

# How to manage device entrapment During PCI

**Ju Chan KIM**

**Cardiovascular center,  
Chonnam National University hospital**

# Contents

- Kind of Device
- Why it occur
- How to Management
- In the cases of out center
- Summary

# Contents

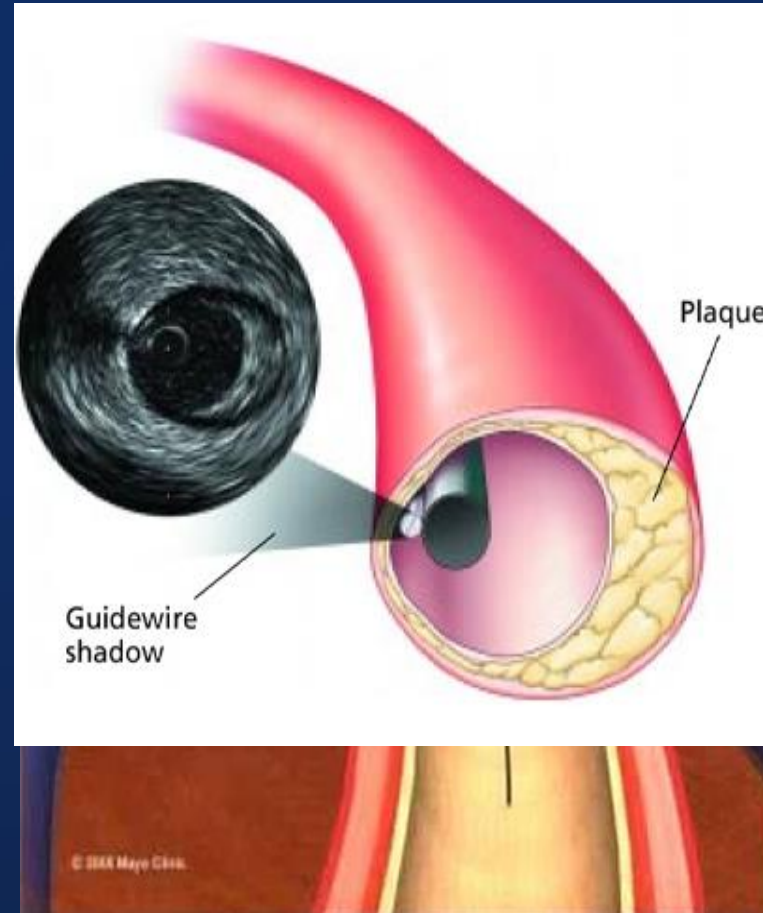
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# Kind of Entrapment

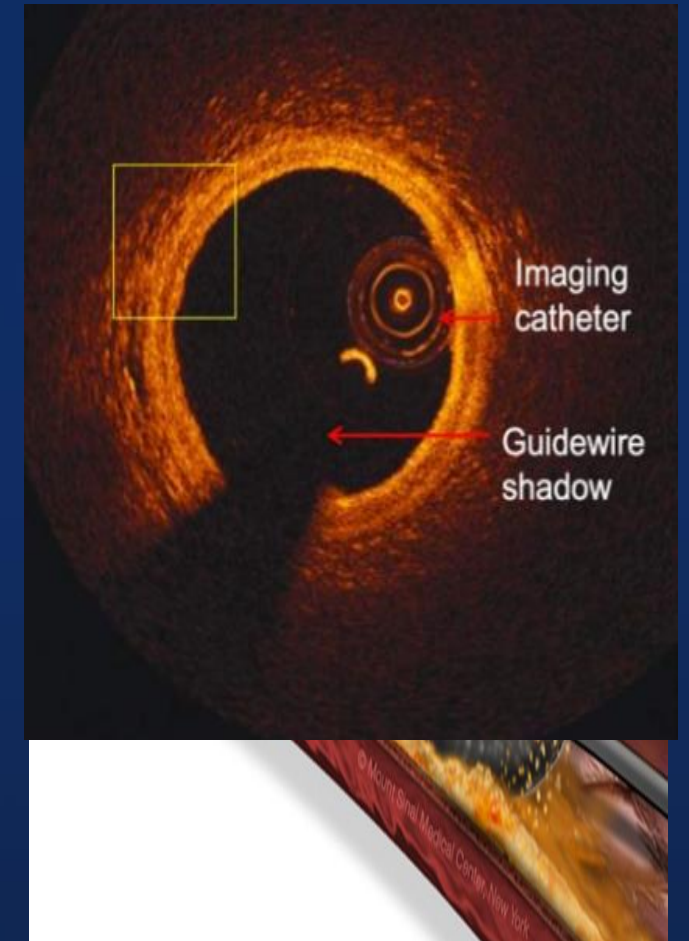
## Microcatheter



## IVUS



## OCT



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# Wire Entrapment

## *REASON*

- After overly aggressive manipulation within a calcified and tortuous lesion
- After jailing the guidewire during bifurcation stenting
- During complex CTO PCI
- In particular within intraplaque tracking in calcified lesions and during the externalization process

# Balloon Entrapment

## *REASON*

- Partial shaft fracture, during its insertion into the guide catheter
- Rupture or become entangled with a previously placed stent or if balloon deflation fails
- Aggressive balloon advancement through heavily calcified lesions

# Microcatheter Entrapment

## *REASON*

- **Torquing is the most common cause of entrapment, especially when inappropriate rotation is applied to microcatheters not designed for rotation**
- **Operators should also avoid microcatheter overrotation in calcified lesions, even with coiled rotatable microcatheters**



# Rota Entrapment

## *REASON*

- Aggressive advancement of small burrs (especially the 1.25 mm burr) through a calcified lesion without debulking a significant amount of calcified tissue
- Advancement of a large burr against a severe calcified and long lesion without sufficient pecking motion
- Advancement of the burr in severe angulated lesions may lead to a significant velocity decrease with the subsequent risk of burr detachment and entrapment

# IVUS, OCT Entrapment

## *REASON*

- **Guide wire interaction**
- **Stent malaopositon, Underexpansion**
- **Tortuosity or Complex Anatomy**
- **Atheromatous Plaque or Lesions**
- **Equipment Malfunction**

# Contents

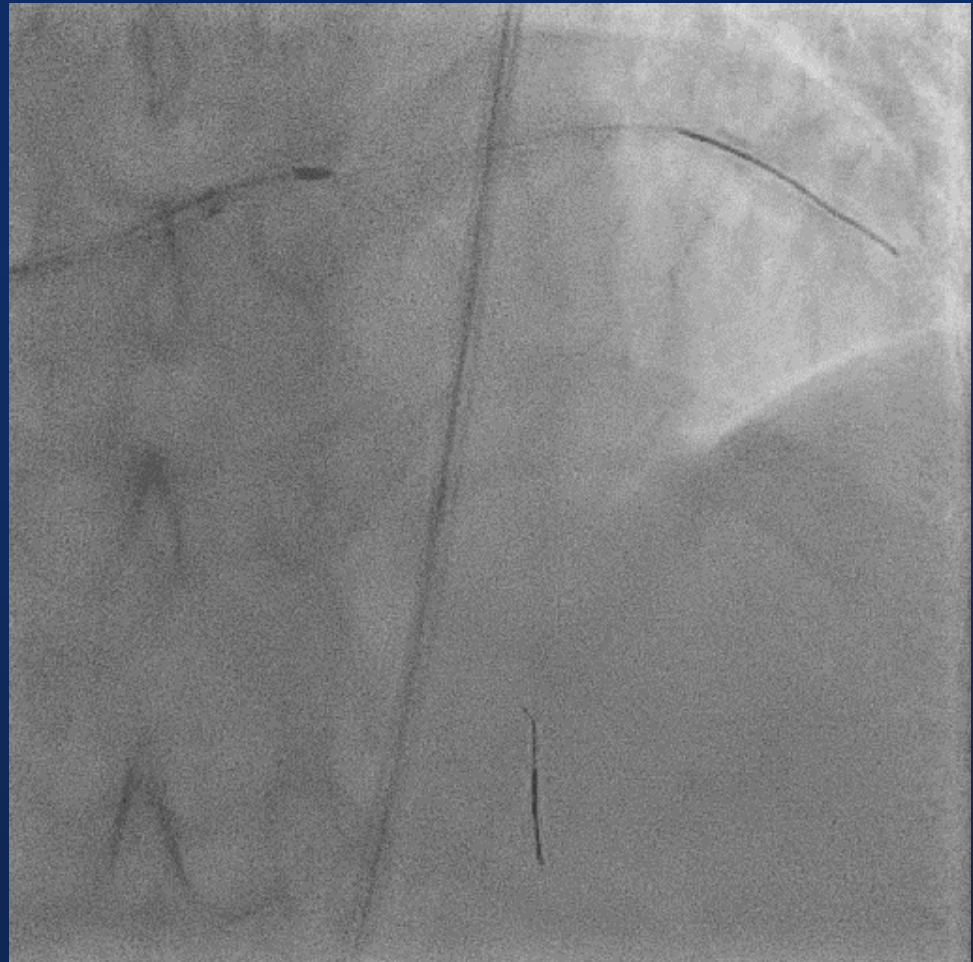
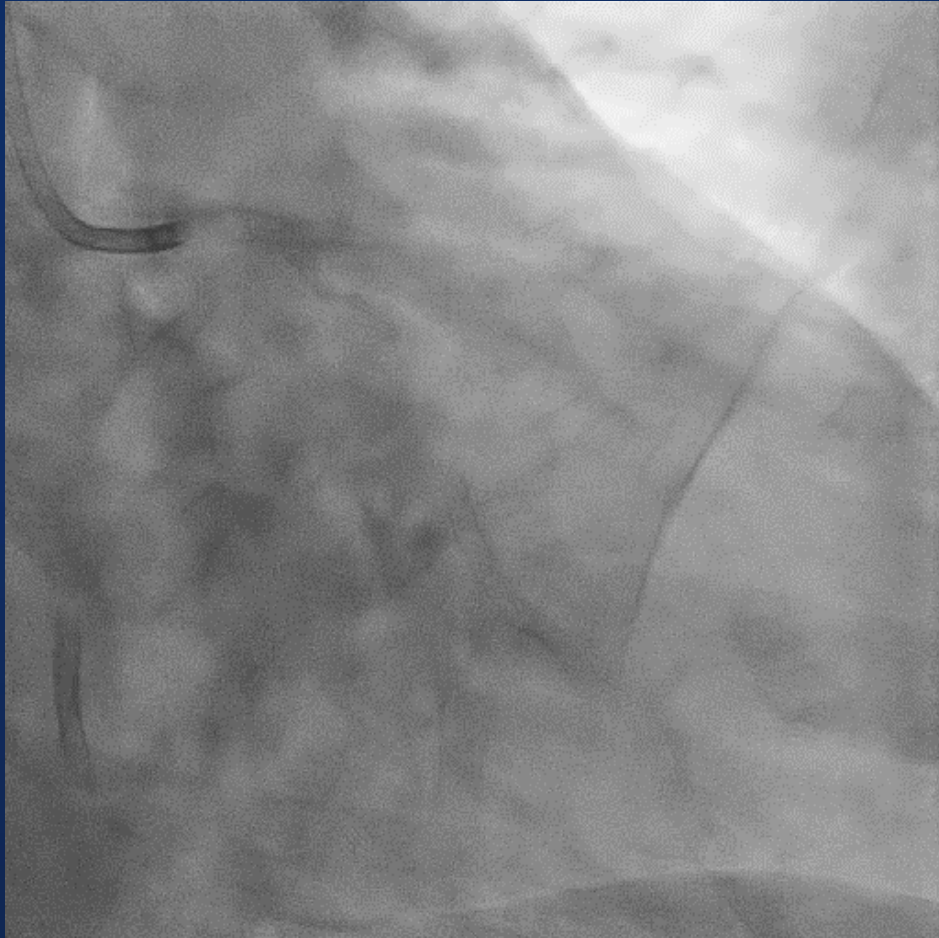
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# Wire Entrapment

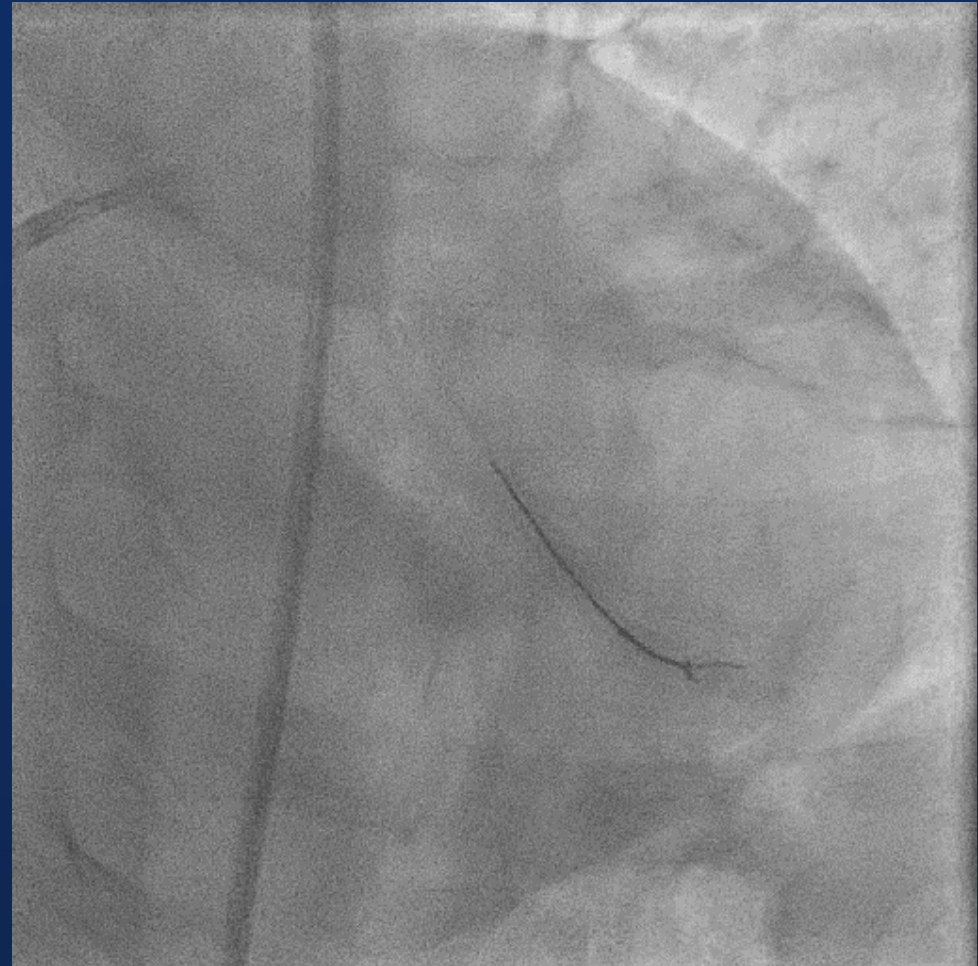
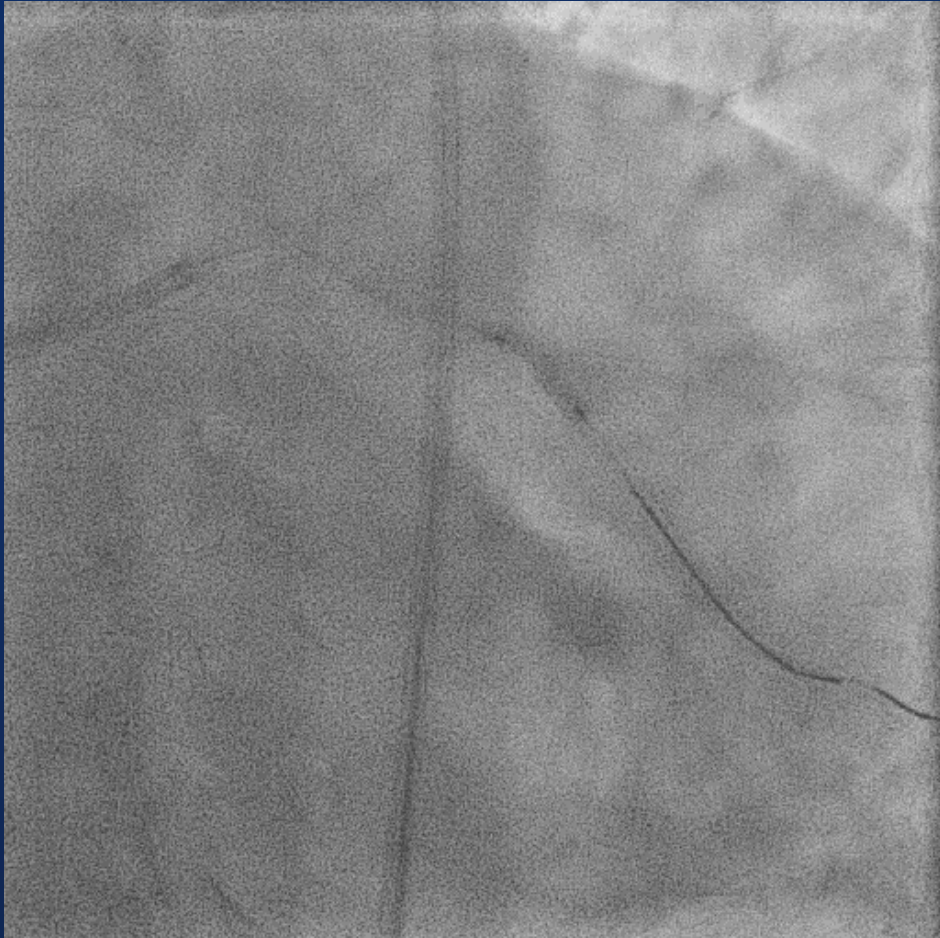
## *Management*

- Pulling technique
- Trapping balloon technique
- Snaring
- Plaque modification technique
- Telescoping technique
- Surgery

# Wire case I

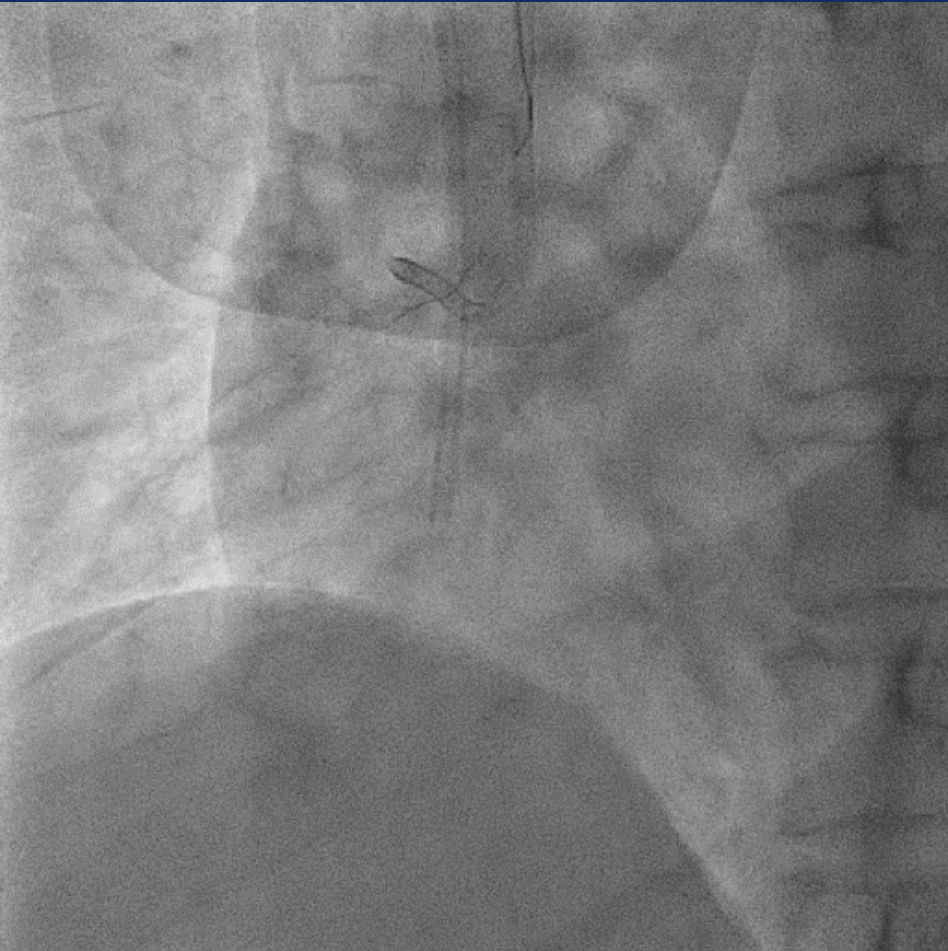
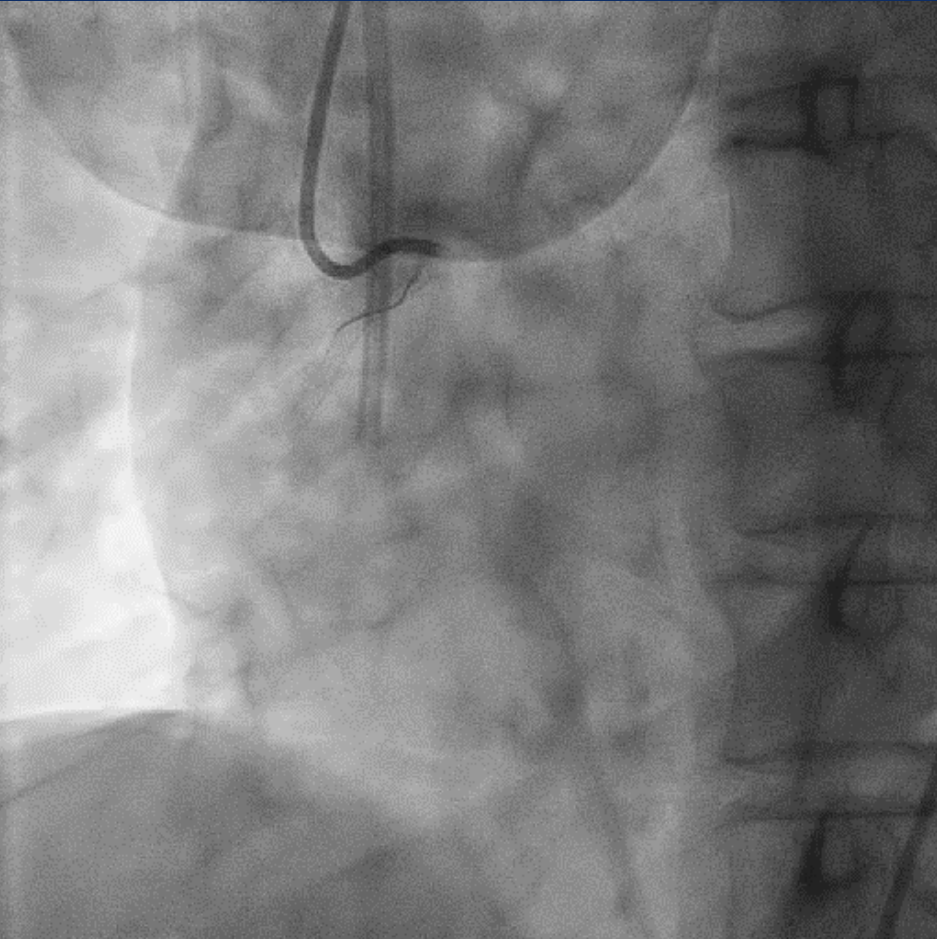


# Wire case I

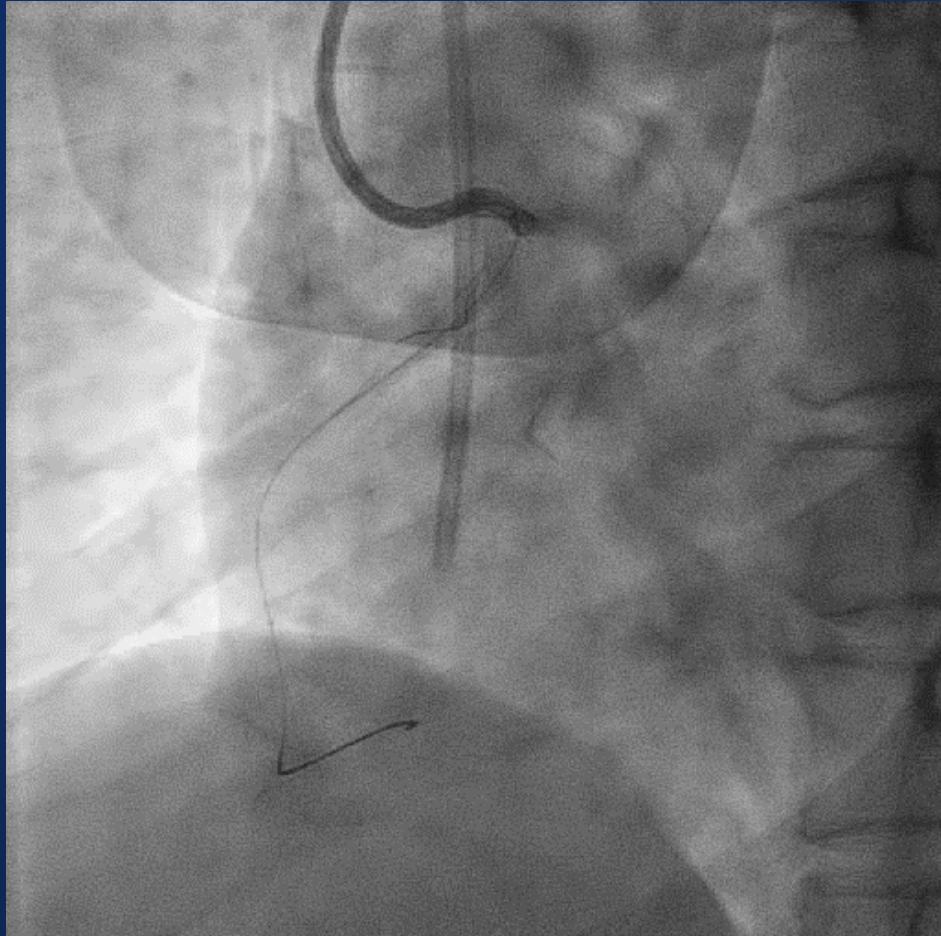




# Wire case II



# Wire case II



**Surgery**

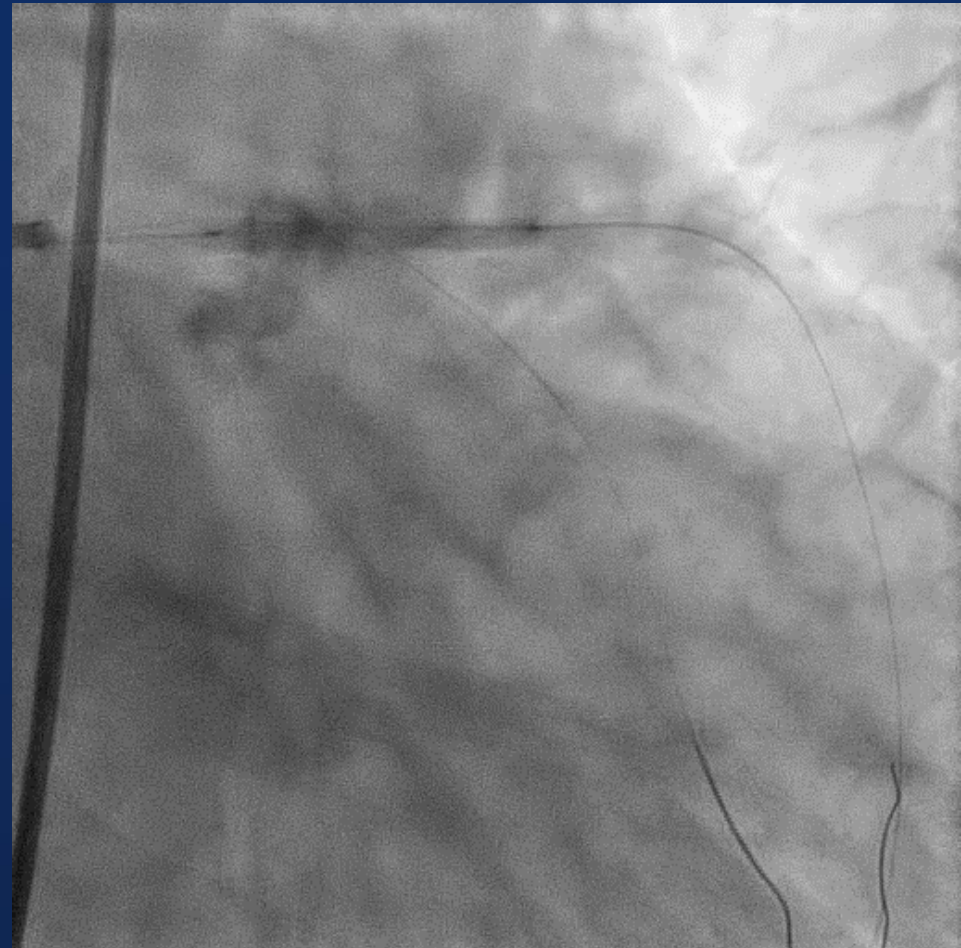
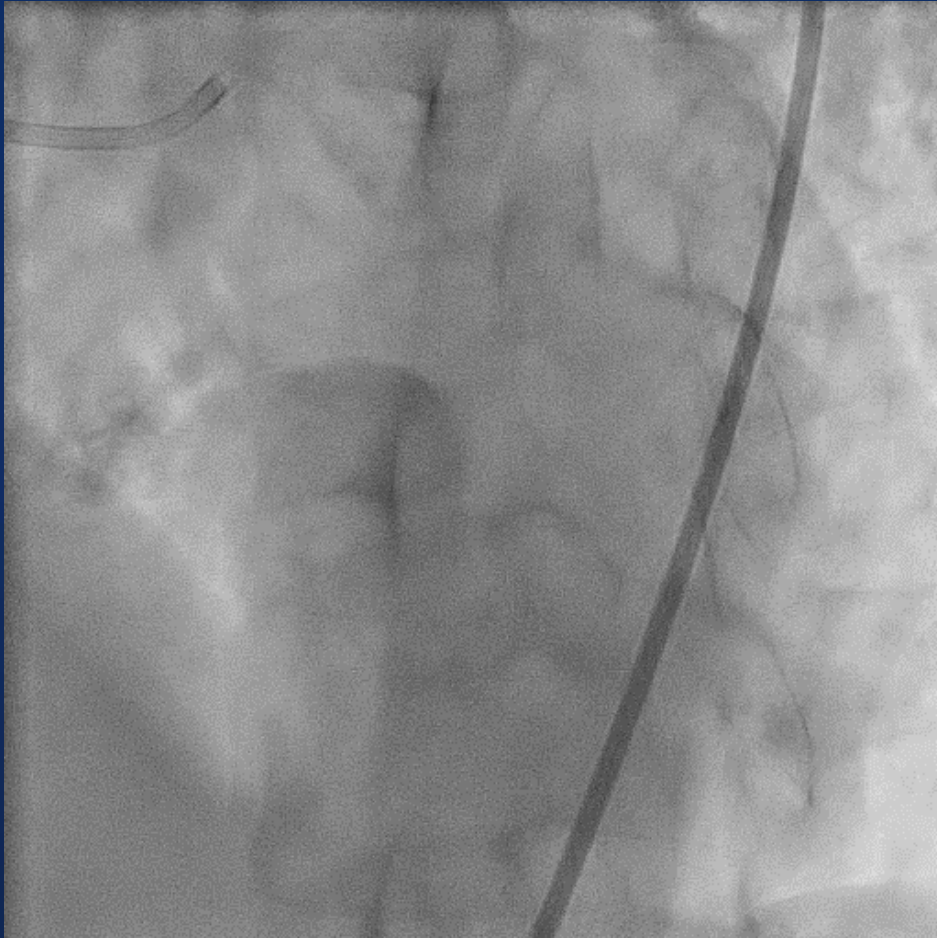


# Balloon Entrapment

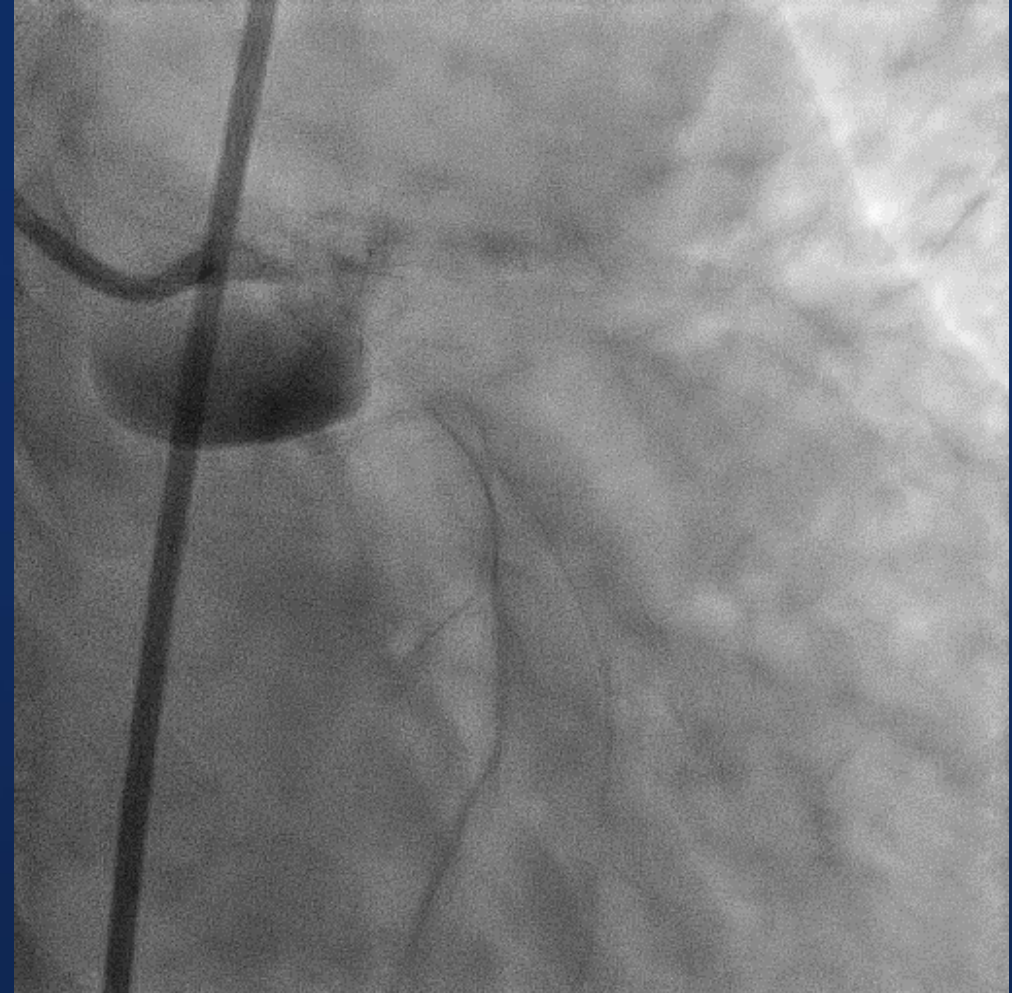
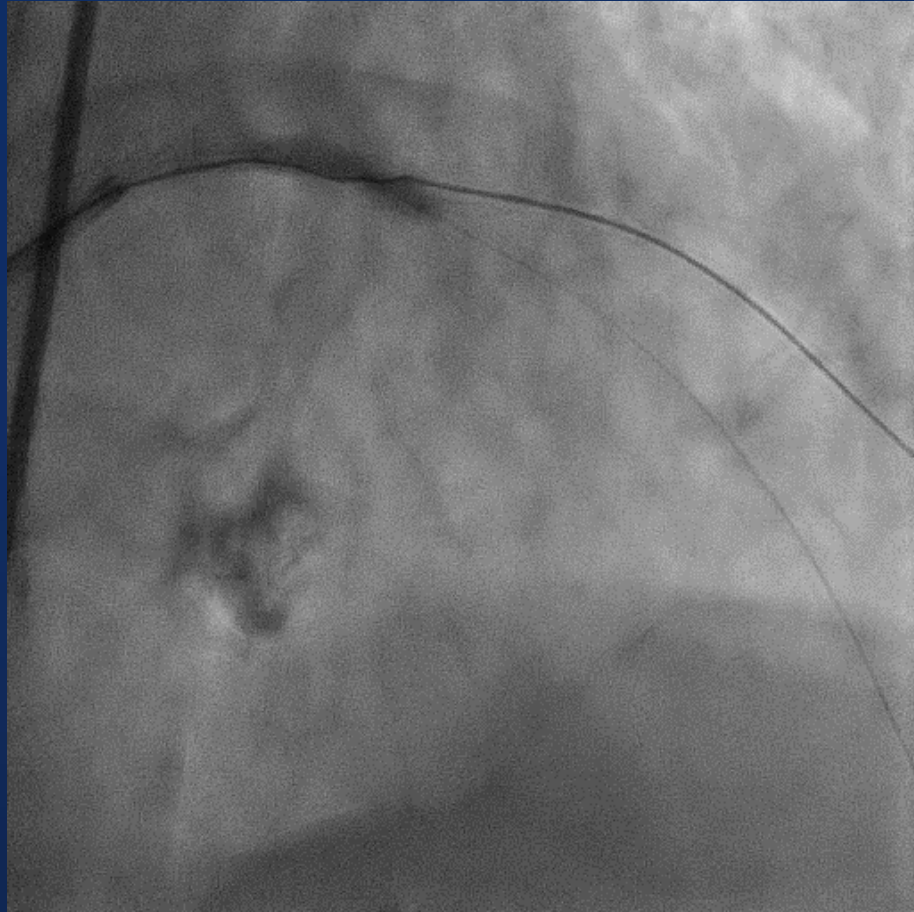
## *Management*

- Pulling technique
- Trapping balloon technique
- Snaring
- Plaque modification technique
- Telescoping technique
- Surgery

# Balloon case

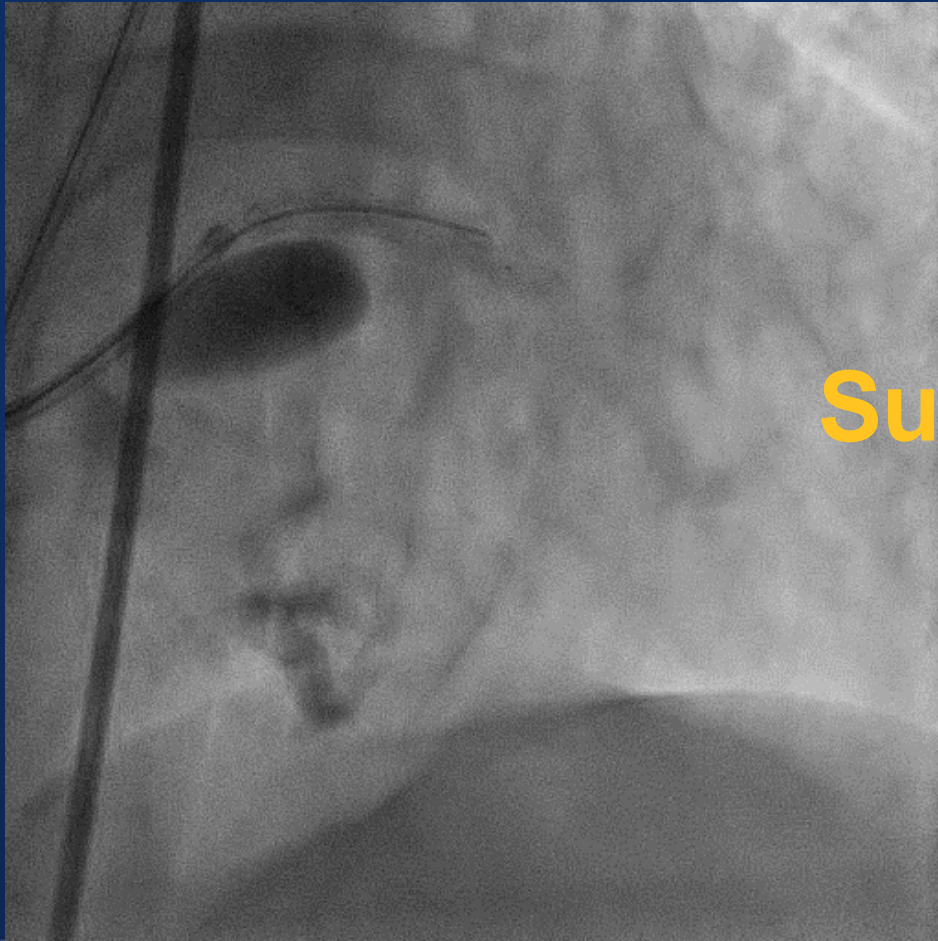


# Balloon case

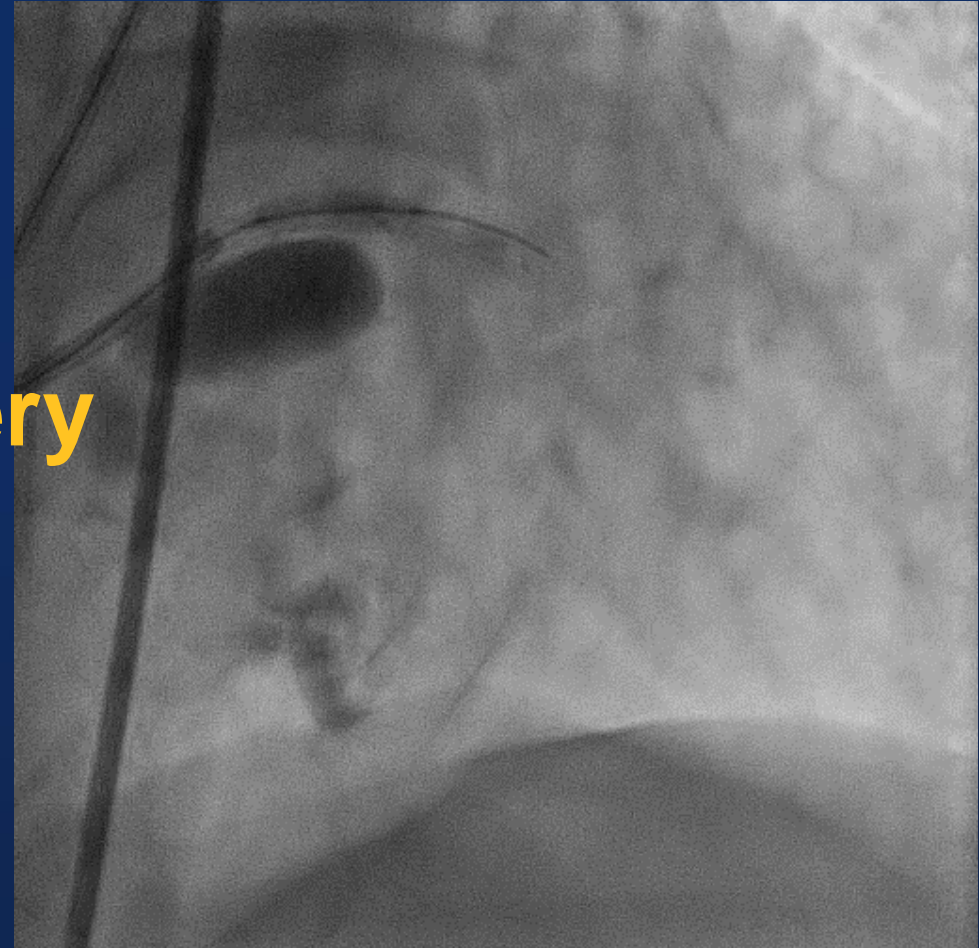




# Balloon case



Surgery



# Microcatheter Entrapment

## *Management*

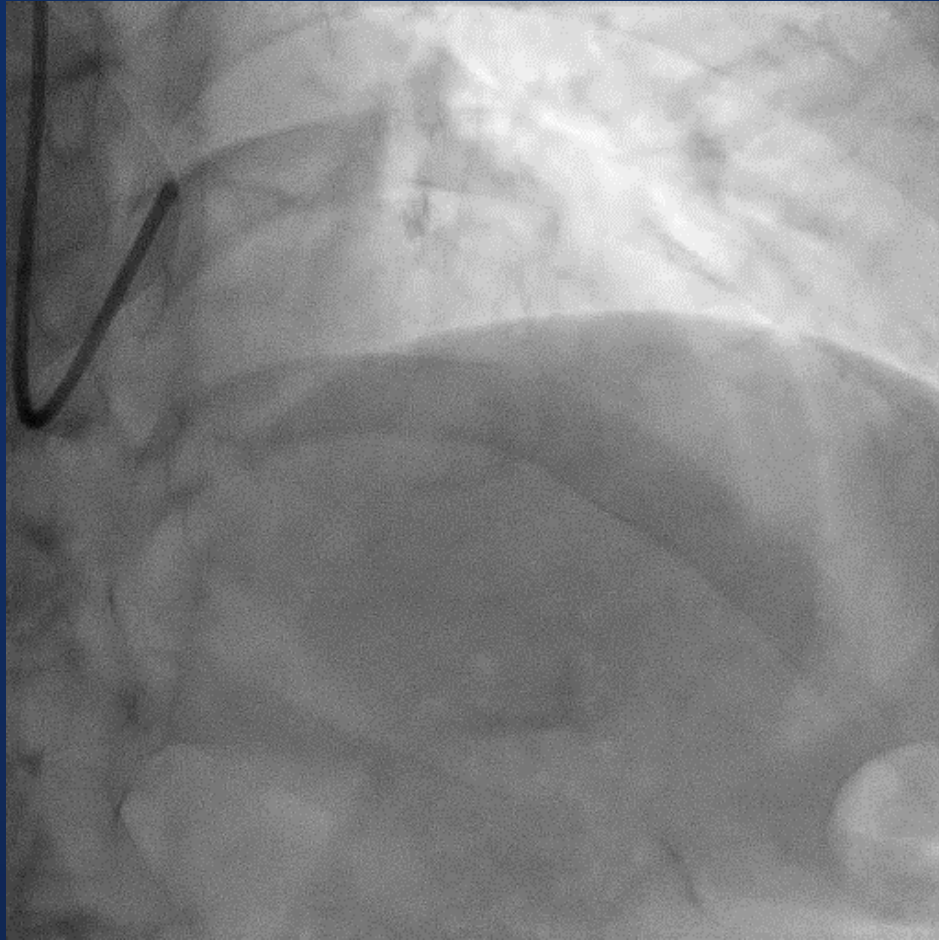
- Pulling technique
- Trapping balloon technique
- Snaring
- Plaque modification technique
- Telescoping technique
- Surgery

# Rota Entrapment

## *Management*

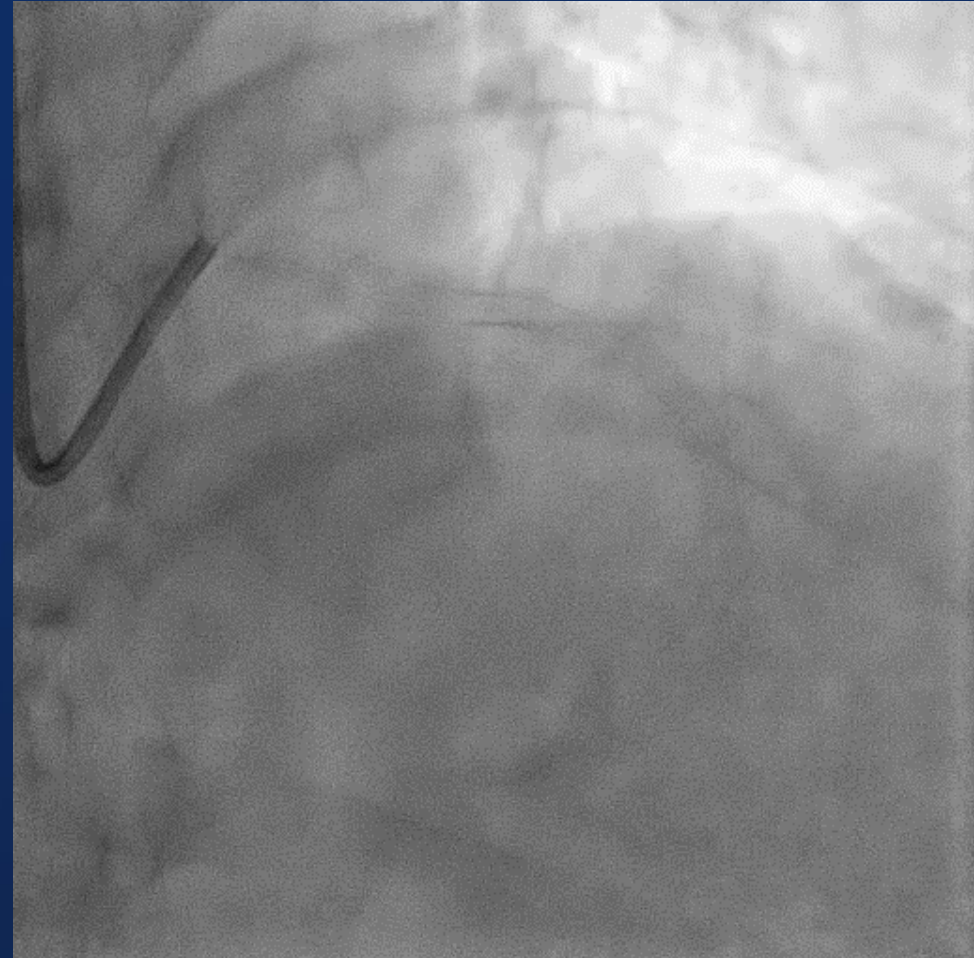
- Pulling technique
- Trapping balloon technique
- Plaque modification technique
- Telescoping technique
- Surgery

# Rota case





# Rota case



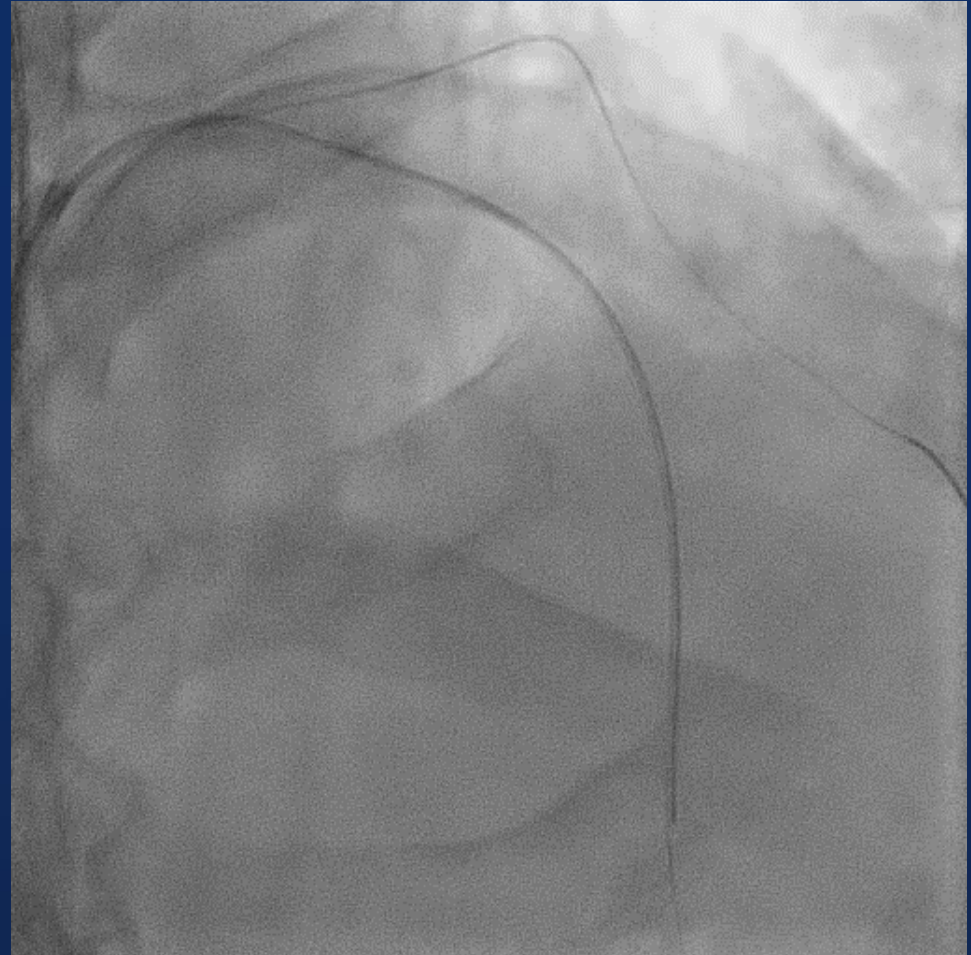
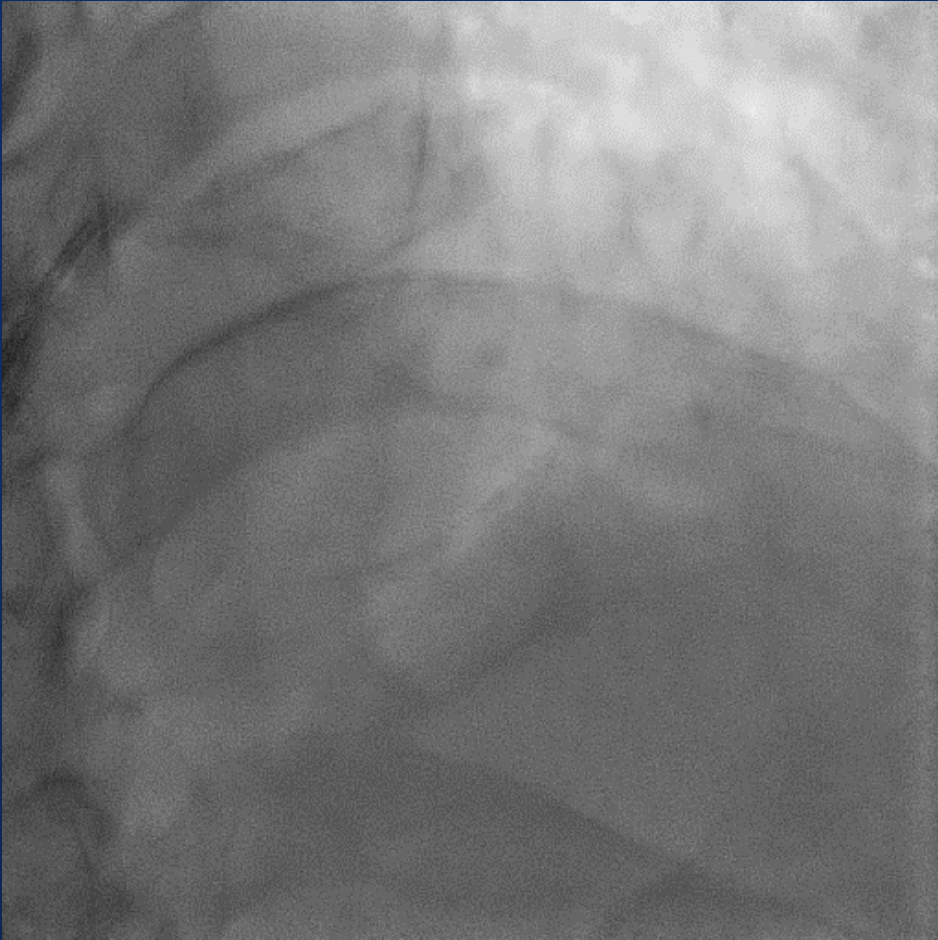


# IVUS, OCT Entrapment

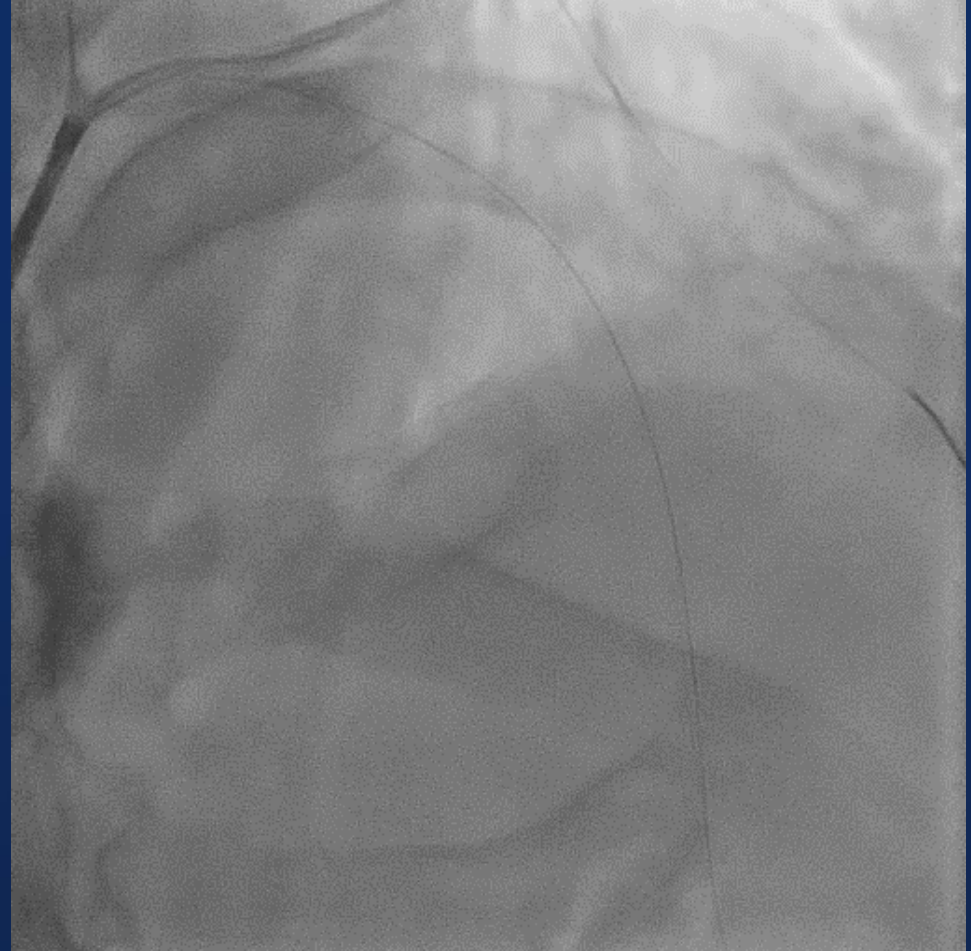
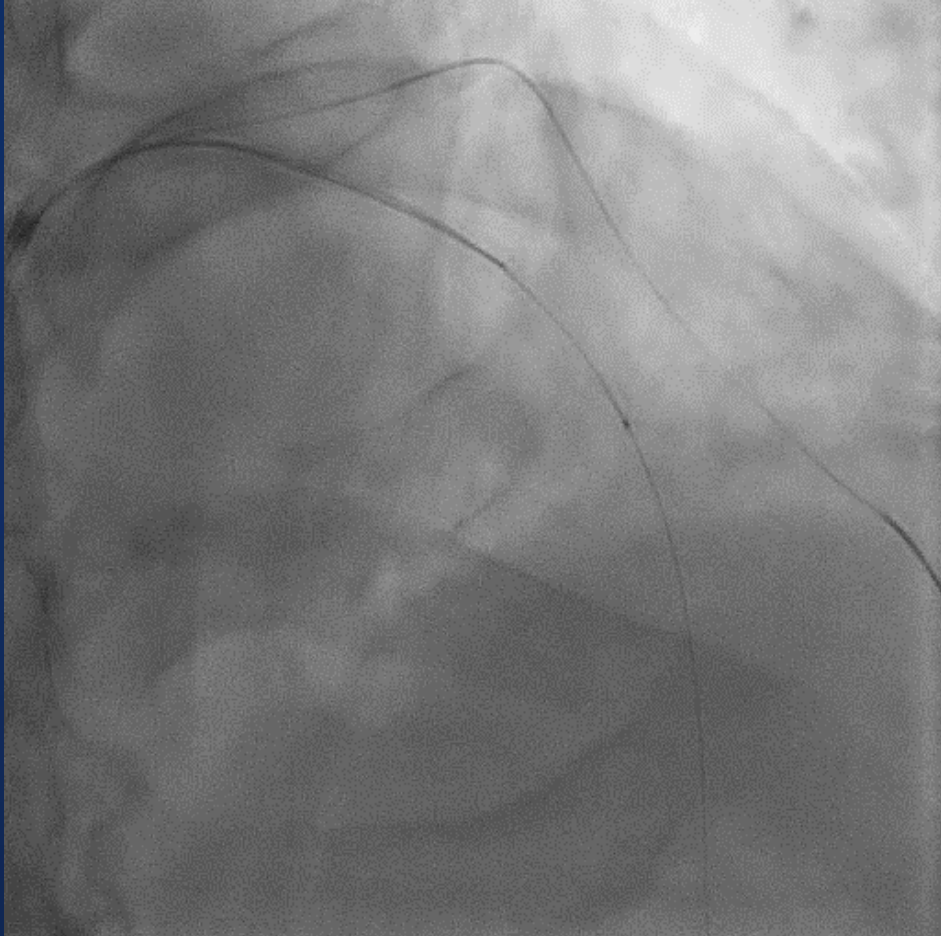
## *Management*

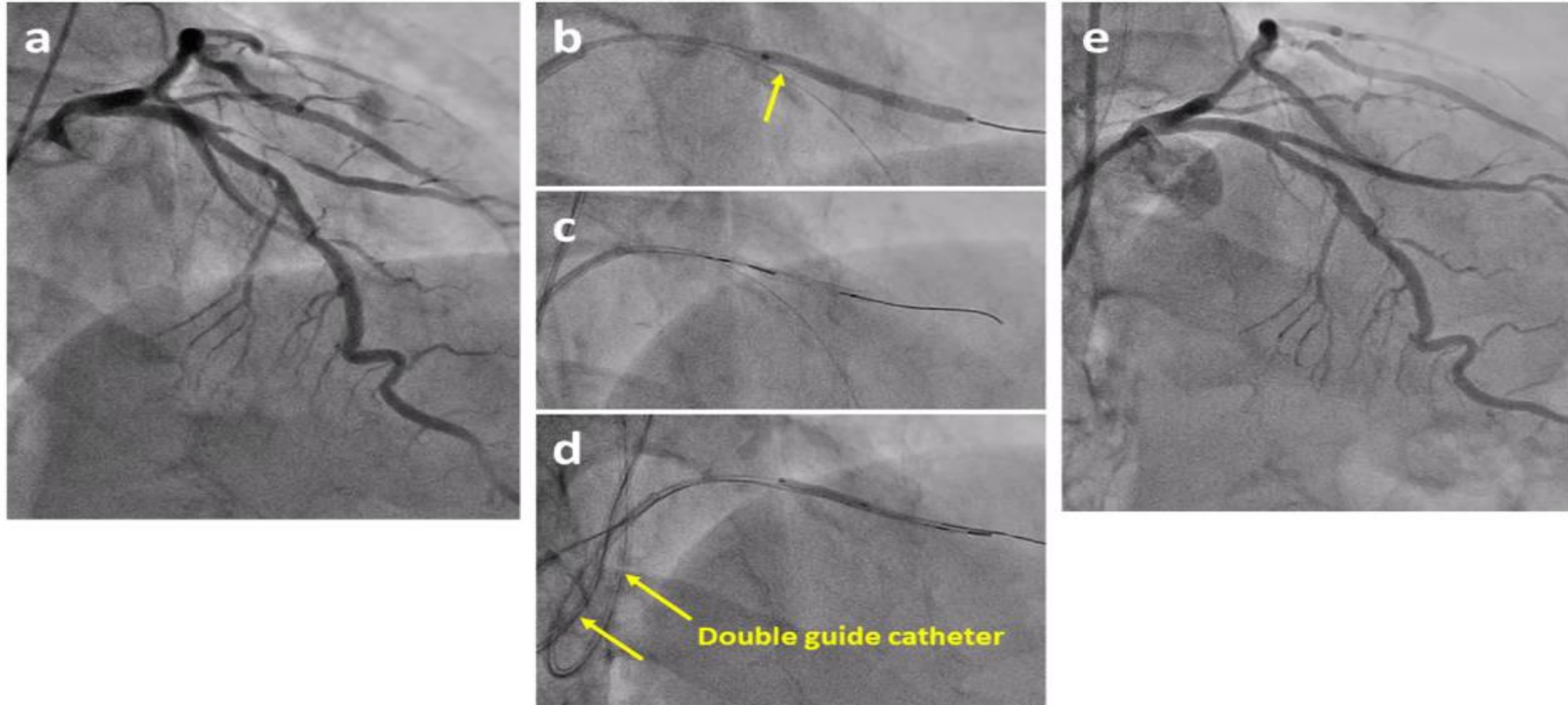
- Pulling technique
- Buddy wire technique
- Telescoping technique
- Double guide catheter
- Surgery

# IVUS case



# IVUS case







The list of the patients with IVUS catheter entrapment.

Age, sex	Target lesion	Tortuosity Calcification	Guide catheter	Stent Diameter/length	Cause of entrapment	Retrieval method
6Fr guide catheter						
67, M	LAD, segment 6 to 7	None	G 4.0	Resolute Integrity 3.0/12 mm	Stent underexpansion	Buddy wire
48, M	LCX, segment 13	None	IL 4.0, BL 4.0	Synergy 3.0/12 mm	Overlapping stents	Buddy wire
48, M	LCX, segment 13	Yes	IL 4.0, BL 4.0	Synergy 2.25/32 mm	Bended stent	Double guide catheter
68, M	First diagonal branch	Yes	IL 4.0, BL 4.0	Synergy 2.25/32 mm	Stent underexpansion	Double guide catheter
68, M	First diagonal branch	None	IL 4.0, BL 4.0	Synergy 2.25/32 mm	Stent underexpansion	Double guide catheter
77, F	LAD, segment 7		Cypher			Surgical removal and CABG
67, M	LCX, segment 13		Micro driver 2.5/18 mm		Atlantis SR Pro	Surgical removal and CABG
54, M	LAD, segment 7		Cypher 3.0/33 + 2.5/28 mm		Atlantis SR Pro	Surgical removal and CABG
66, M	LCX, segment 13	Yes	SL 4.0	2.5/33 mm Synergy	Stent underexpansion	Buddy wire
68, F	LCX, segment 11	Yes	SL 4.0	2.25/20 mm Synergy	Bended stent	Buddy wire
69, M	LCX, segment 13	Yes	BL 3.5	2.25/16 mm Ultimaster	Stent underexpansion	Buddy wire
		None		2.25/28 mm	Bended stent	

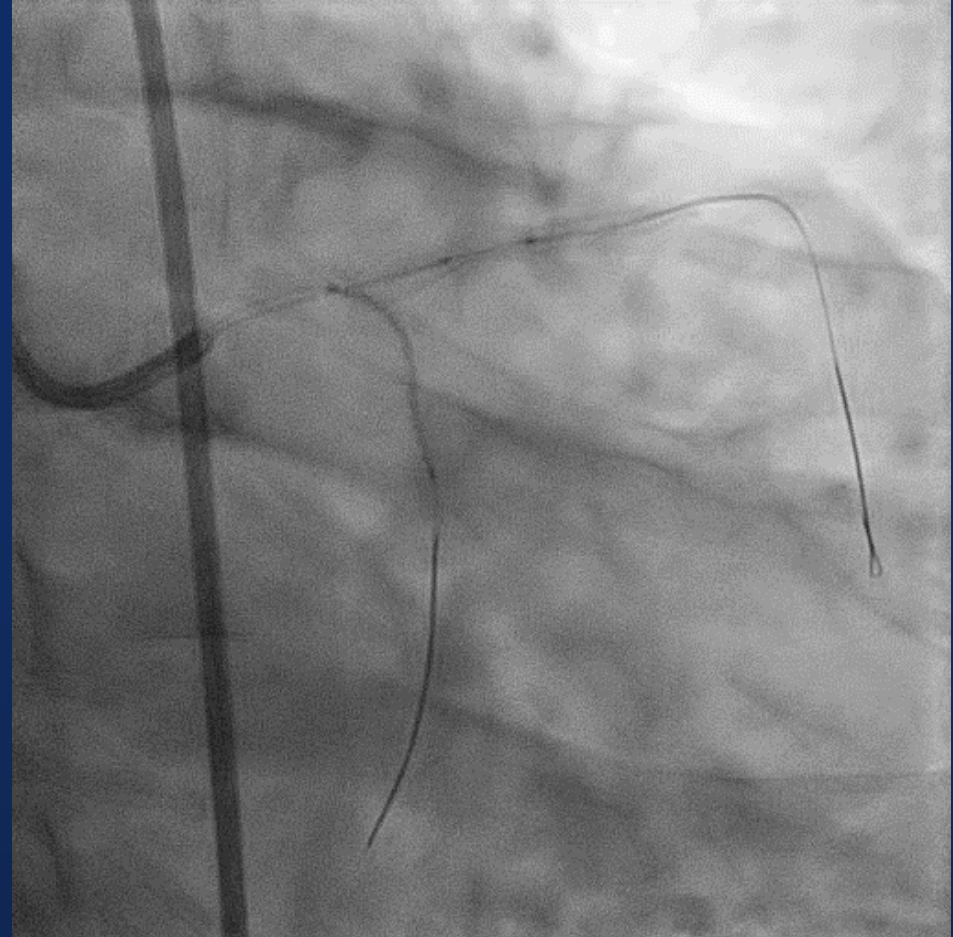
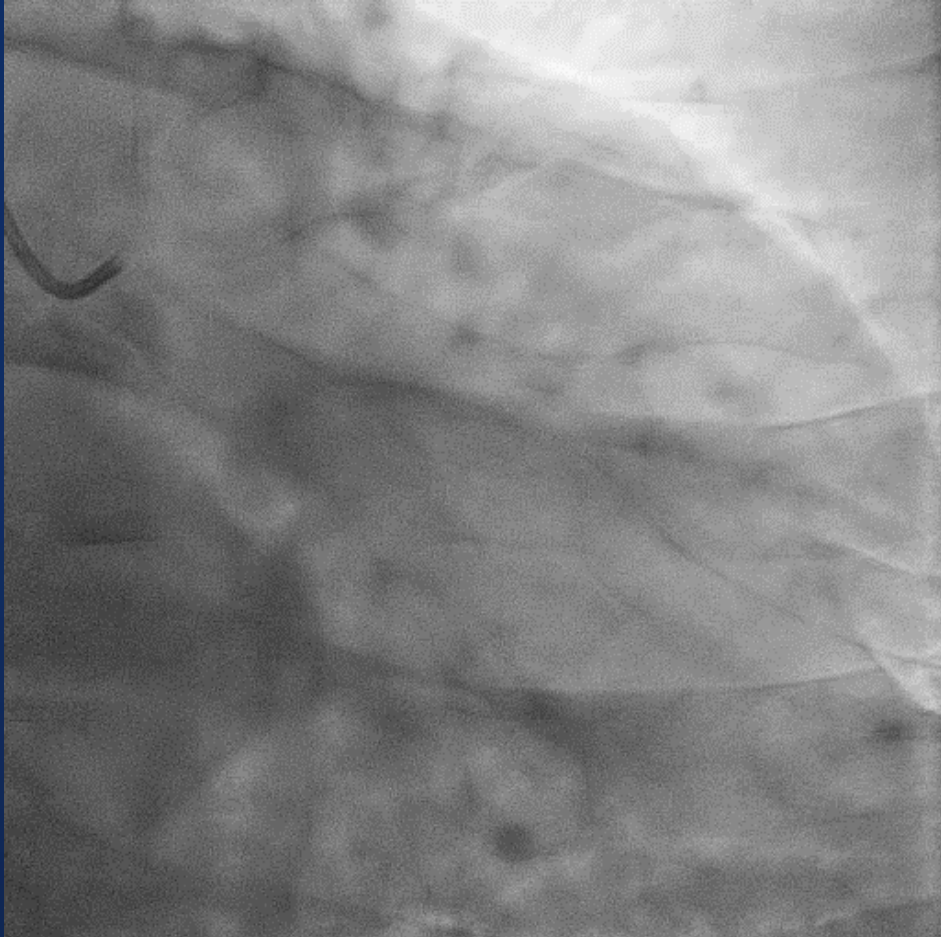
M, male; F, female; LAD, left anterior descending artery; LCX, left circumflex artery; RCA, right coronary artery; G, Global curve (Profit, Goodman corp., Nagoya, Japan); IL, Ikari Left (Heartrail, Terumo Corp., Tokyo, Japan); BL, Back up Left (Heartrail); JR, Judkins Right (Heartrail); JL, Judkins Left (Heartrail); SL, Judkins Left (short tip) (Heartrail).

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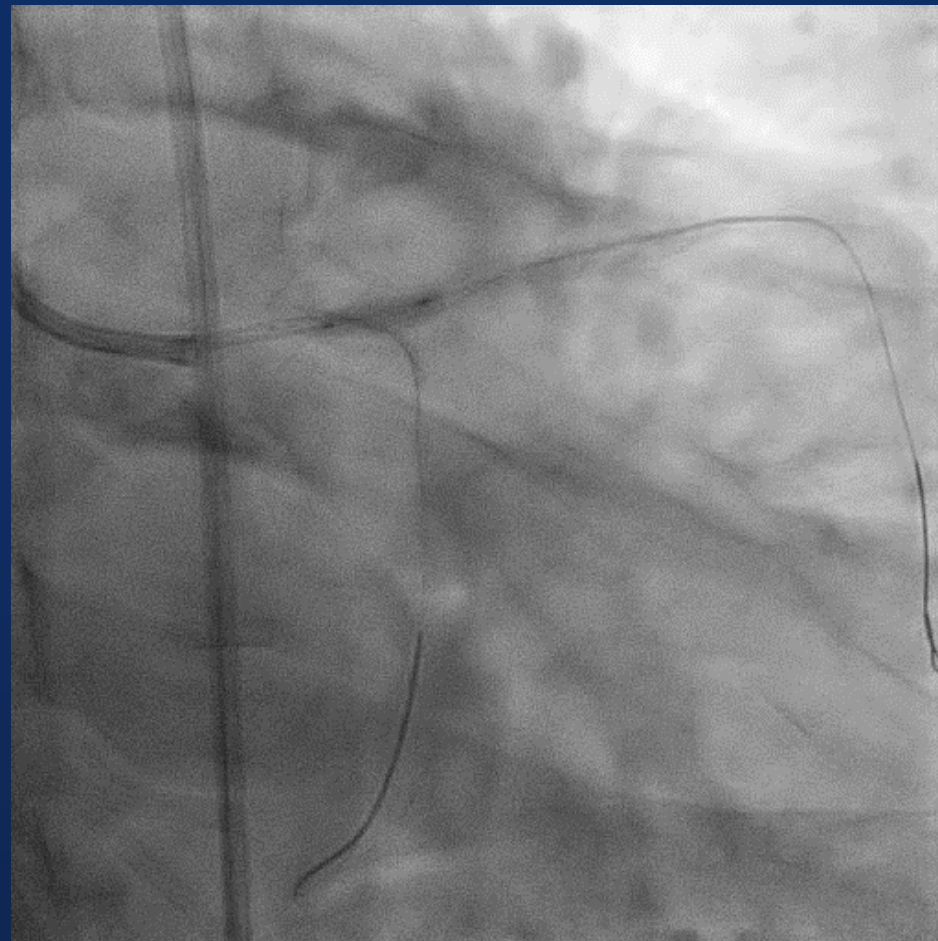
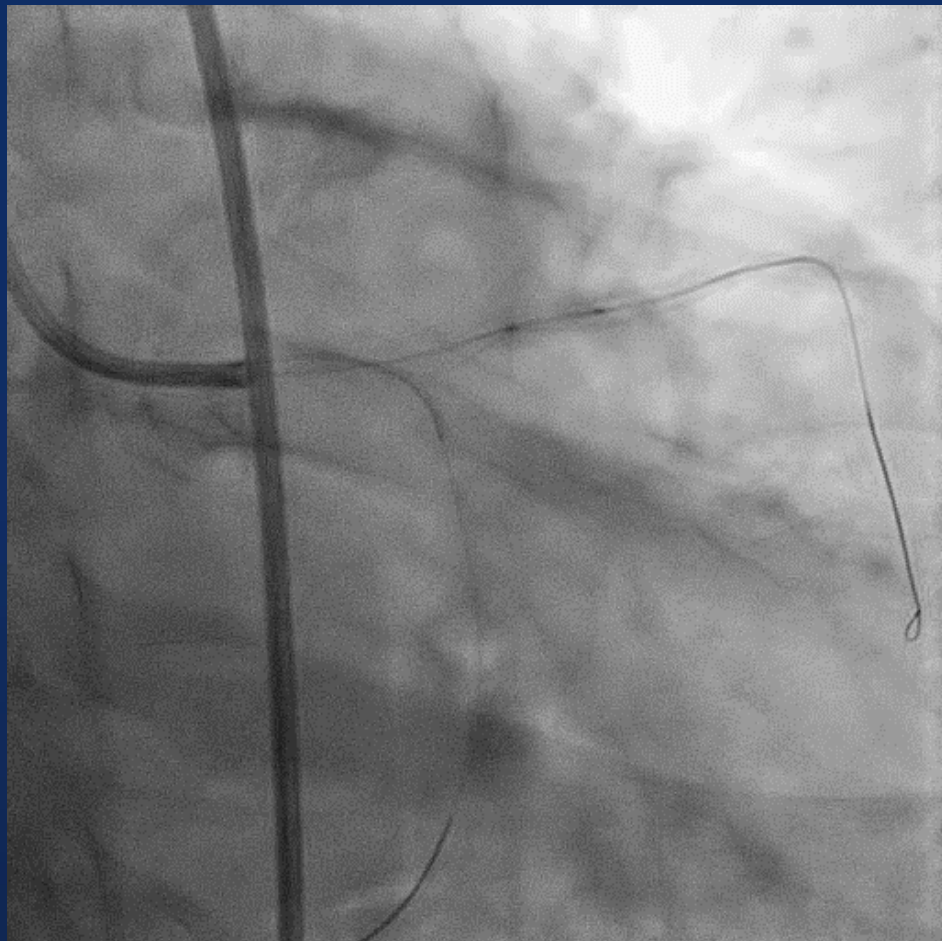
# CASE I

*stent entrapment*



# CASE I

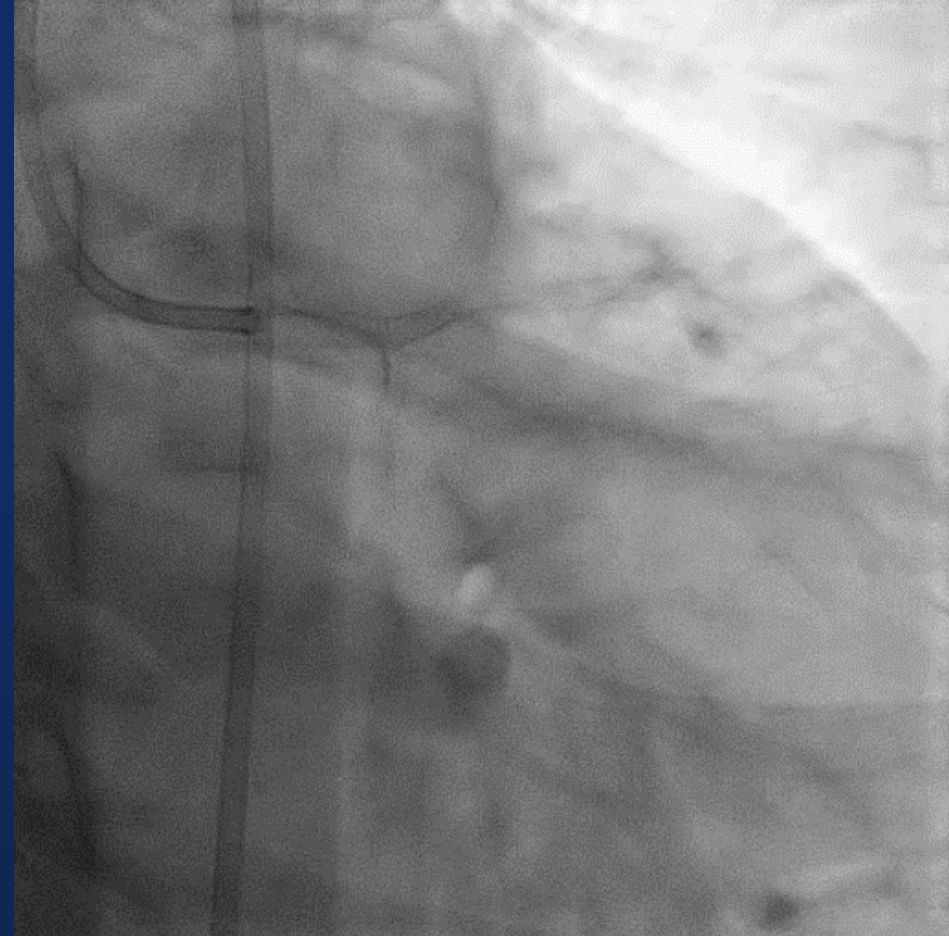
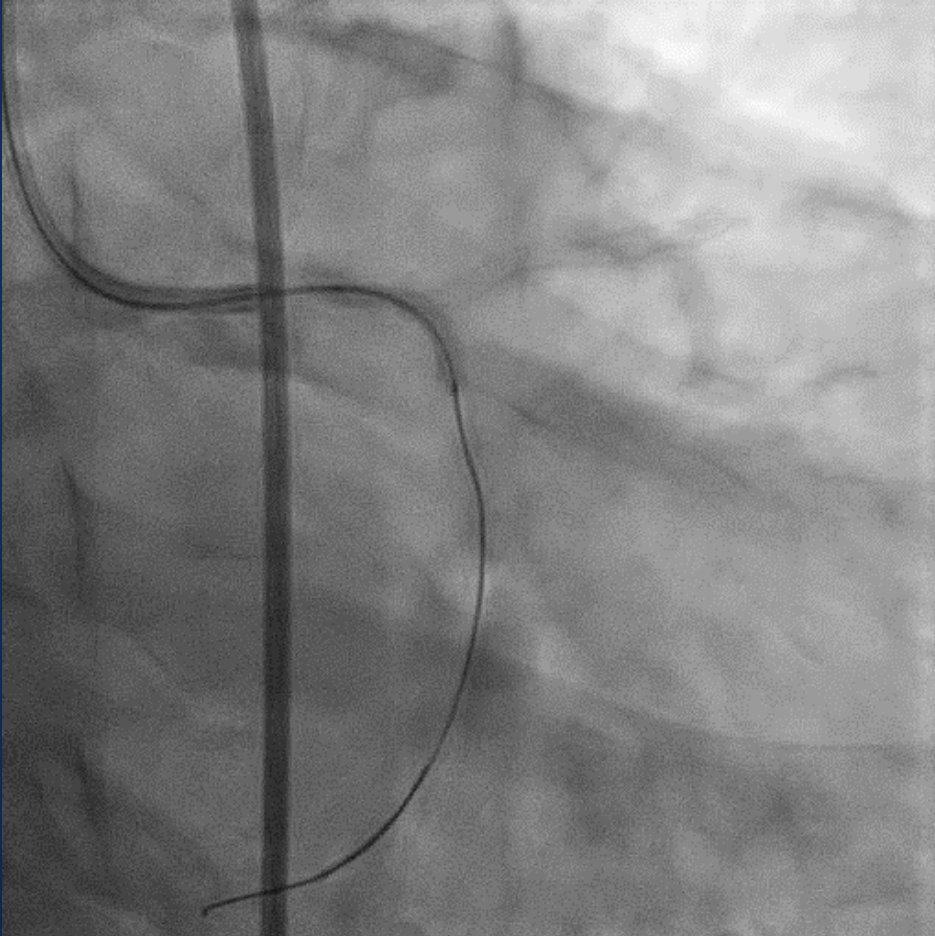
*stent entrapment*





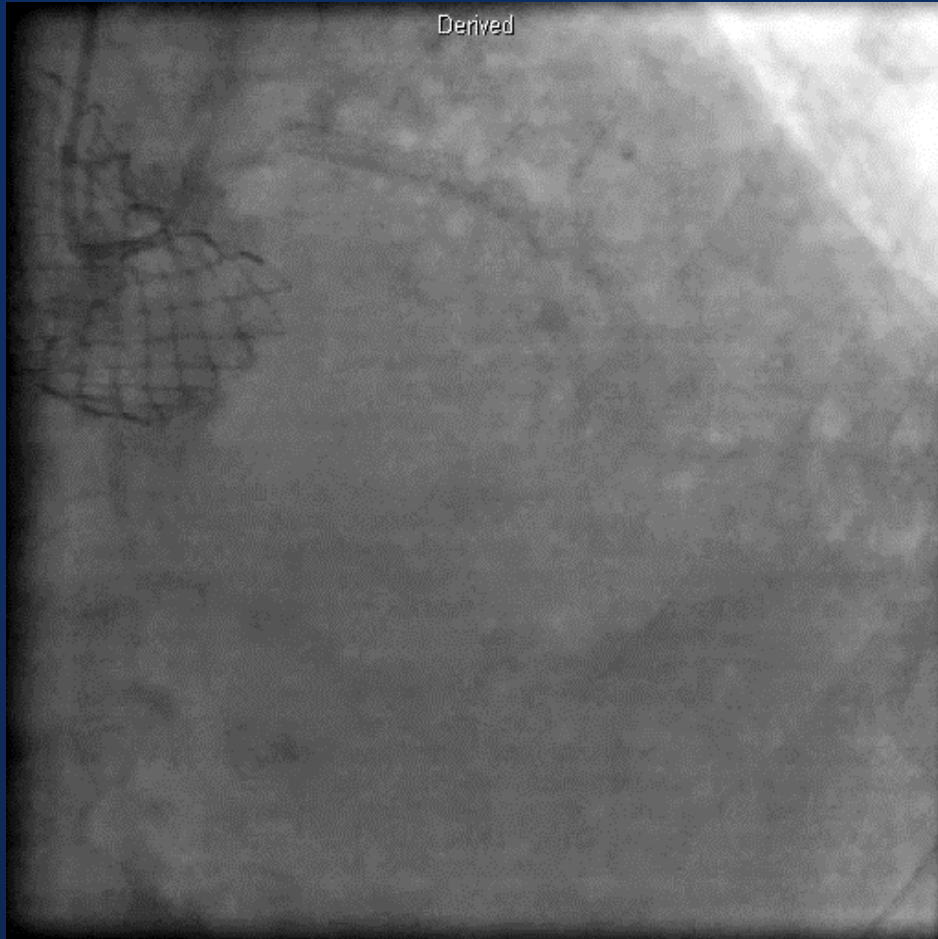
# CASE I

*stent entrapment*



# CASE II

## *Guiding Cather*



# CASE II

## *Guiding Cather*





# CASE II

## *Guiding Cather*



# CASE III

## Sheath Fracture



# CASE III

## *Sheath Fracture*



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- Etc case of our center
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# Summary

- Prevention
- Management (pulling, trapping, snaring, plaque modification, telescoping)
- Surgery



**Thank you for your attention!**

**Ju Chan KIM**  
**Cardiovascular center,**  
**Chonnam National University hospital**