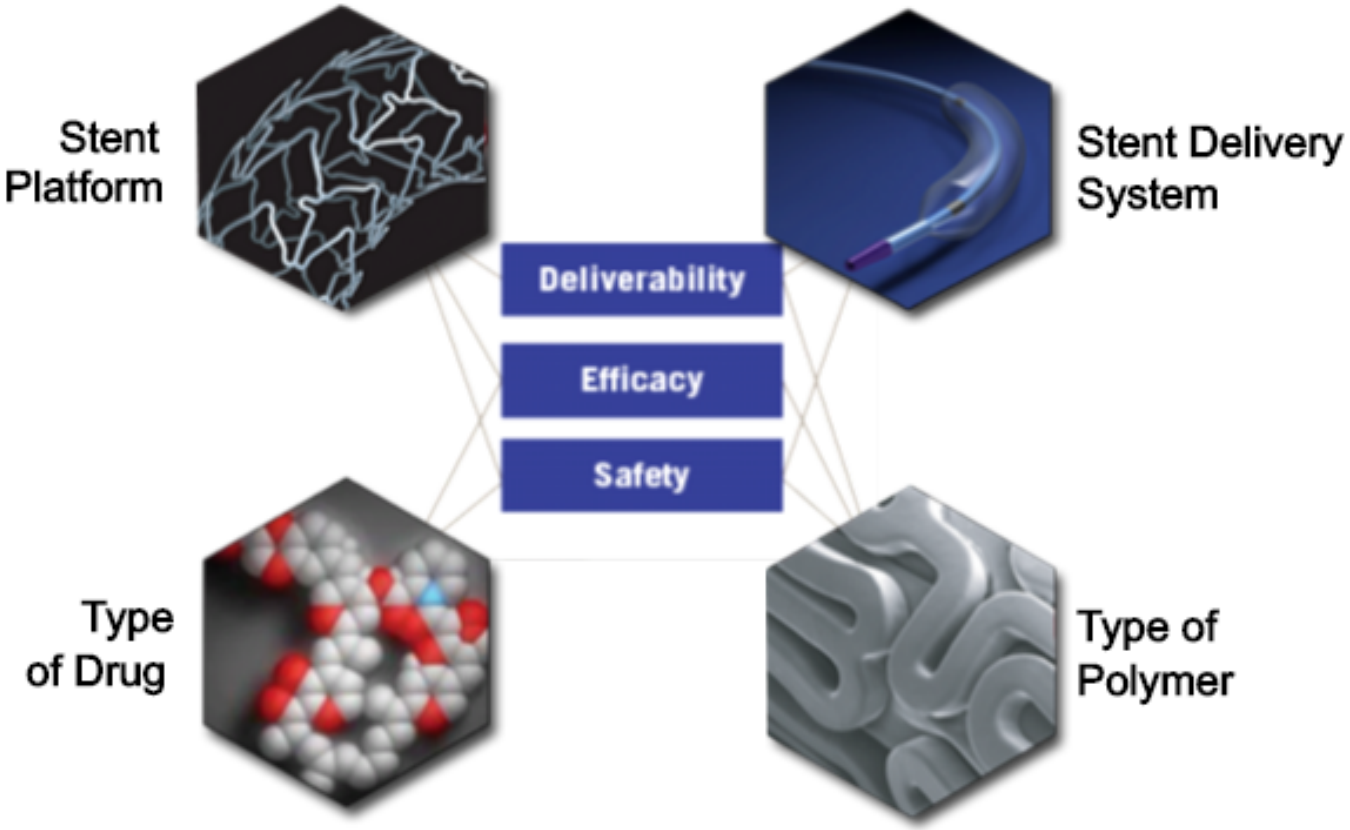
Conflits d'intérêt

Abbott, terumo, braun, medtronic, cellonova…..

BMS, bayer, sanofi, boehringer, novartis……

The four Key Components of STENT Design

scientific design and integration



La plateforme idéale

Objectifs

Bonne force radiale +++

Bonne Flexibilité +++

Trackabilité +++

conformité et conformabilité+++

Radio opacité++

Resténose ---

Thrombose ----

Compression longitudinale---

Moyens

Nature de la plateforme

Design de la plateforme (géometrie)

- Tubulaires ou modulaires
- Cellules ouvertes ou fermées
- nbre de crêtes/anneau
- Point de connexion
- Géometrie de la maille
- Longueur de maille /anneaux

Epaisseur des mailles

La plateforme idéale

Objectifs

Bonne force radiale +++

Bonne Flexibilité +++

Trackabilité +++

Radio opacité++

Resténose ---

Thrombose ----

Compression longitudinale---

Moyens

Nature de la plateforme

Design de la plateforme (géometrie)

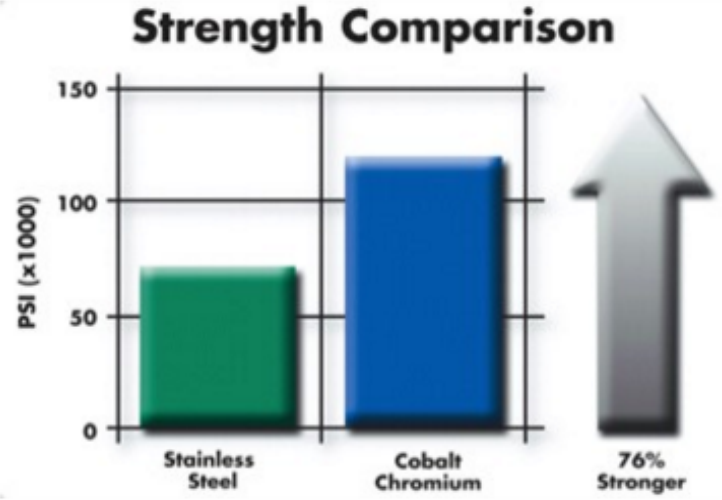
- Tubulaires ou modulaires
- nbre de crêtes/anneau
- Point de connexion
- Géometrie de la maille (cellules)
- Longueur de maille /anneaux

Epaisseur des mailles

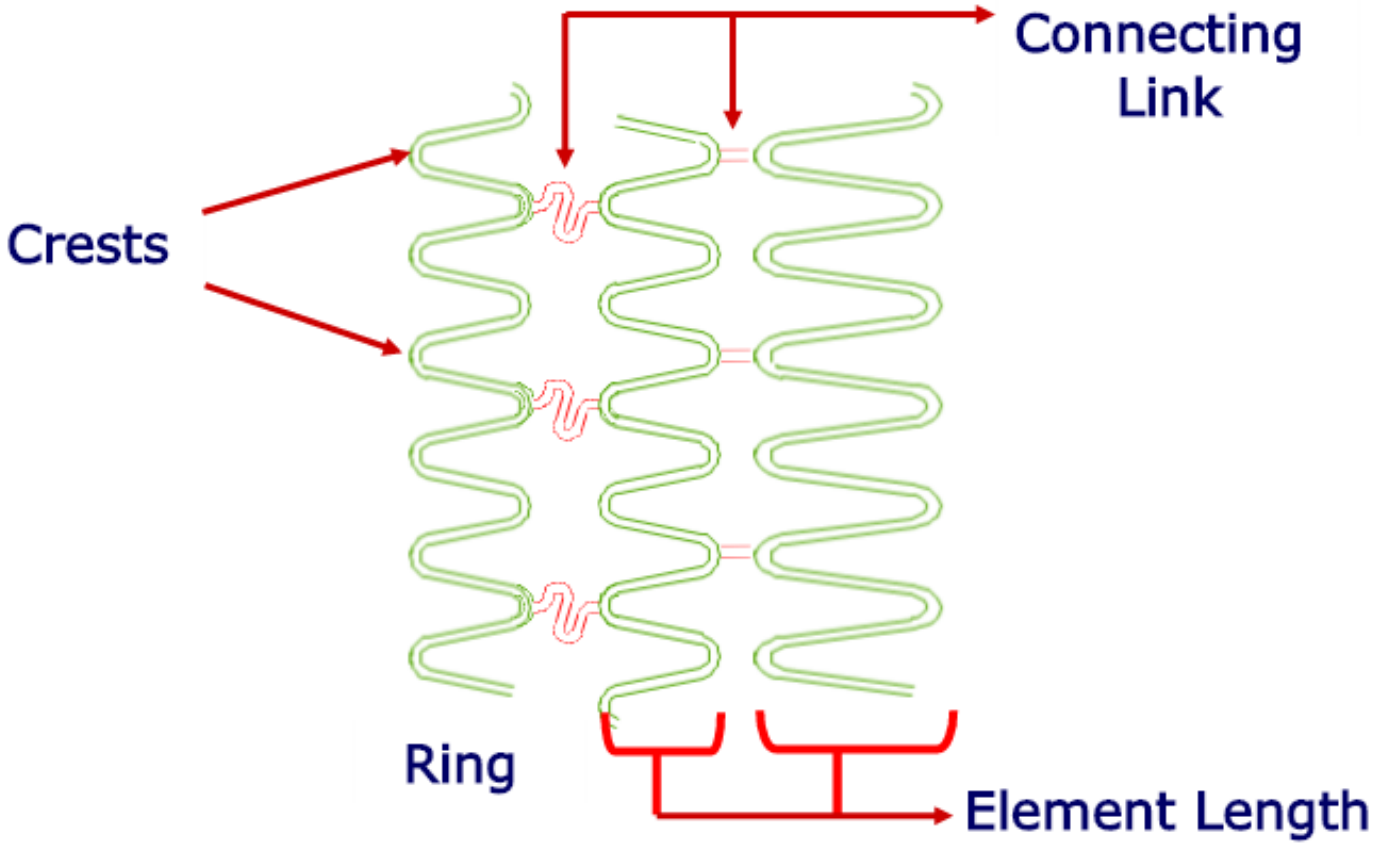
Nature de la plateforme

Cobalt Chromium Strength

- Cobalt chromium is 76% stronger than stainless steel.
- Strength of cobalt chromium allows cc stent to have thin struts while maintaining better radial strength.

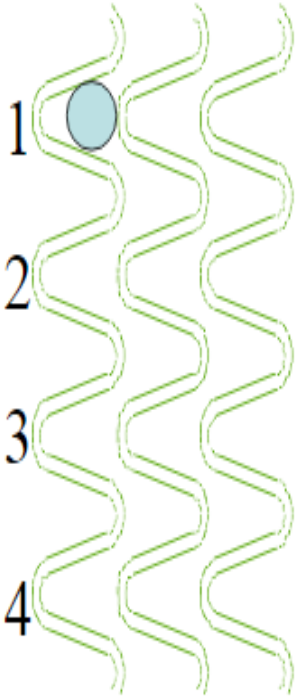


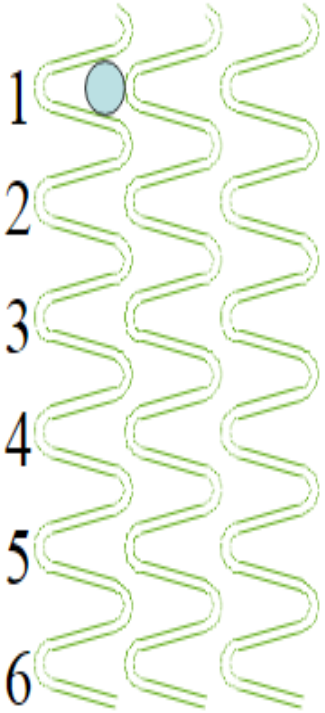
Design de la plateforme



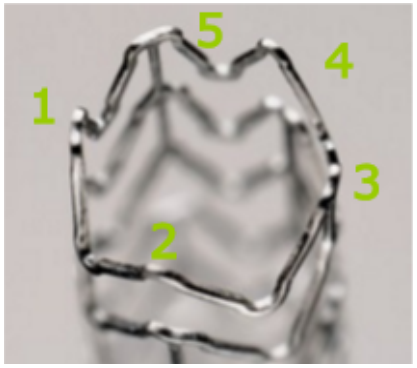
Crests per Ring

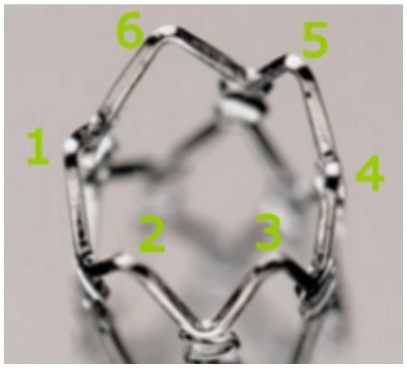
Less crests
Less scaffolding
Easier to reduce profiles
Less expansion range





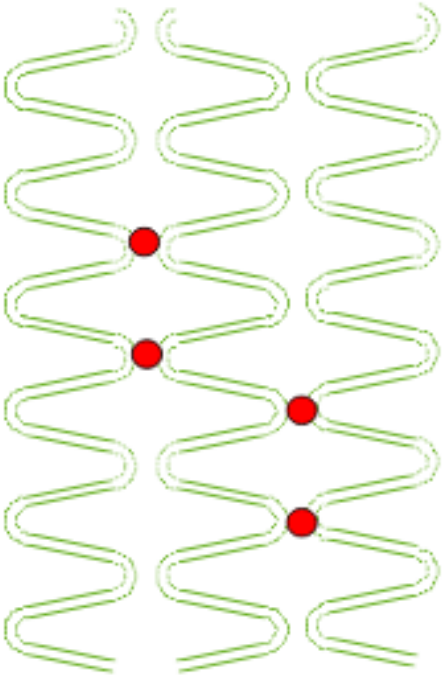
More crests
More scaffolding
More expansion range



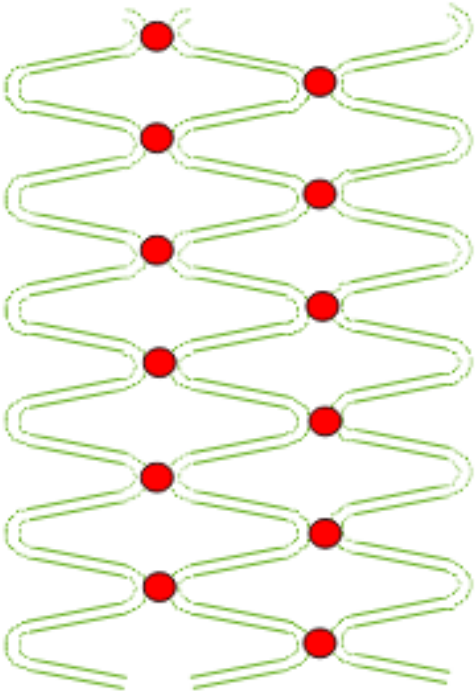


Connexions per Ring

Less
More flexible
Less scafolding

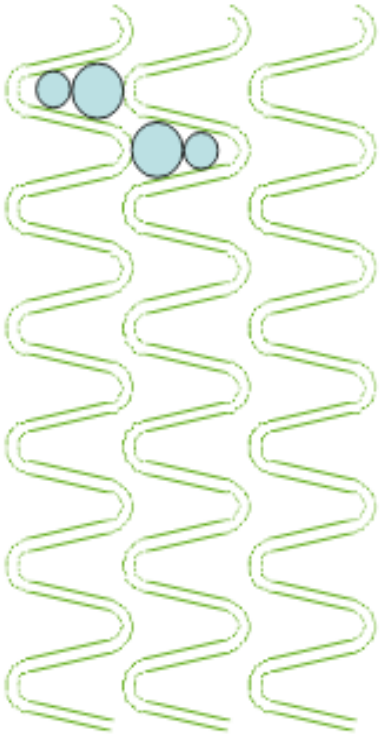


More
Less flexible
More scafolding

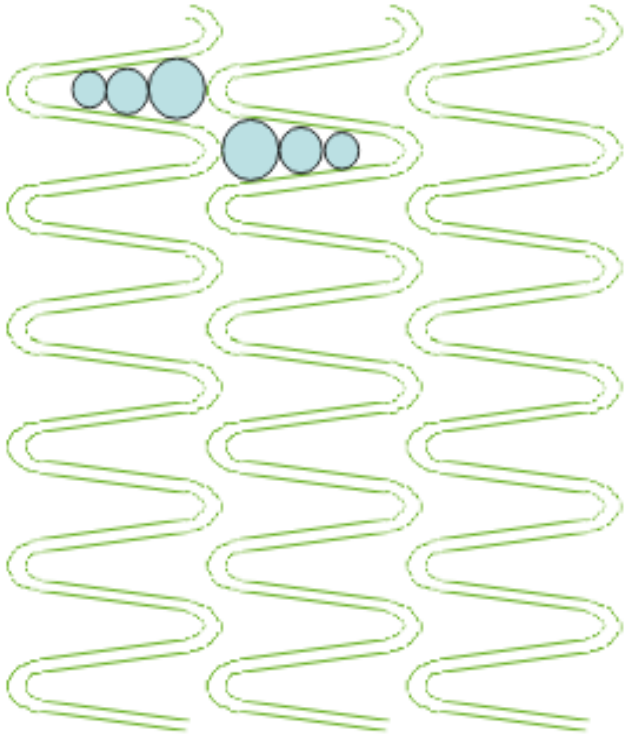


Element length

- Shorter
- *Better scaffolding*
- *Higher radial strength*



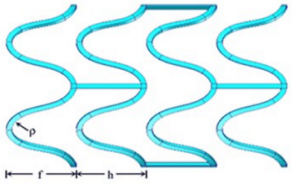
- Wider
- *Poorer scaffolding*
- *Lower radial strength*



Connexions pattern

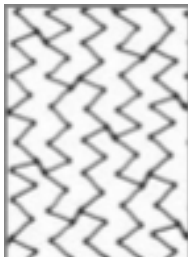
- 4 types
  - Peak to peak

  - Peak to valley



  - Mid strut connector

  - Offset peak to peak connector

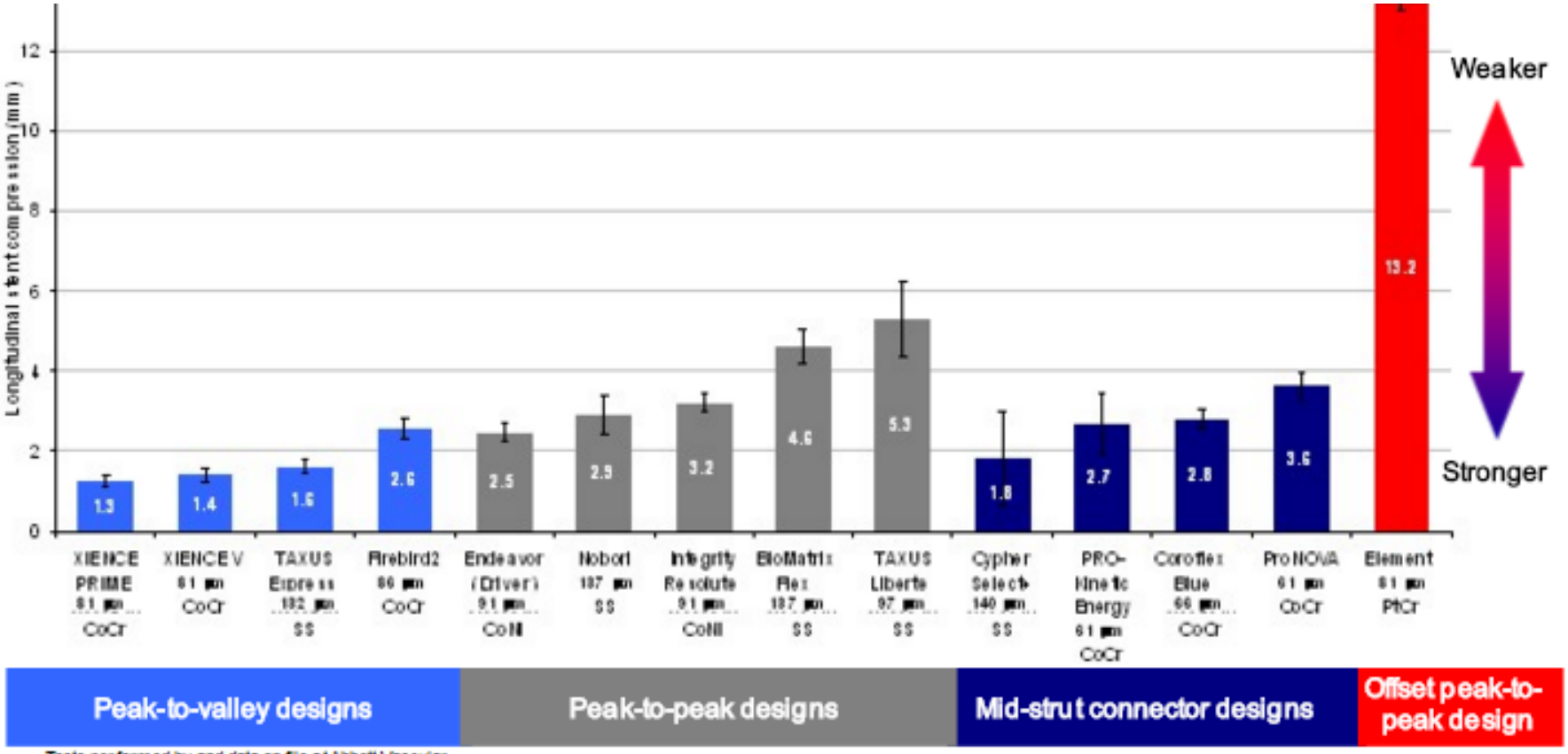


- Impact on longitudinal forshortening

Longitudinal stent compression

amount of longitudinal compression under 50 gf

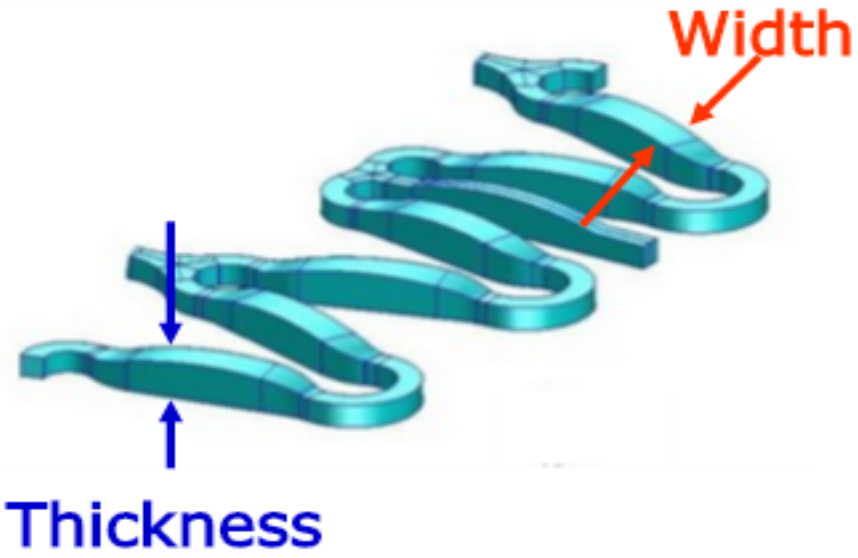
Effect of stent design



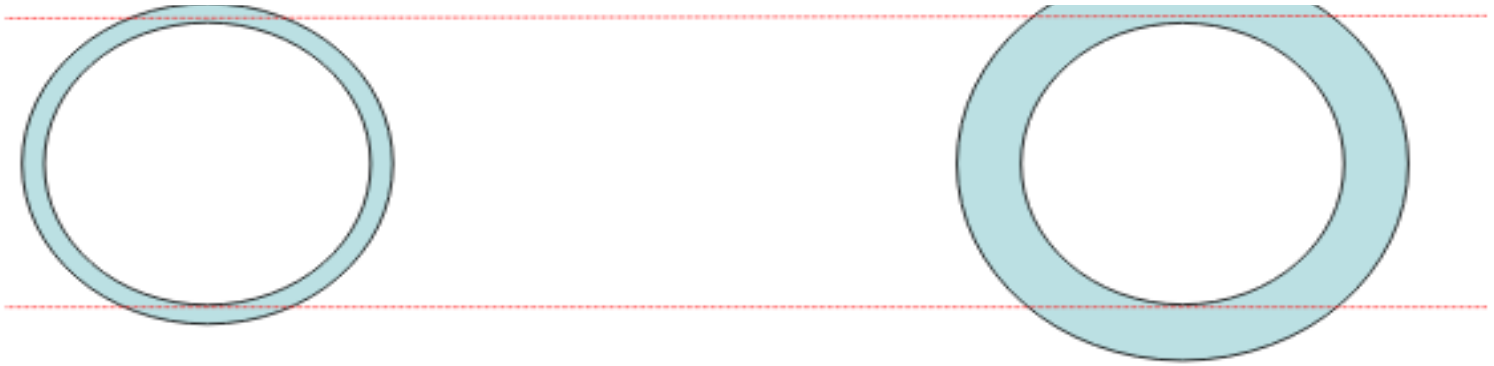
Tests performed by and data on file at Abbott Vascular.

Stent struts

- **Strut Thickness**
  - Distance from the inner stent surface to the outer stent surface



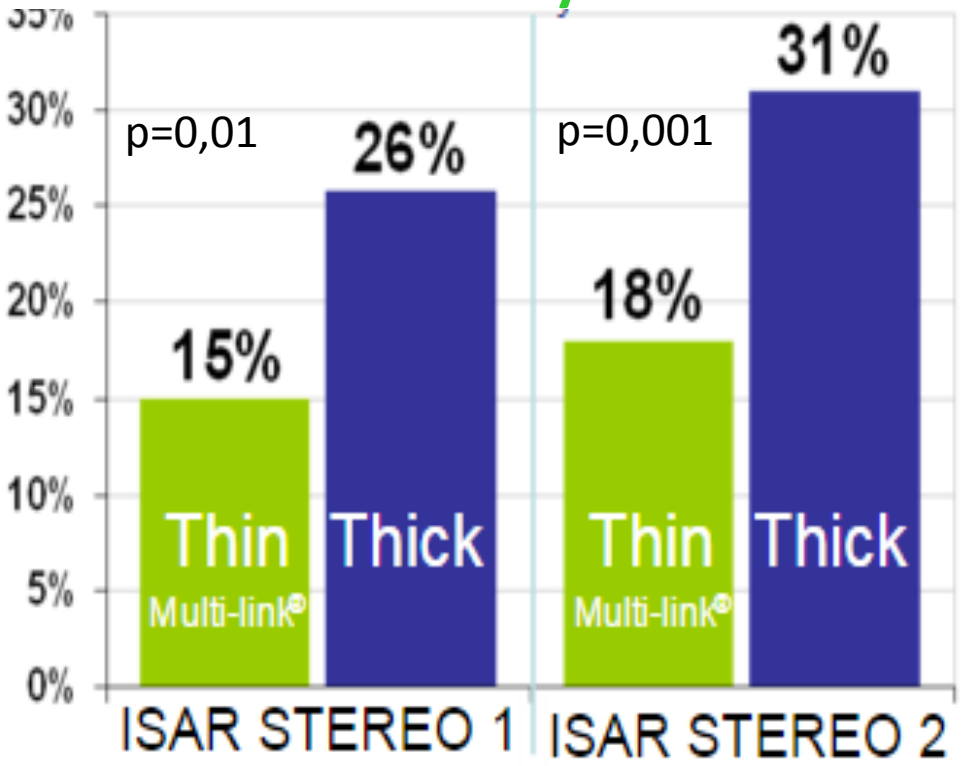
Thinner	Thicker
Less Visible	More Visible
Less Metal in the Vessel	More Metal in the Vessel
Less radial strenth	**More radial strenth**



Thin strut advantage

Reduce deep wall trauma

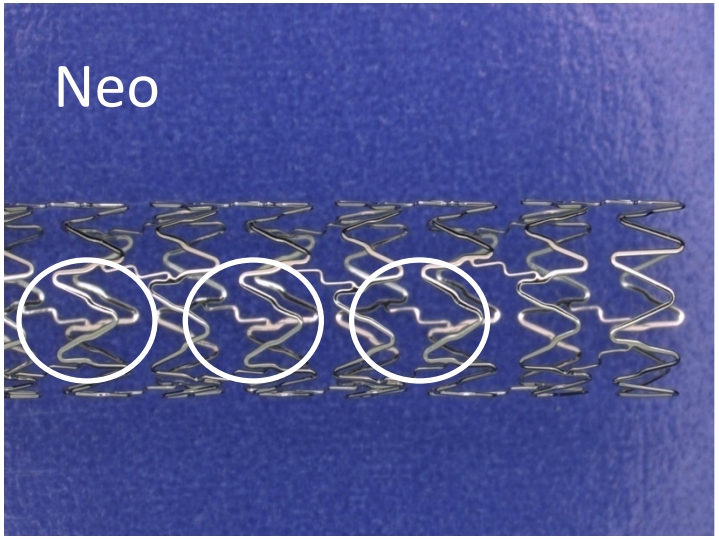
6 months binary restenosis



Struts thickness appears to have a significant impact on long-term restenosis after stent implantation and revascularization

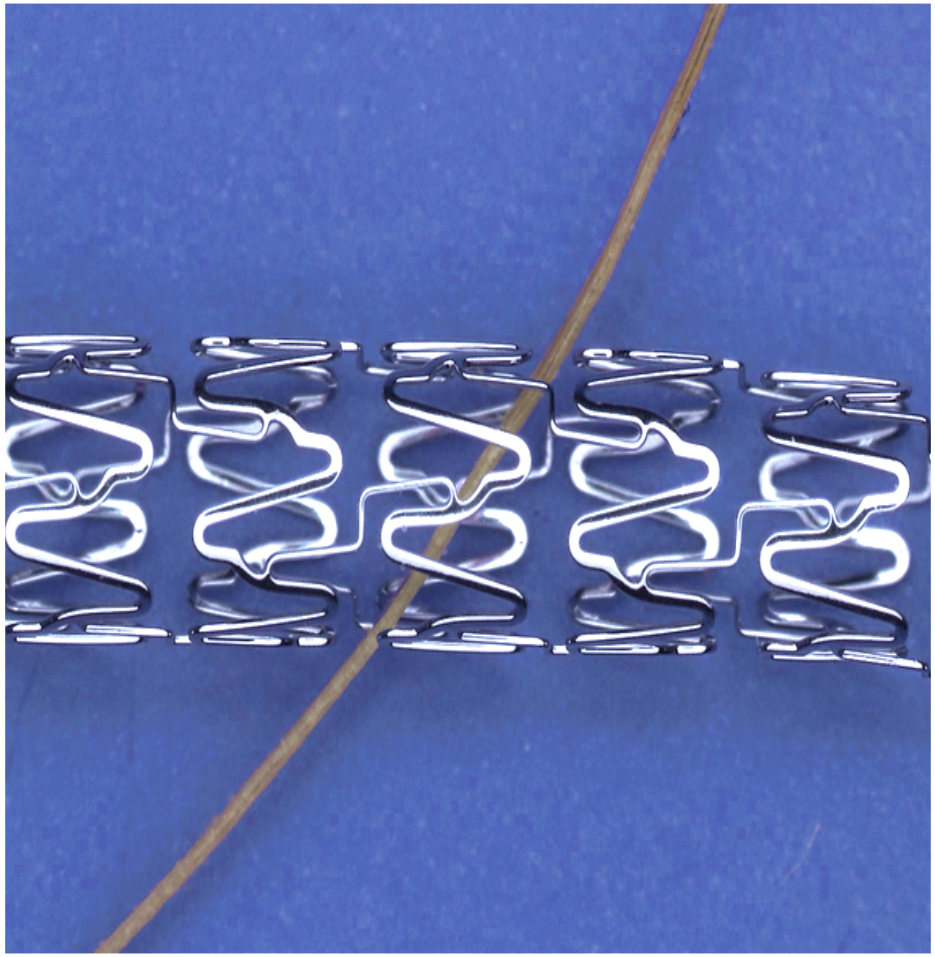
Kastrati et al. Circulation 2001; 103(23):2816-21., ** Schulen et al. ESC 2002.

Plateforme du Coroflex® ISAR



- Stent chrome cobalt
- Stent tubulaire découpé au laser à cellules ouvertes
- 6 sinusoïdes pour Ultra vs. 9 sinusoïdes pour Neo
- 3 connecteurs avec orientation variable
- Famille des mid strut connecteurs

Plateforme du Coroflex® ISAR



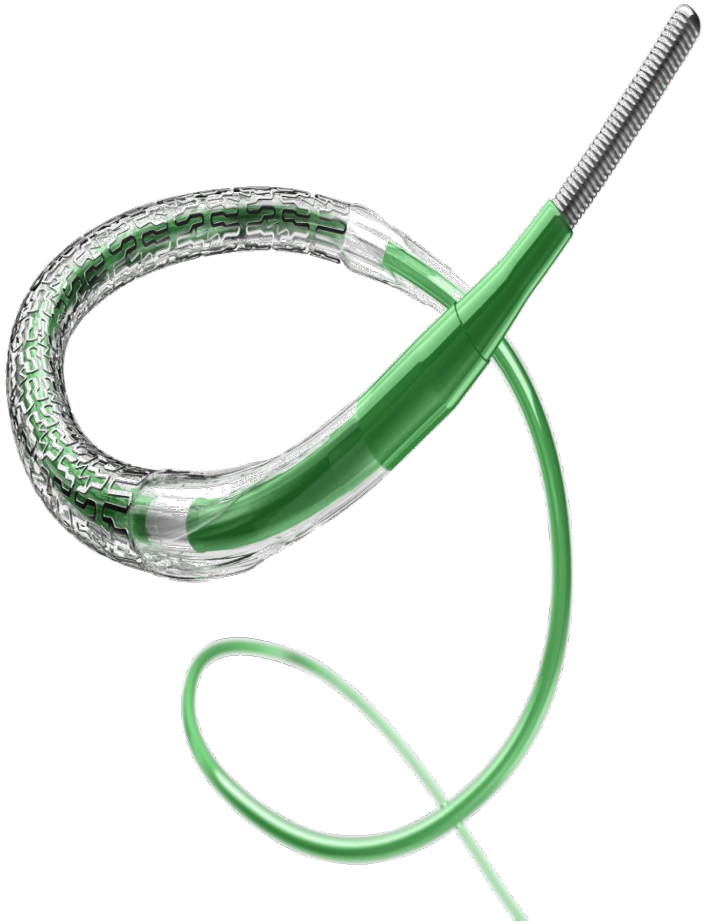
- **Coroflex® Blue Ultra**

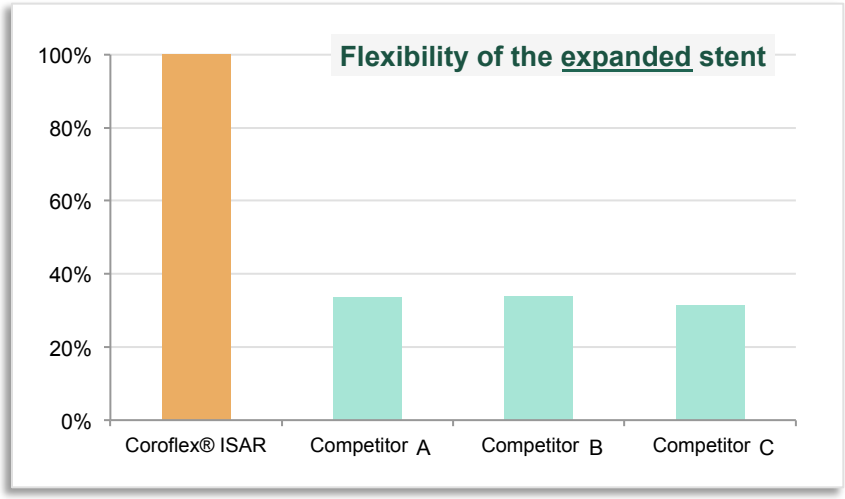
- Diamètre 2,00 - 2,5 mm
- Longueur 9 - 32mm
- **Epaisseur Maille 50 µm**

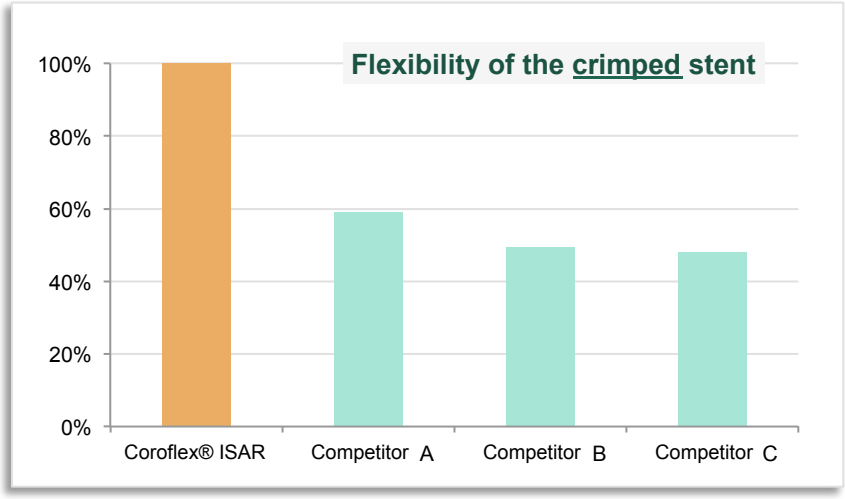
- **Coroflex® Blue Neo**

- Diamètre 2,75 - 4,0 mm
- Longueur 8 - 32mm
- **Epaisseur Maille 60 µm**

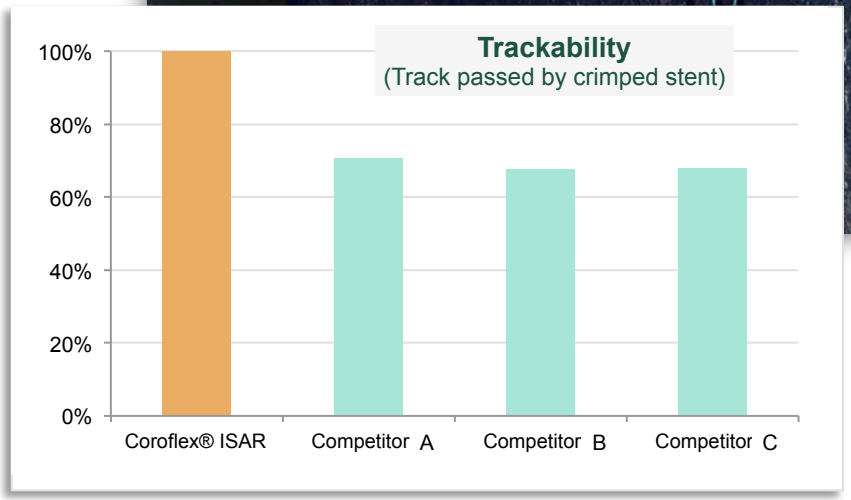
Flexibility







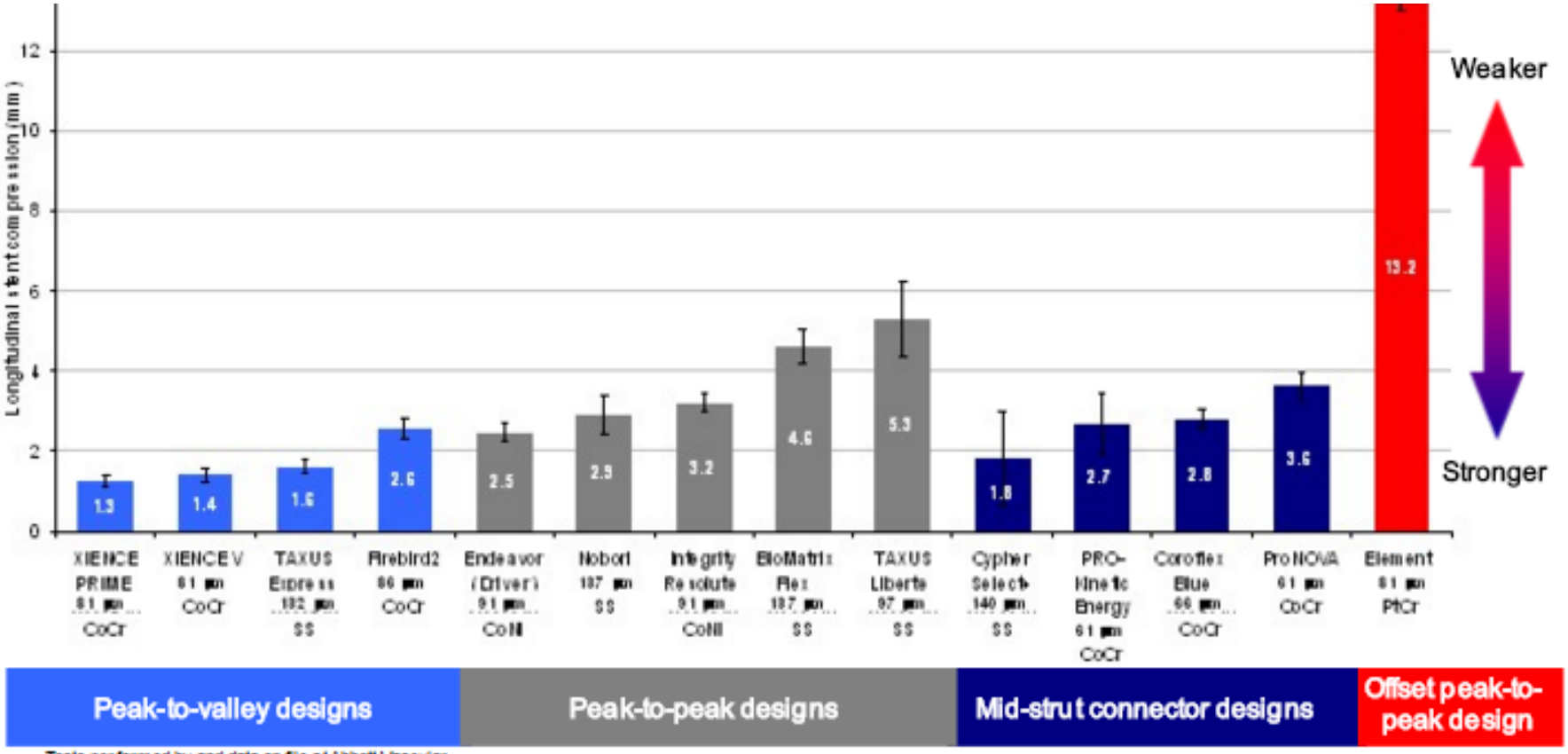
Trackability



Longitudinal stent compression

amount of longitudinal compression under 50 gf

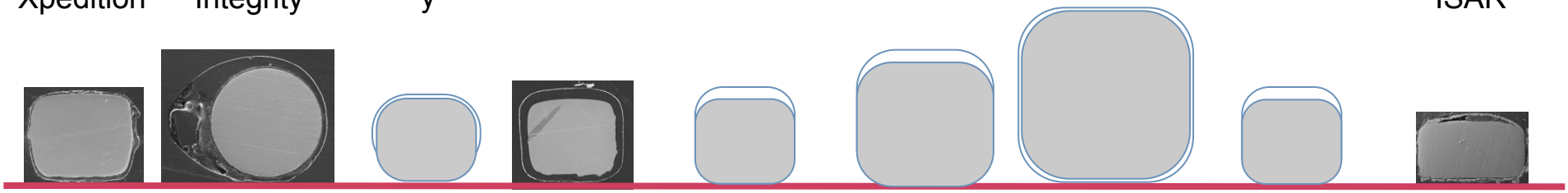
Effect of stent design



Tests performed by and data on file at Abbott Vascular.

Thin Stent strut

Polymère durable	Polymère biorésorbable					Stent résorbable	**SANS POLYMÈRE**	
Xience Xpedition	Resolute Integrity	Synergy	Orsiro	Ultimaster	Biomatrix Nobori	Absorb BVS	Cre8	Coroflex ISAR*



Epaisseur des mailles

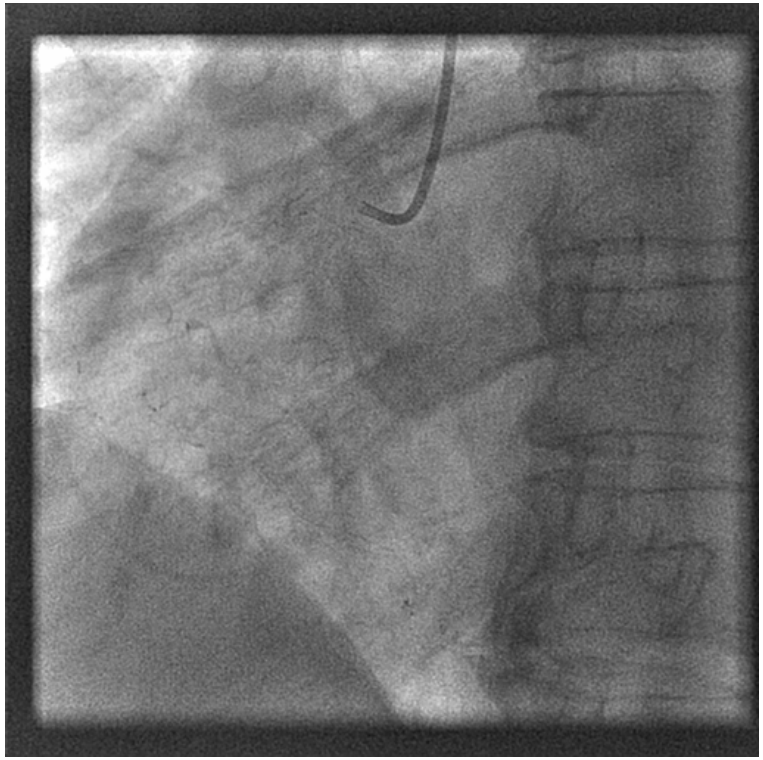
81 µm	91 µm	74-81 µm	60-80 µm	80 µm	120 µm	150 µm	70-80 µm	50-60 µm

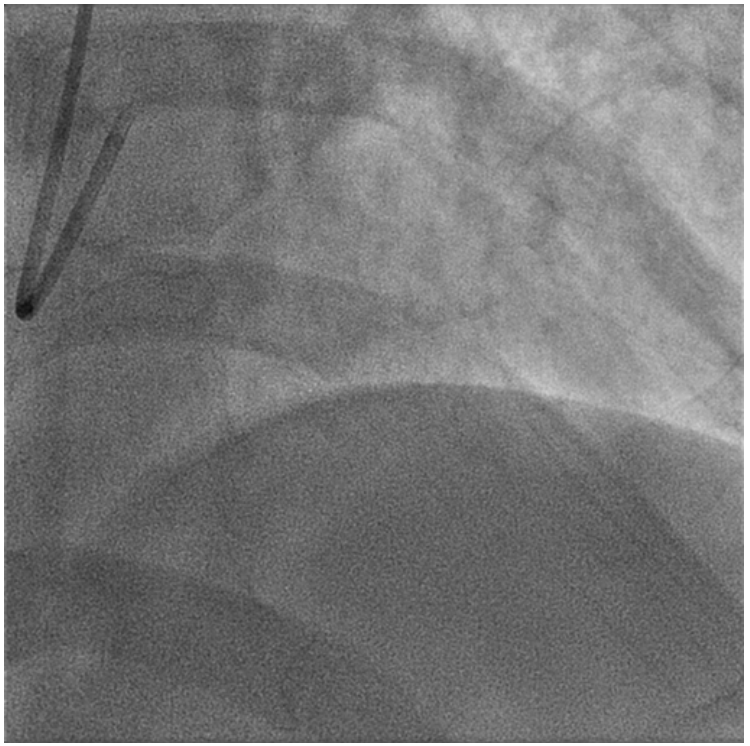
Revêtement

Circulaire	Circulaire	Abluminal	Circulaire	Abluminal	Circulaire	Circulaire	Abluminal	Abluminal

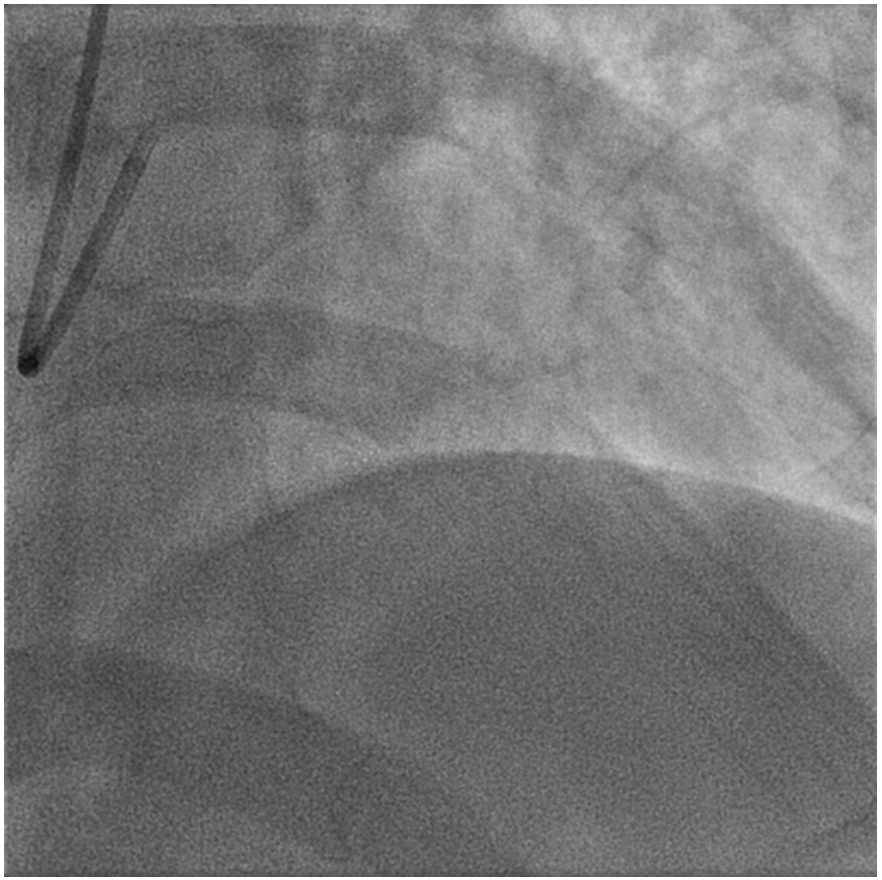
Cas clinique 1

Patient 67 ans admis pour SCA ST + en cours de constitution dans le territoire inferieur

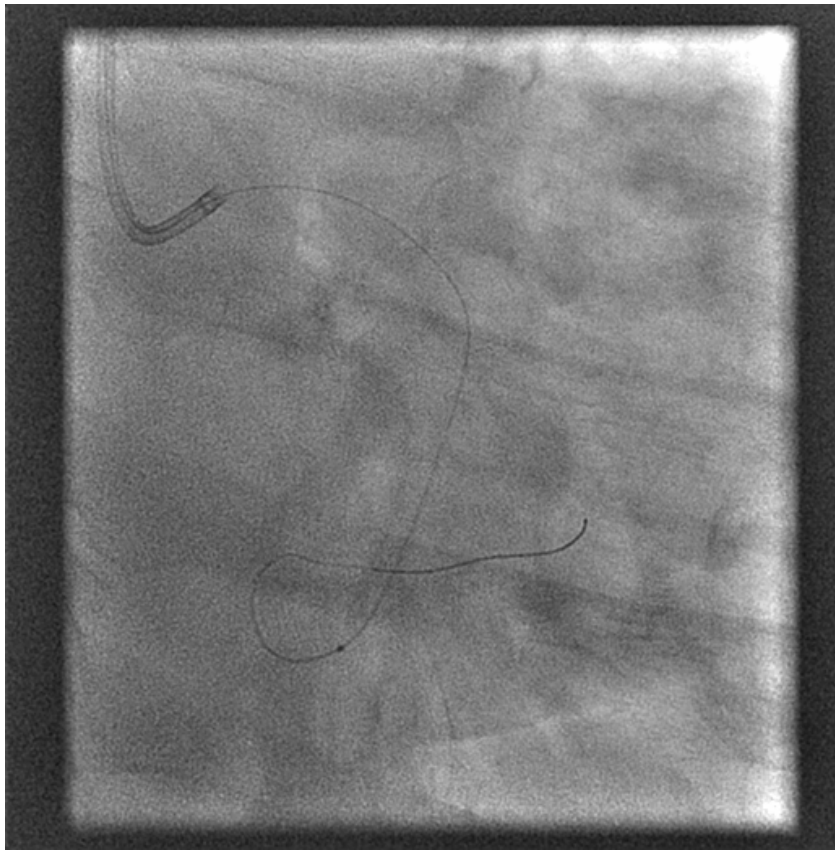




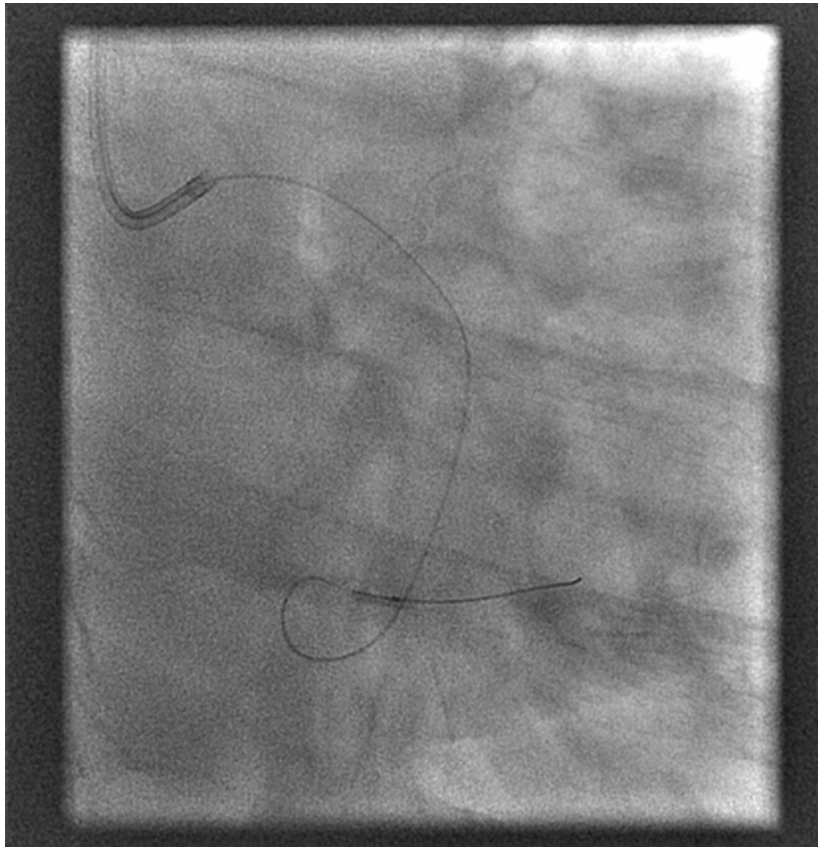
Cas clinique 1



Cas clinique 1

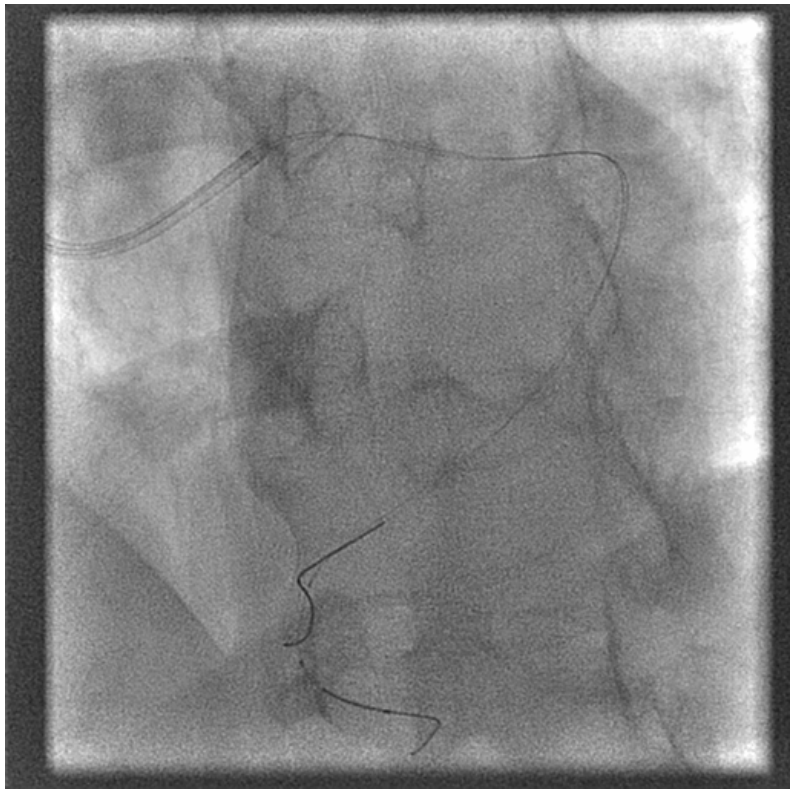


Prédilatation
Ballon 2/15

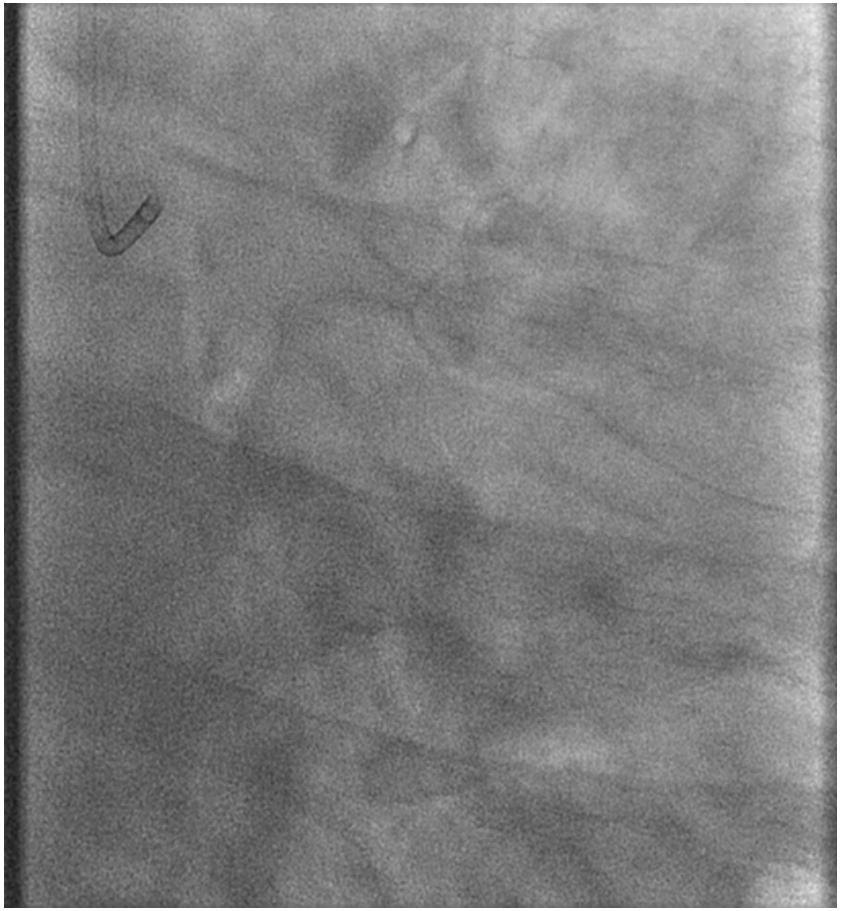


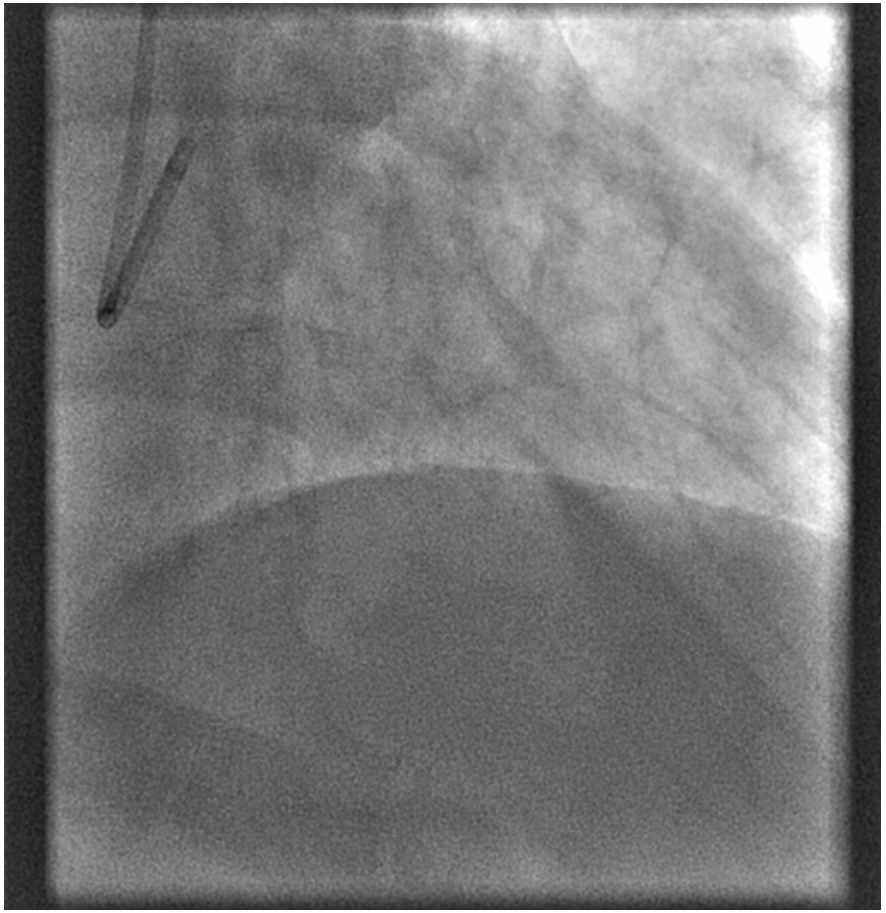
Cas clinique 1

Stent coroflex isar 2,25/19



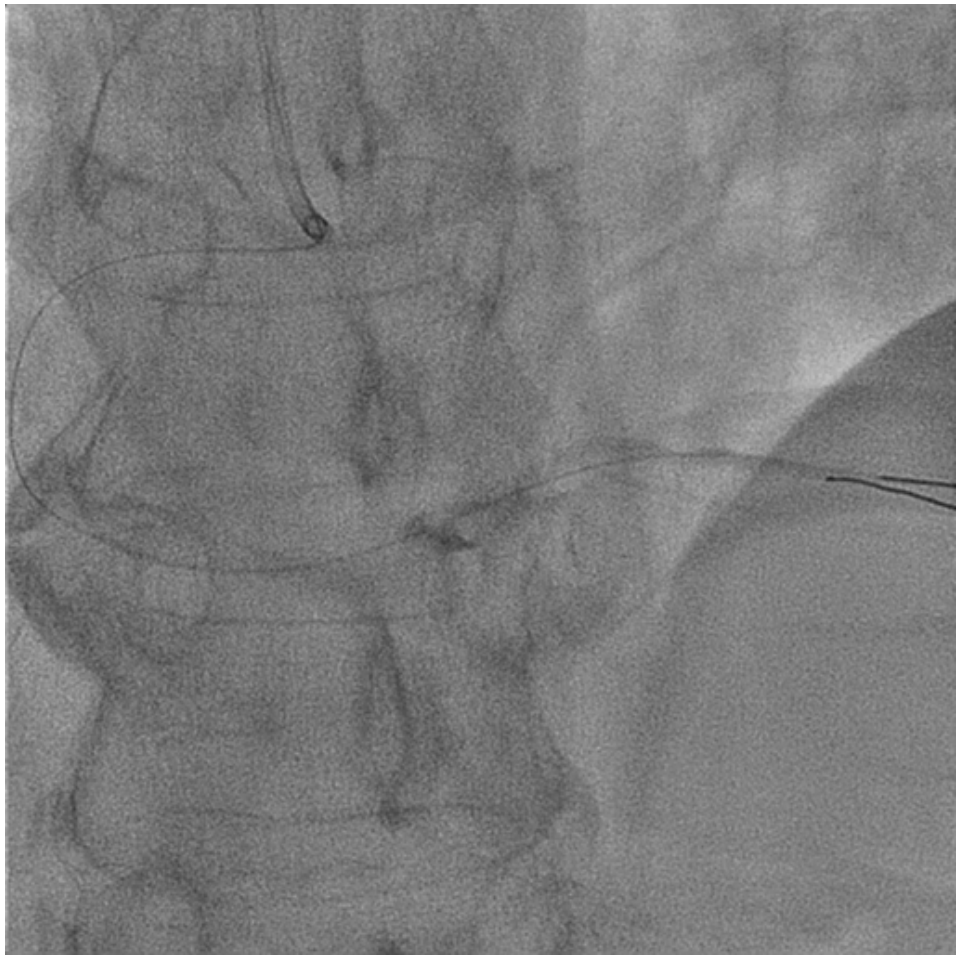
Cas clinique 1





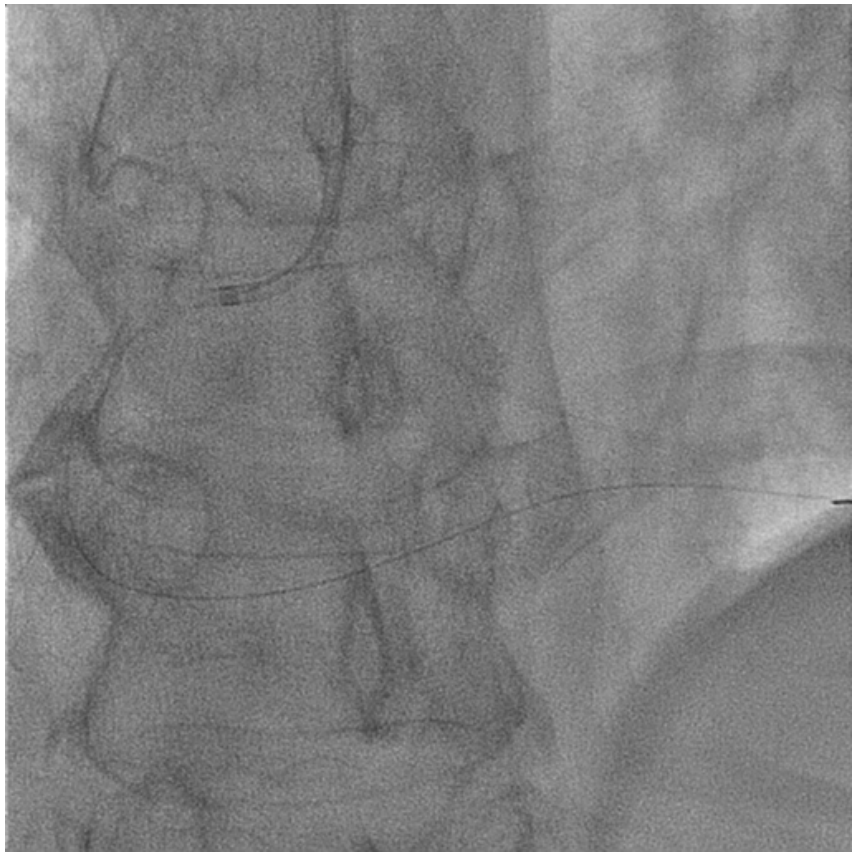
Cas clinique 2

Patient 61 ans admis pour SCA ST + en cours de constitution dans le territoire inferieur



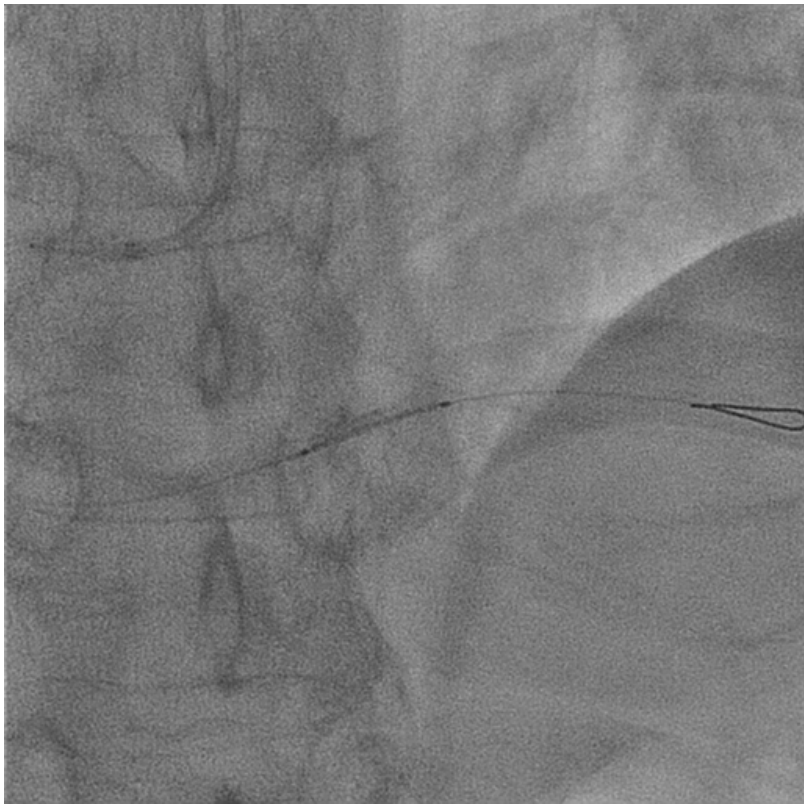
Cas clinique 2

Thrombo aspiration



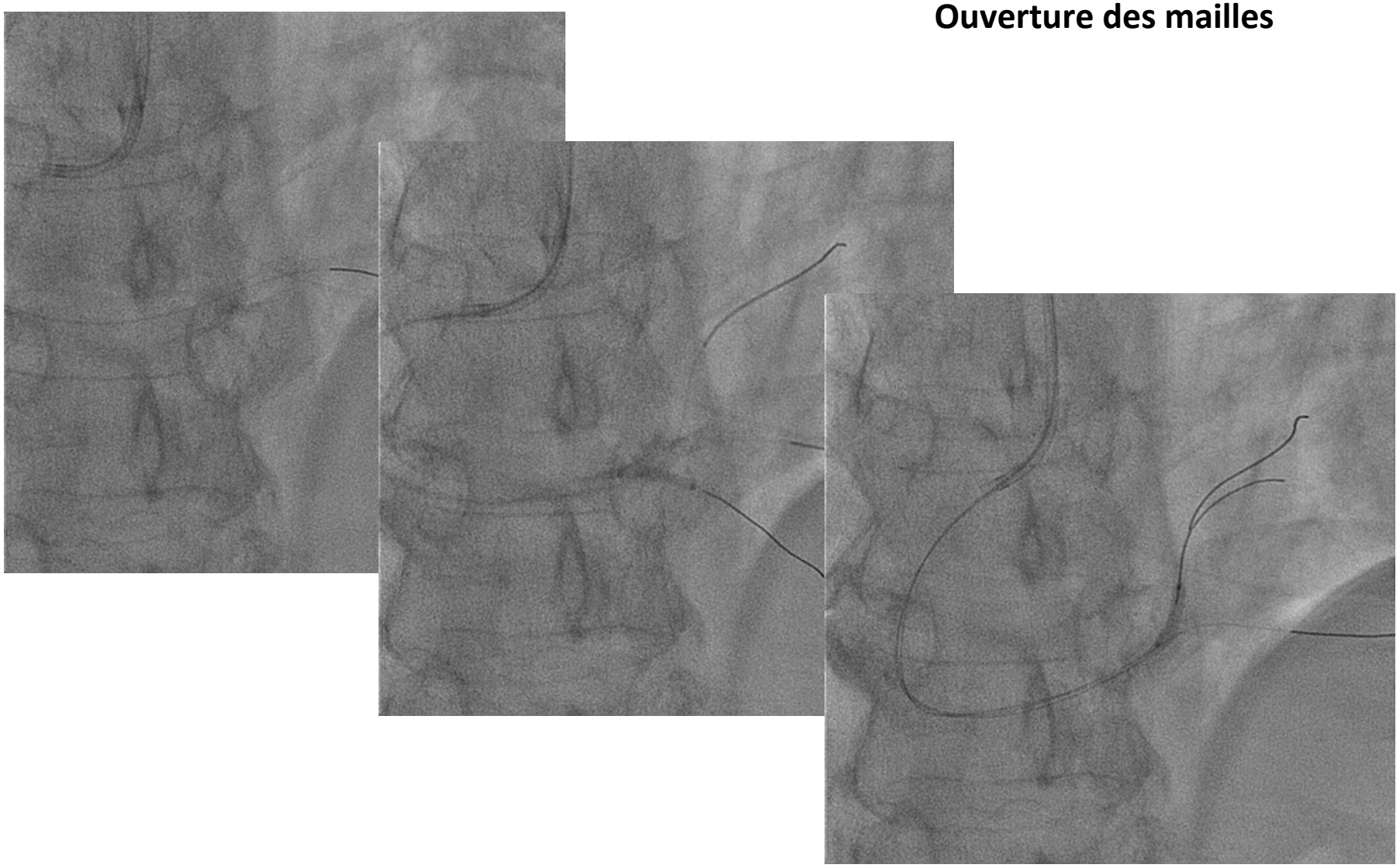
Cas clinique 2

Stent coroflex isar
2,75/16



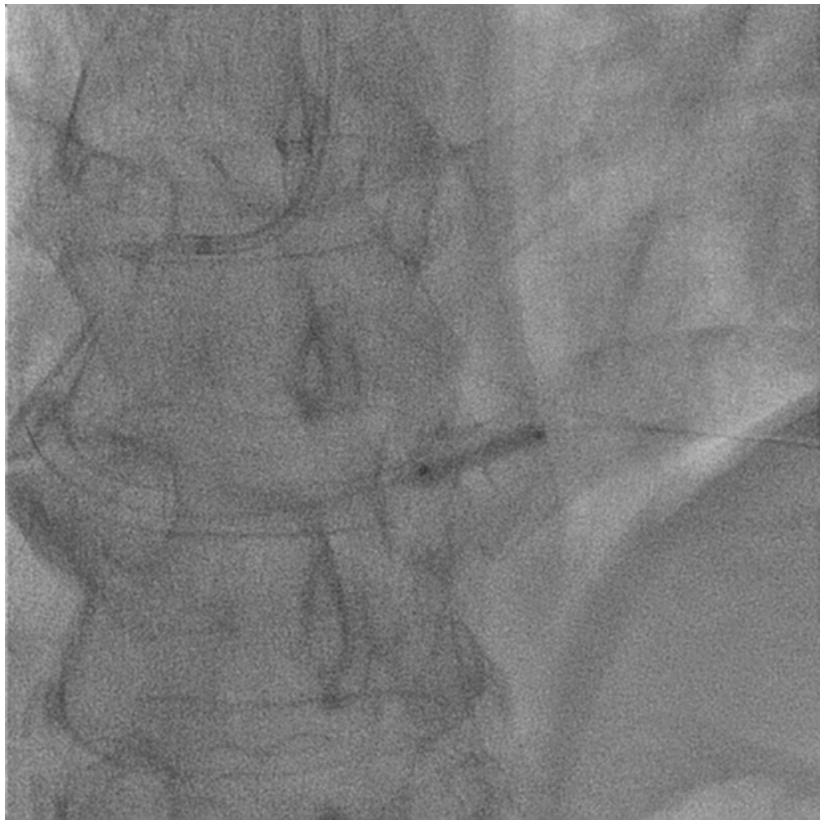
Cas clinique 2

Ouverture des mailles



Cas clinique 2

Post dilatation ballon 3/15



Résultat final

CONCLUSION

- **Plateforme Coroflex isar:**
  - **qualités biomécaniques importantes la rendant utile dans des situations tortueuses, difficile d'accès, calcifications, branches…**
- **Bonnes performances biomécaniques corrélées à de bon résultats cliniques**
- **2 indications LPPR pour le moment :**
- ***Traitement de lésions de novo des artères coronaires natives chez certains sous-groupes depatients à haut risque de resténose (lésions>15mm, diamètre vx < 3mm ou chez les diabétiques)***
- ***Après concertation pluridisciplinaire des alternatives de revascularisation en tenant compte des facteurs de risque évalués (Euroscore et score Syntax), traitement de certaines lésions pluritronculaires de novo des artères coronaires natives (lésions>15mm, diamètre du vaisseau atteint < 3mm ou chez les patients diabétiques) accessibles à l'angioplastie et lorsque le risque chirurgical est très élevé***