



New Devices and Guidewires for CTO-PCI

A New Guidewire for Retrograde Channel Crossing

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Registry data 2012-2014

Case enrollment : 4,472 CTO-PCIs



122 cases were excluded due to insufficient case card information

**Final subject for analysis:
4,350 CTO-PCIs**

	Total	2012	2013	2014
CTO-PCIs	4,350	1,553	1,676	1,121
- Ante group	3,021	1,063	1,138	820
- Retro group	1,329 (31%)	490 (32%)	538 (32%)	301 (27%)

Retrograde procedure outcome (1)

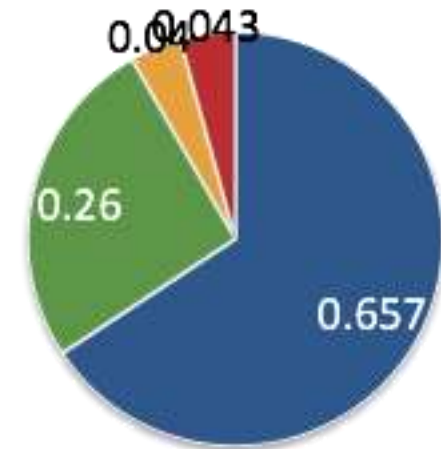
Retrograde procedure success

Retro group	Total (1329)	2012 (490)	2013 (538)	2014 (301)	P
<i>Retro overall</i>	69% (917)	69% (344)	66% (363)	68% (210)	0.0218

Reason of retrograde procedure failure (412)

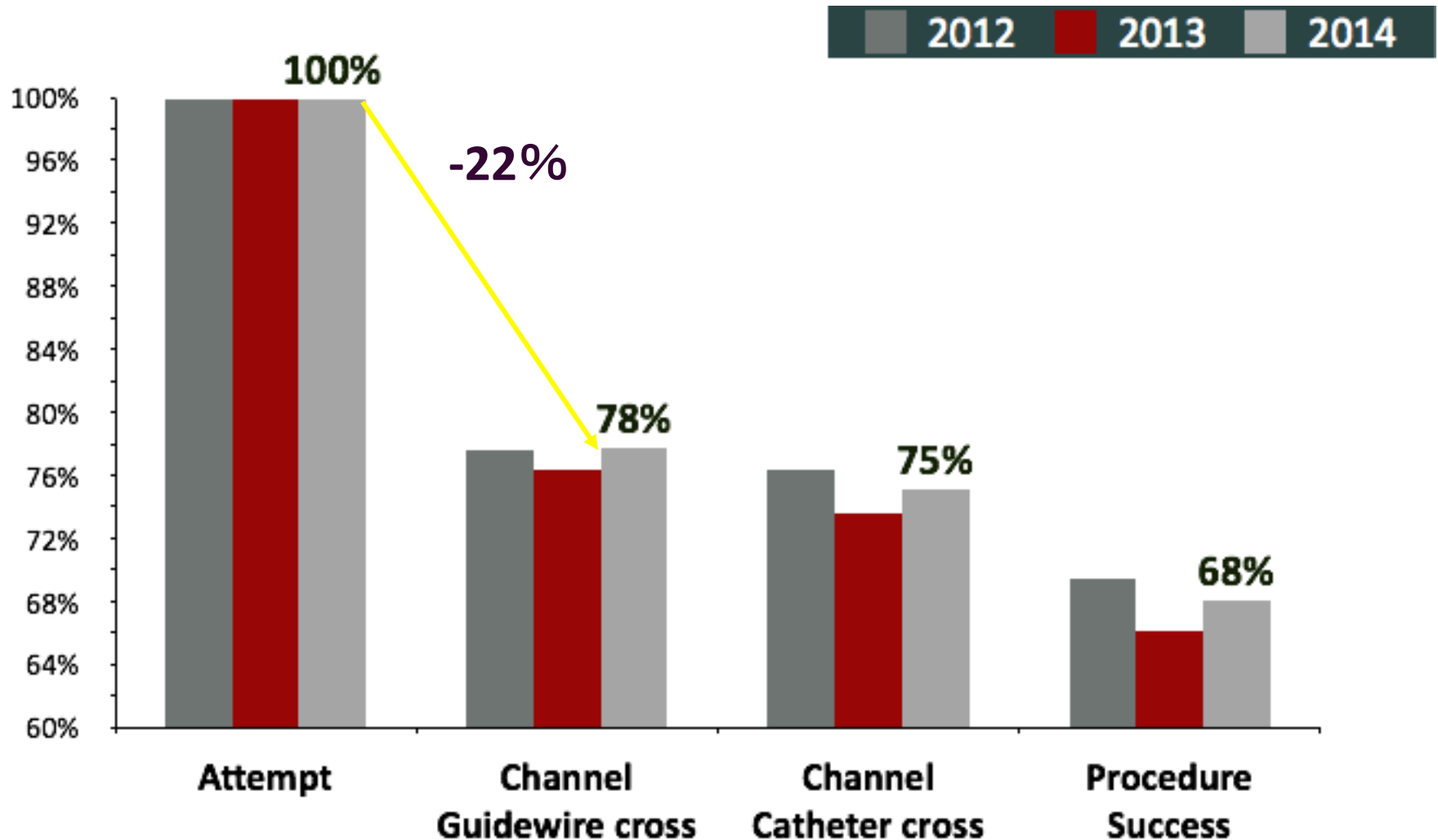


- Couldn't cross collateral channel
- Couldn't cross CTO by GW
- Couldn't cross CTO by any catheter
- Procedure discontinuation due to complication



Switched to antegrade approach ; 76% (313)

Retrograde procedure outcome (2)



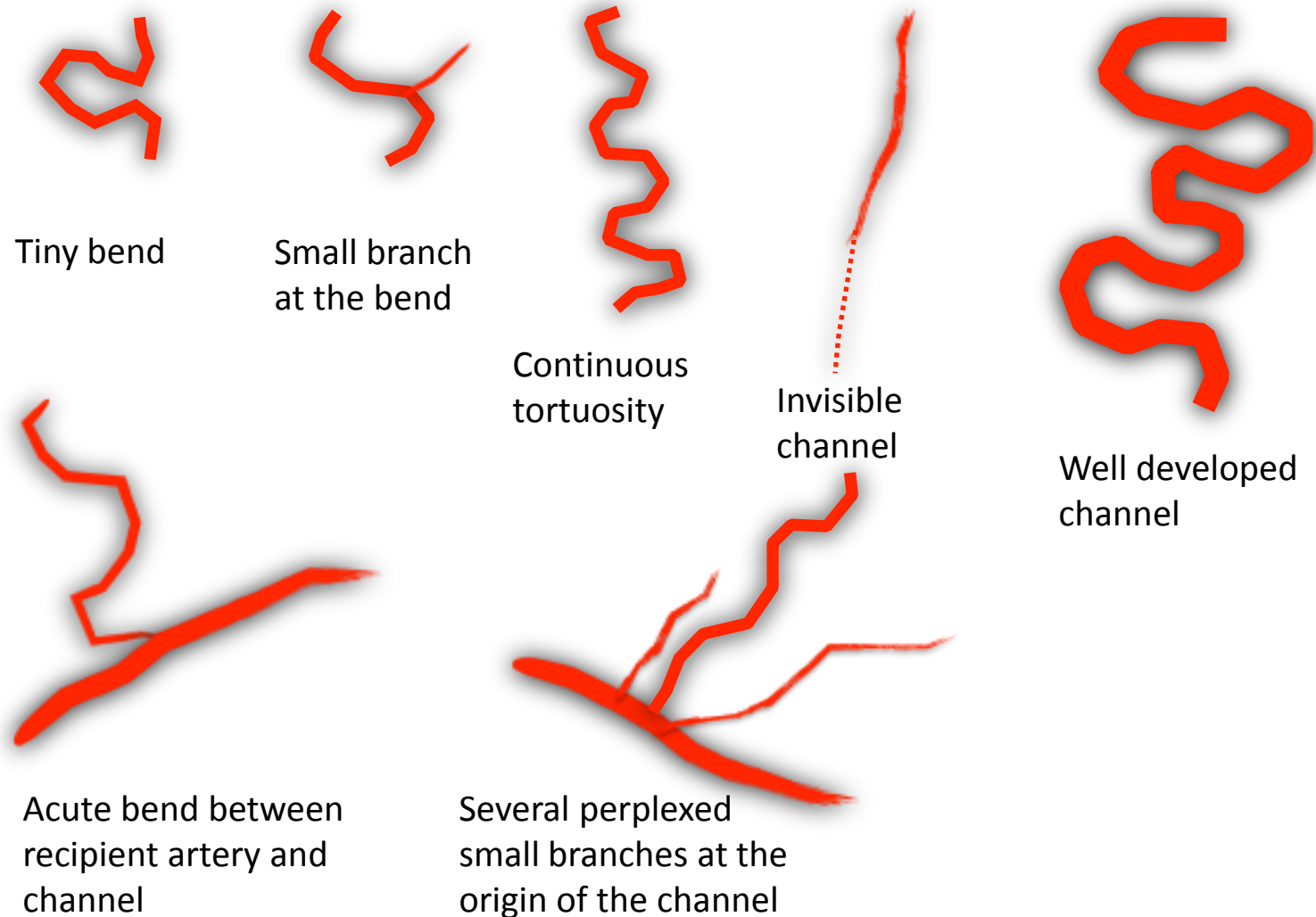


Collateral channel crossing is the first step of retrograde procedure and the main reason whether the procedure succeeds or not.

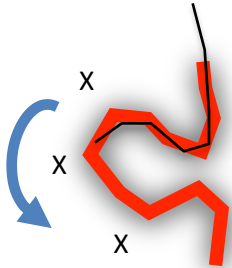


Why is the collateral channel crossing difficult?

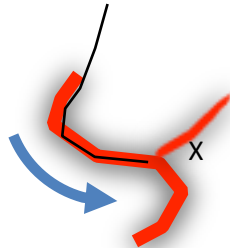
Several factors that affect collateral crossing



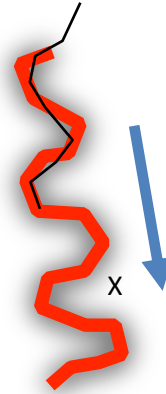
Understand the necessity of guide wire performance in each situation



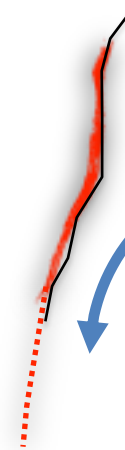
- ☐ Tip flexibility
- ☐ Tip lubricity
- ☐ Push transmission



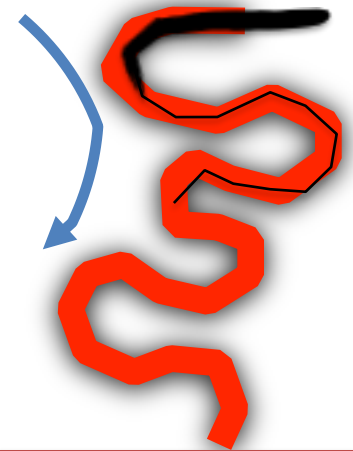
- ☐ Tip flexibility
- ☐ Torque ability
- ☐ appropriate tip curve



- ☐ Tip flexibility
- ☐ Tip lubricity
- ☐ Tiny tip curve



- ☐ Lower tip profile
- ☐ Tip lubricity

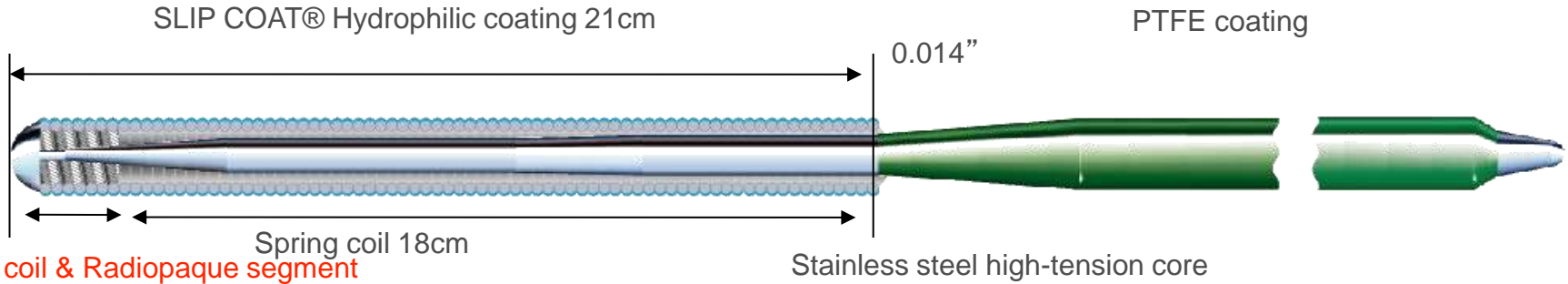


- ☐ Torque ability
- ☐ Lubricity
- ☐ Micro catheter assistance

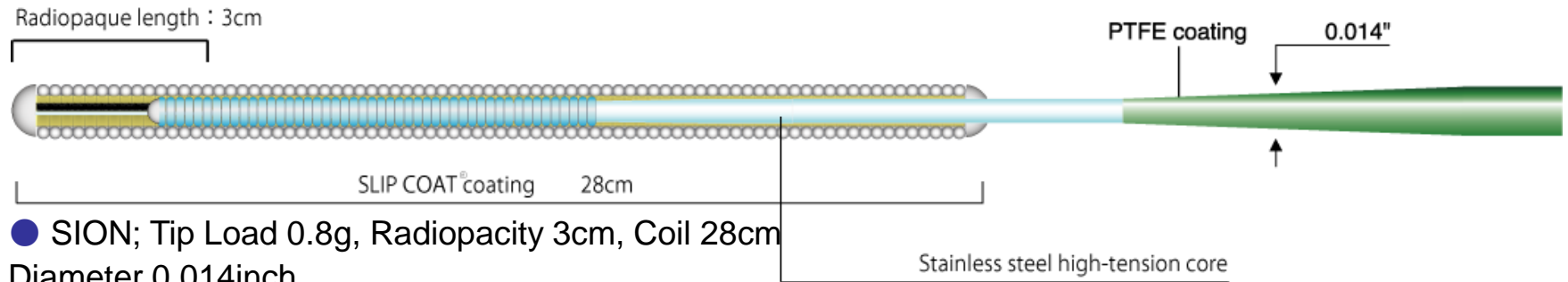


Stretching the collateral by the wire and micro catheter is important

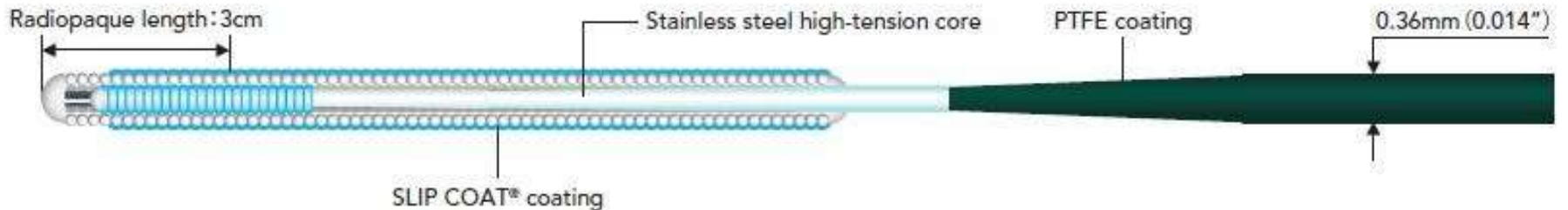
Guide wires for collateral crossing



- SUOH; Tip Load 0.5g, Coil 21cm, Diameter 0.014inch

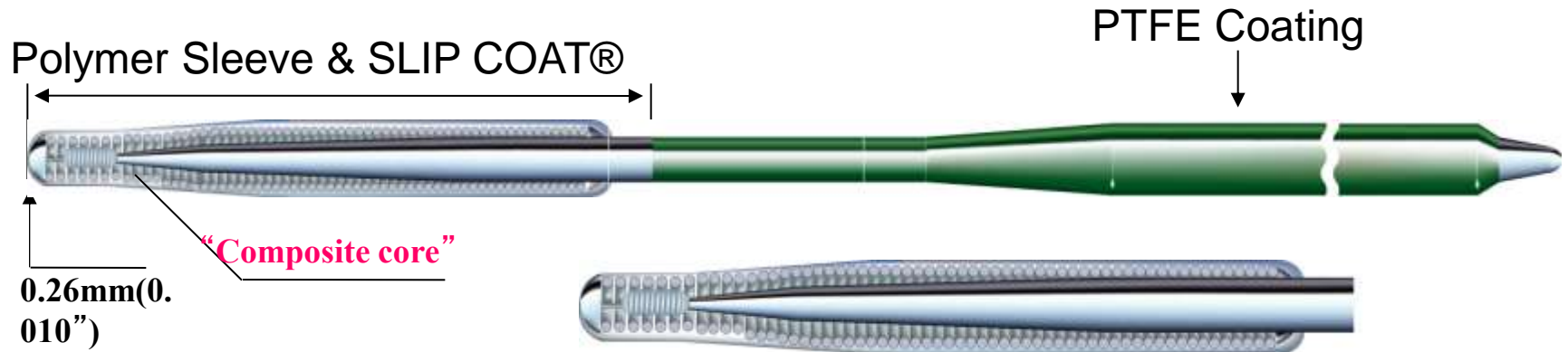
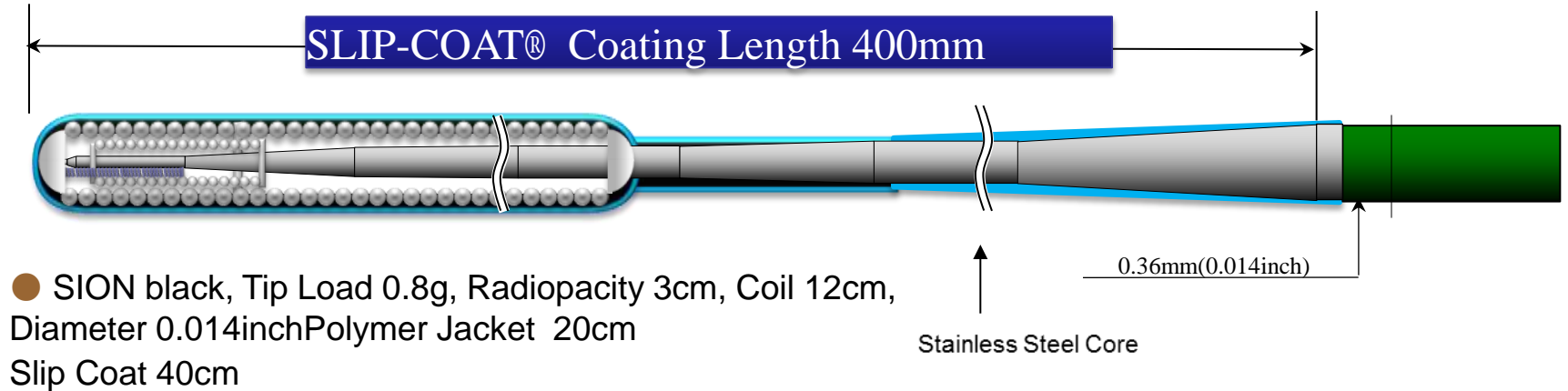


- SION; Tip Load 0.8g, Radiopacity 3cm, Coil 28cm
Diameter 0.014inch



- SION blue; Tip Load 0.5g, Radiopacity 3cm, Coil 20cm
Diameter 0.014inch

Guide wires for collateral crossing



● Fielder XTR, Tip Load 0.6g, Radiopacity 16cm, Coil 16cm, Diameter 0.014inch, Tip diameter 0.010 inch Polymer Jacket

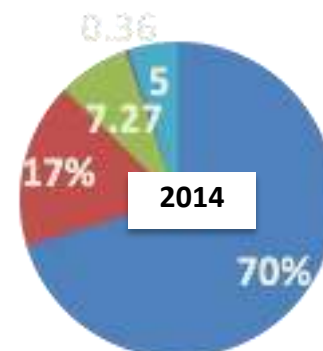
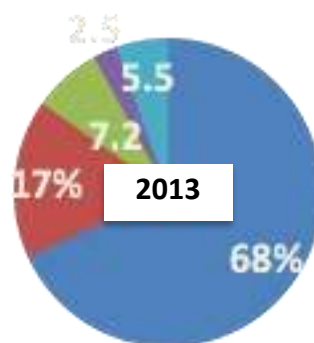
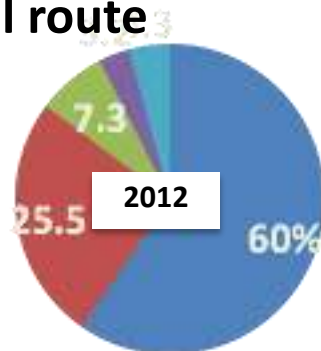
Retrograde procedural characteristics

Channel cross success rate

	Total (1309)	2012 (490)	2013 (538)	2014 (281)	P
Guidewire cross success	76.9% (1006)	77.5% (380)	76.4% (411)	76.5% (215)	0.8975

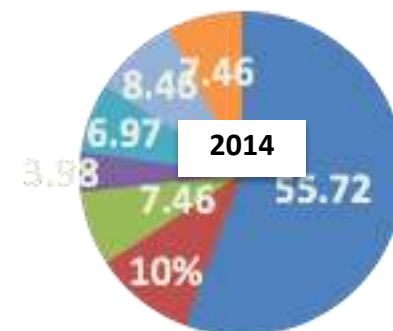
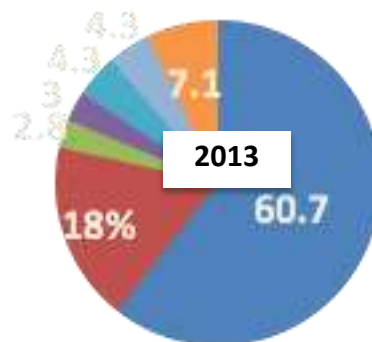
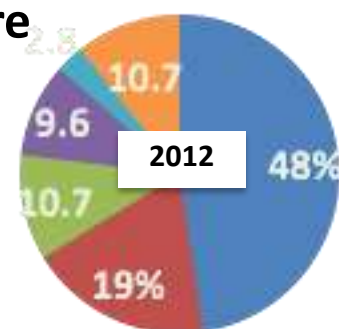
Successful collateral route

- Septal
- Epicardial
- AC
- Ipsilateral
- Bypass graft



Successful guidewire

- SION
- XT-R
- SION blue
- Fielder FC
- SUOH
- SION black
- other



Retrograde relevant complications

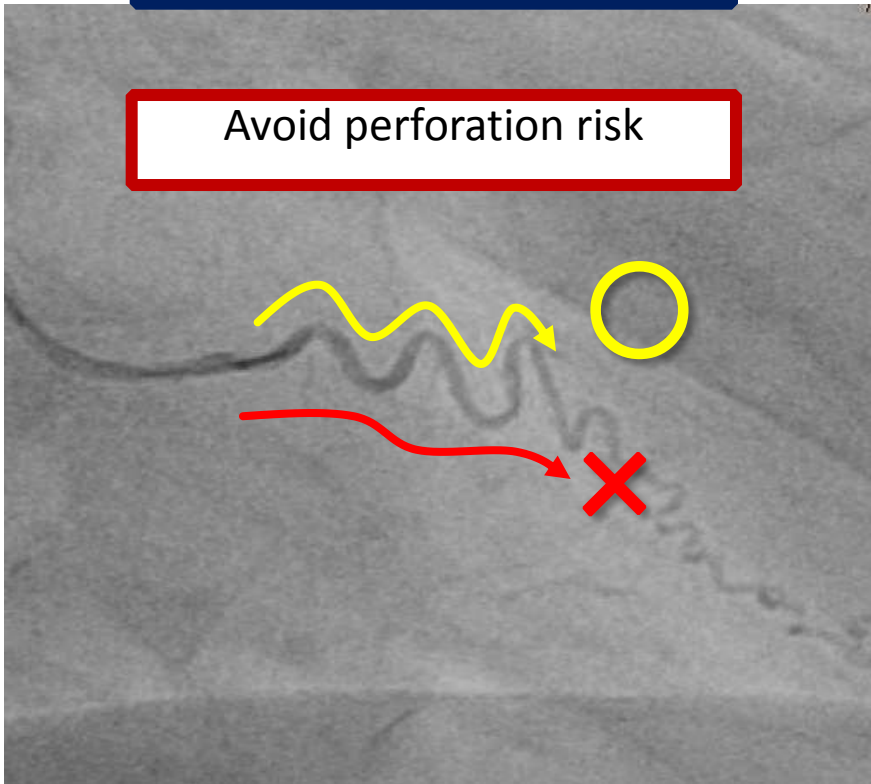
	2012 (490)	2013 (538)	2014 (281)	P
Retrograde approach relevant	11.4% (56)	8.9% (48)	7.8% (22)	<i>0.2040</i>
Channel injury	10.6% (52)	8.4% (45)	7.5% (21)	0.2703
Additional treatment required	4.1% (20)	3.0% (16)	2.5% (7)	0.4274
Cardiac tamponade	0.4% (2)	0.2% (1)	1.4% (4)	0.0623
Donor artery trouble	0.2% (1)	0.2% (1)	0.4% (1)	0.8803

Including minor events

GW suitable for collateral channel tracking

Not to damage the channel

Avoid perforation risk



To cross the channel

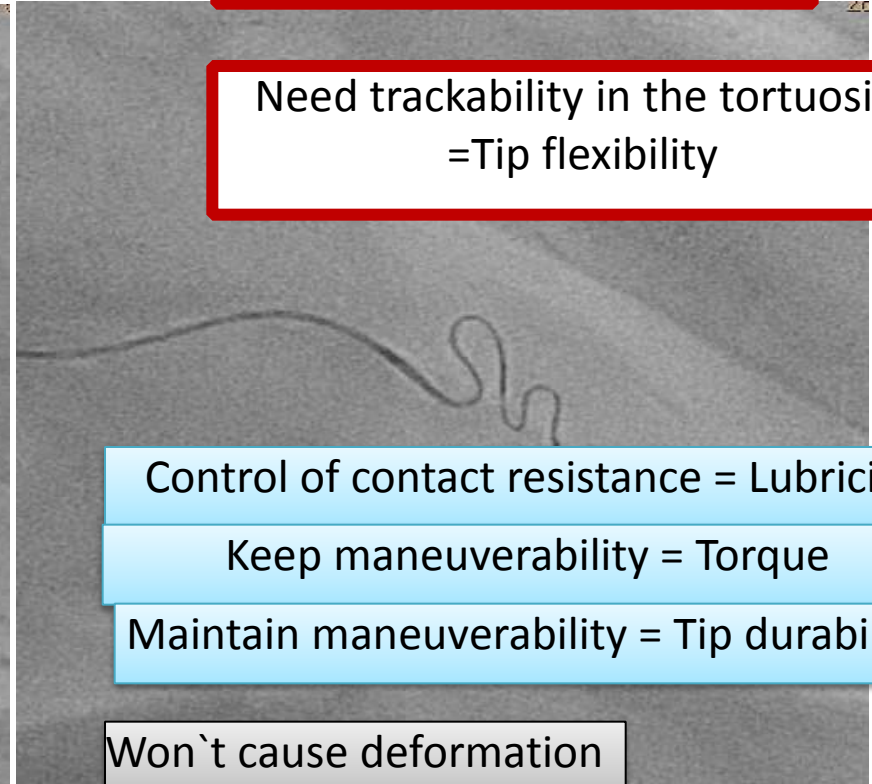
Need trackability in the tortuosity
=Tip flexibility

Control of contact resistance = Lubricity

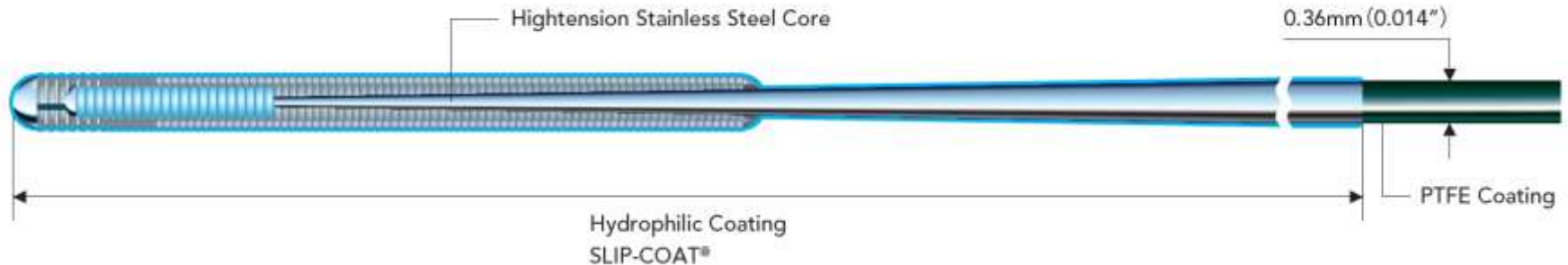
Keep maneuverability = Torque

Maintain maneuverability = Tip durability

Won't cause deformation



SUOH 03



Coating: Full Hydrophilic Coating	52cm
Usable Length	190, 300cm
Coil Length	19cm
Radiopaque Length	3cm
Tip Load	0.3 gr
Tip Shape	Straight/ Pre-shape



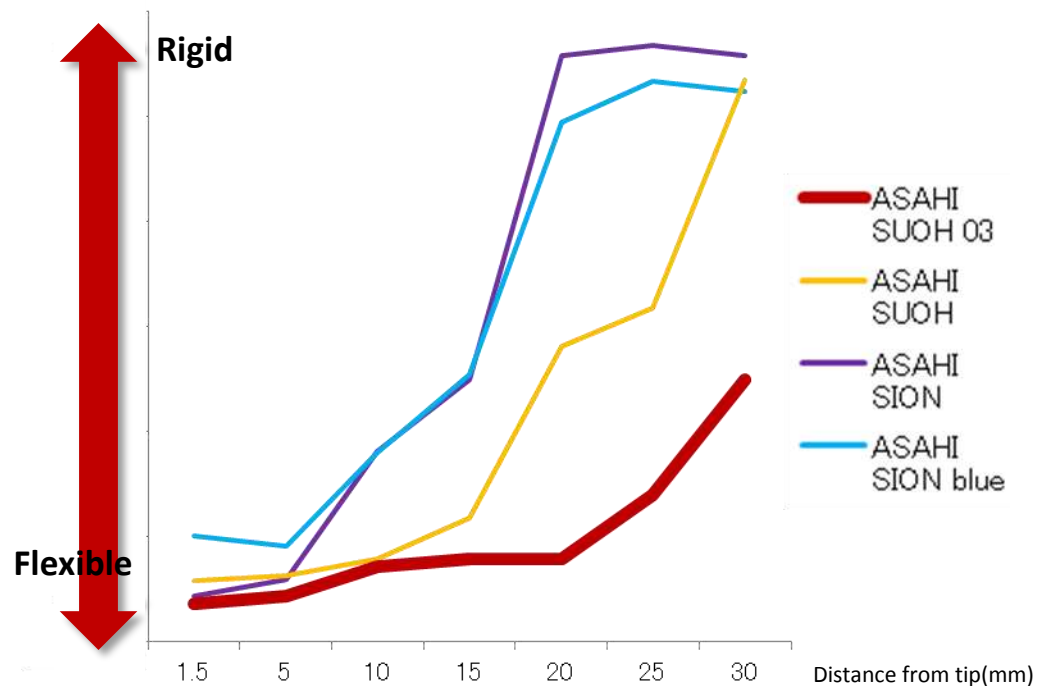
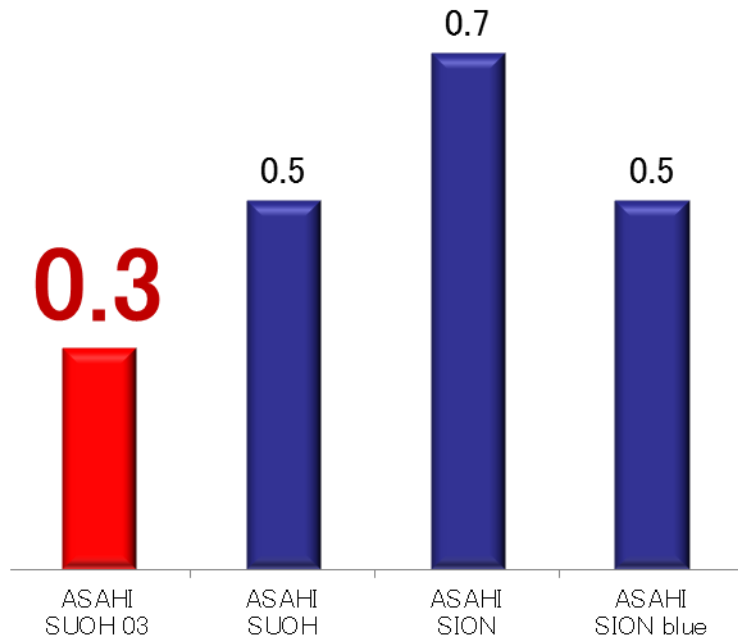
Tip Load

The softest tip 0.3 g in ASAHI GW

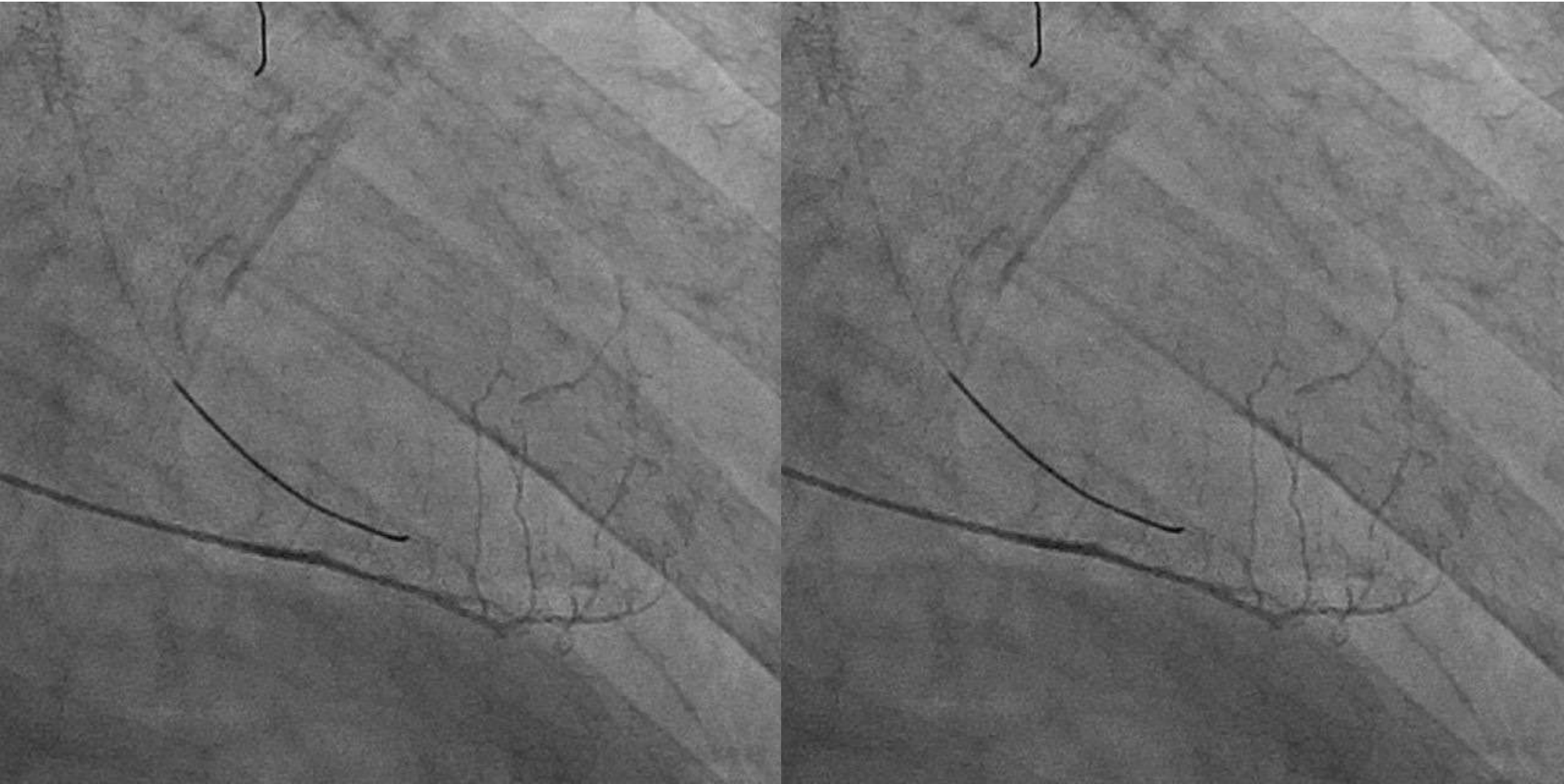
Tip Flexibility

Better trackability and crossability in severe tortuosity due to the flexibility of whole radiopaque area.

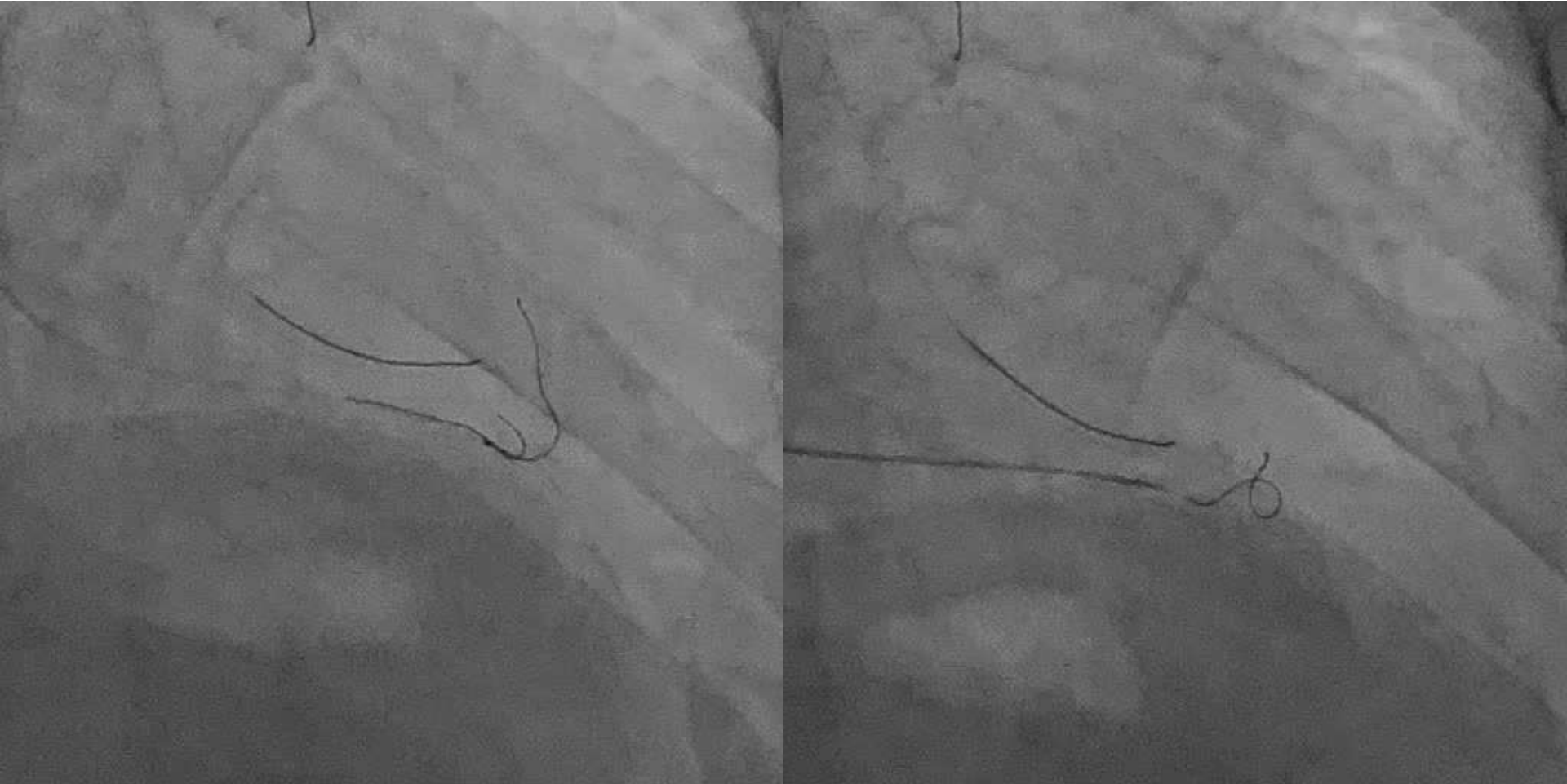
Tip Load(gf)



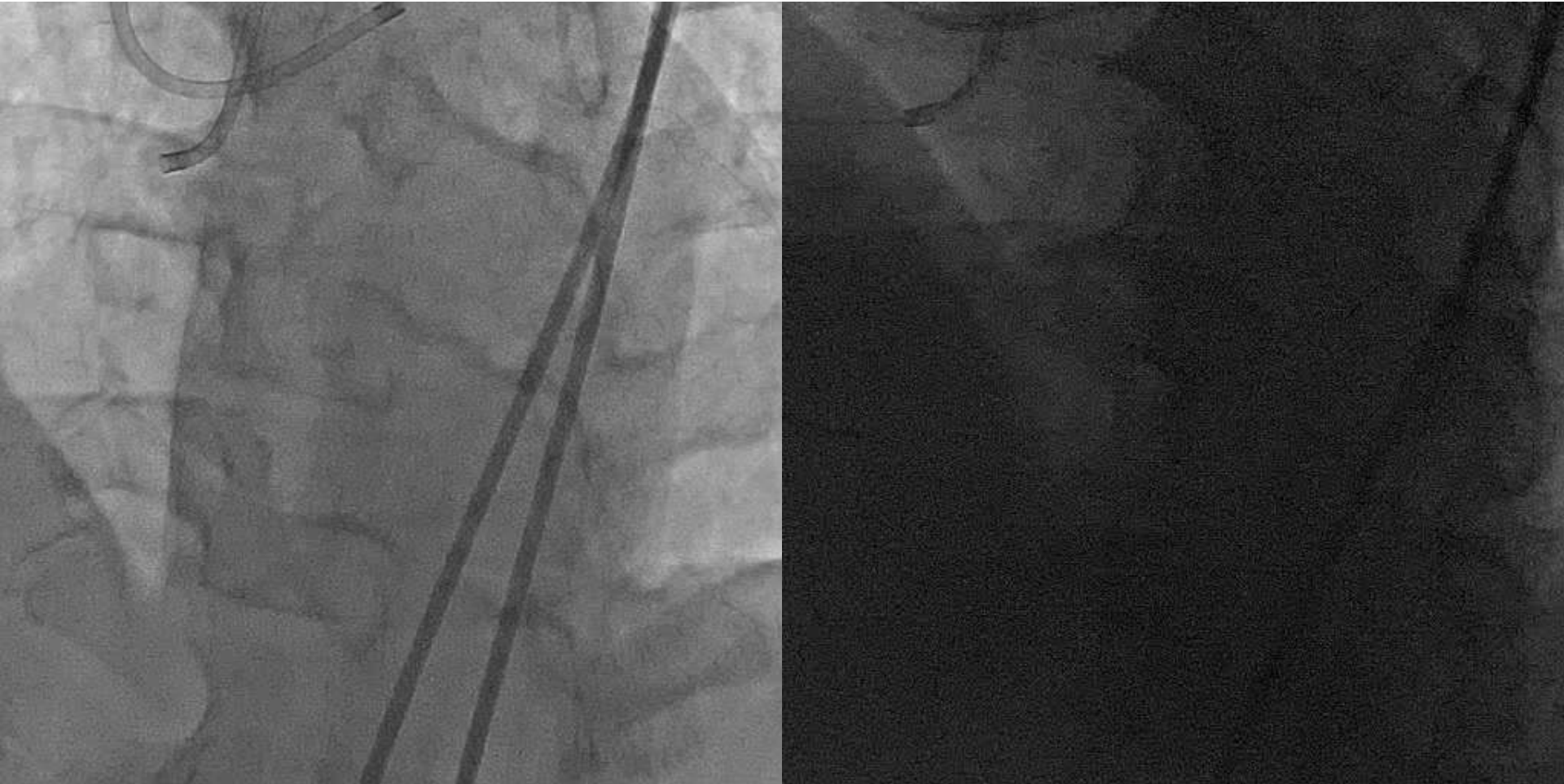
Epicardial channel selection



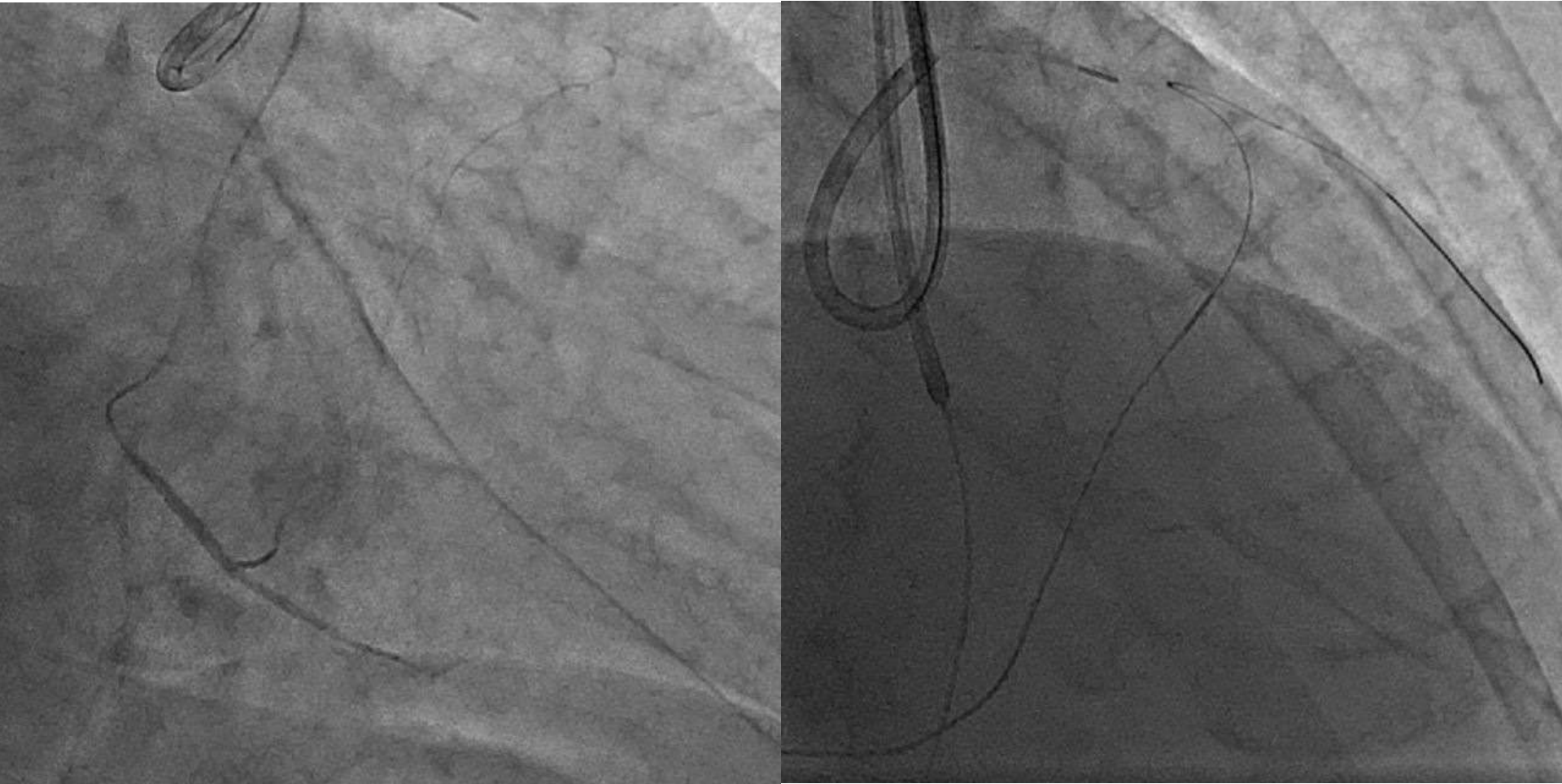
Epicardial channel selection



Tortuous epicardial channel



Very tiny curved septal channel



Tortuous epicardial channel



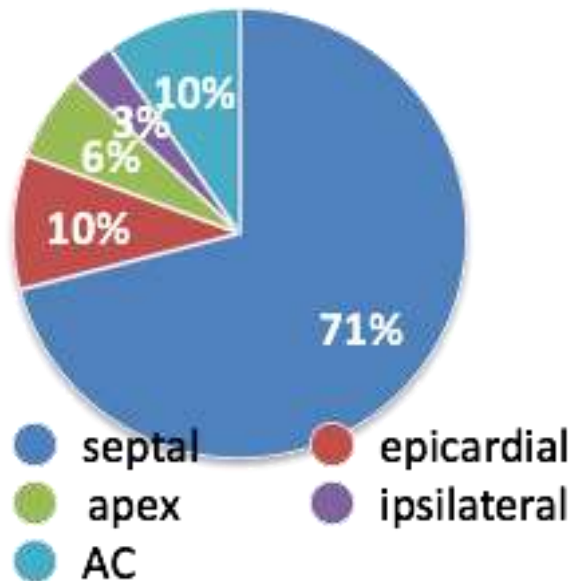
Guidewire selection for channel tracking

	Performance which is need	Recommendable 1 st .GW
<i>Septal</i>	<i>Maneuverability to select side branch Tip flexibility</i>	SUOH 03
<i>Epicardial</i>	<i>Tip flexibility to avoid perforation</i>	SUOH 03

Channel crossing after SUOH 03

<i>Location/Channel</i>	<i>Septal</i>	<i>Epicardial</i>
LAD	8	6
RCA	7	4

<i>Channel</i>	<i>Overall</i>	<i>Septal</i>	<i>Epicardial</i>
Success rate	85% (22/26)	87% (13/15)	82% (9/11)



<i>Reason for failure</i>	<i>Septal</i>	<i>Epicardial</i>
Corkscrew	2	2
Spasm		1
Branch Angulation	1	
Channel injury	1	



We cannot fully expect how much extent of corkscrew phenomenon would be an obstacle or amenable to wire manipulation and micro catheter advancement. It only depends on personal experience.

Messages

The most important factor that affect retrograde procedural success is whether the channel could be stretched by the wire and/or the micro catheter.

SUOH 03 has very floppy tip profile, therefore less traumatic. Channel injury is less frequent and success rate seems to be improved even through the channel became to be complex.