Inferior Role of OMT Versus PCI

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Presenter Disclosure Information

Within the past 12 months, the presenter or their spouse/partner have had a financial interest/arrangement or affiliation with the organization listed below.

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Patents *-- RF, Snares, Wires, Balloon Catheters, Covered Stents, Devices for Arterial Venous Connection, Devices for LV and RV Closure, Vascular Access Patents*

4th Annual Symposium

Cardiovascular Disease Management:
A Case-Based Approach

Richard R. Heuser, MD, FACC
Program Director

October 13 & 14, 2016
Arizona Biltmore, Phoenix, Arizona

Nursing Symposium will take place
October 12, 2016 from 12:00 – 5:00 pm

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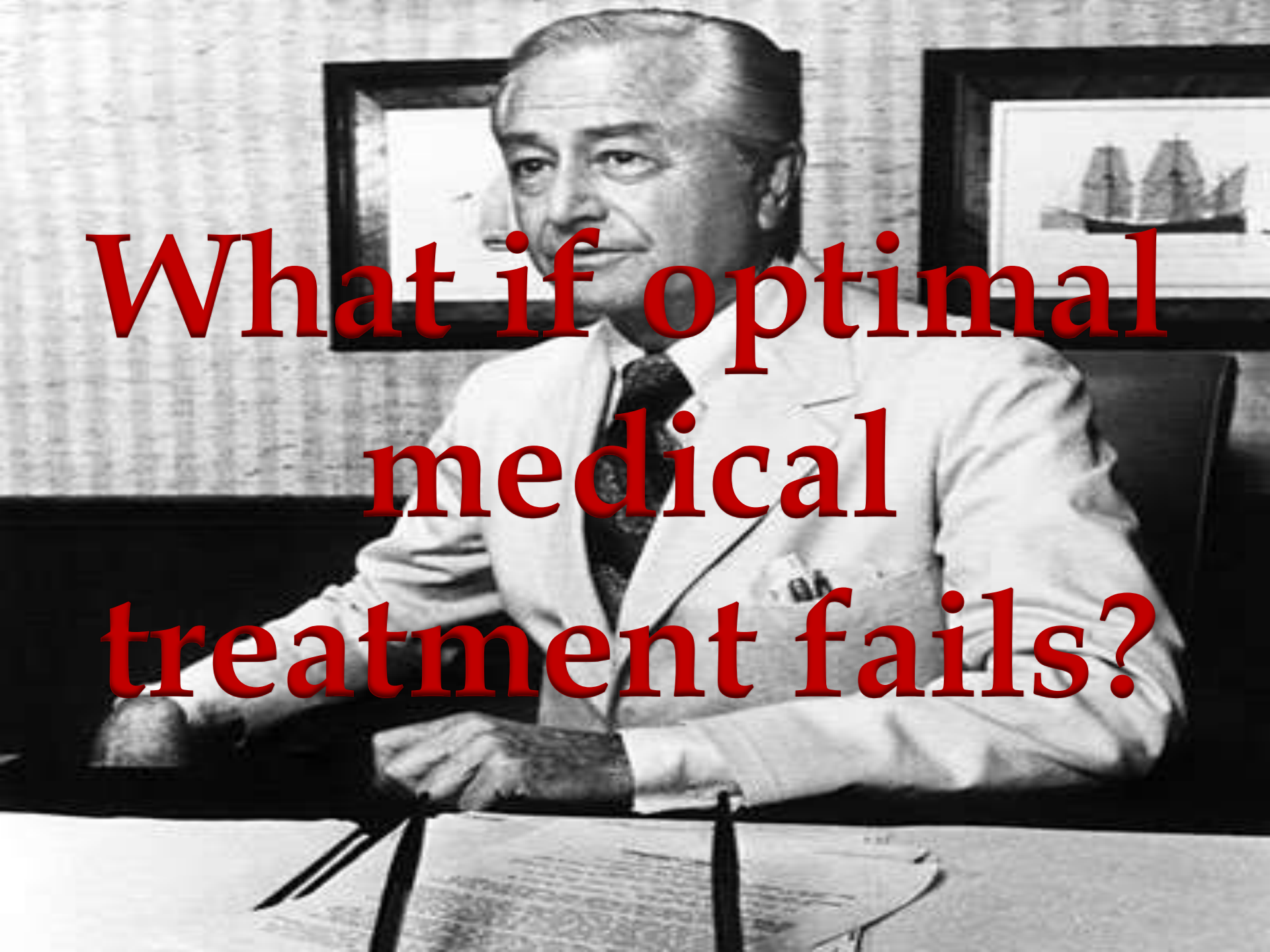
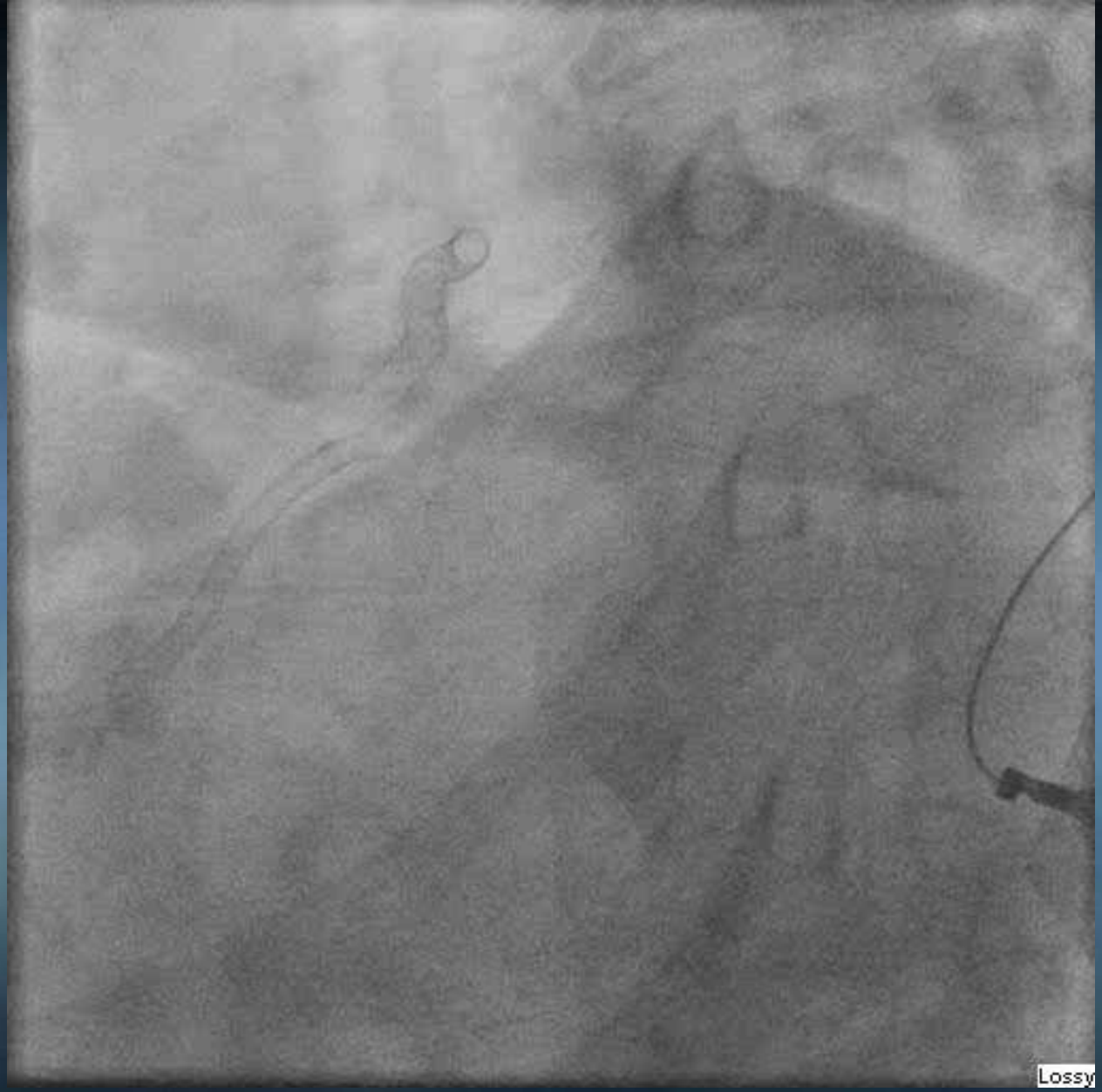
A 67 year old Hispanic female has had multiple stents in the past. She presents with a 2 year history with angina that has accelerated; however, her troponins are normal and she has no EKG changes.


What if optimal medical treatment fails?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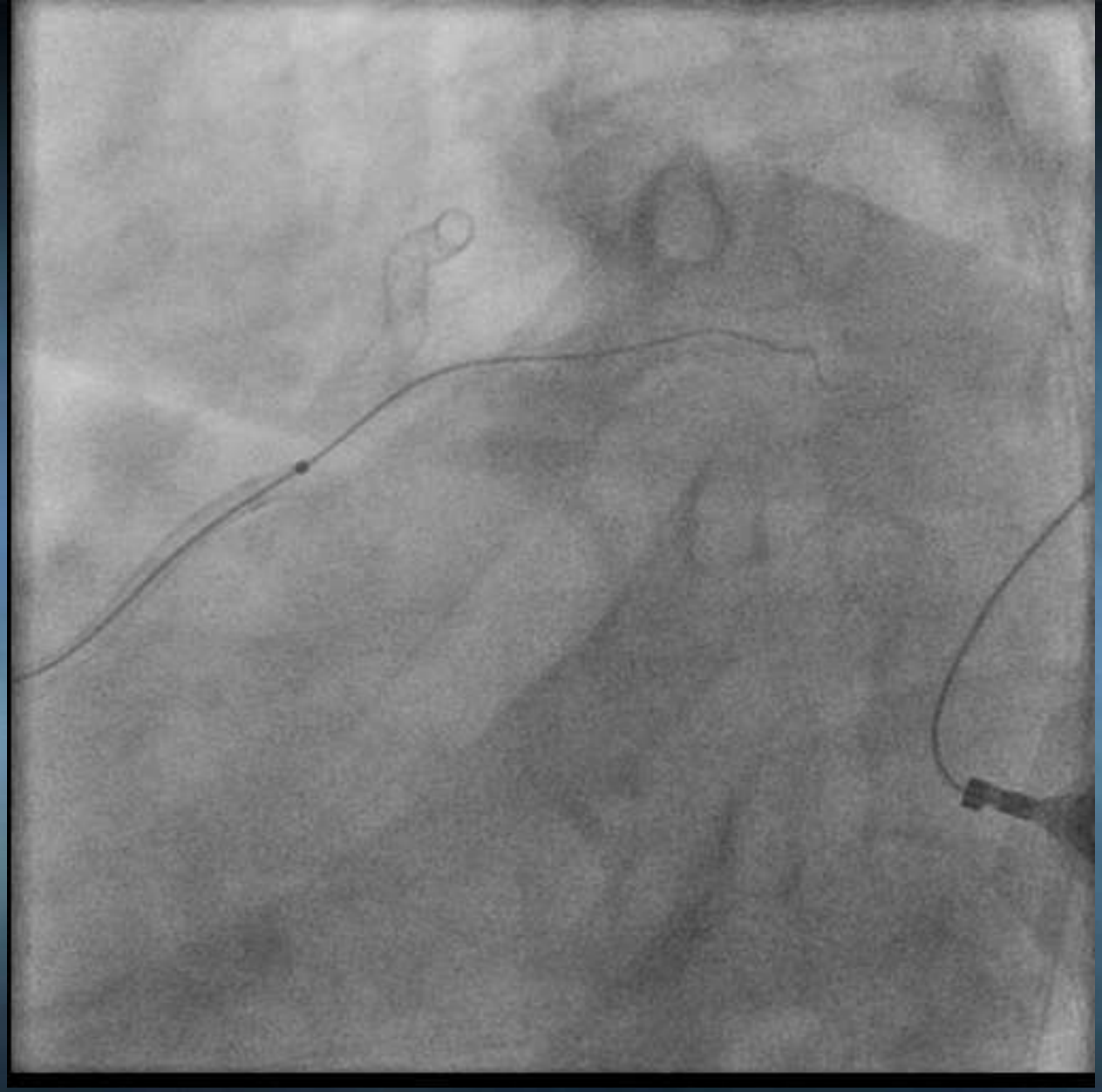
Lossy

I can't cross any device from the wrist…no support…well let's just optimize meds and send home**…(Doesn't work)**


Lossy

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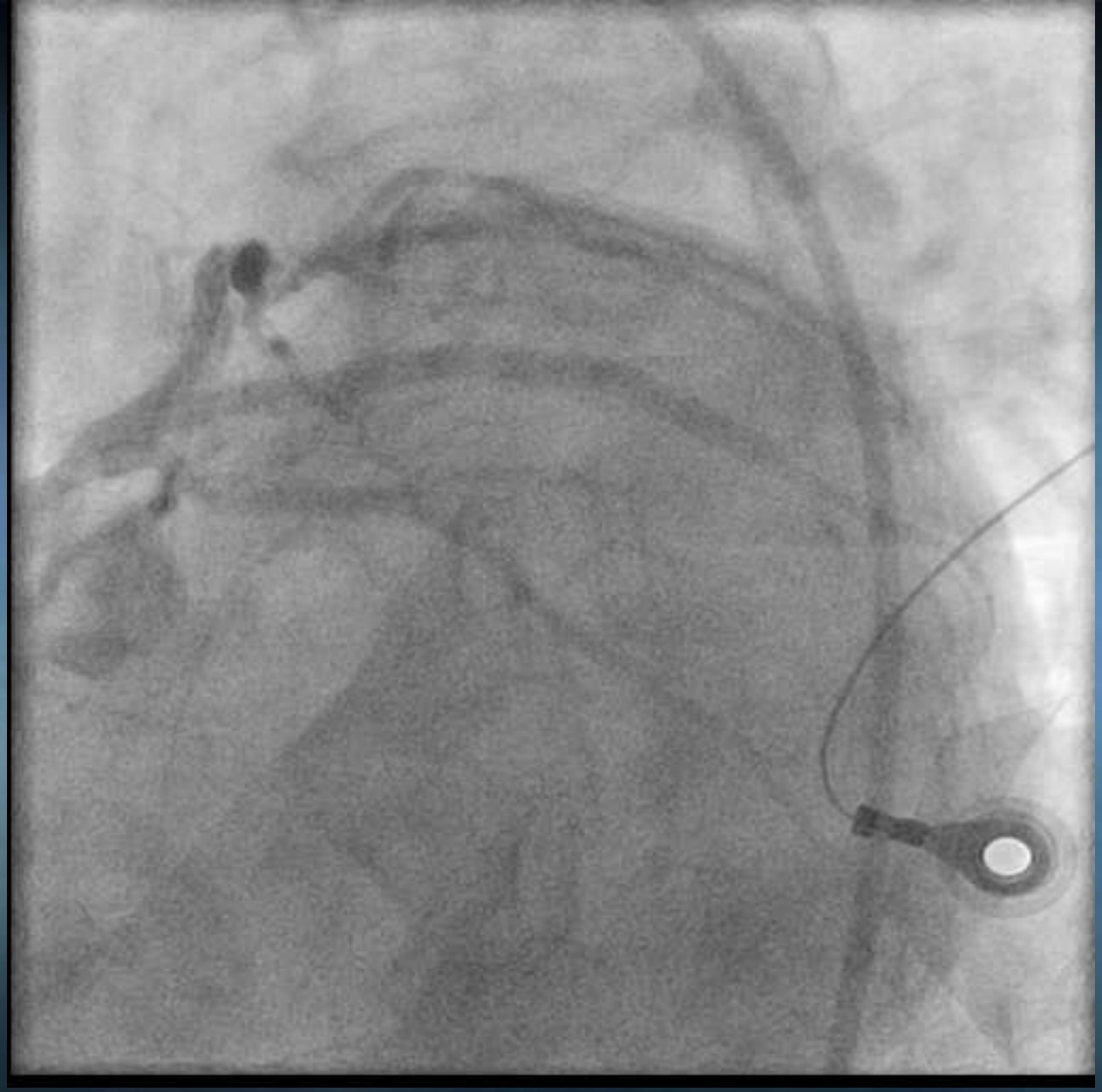

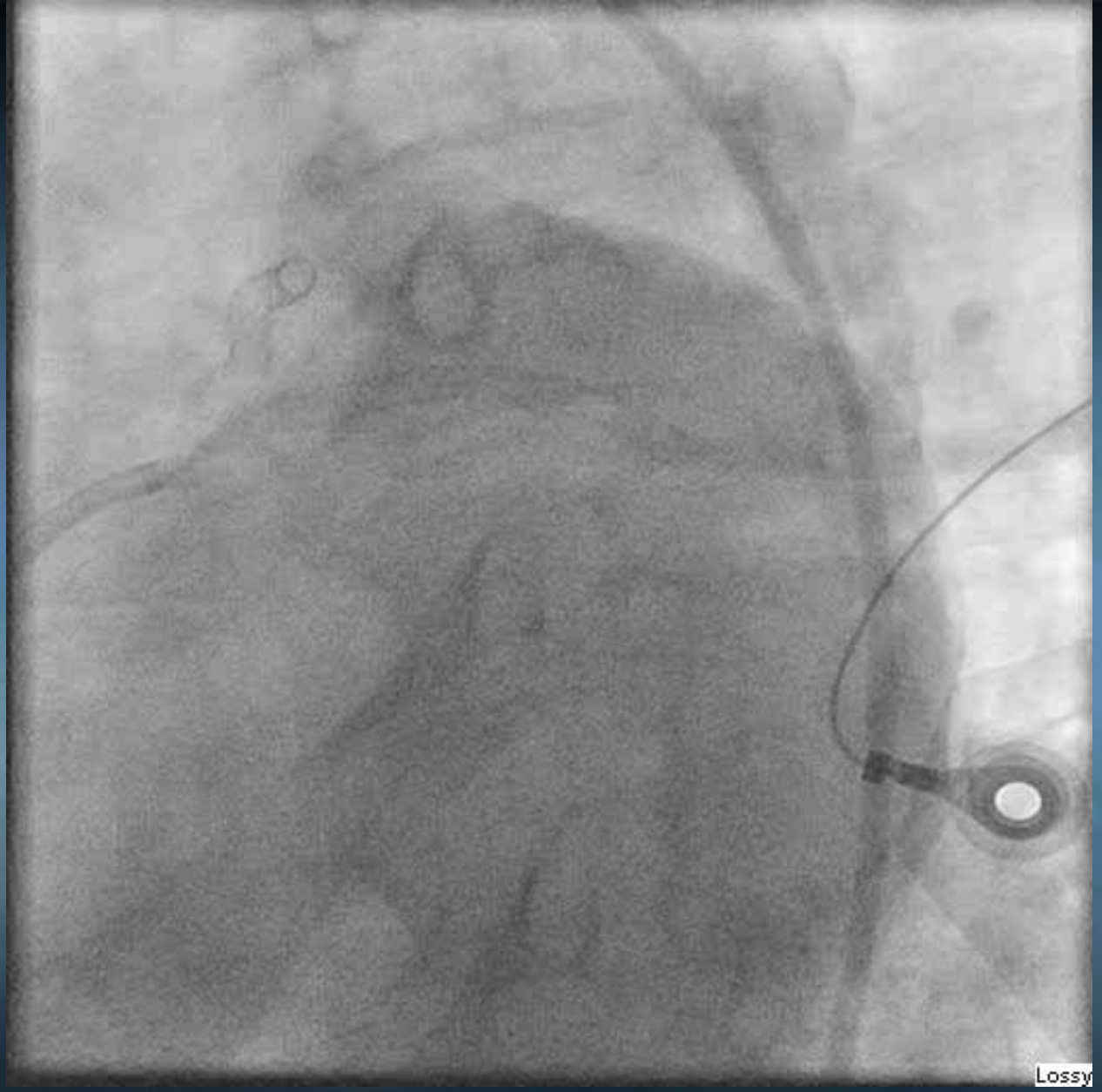
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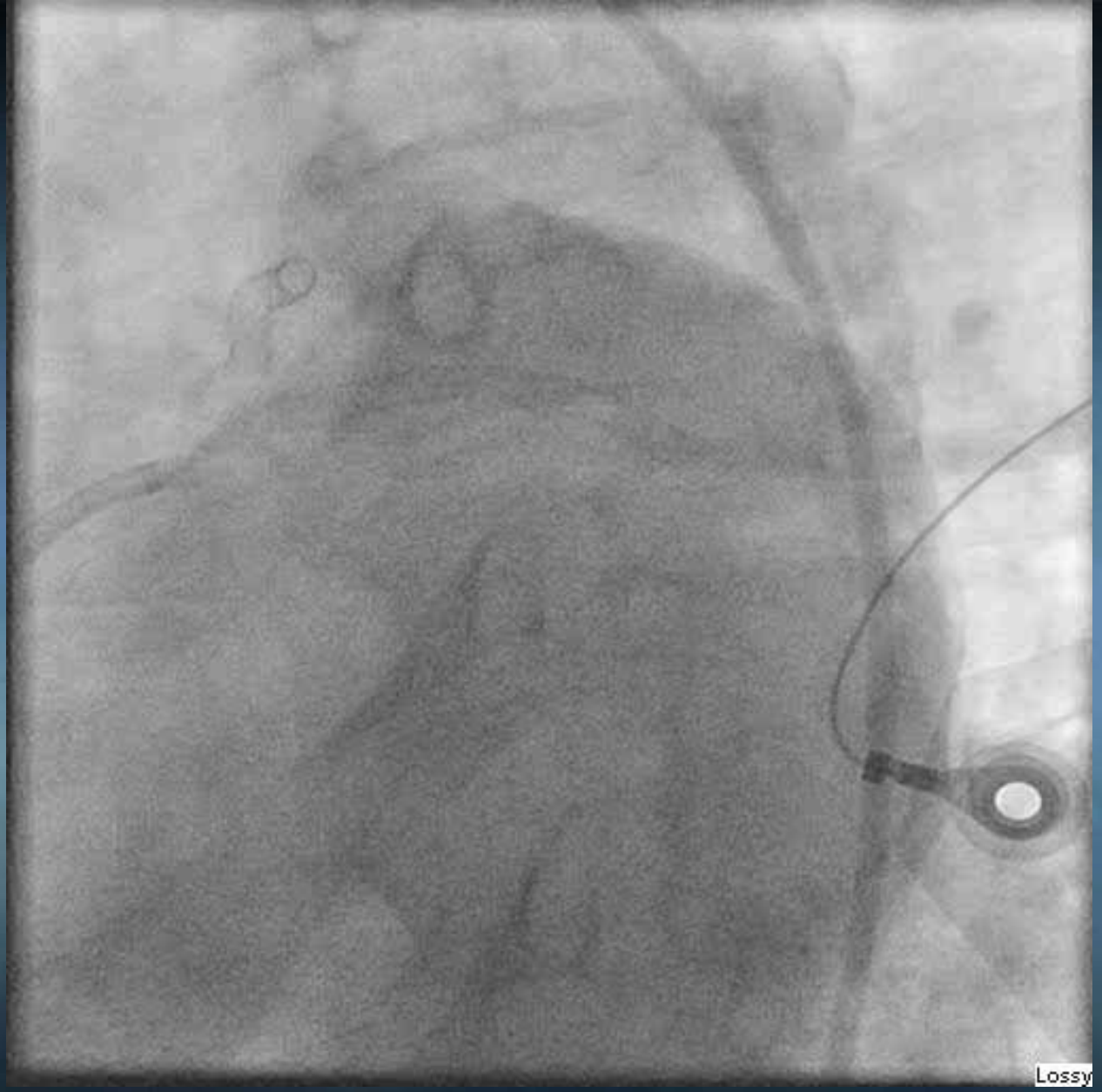
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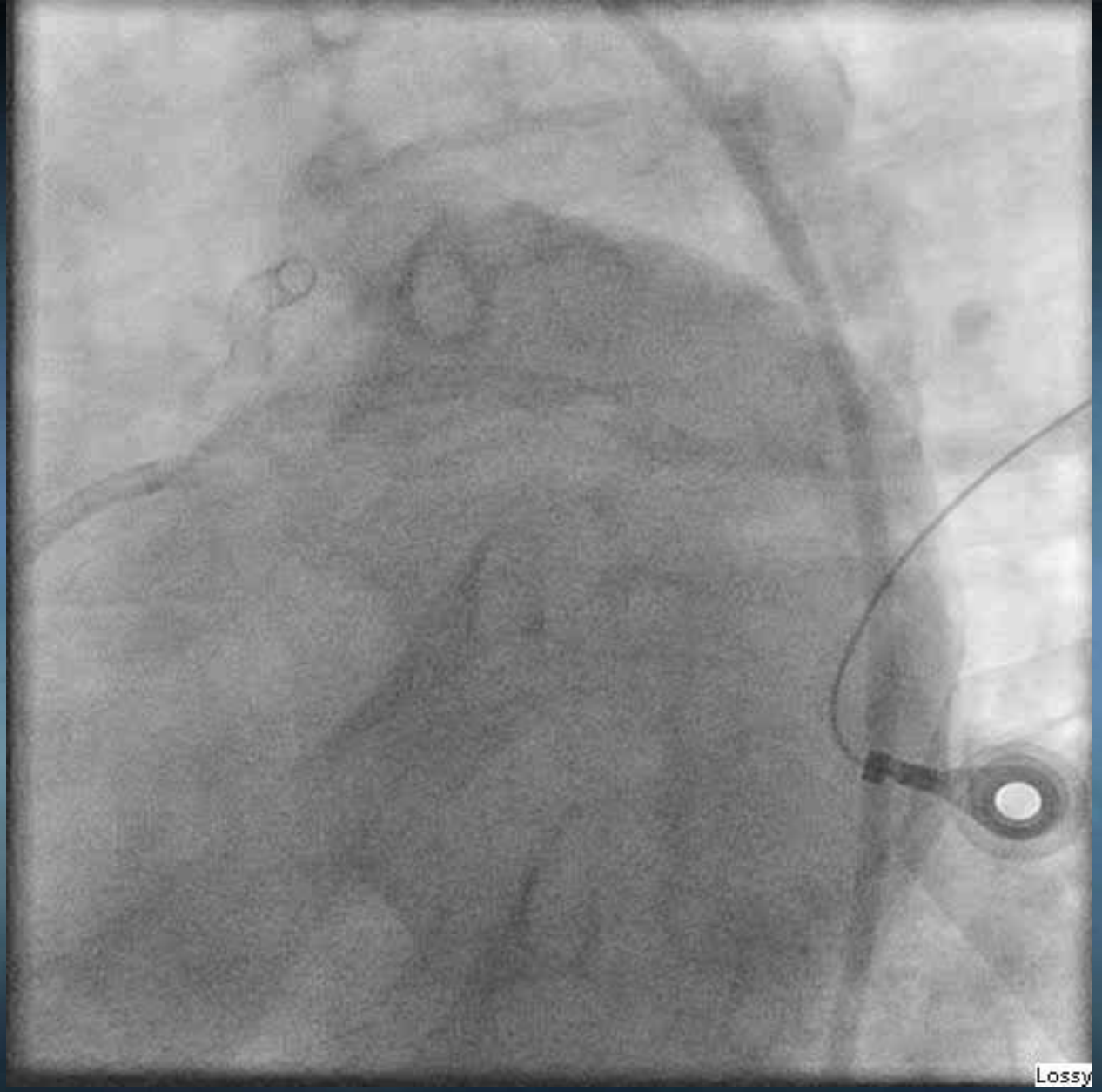
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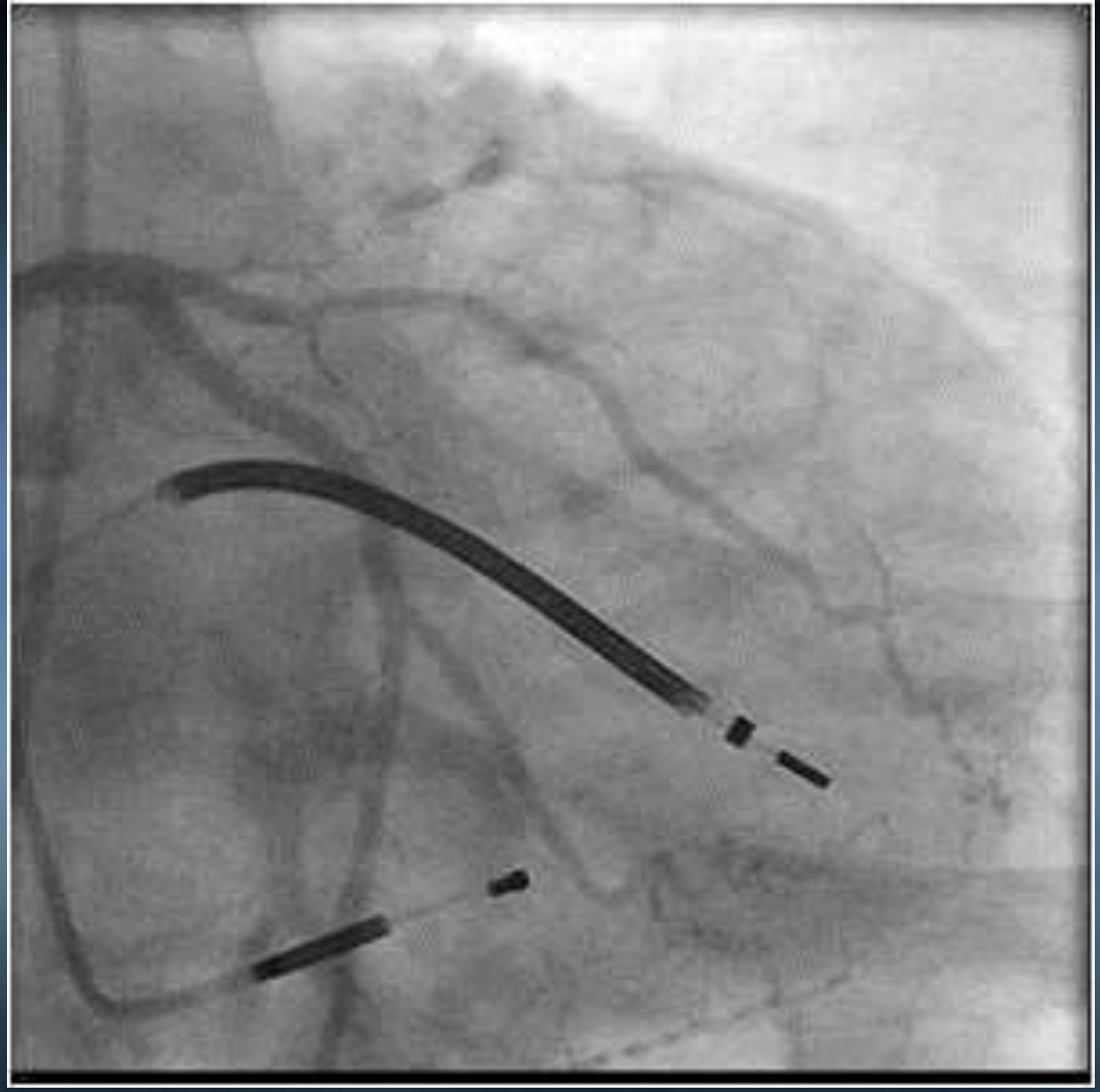
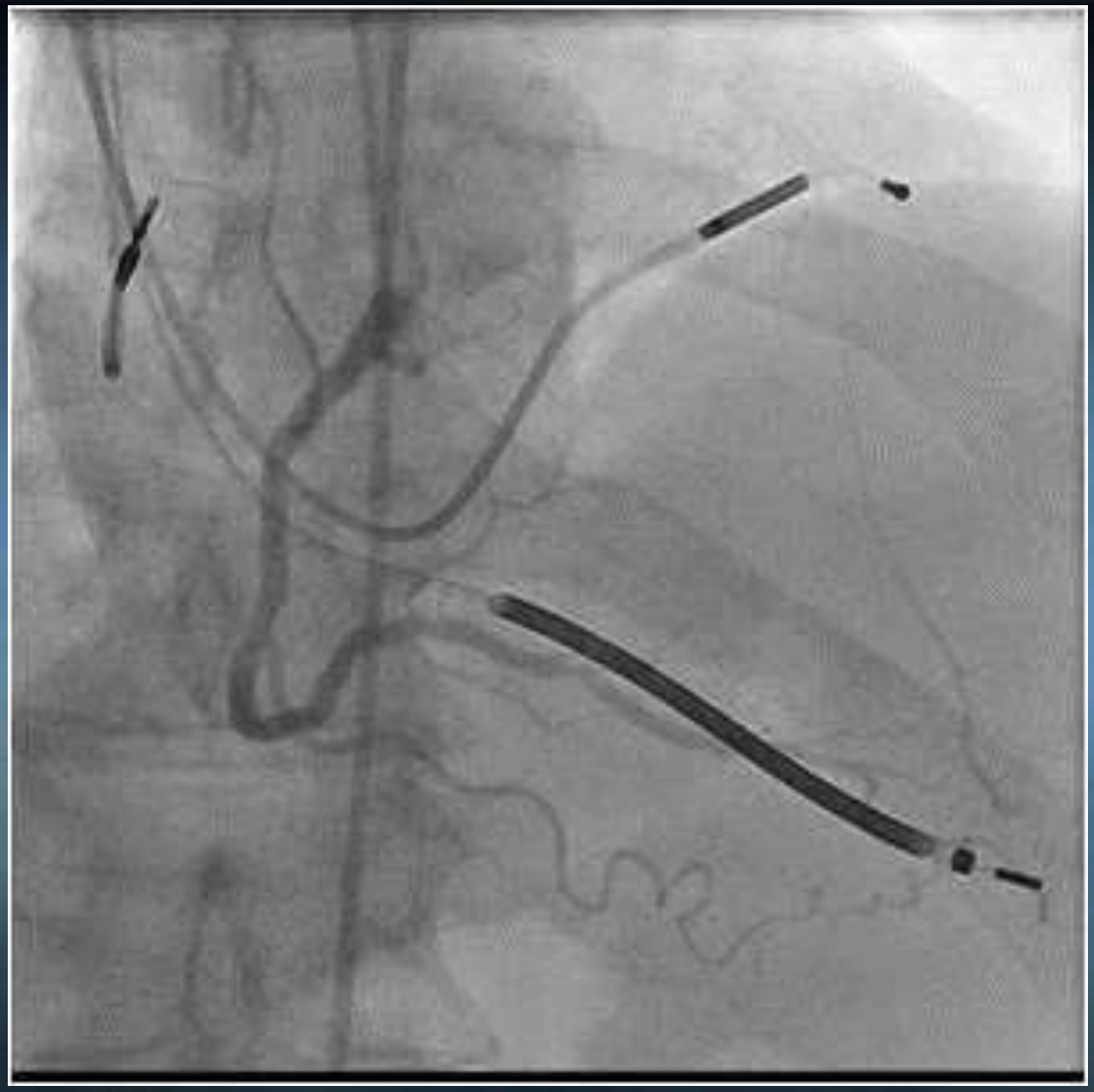
A 70 year old gentleman presented with dyspnea in 2012.

His ejection fraction at that time was 17% with apical and septal ischemia. He had a known 6 year old occlusion of his LAD.

He underwent successful recanalization of this 6 year old chronic occlusion of his LAD as part of the EXPERT trial.

Now he presents with peri-infarction, anterior ischemia and an ejection fraction of 59%. He undergoes angiography.





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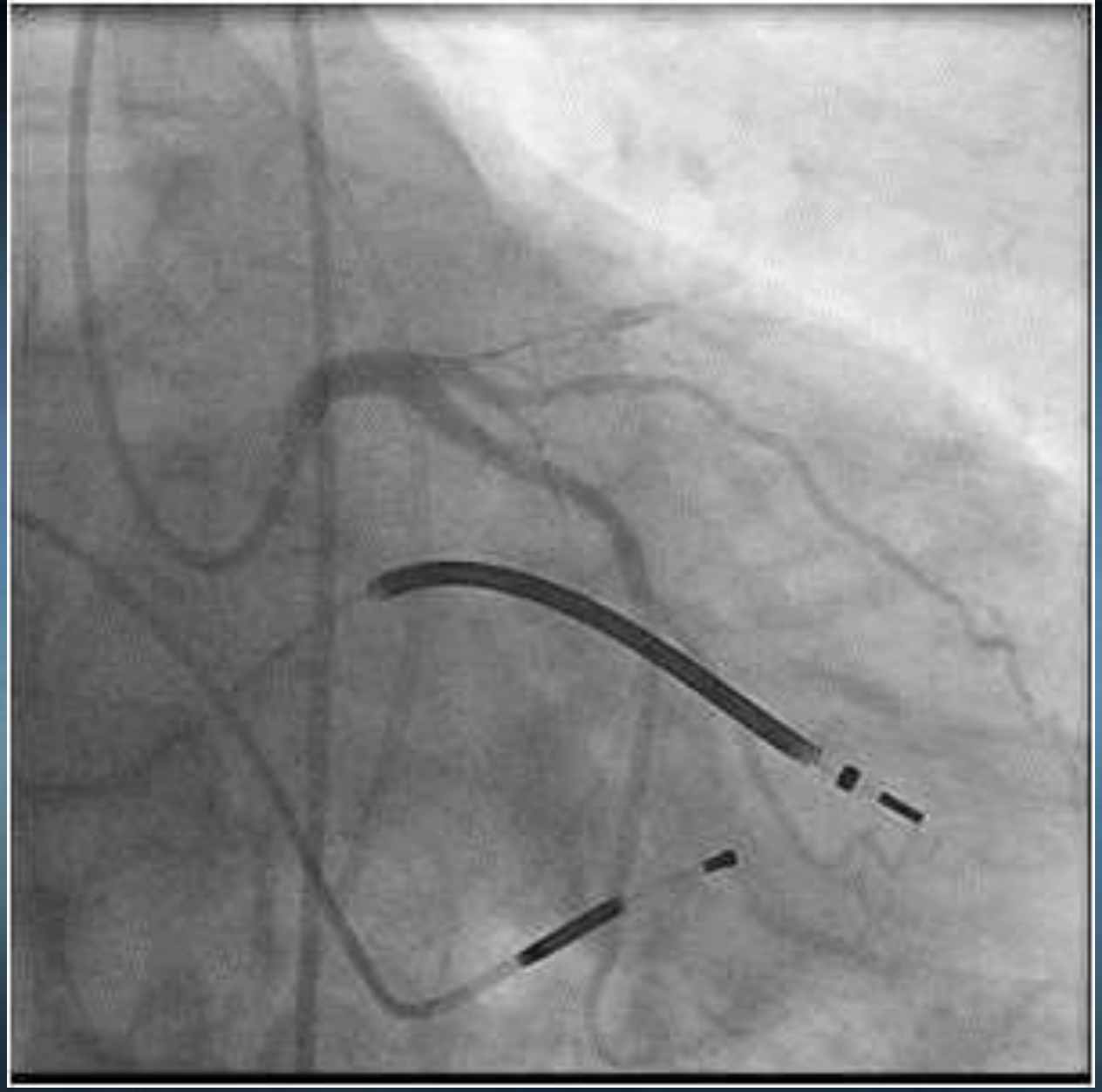
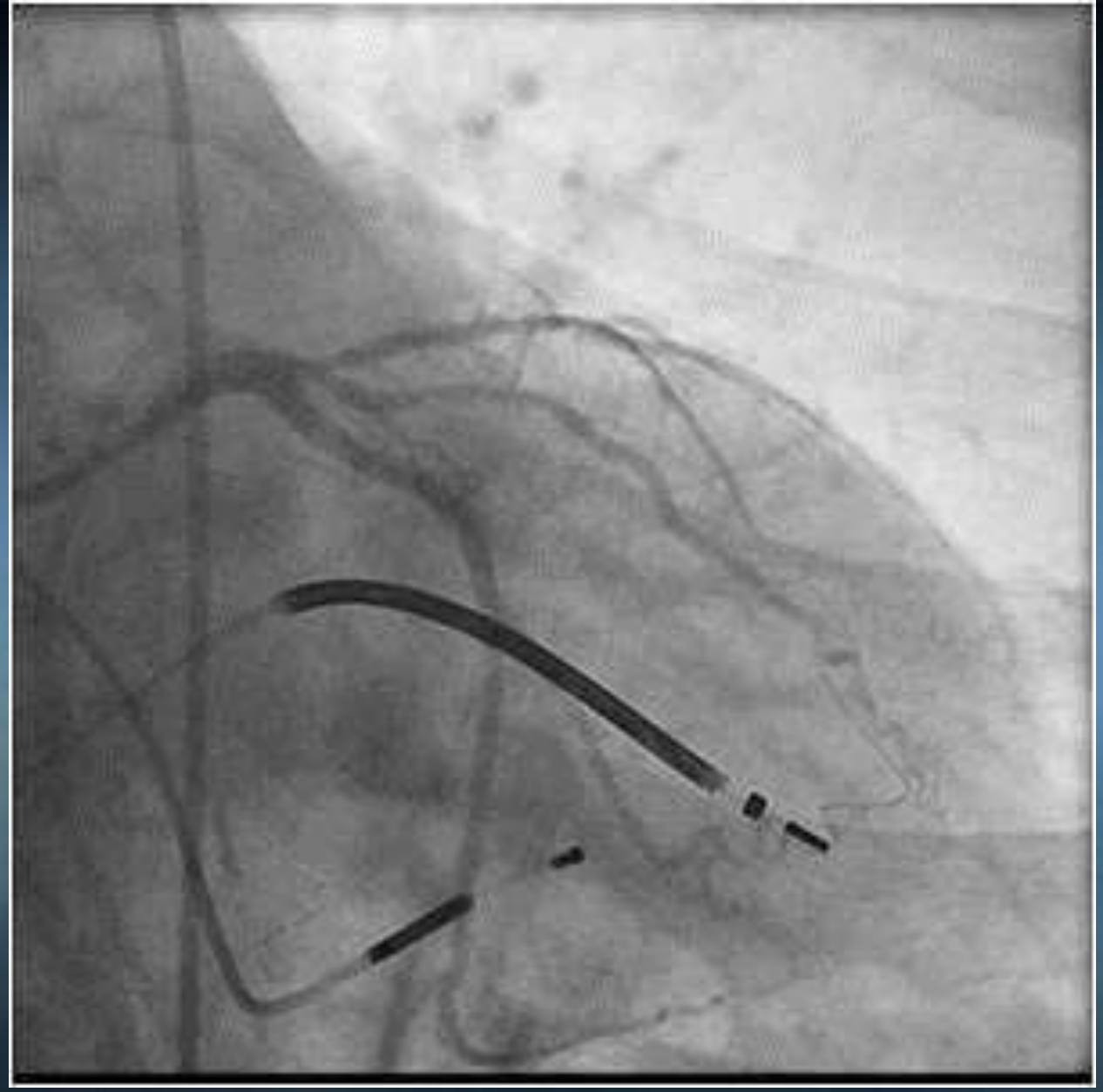
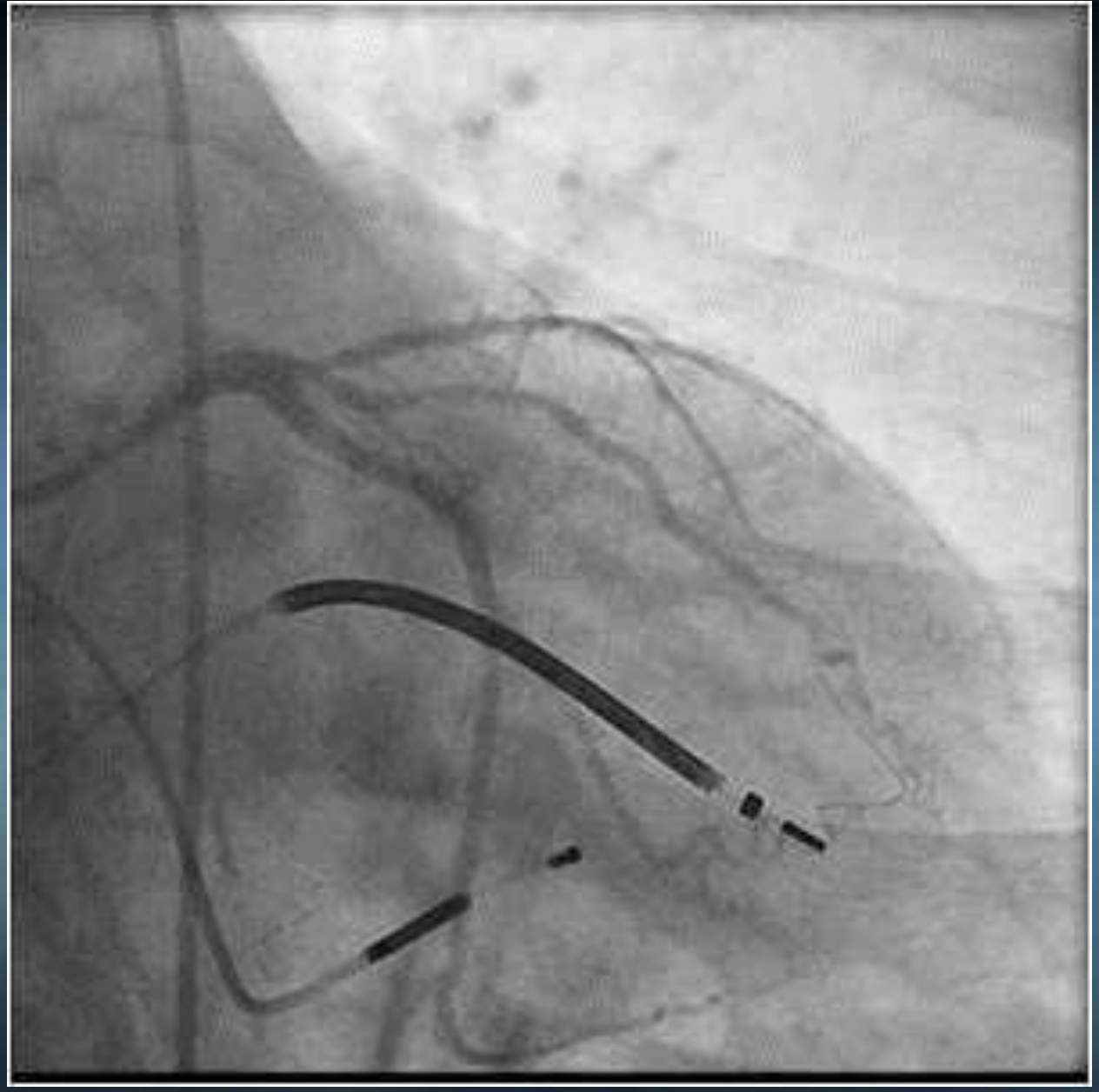
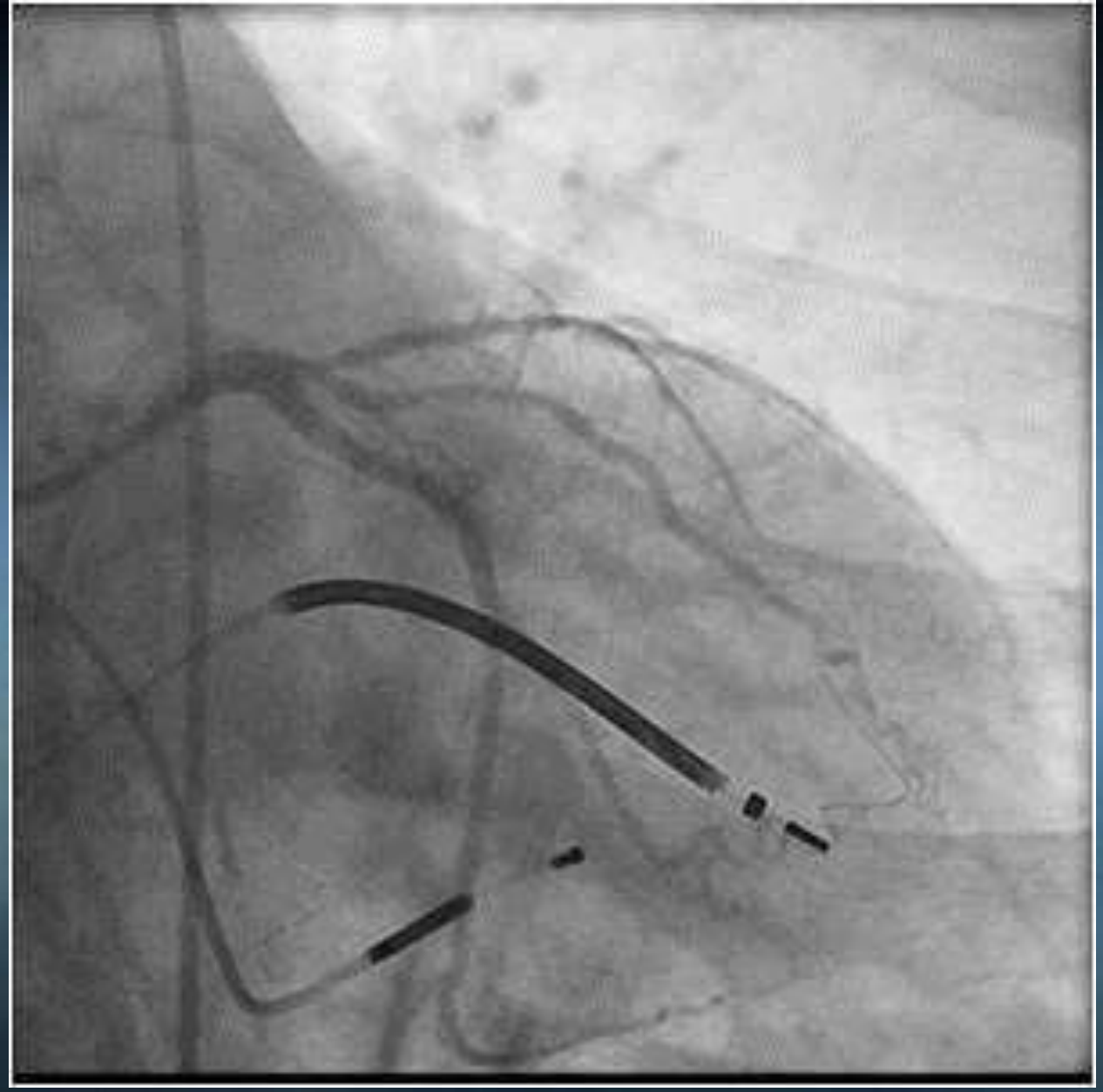
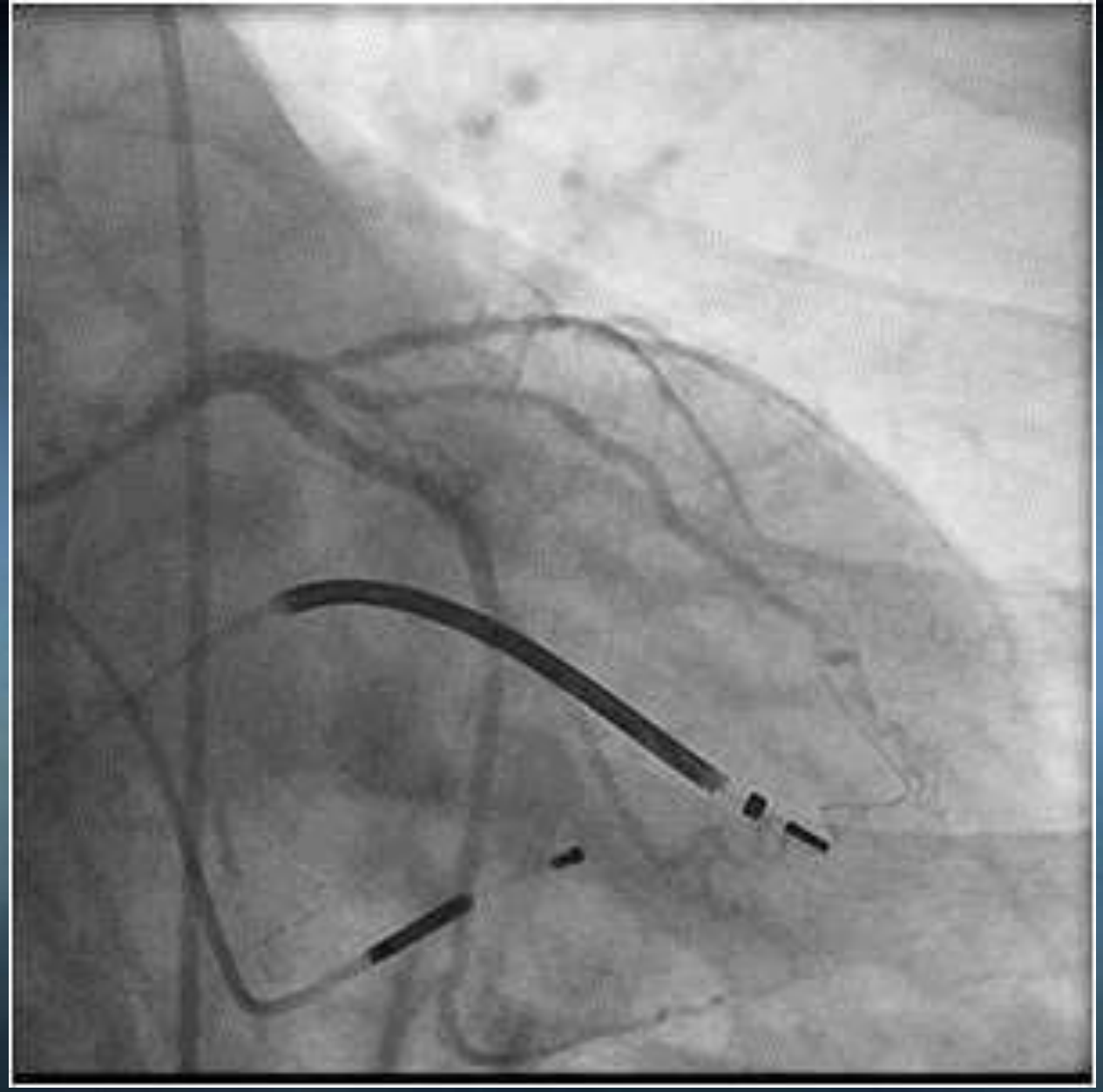
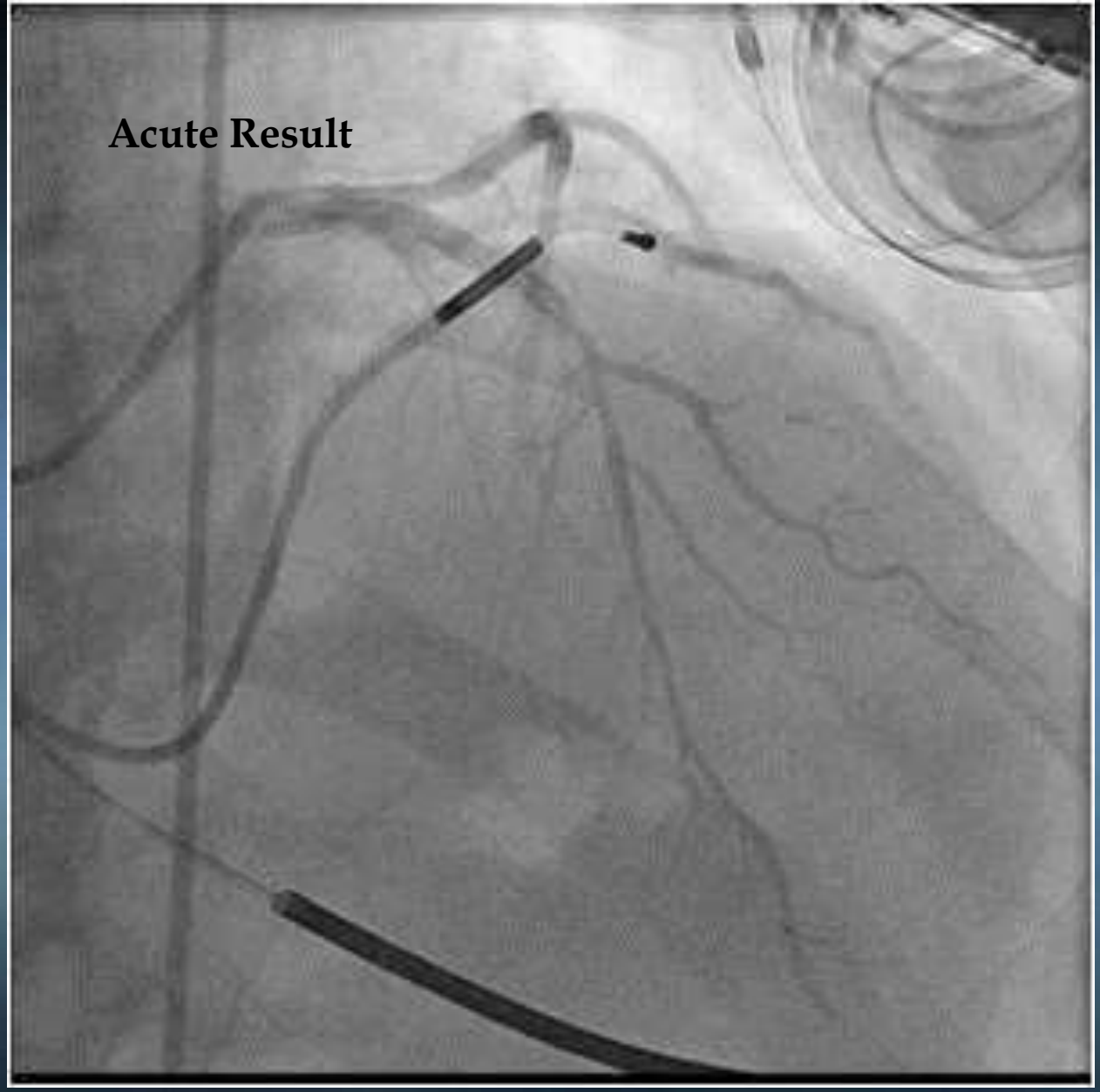


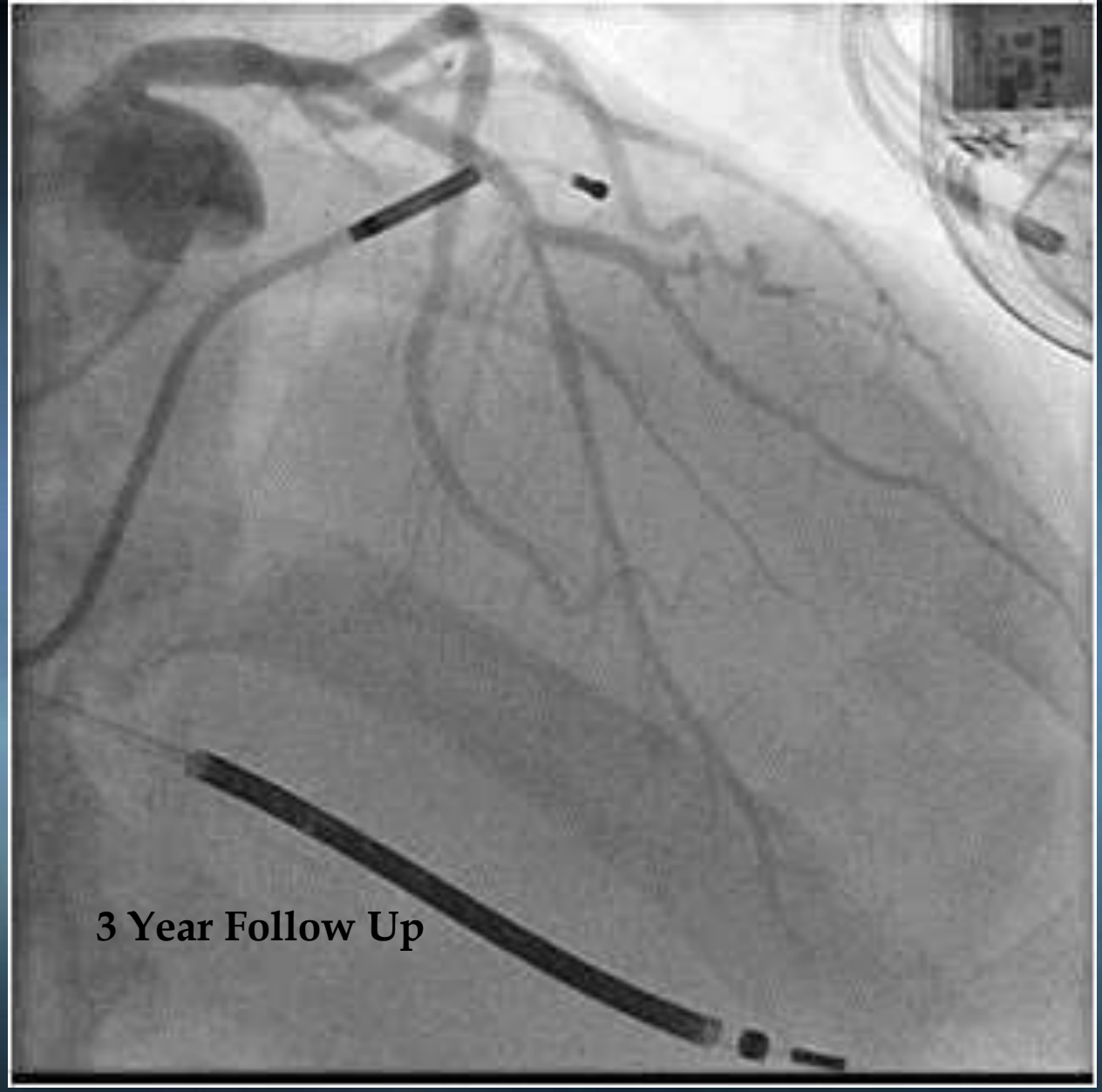


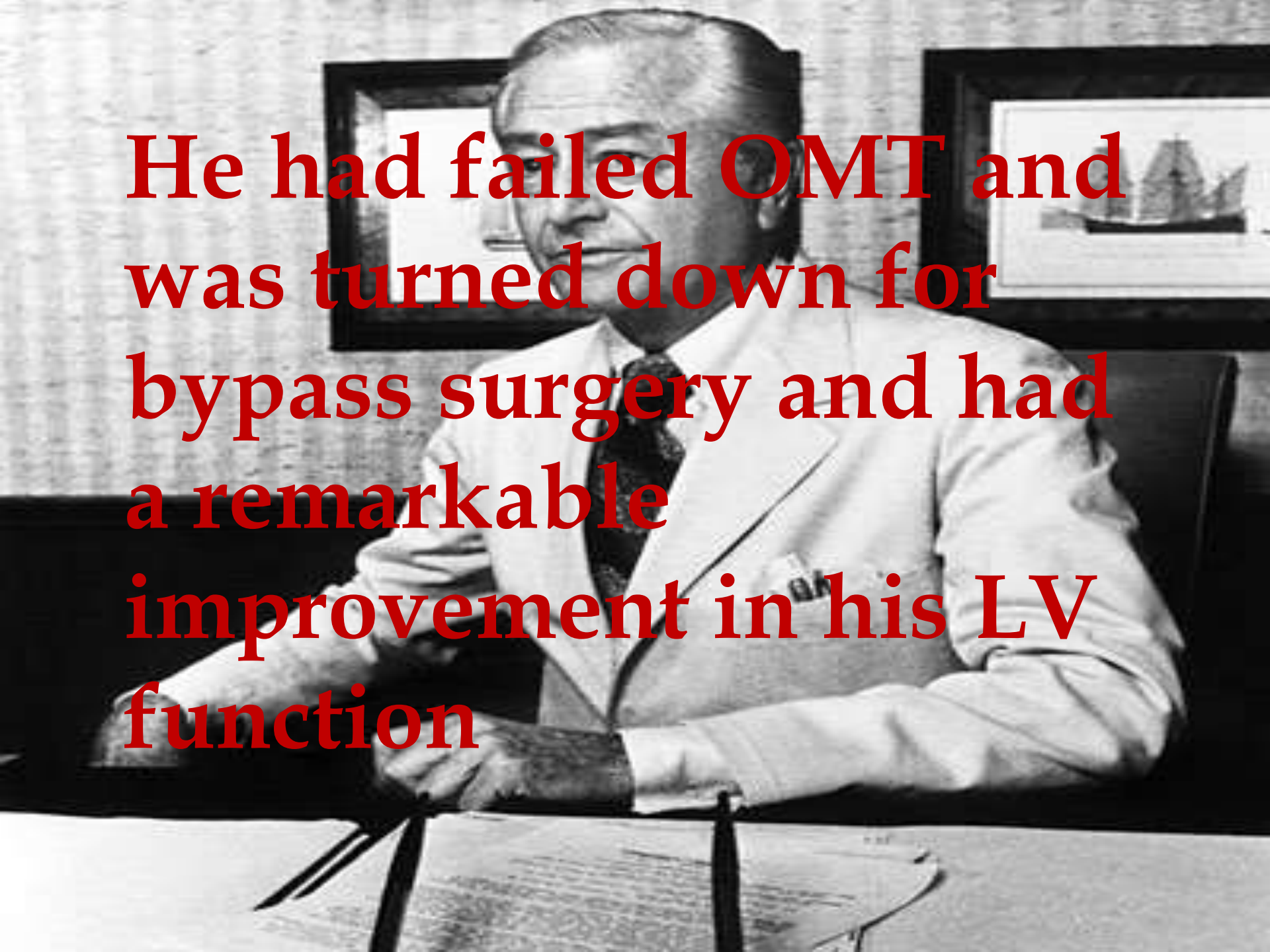







Acute Result


3 Year Follow Up


He had failed OMT and
was turned down for
bypass surgery and had
a remarkable
improvement in his LV
function

EXPERT STUDY

- Average lesion length of 35.1 ± 18.5mm
- Occlusion length 14.0 ± 10.6mm
- ~ 6 wires per case
- **Procedure success rate with no hospital MACE 96.4%**

Kandzari DE, Kini AS, Karmpaliotis D, *et al.* Safety and effectiveness of everolimus-eluting stats in chronic total occlusion revascularization. Results from the EXPERT CTO multicenter trial (Evaluation of the XIENCE coronary stent, performance and technique in chronic total occlusions). *J Am Coll Cardiol Intv*. 2015;8(6):761-769.

EXPERT TRIAL

- One year MACE was 18.5%
- One year TLR 6.3%
- Definitive ST 1%
- **These results are comparable to observations in EES in non-occlusive coronary disease**
- **HAVE WE SWITCHED FROM "LEAVING 'EM ALL TO STENTING 'EM ALL"**

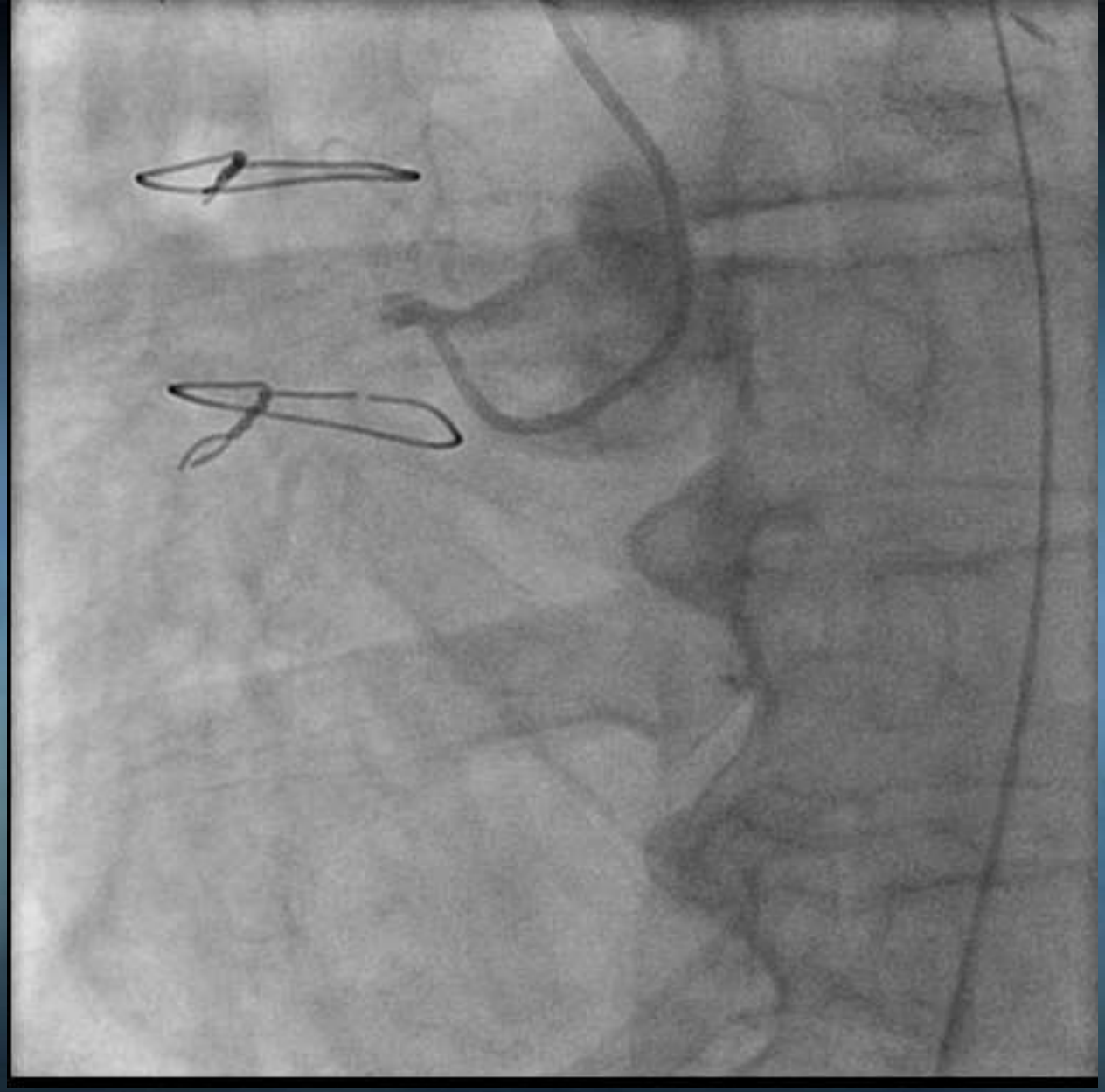
Barbato E, Wijns W. Are we ready for a new paradigm shift in percutaneous revascularization of chronically occluded vessels with well-developed collaterals? From leaving 'em all to stenting 'em all. *J Am Coll Cardiol Intv*. 2015;8(2):280-282.

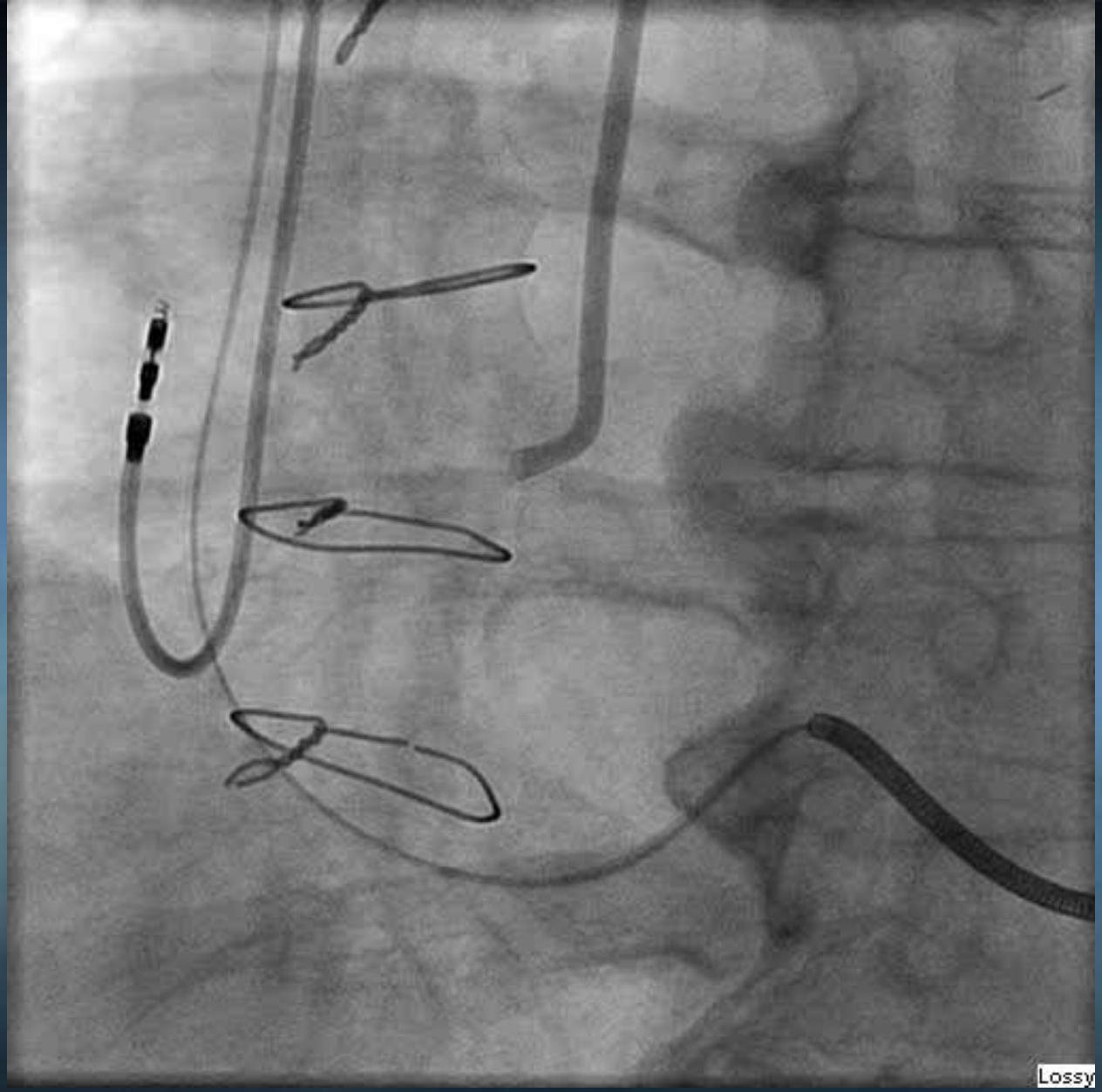
A 70 year old band conductor has sudden death during a performance. He presents in the cath lab.

His troponins are negative. His right coronary artery is chronically occluded.

What is your treatment option…he has had sudden death with OMT…

He comes back a month after AICD placement for treatment of his CTO

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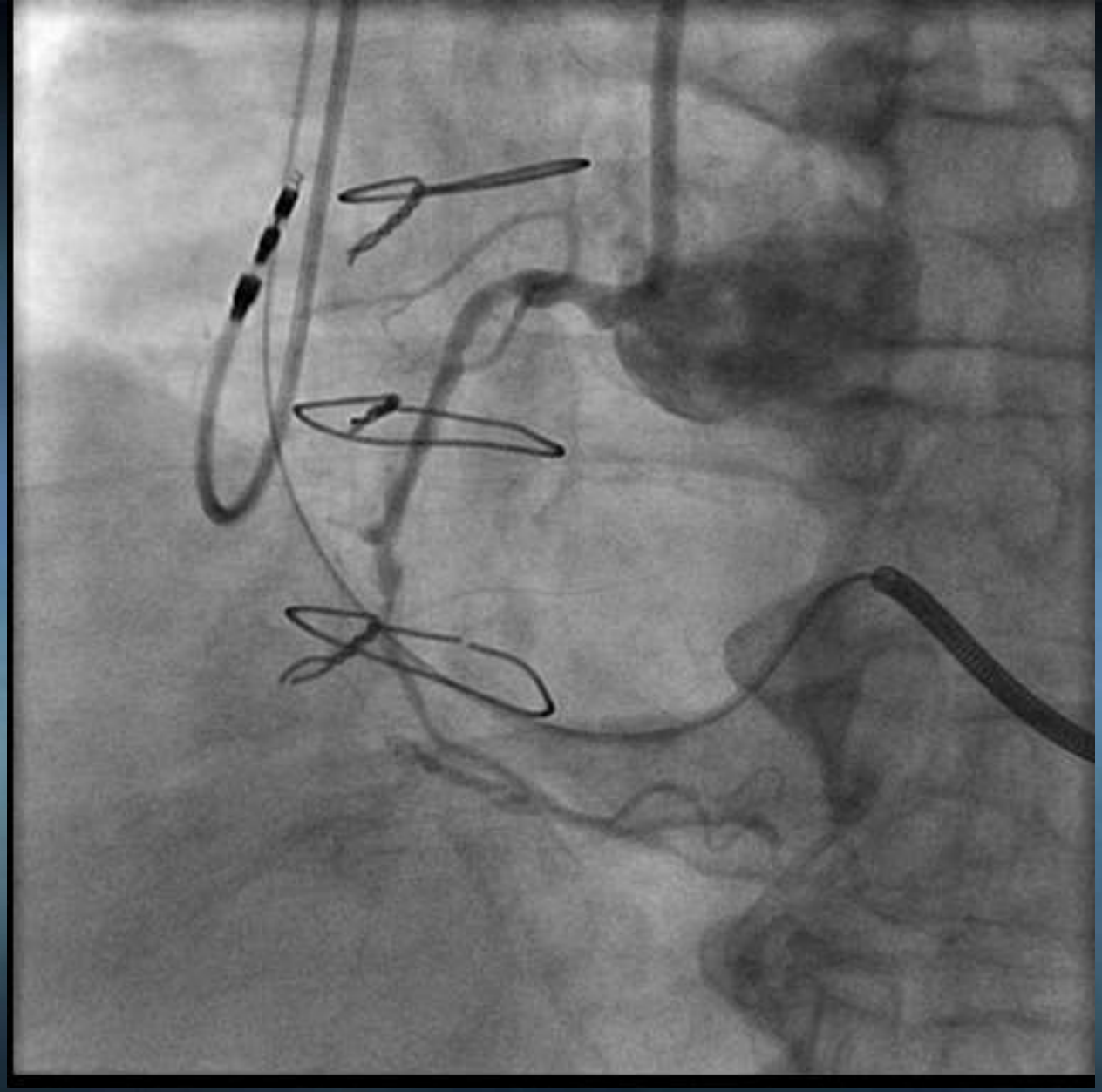

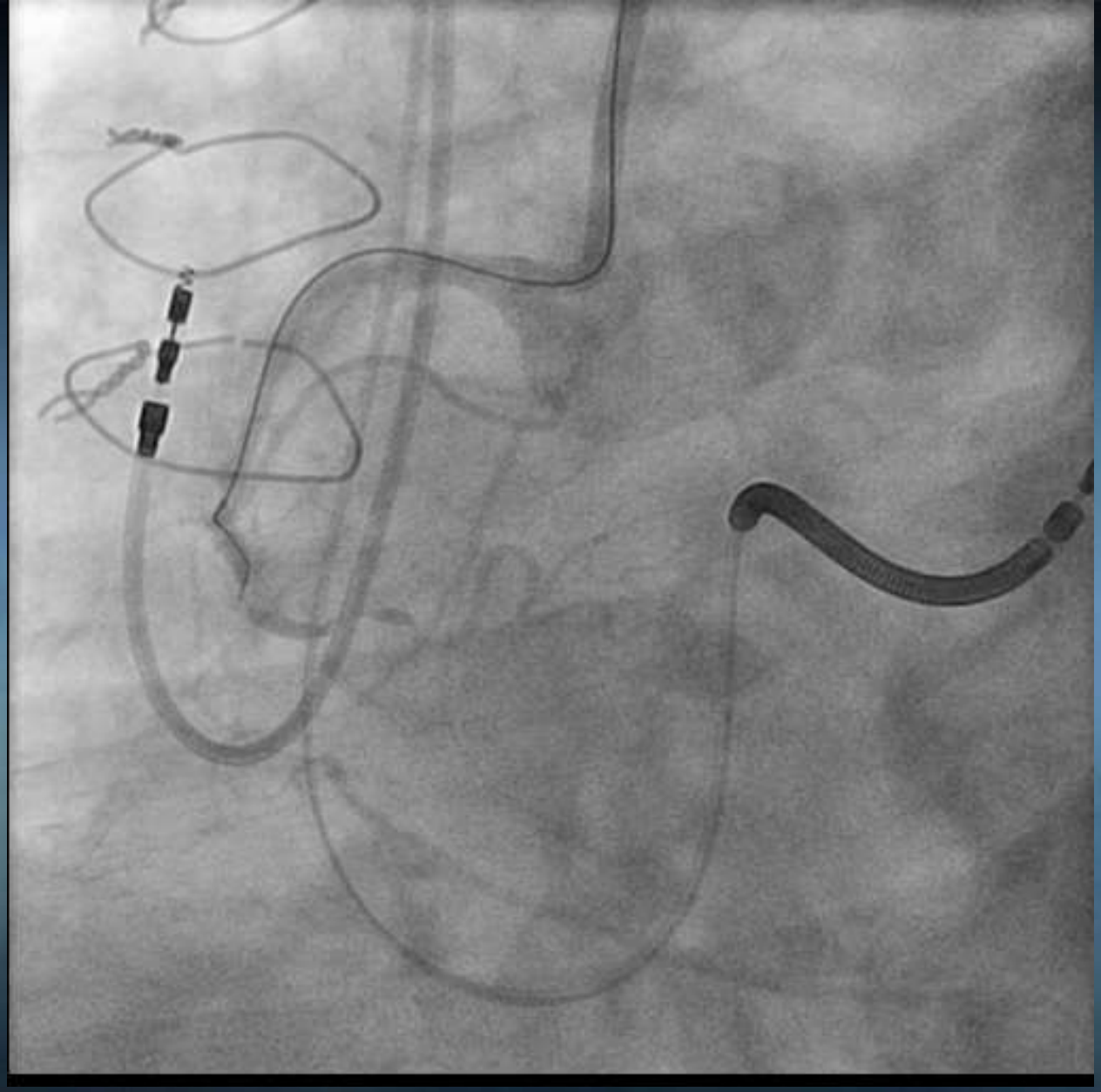


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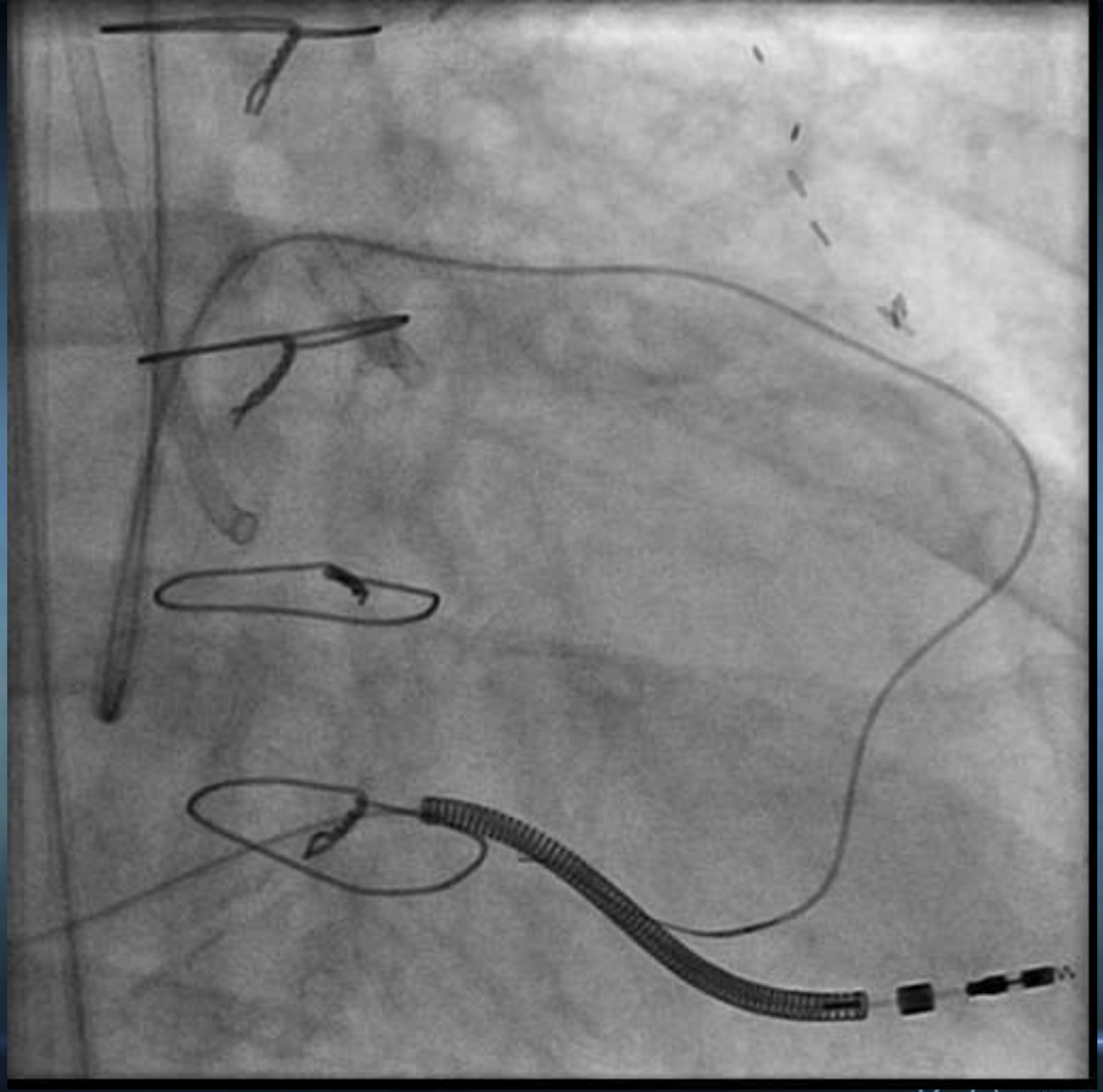

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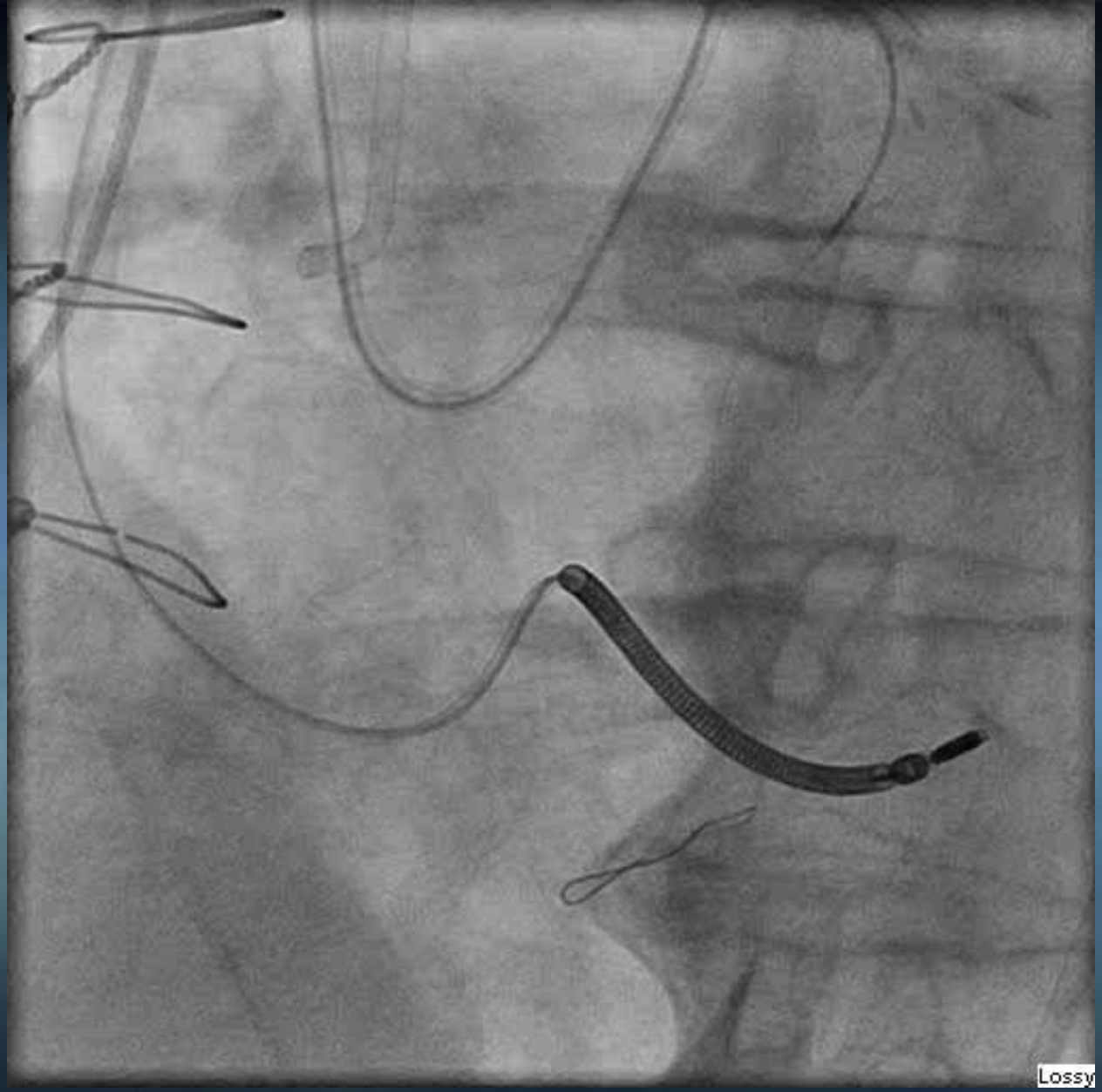
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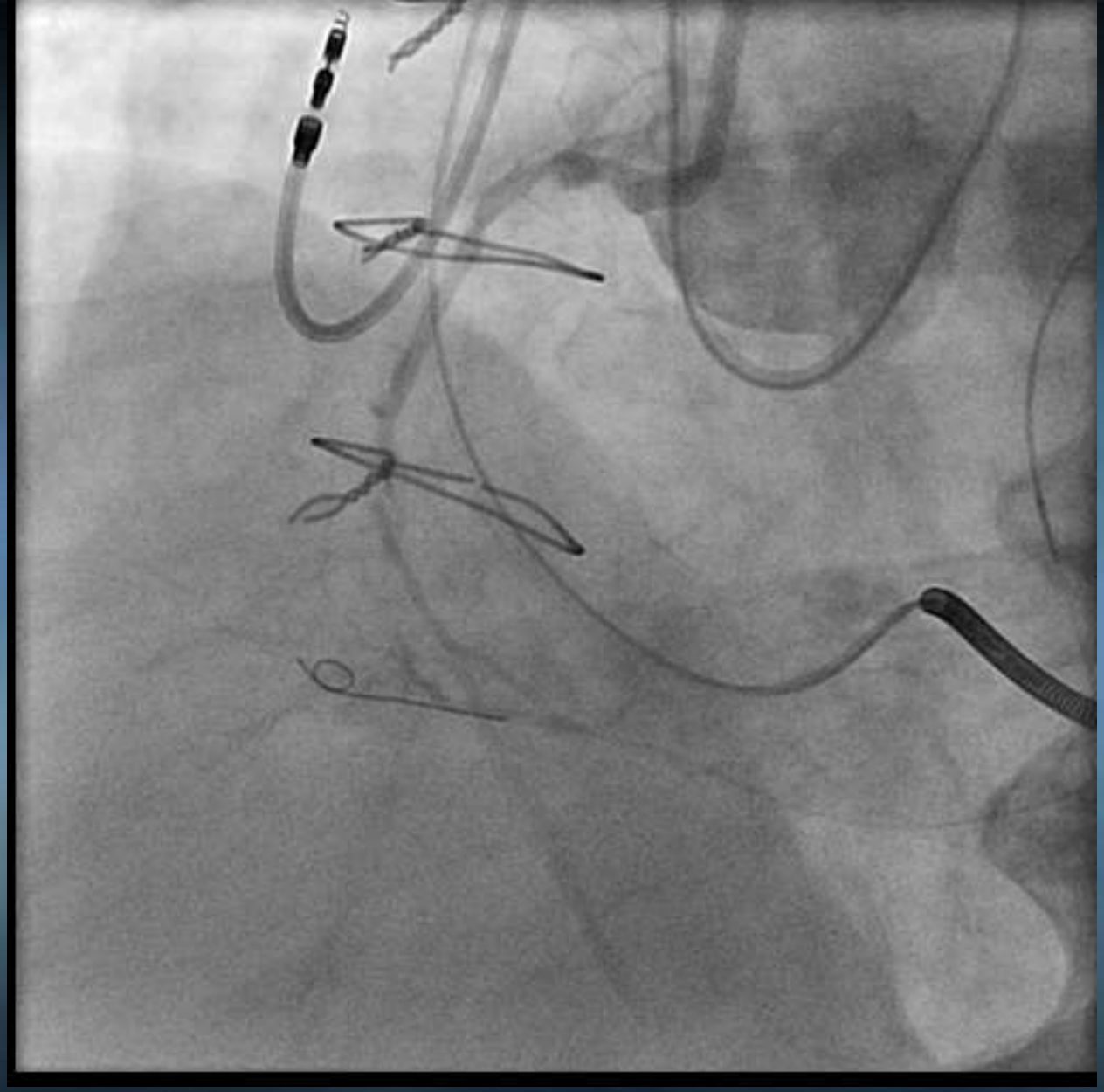

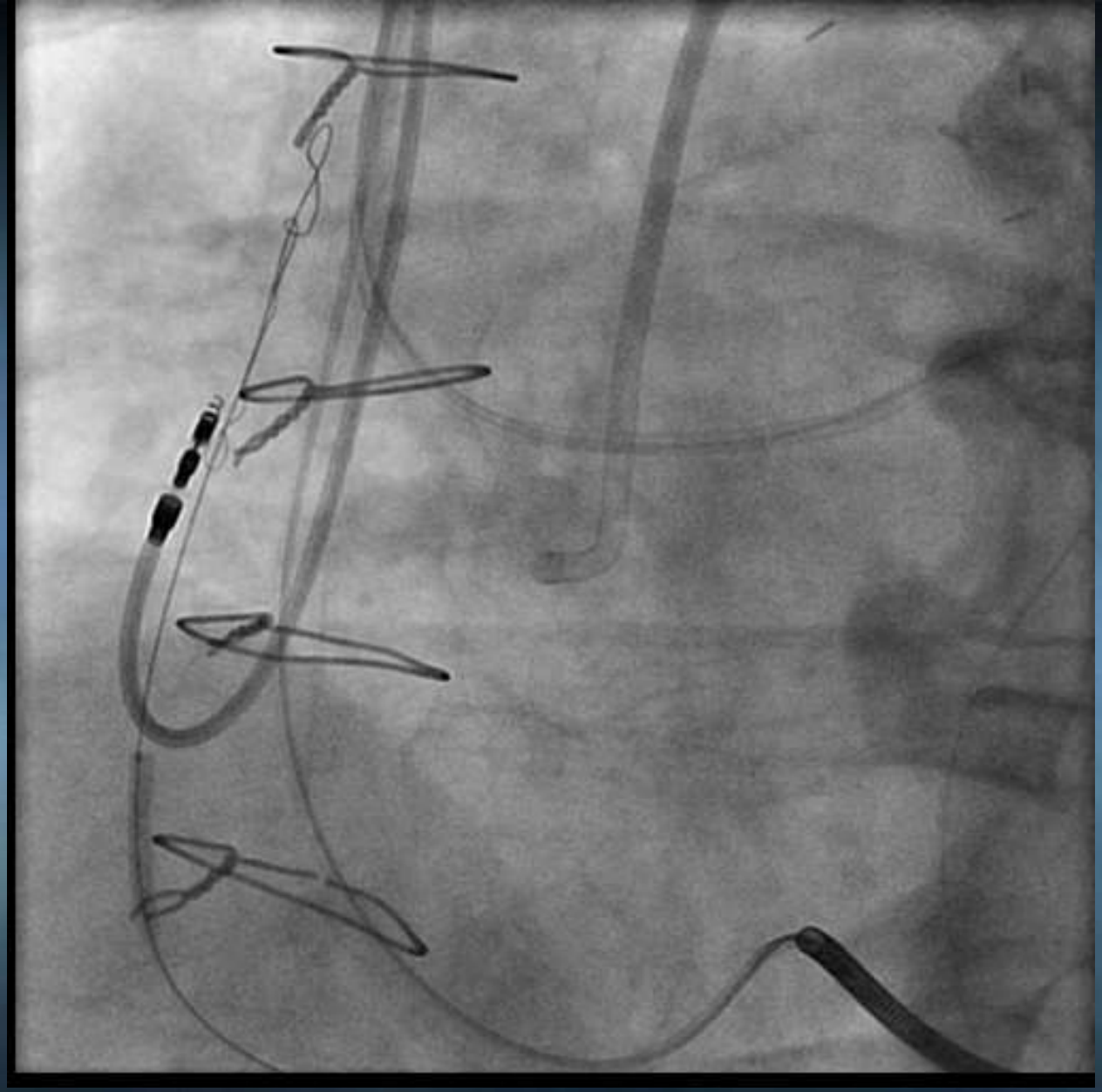

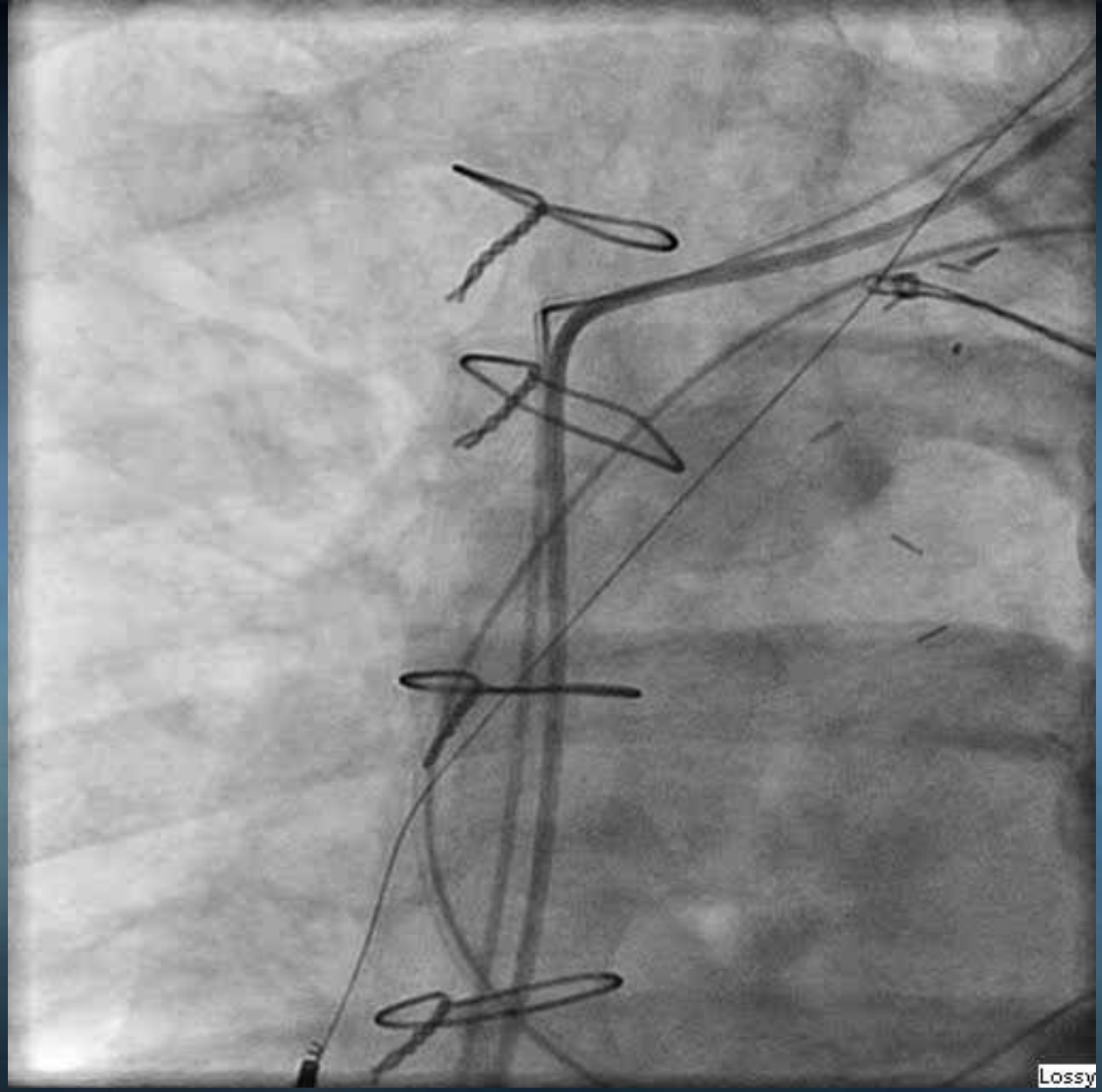
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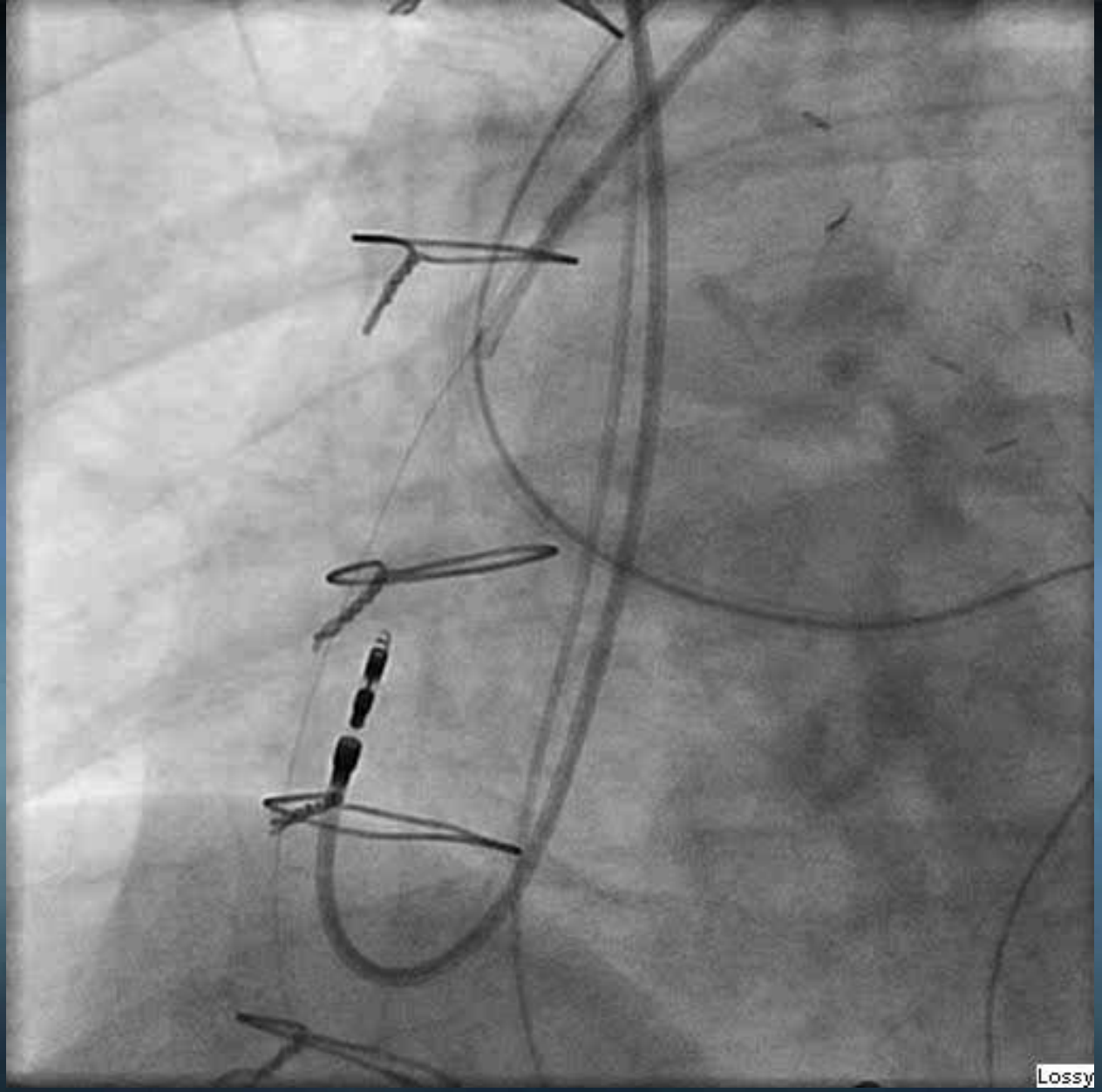
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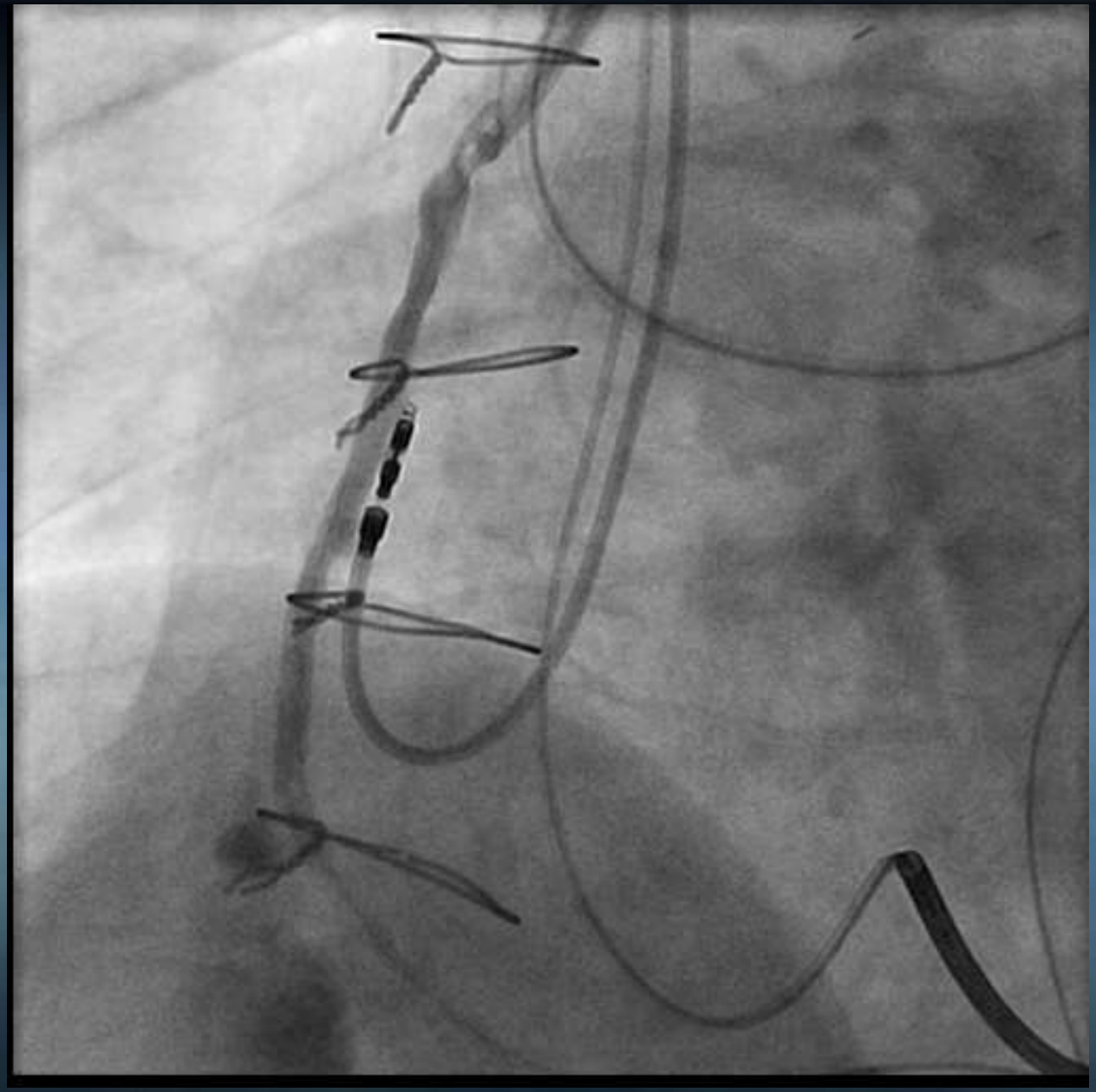

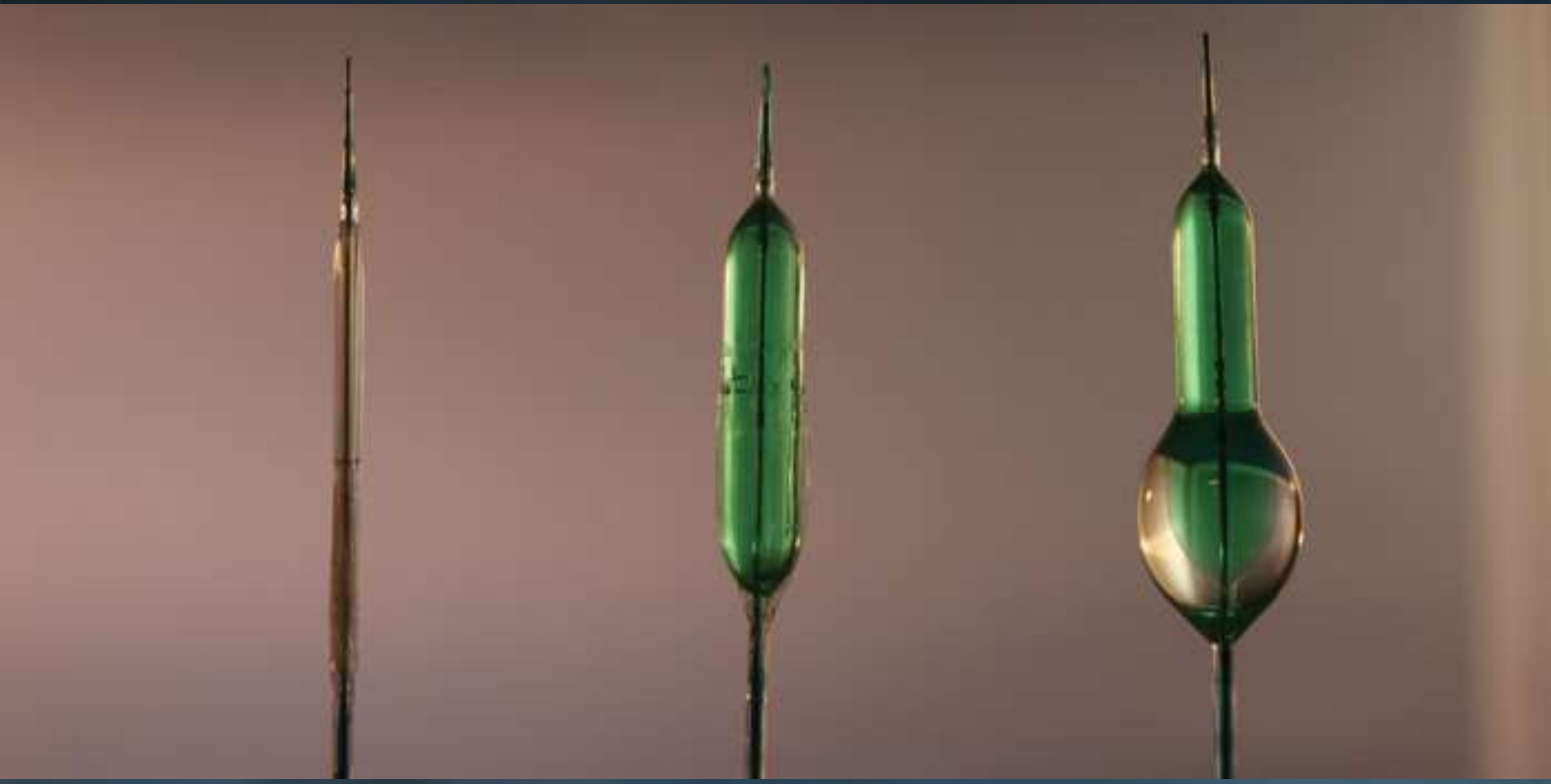

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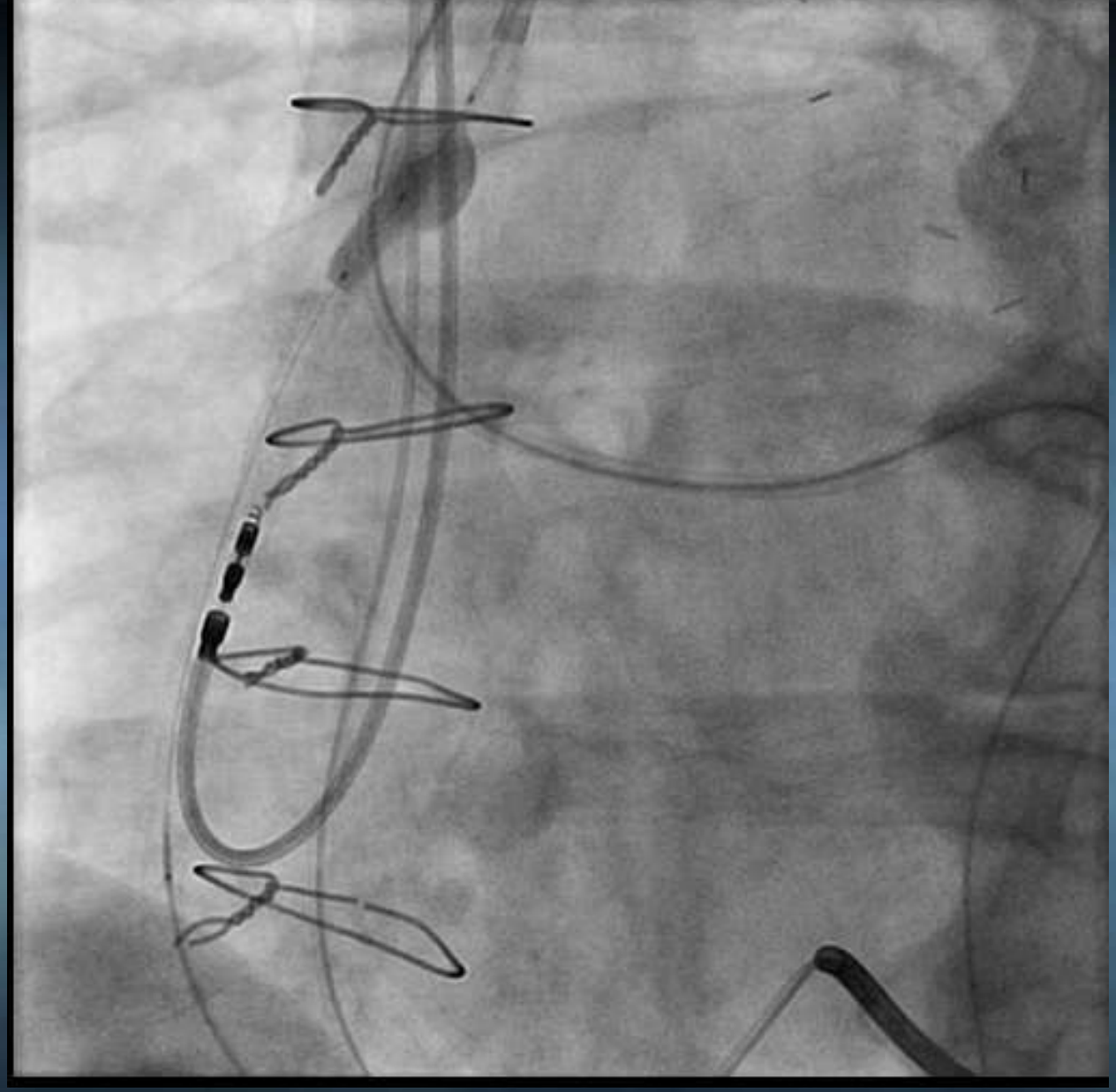

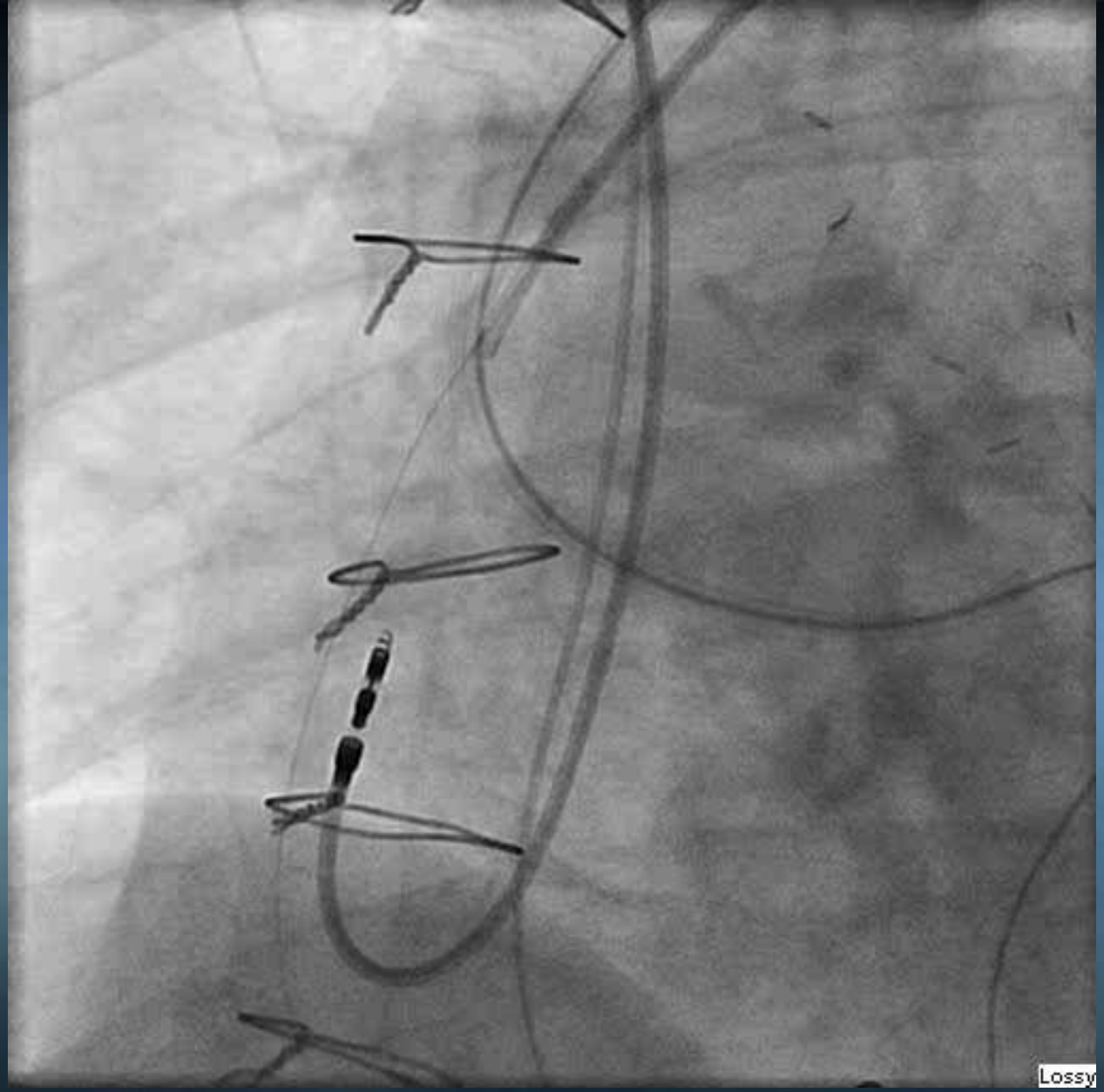
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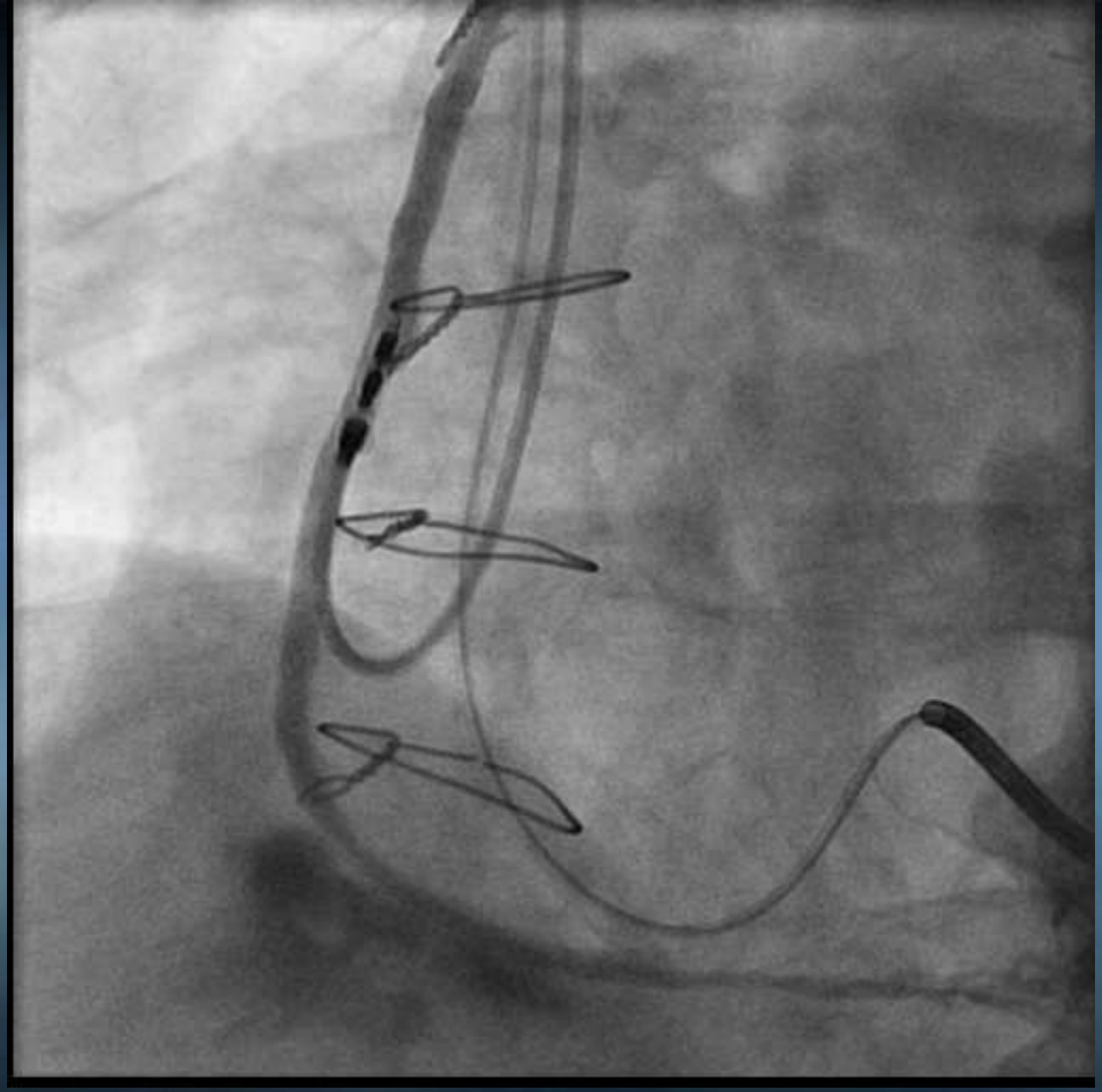
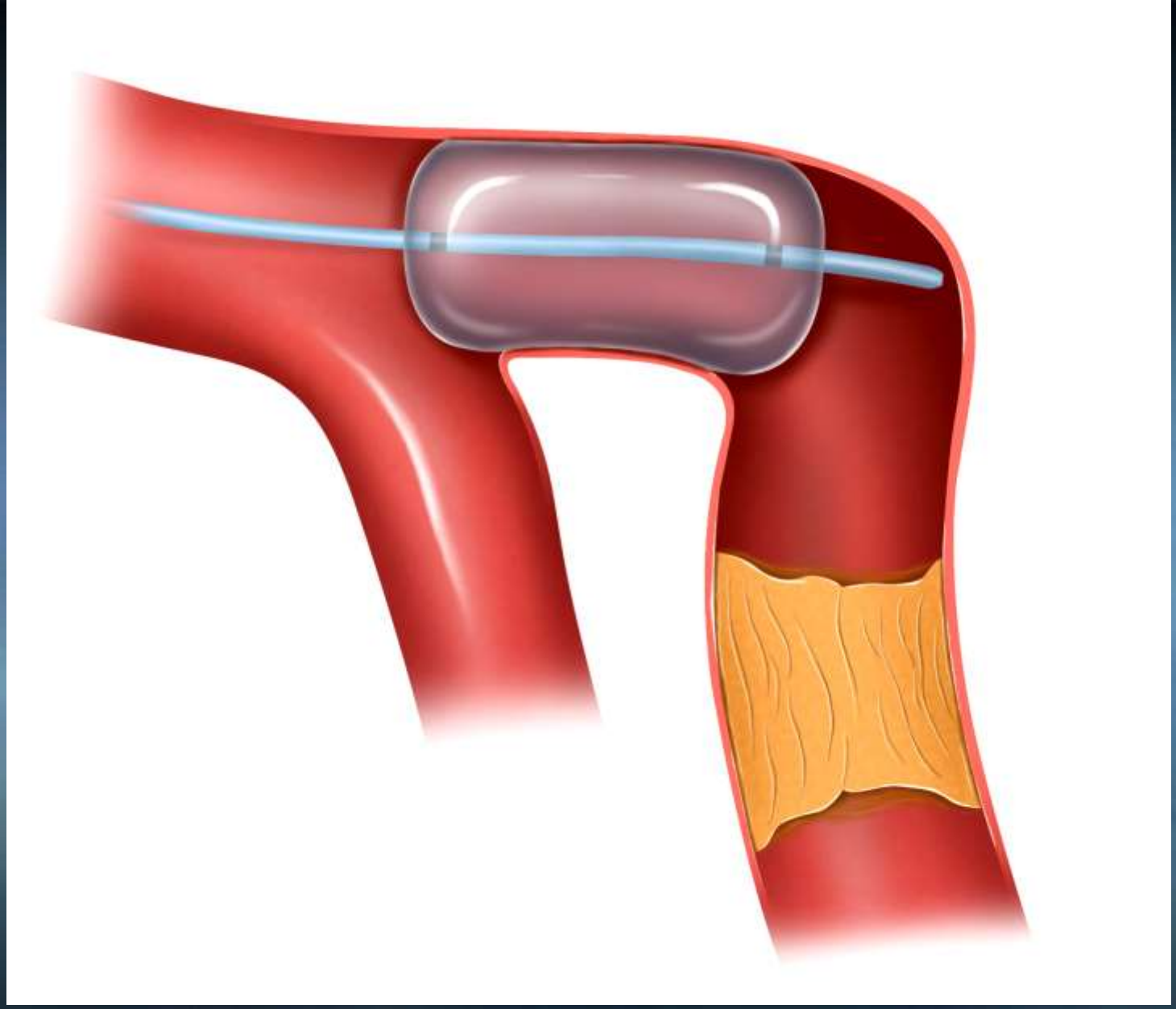
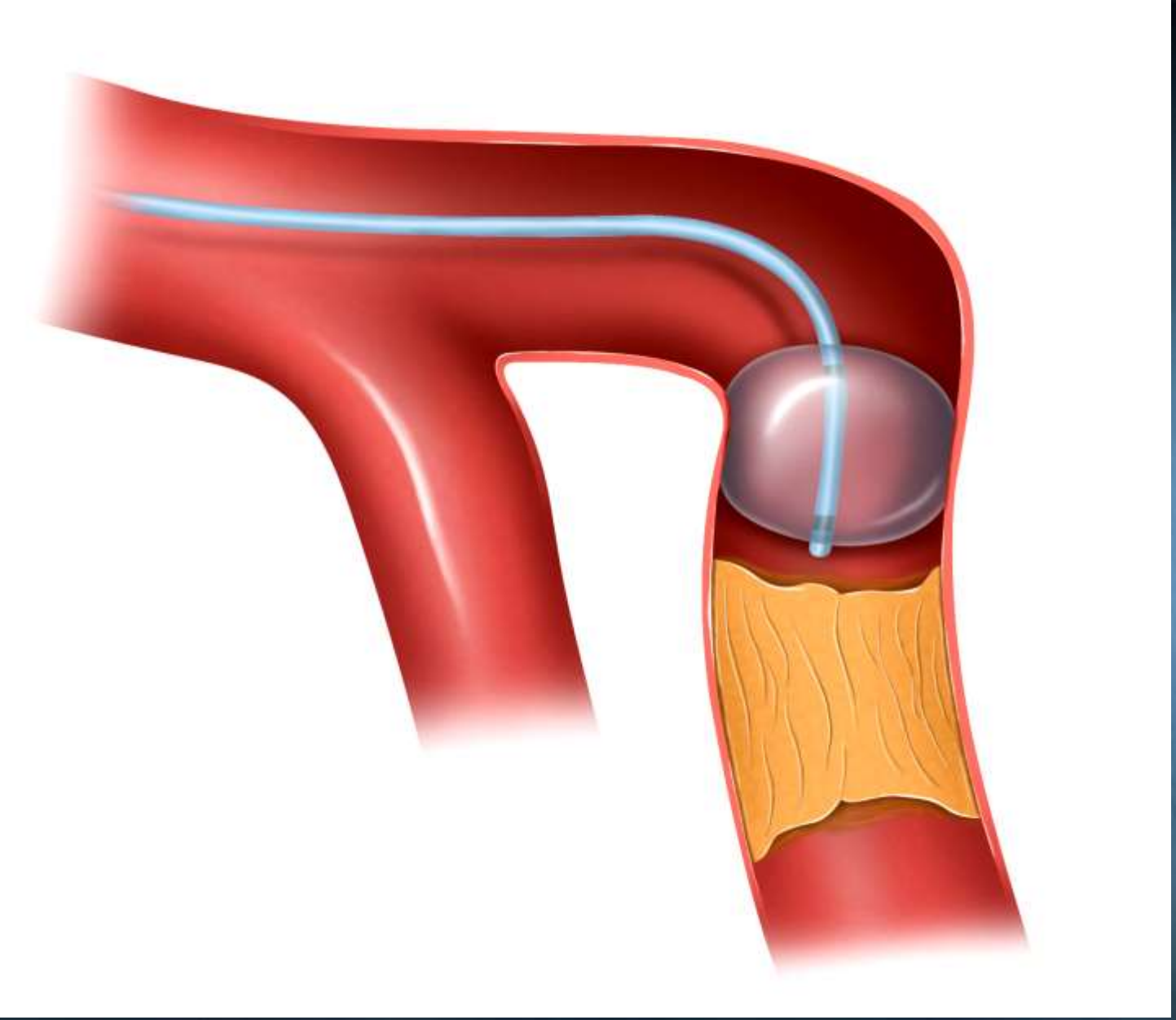
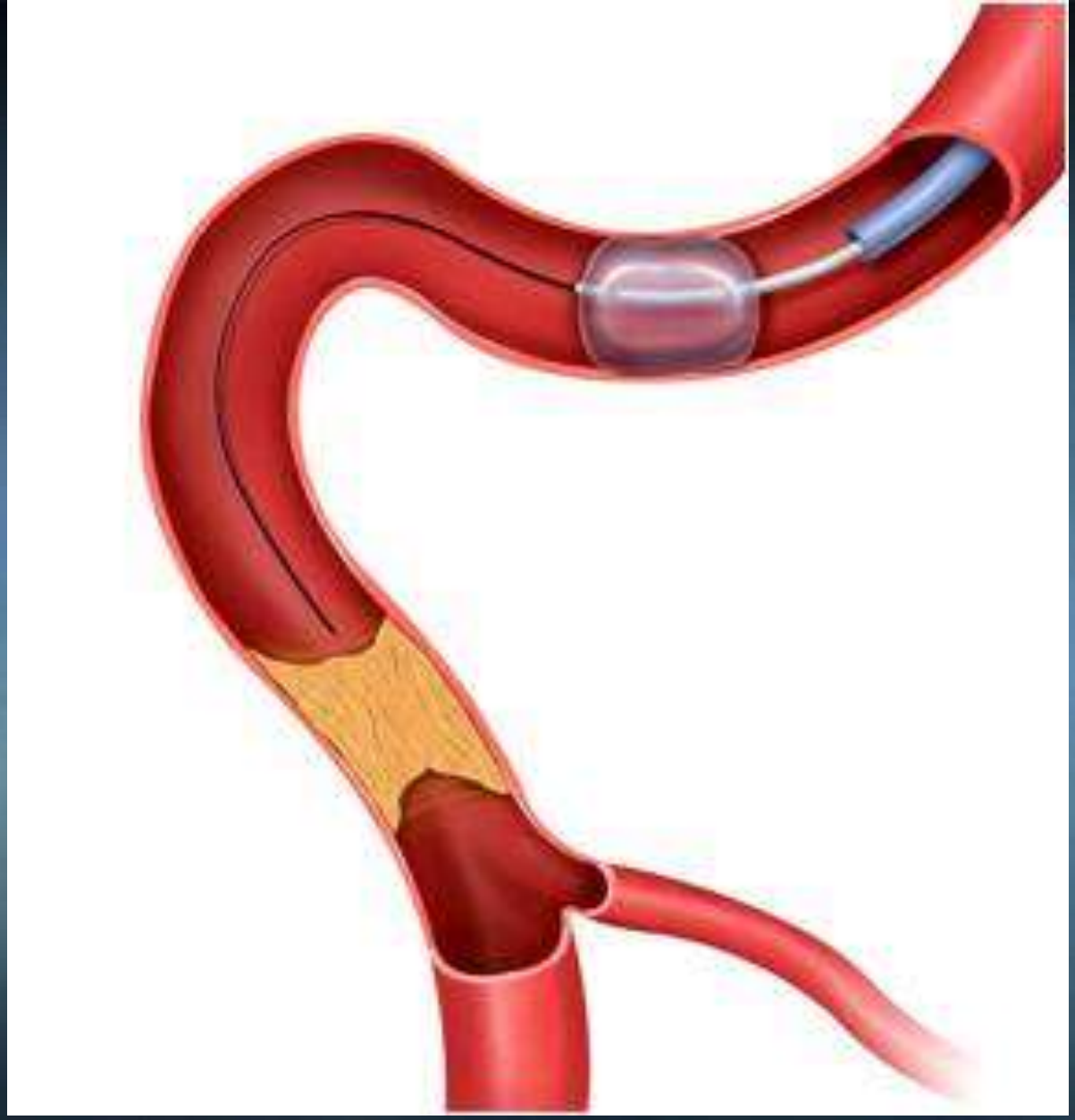


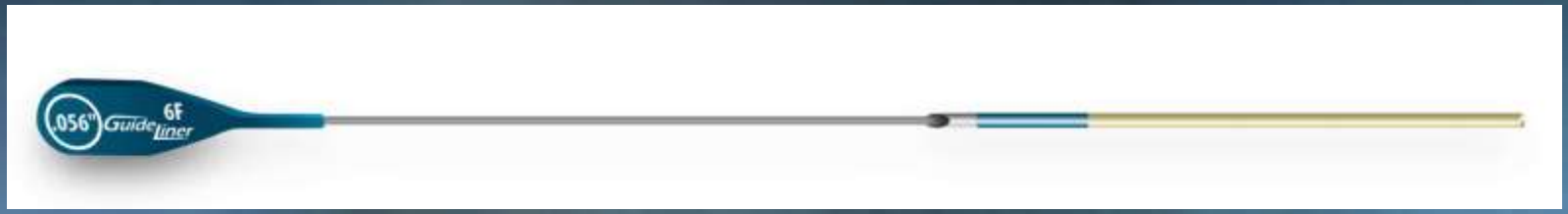
Are there techniques that can be helpful using the Antegrade Approach?"

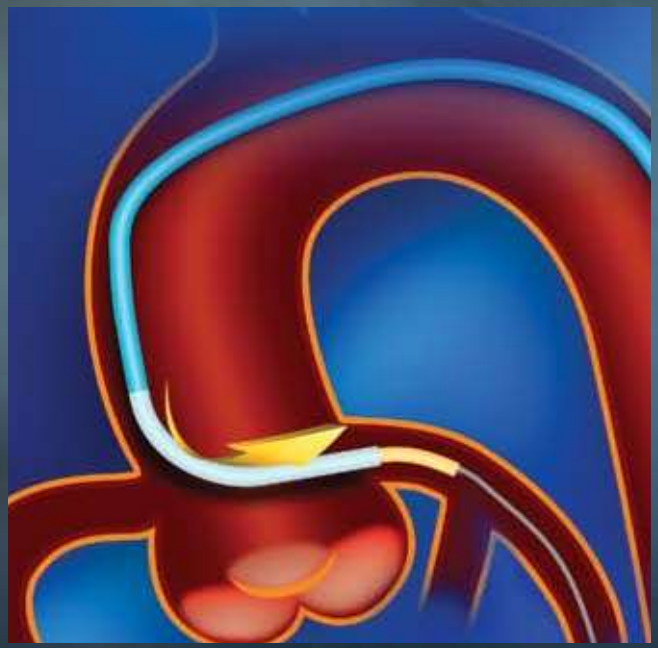


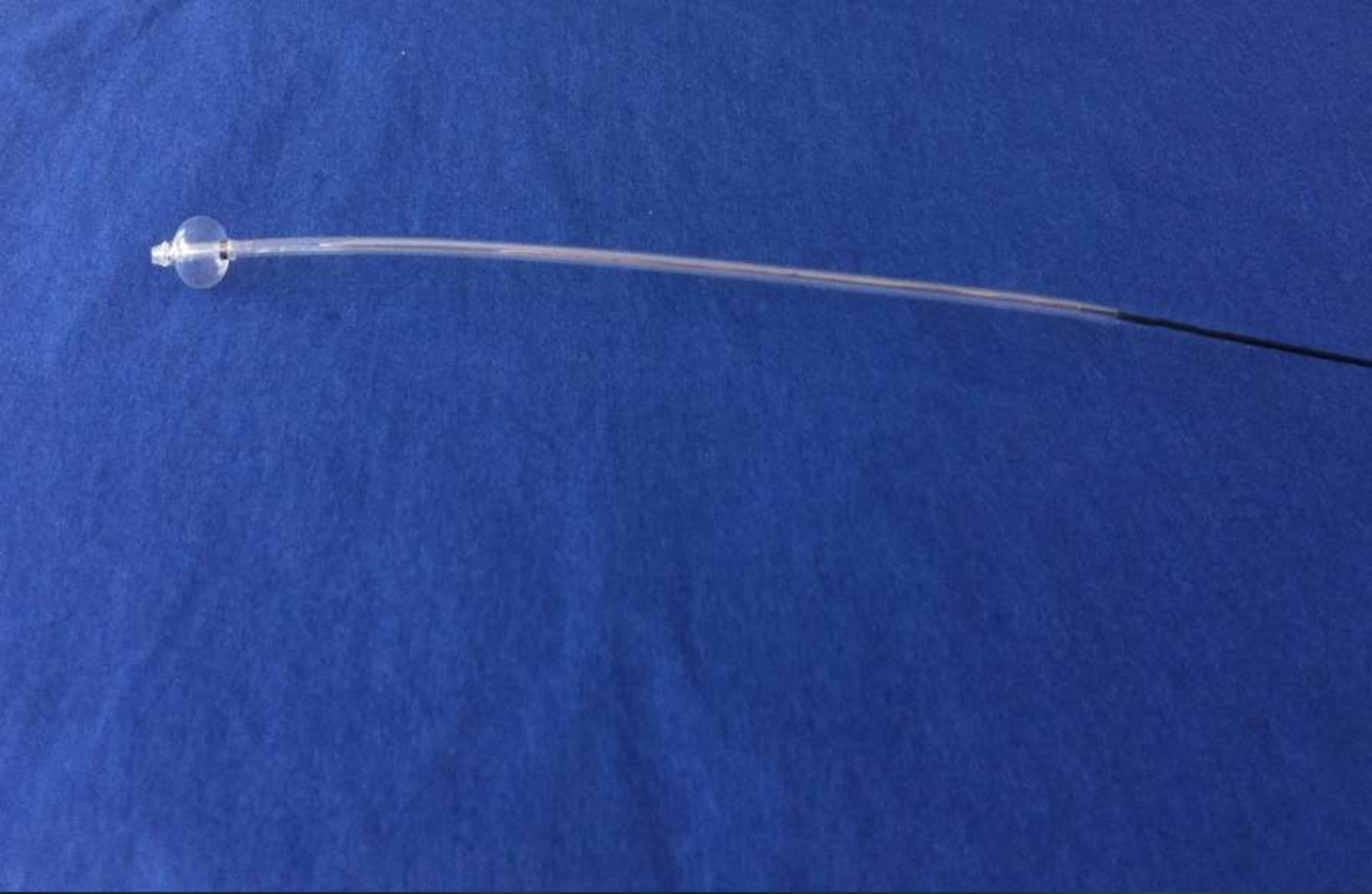


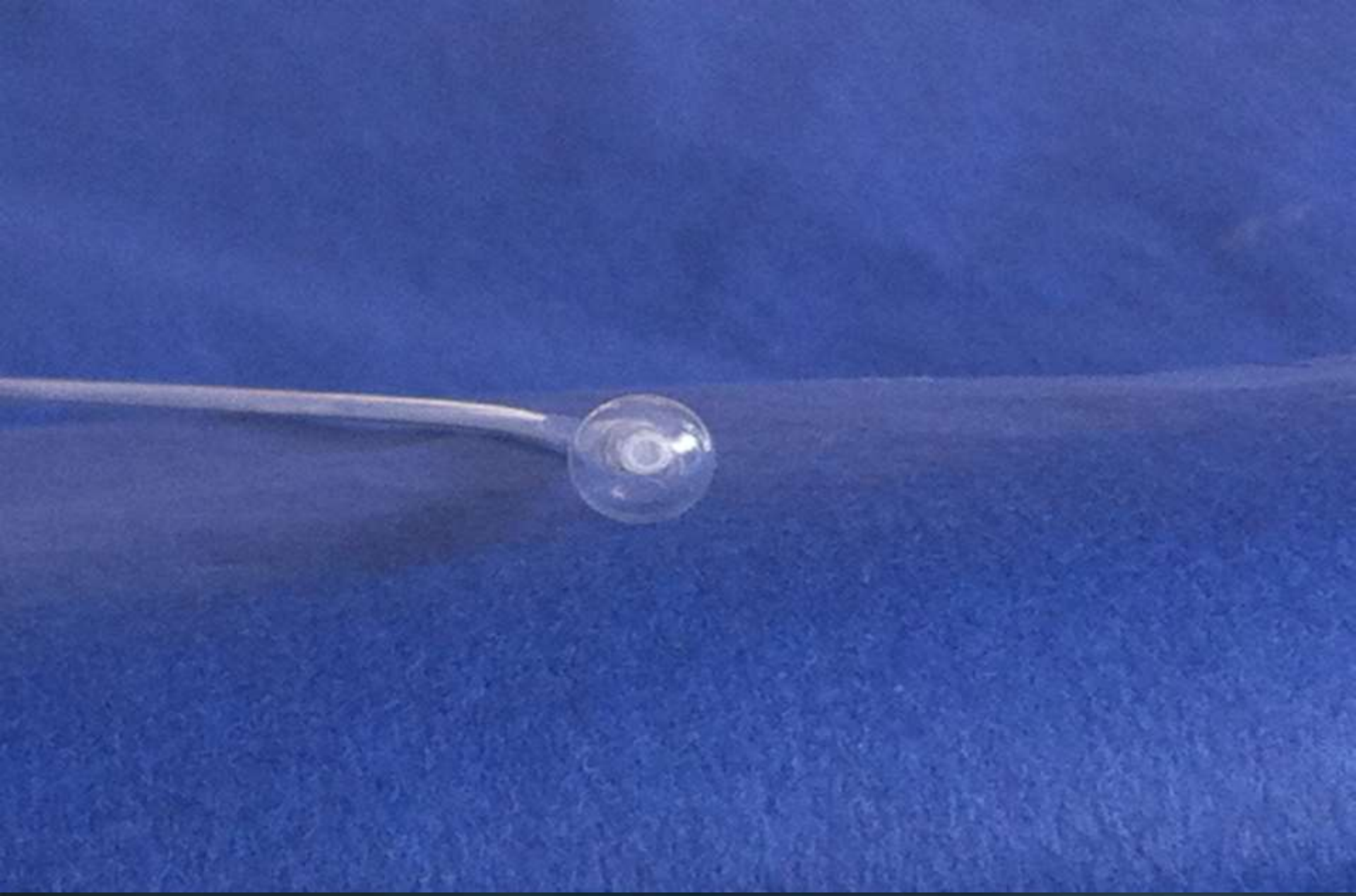


Guide Extension Catheter

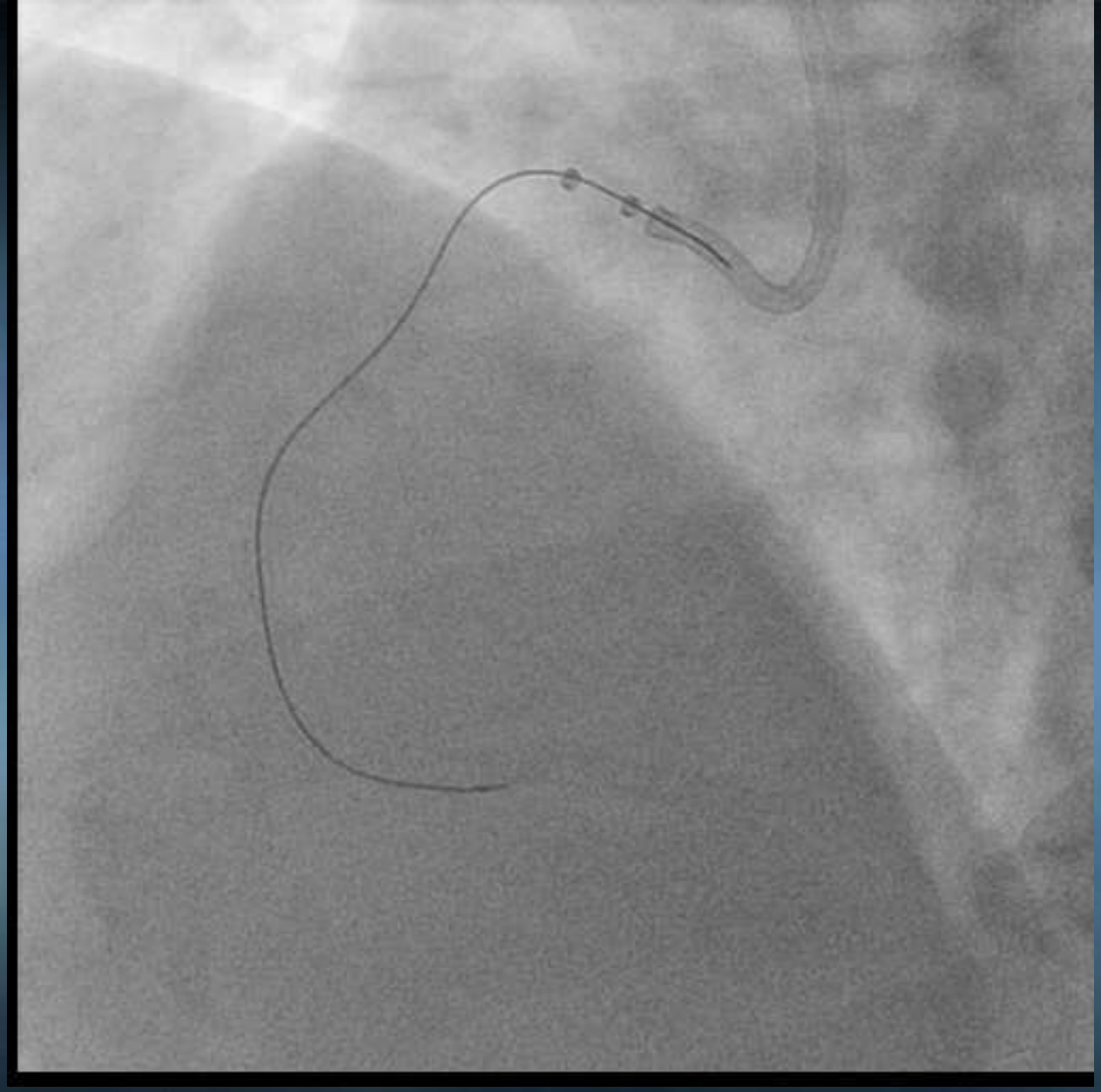


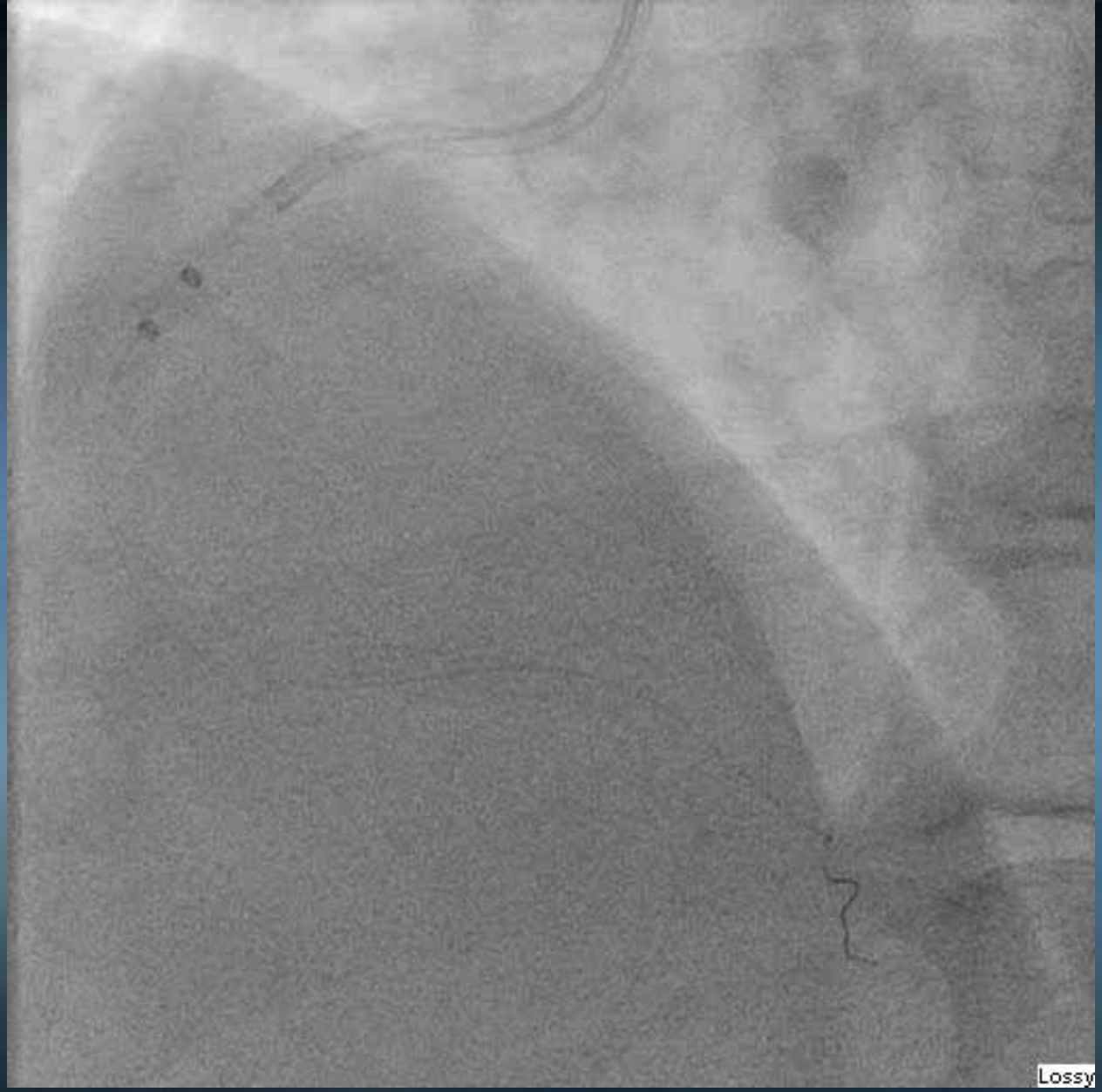






A 55 year old man had worsening CHF and inferior ischemia. Recanalization was unsuccessful using conventional antegrade technique. **With worsening CHF, he had failed OMT.**

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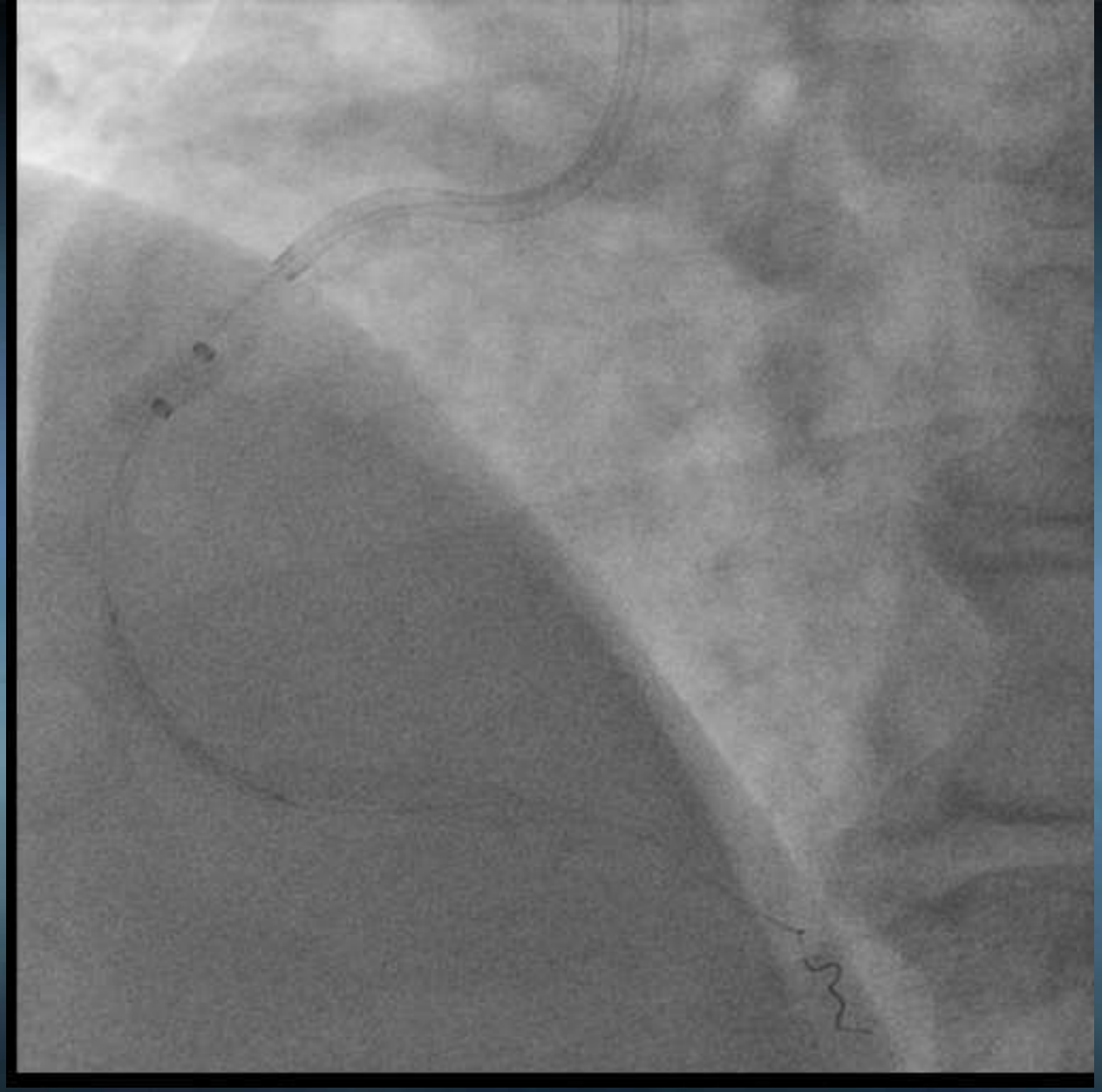

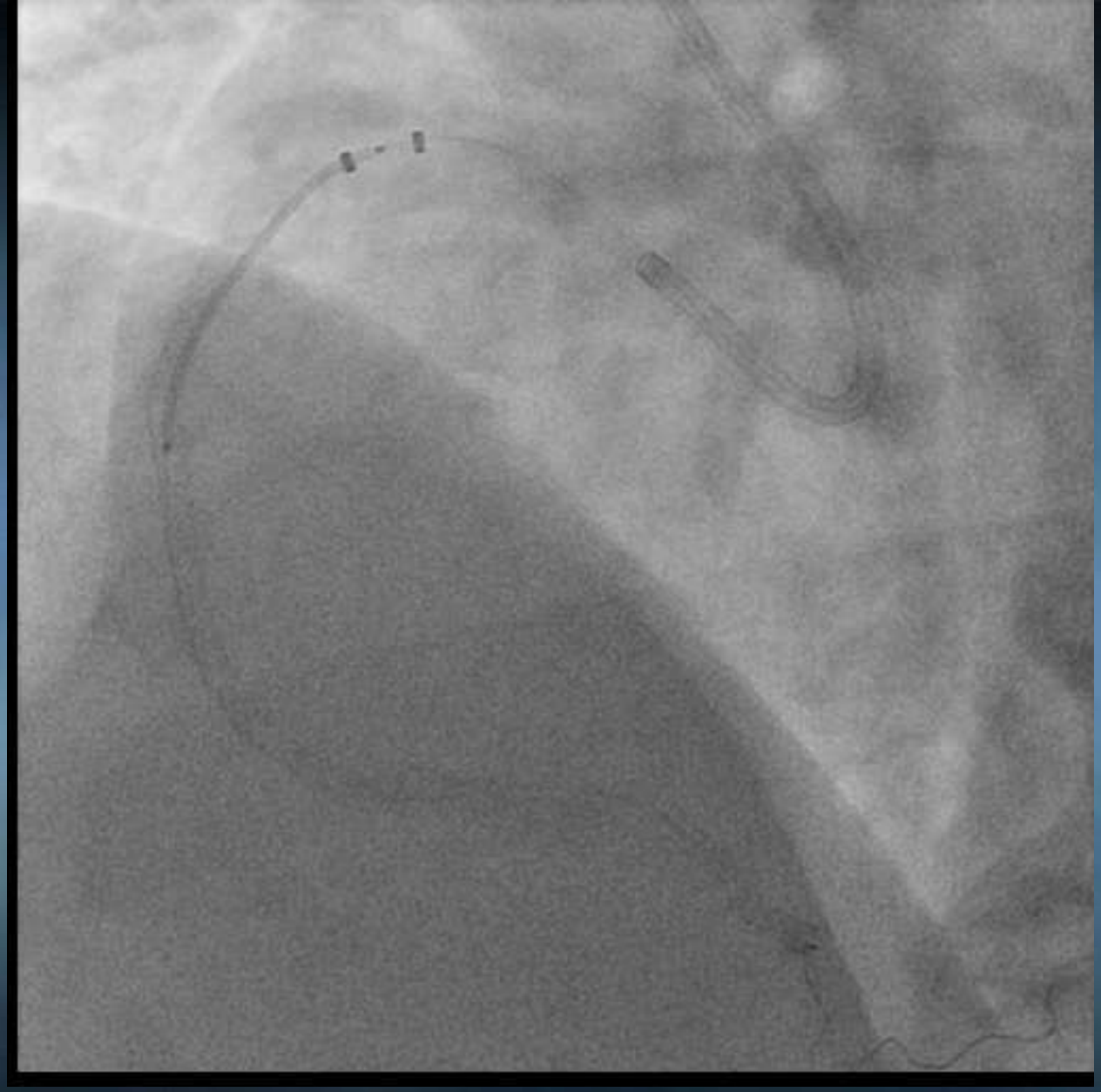

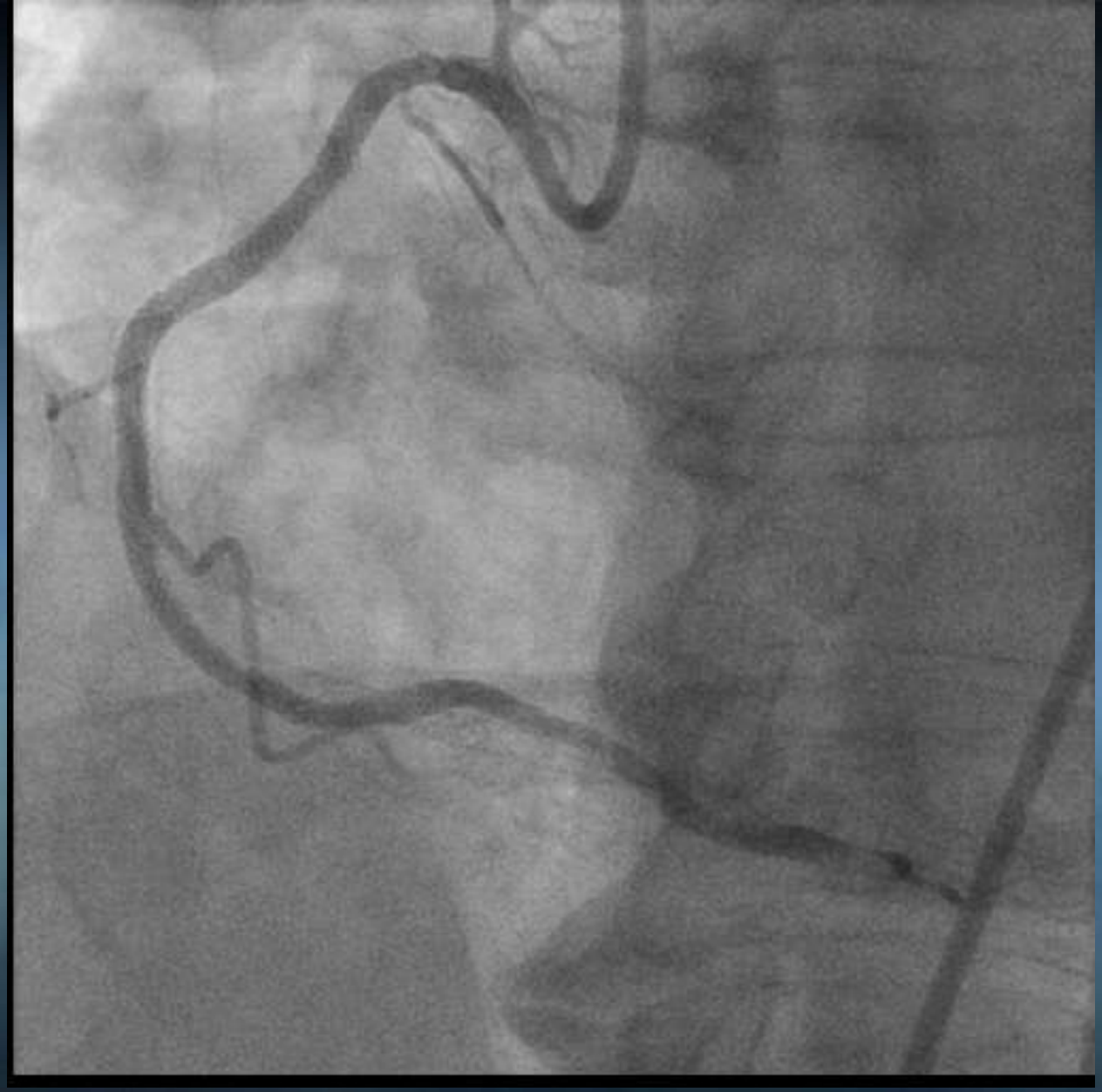

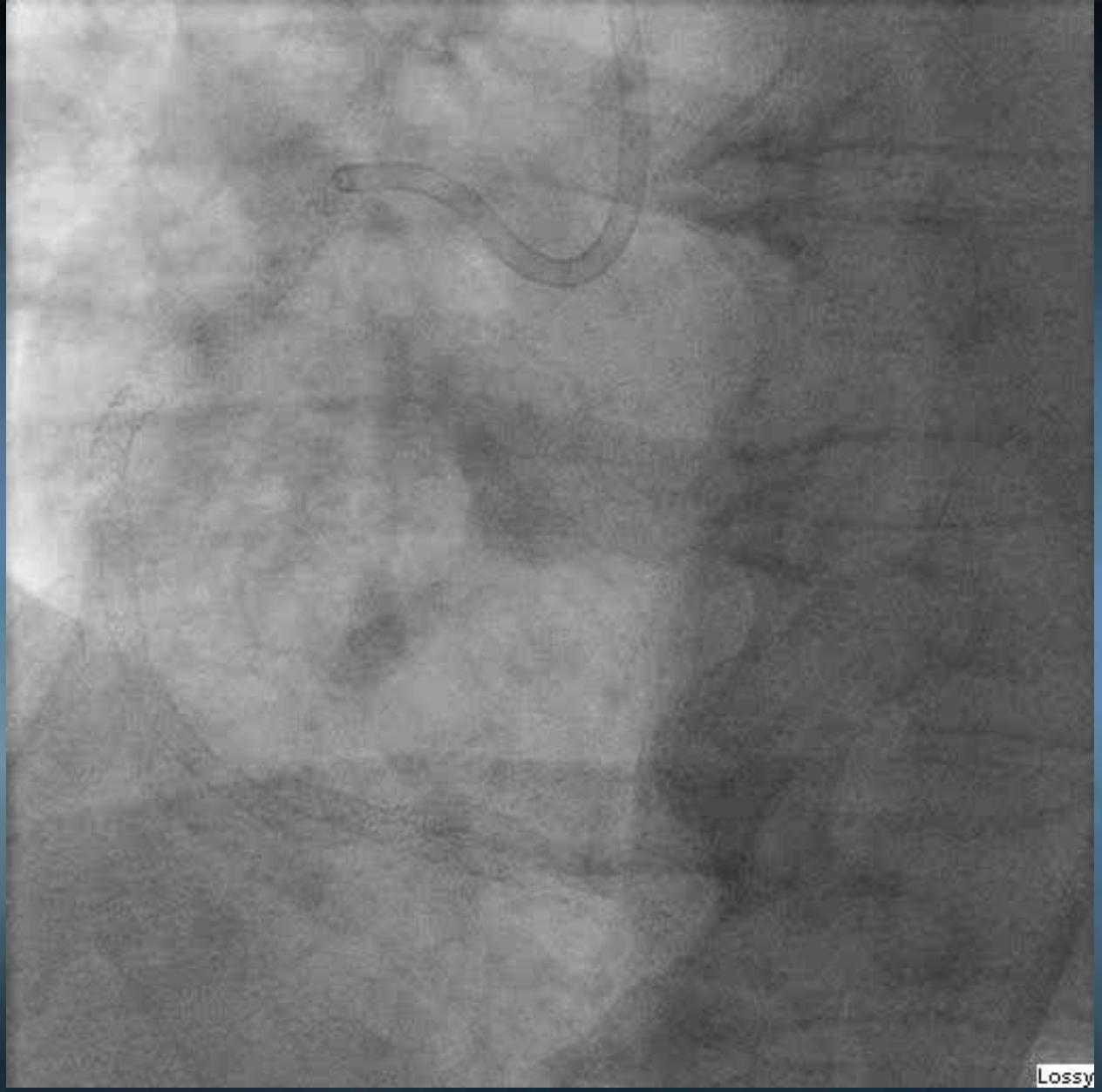
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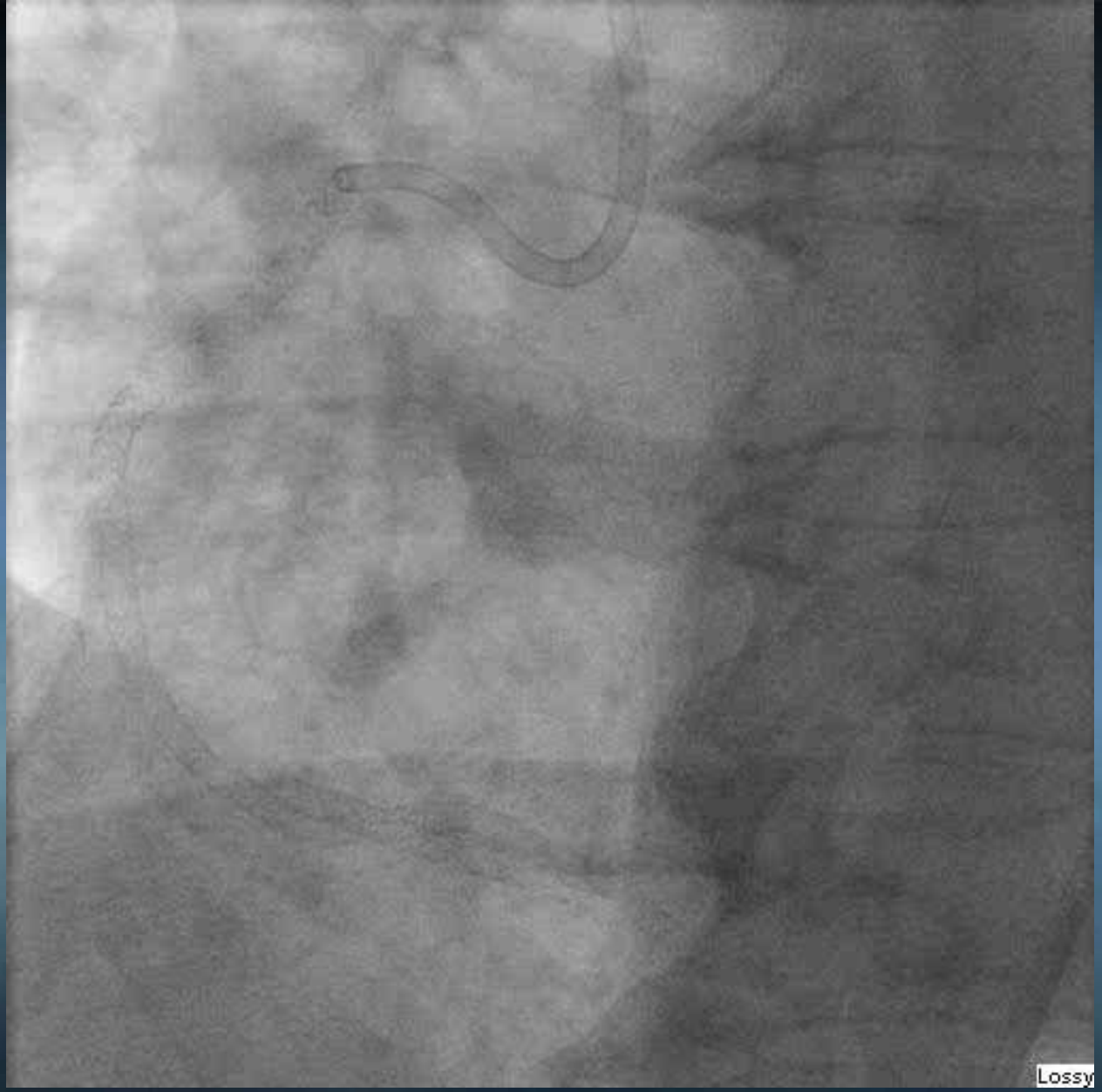
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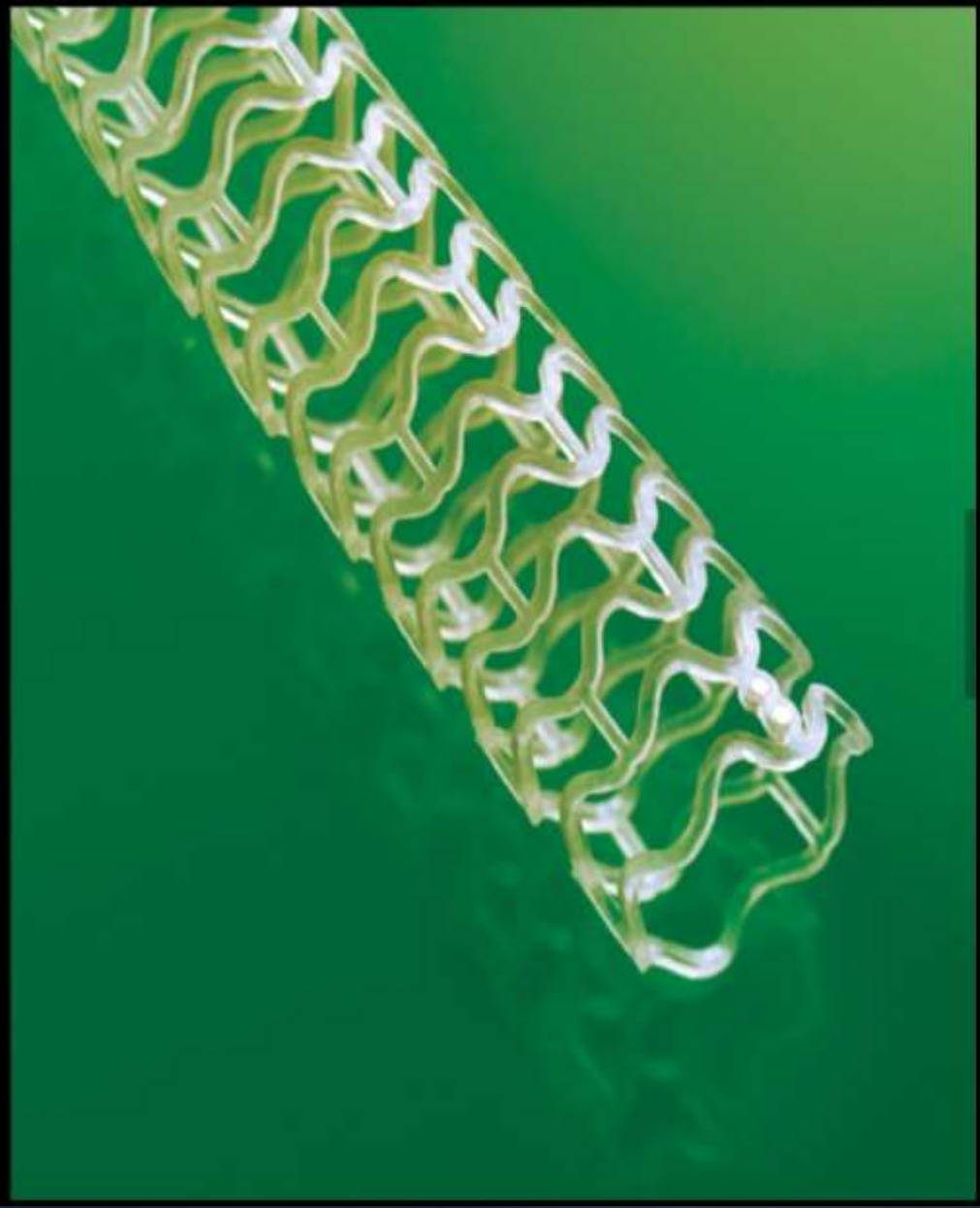

GHOST-CTO: Bioresorbable Scaffolds Yield Lower Success Rates than DES for CTO PCI

For percutaneous treatment of chronic total occlusions, bioresorbable scaffolds were associated with higher rates of technical and procedural failure compared with second-generation drug-eluting stents, according to findings from the GHOST-CTO registry.

Researchers evaluated 32 consecutive patients who underwent CTO PCI with a bioresorbable scaffold (BRS; Absorb, Abbott Vascular) at a single center in Italy between May 2013 and May 2014. Patients were considered eligible for BRS if they had a minimum of one chronic totally occluded vessel with signs of significant myocardial anemia. The researchers compared these patients with a historical control group (n = 54) who underwent CTO PCI in the previous 2 years with second-generation DES.

The rate of technical success in the BRS group was 78.1% vs. 96.3% in the DES group (P = .012). Technical failure in the BRS group was attributable to maximal residual stenosis > 30% in six patients and delivery failure at the target lesion site in one patient. Procedural success was 78.1% in the BRS group vs. 94.4% in the DES group (P = .035). Patients in the BRS group were free of events throughout their stay in the hospital, whereas the DES group had one case of death. There was no significant difference between the groups in the occurrence of periprocedural MI, side branch occlusion or contrast-related acute kidney injury. Frequency domain OCT analysis revealed 14 (22%) cases of scaffold underexpansion. Significant edge dissections occurred in two (3%) cases and BRS fractures were observed in two (3%) cases. – *by Jennifer Byrne* **CTI**

Reference:

LaManna A, et al. *Catheter Cardiovasc Interv.* 2016;doi:10.1002/ccd.26397.

Disclosure: Two researchers report receiving speaker's honoraria from Abbott Vascular.

PERSPECTIVE

The study results are concerning, as a 78% technical success rate after successful guidewire crossing is unacceptable. The main question is whether optimal techniques for sizing and deploying BRS were followed. The study was performed in 2013 to 2014 before widespread appreciation of the importance of excellent vessel preparation and high-pressure inflations for optimal BRS deployment. Although postdilation was performed, the actual pressure used is unclear. It is also unclear whether BRS sizing was accurate, with the added caveat that CTO vessel size increases following recanalization. Given that the radial strength of BRS is similar to that of metallic stents, the study results are somewhat surprising. Since CTO PCI often involves implantation of multiple stents (and full metal jacket), use of BRS could prove beneficial in the long-term if adequate acute results can be obtained. A contemporary study utilizing state-of-the-art BRS deployment and optimization techniques in CTO PCI is urgently needed to confirm or disprove the GHOST-CTO findings.

— Emmanouil S. Brilakis, MD

CARDIOLOGY TODAY'S INTERVENTION Editorial Board member

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Disclosure: Brilakis reports receiving speaker honoraria/consultant fees from Abbott Vascular, Asahi, Boston Scientific, Elsevier, Somahlution, St. Jude Medical and Terumo; research support from Boston Scientific and Infraredx; and his spouse is an employee of Medtronic.

CARDIAC

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For percutaneous treatment of chronic total occlusions, bioresorbable scaffolds were associated with higher rates of technical and procedural failure compared with second-generation drug-eluting stents, according to findings from the GHOST-CTO registry.

Researchers evaluated consecutive patients who underwent CTO PCI with a bioresorbable scaffold (BRS; Absorb, Abbott Vascular) at a single center in Italy between May 2013 and May 2014. Patients were considered eligible for BRS if they had a minimum of one chronic totally occluded vessel with signs of significant myocardial anemia. The researchers compared these patients with a historical control group (n = 54) who underwent CTO PCI in the previous 2 years with second-generation DES.

The rate of technical success in the BRS group was 78.1% vs. 96.3% in the DES group ($P = .012$). Technical failure in the BRS group was attributable to maximal residual stenosis > 30% in six patients and delivery failure at the target lesion site in one patient. Procedural success was 78.1% in the BRS group vs. 94.4% in the DES group ($P = .035$). Patients in the BRS group were free of events throughout their stay in the hospital, whereas the DES group had one case of death. There was no significant difference between the groups in the occurrence of periprocedural MI, side branch occlusion or contrast-related acute kidney injury. Frequency domain OCT analysis revealed [illegible] cases of scaffold underexpansion. Significant edge dissections occurred in two (3%) cases and BRS fractures were observed in two (3%) cases. – *by Jennifer Byrne* **CTI**

Reference:
LaManna A, et al. *Catheter Cardiovasc Interv.* 2016;doi:10.1002/ccd.26397.

Disclosure: Two researchers report receiving speaker's honoraria from Abbott Vascular.

PERSPECTIVE

The study results are concerning, as a 78% technical success rate after successful guidewire crossing is unacceptable. The main question is whether optimal techniques for sizing and deploying BRS were followed. The study was performed in 2013 to 2014 before widespread appreciation of the importance of excellent vessel preparation and high-pressure inflations for optimal BRS deployment. Although postdilation was performed, the actual pressure used is unclear. It is also unclear whether BRS sizing was accurate, with the added caveat that CTO vessel size increases following recanalization. Given that the radial strength of BRS is similar to that of metallic stents, the study results are somewhat surprising. Since CTO PCI often involves implantation of multiple stents and full overlap, use of BRS could prove beneficial in the long-term if adequate acute results can be obtained. A contemporary study utilizing state-of-the-art BRS deployment and optimization techniques in CTO PCI is urgently needed to confirm or disprove the GHOST-CTO findings.

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Disclosure: Brilakis reports receiving speaker honoraria/consultant fees from Abbott Vascular, Asahi, Boston Scientific, Elsevier, Somahlution, St. Jude Medical and Terumo; research support from Boston Scientific and Infraredx; and his spouse is an employee of Medtronic.

78.18% Success vs. 96.3% Success in DES …is BVS ready for prime time?

Inferior Role of OMT Versus PCI

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IRCTO
Italian Registry of Chronic Total Occlusion

- Prospective multi-centre registry
- Optimal medical therapy (MT), PCI, CABG
- One year clinical follow-up

IRCTO

1777 Patients

Overall CTO Prevalence of 13.3%

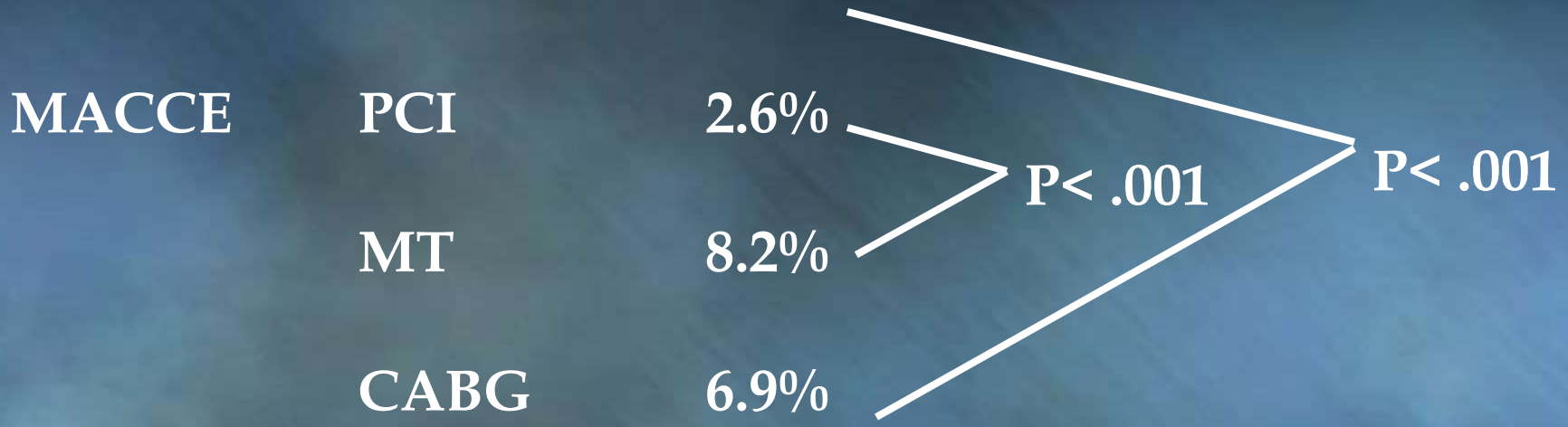
MT 826 (46.5%)

PCI 776 (43.7%)

CABG 175 (9.8%)

R. Heuser

RESULTS



RESULTS

Cardiac Death	PCI 1.4% MT 4.4%	P<.001
Acute MI	PCI 1.1% MT 4.4%	P<.001
Re-Hospitalization	PCI 2.3% MT 4.4%	P<.001

IRCTO

CTO PCI improves the survival and decreases MACCE occurrence at 1 year in comparison with medical therapy and/or coronary artery grafting

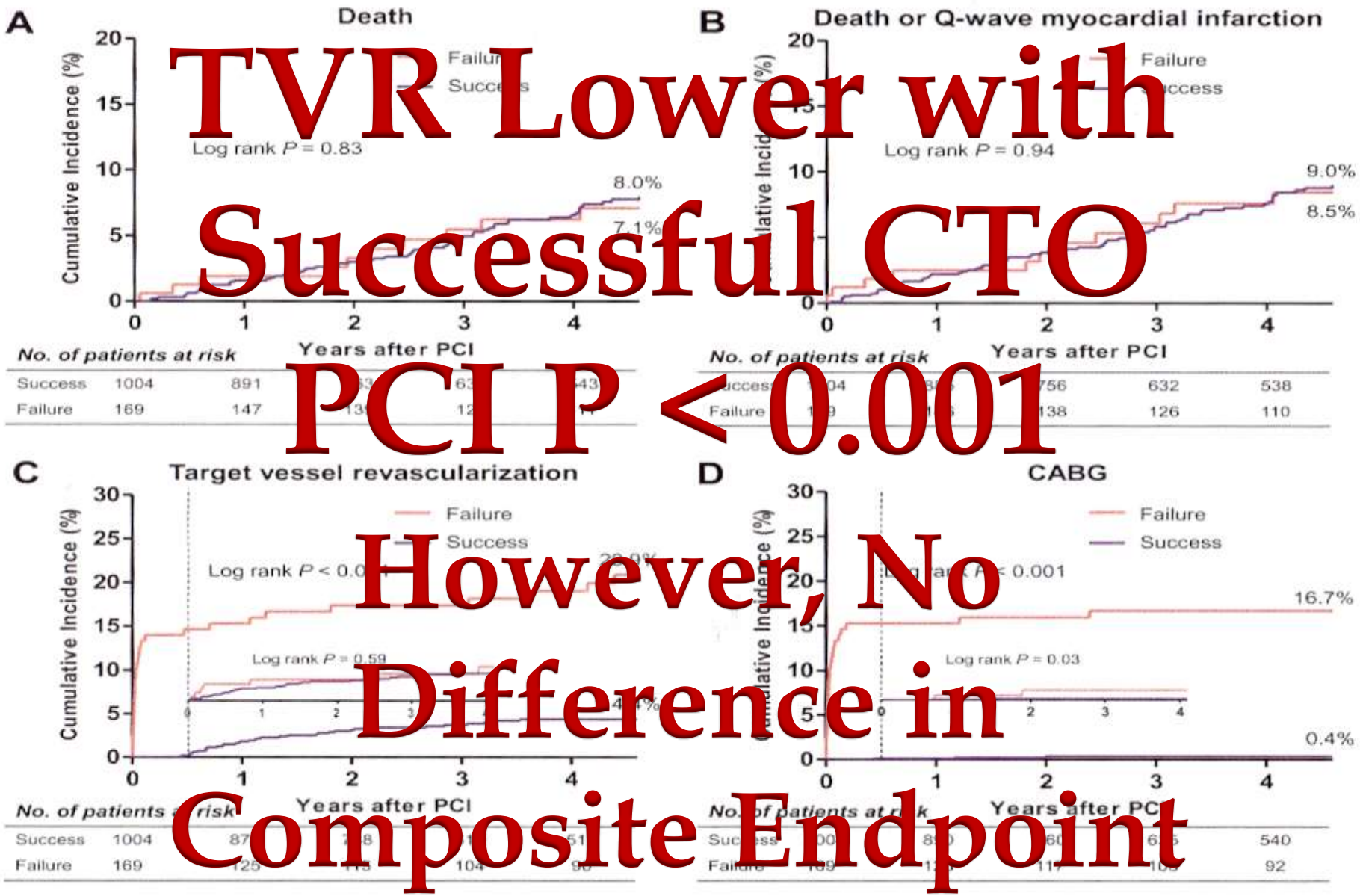
Chronic Total Occlusion PCI and Survival

The investigators reported the outcome of 1,173 consecutive patients with CTO of native coronary vessels who underwent PCI between 2003-2014 at Asan Medical Center in Seoul, Korea. The procedure was successful in 1,004 patients (85%) and all of these were treated with a drug-eluting stent.

Over a median follow-up of 4.6 years, there was‹ no difference in the adjusted risks of all-cause mortality (hazard ratio [HR], 95% confidence interval [CI], 0.53-2.04; p = 0.92) and the composite death or myocardial infarction (HR, 1.05; 95% CI, 0.56-1.94; p = 0.89) between those with successful versus failed attempt at PCI. The risk of target vessel revascularization (HR, 0.15; 95% CI, 0.10-0.25; p ‹ 0.001) was significantly lower in those with successful PCI of the CTO. The findings were consistent irrespective of completeness of revascularization or the presence of single versus multiple CTOs. The ongoing DESIGN-CTO trial will help answer the question, but in the interim, it is important that the procedure is offered for symptom relief rather than for prognostic reasons.

Lee PH, Lee SW, Park HS, *et al.* Successful recanalization of native coronary chronic total occlusion is not associated with improved long term survival. *JACC Cardiovasc Interv* 2016;Mar2:[Epub ahead of print].

FIGURE 3 Kaplan-Meier Curves for Clinical Endpoints



TVR Lower with Successful CTO PCI P < 0.001 However, No Difference in Composite Endpoint

Kaplan-Meier curves of cumulative incidence of **(A)** all-cause mortality, **(B)** composite of death and myocardial infarction, **(C)** target vessel revascularization, and **(D)** coronary artery bypass grafting (CABG). PCI = percutaneous coronary intervention.

Impact of Percutaneous Coronary Intervention for Chronic Total Occlusion in Non–Infarct-Related Arteries in Patients With Acute Myocardial Infarction (from the COREA-AMI Registry)

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324 Patients with Non-IRA CTO

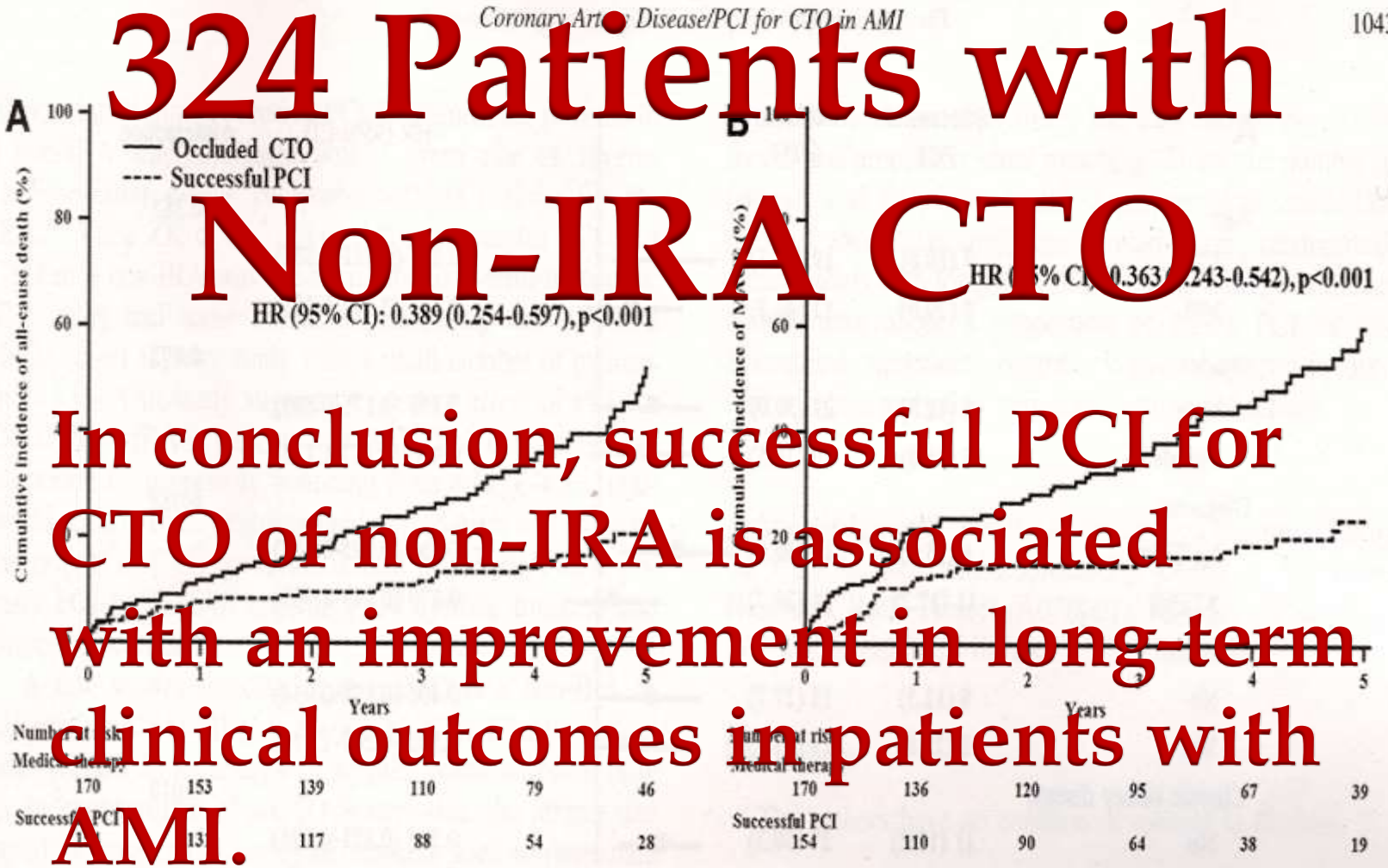

Figure 1. Kaplan–Meier curves for primary outcomes according to successful PCI in the overall cohort. *(A)* All-cause death and *(B)* MACE.

In conclusion, successful PCI for CTO of non-IRA is associated with an improvement in long-term clinical outcomes in patients with AMI.

R. Heuser

Inferior Role of OMT Versus PCI

All of this information is Registry and anecdotal


Show Me the Money!

Conclusion

- Without the knowledge of the difference in outcomes comparing OMT vs. CTO successful PCI, we need to show that CTO PCI is cost effective.
- The ongoing DESIGN-CTO trial will help answer the question, but in the interim, it is important that the procedure is offered for symptom relief rather than for prognostic reasons. *(Continued)*

•(*Continued*)

Conclusion

The true prognostic effect of CTO-PCI should be defined by a randomized comparison between successful CTO-PCI and optimal medical therapy.

- (*Continued*)

•(*Continued*)

Inferior Role of OMT Versus PCI

Conclusion

- We still don't have the answer…OMT vs. PCI of CTO
- There are hints
- Success rates are improving dramatically