Complex PCI is Complicated

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Disclosure Statement of Financial Interest

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below.

Affiliation/Financial Relationship	Company
Grant/Research Support	Boston, Abbott, Medtronic
Consulting Fees/Honoraria	Boston, Abbott, Medtronic, Abiomed
President (unpaid)	NBPAS (National Board of Physicians and Surgeons)
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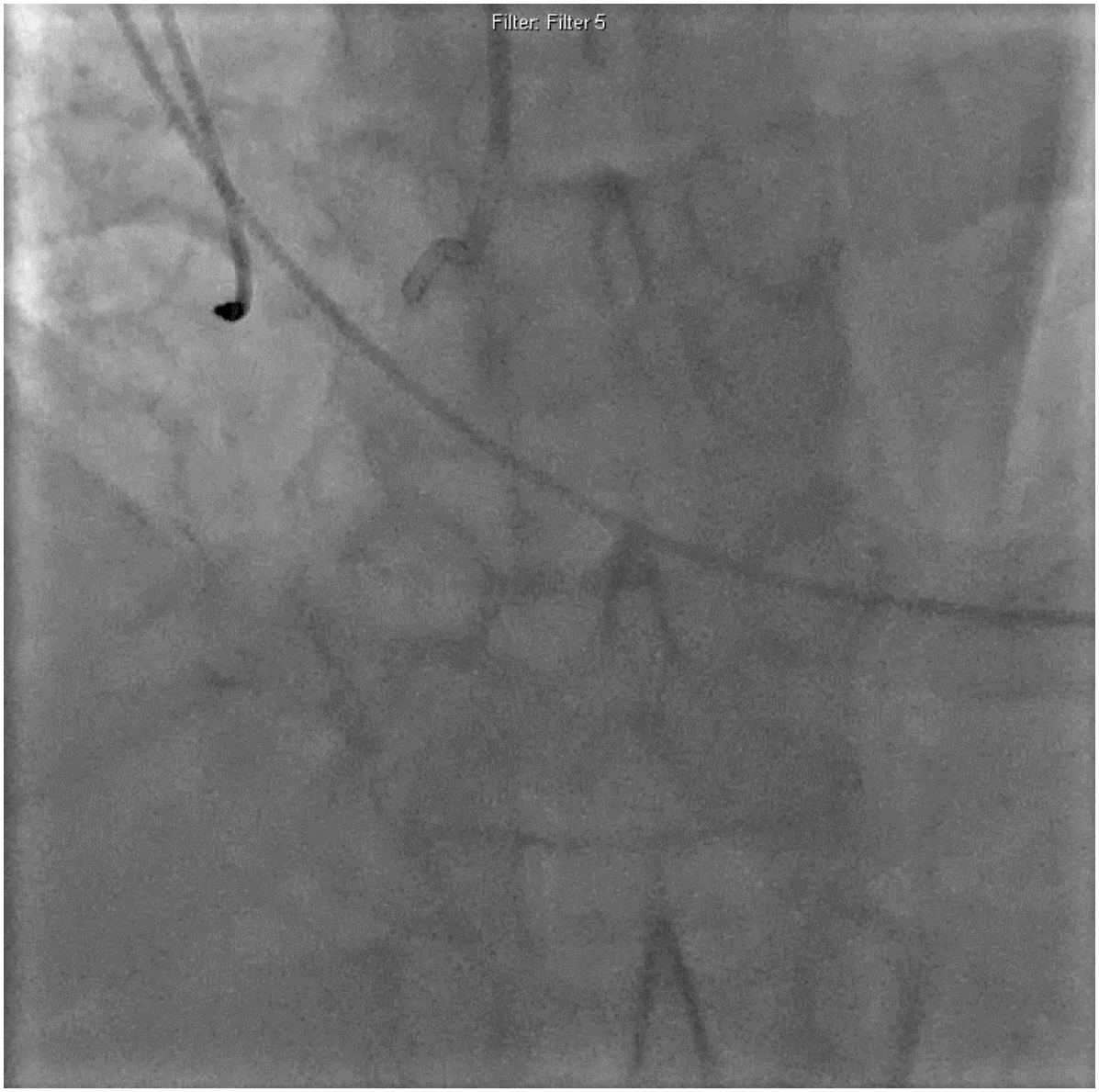


67 yo very obese male
DM, HTN, Pacer in past,
EF 29%, global hypokinesis on echo

1 week earlier had shortness of breath and chest pain

Stayed home because he thought home was safer than a hospital during COVID

After a week of chest pain, came to hospital, trops elevated, cathed

Post Descending occluded with collaterals from LAD

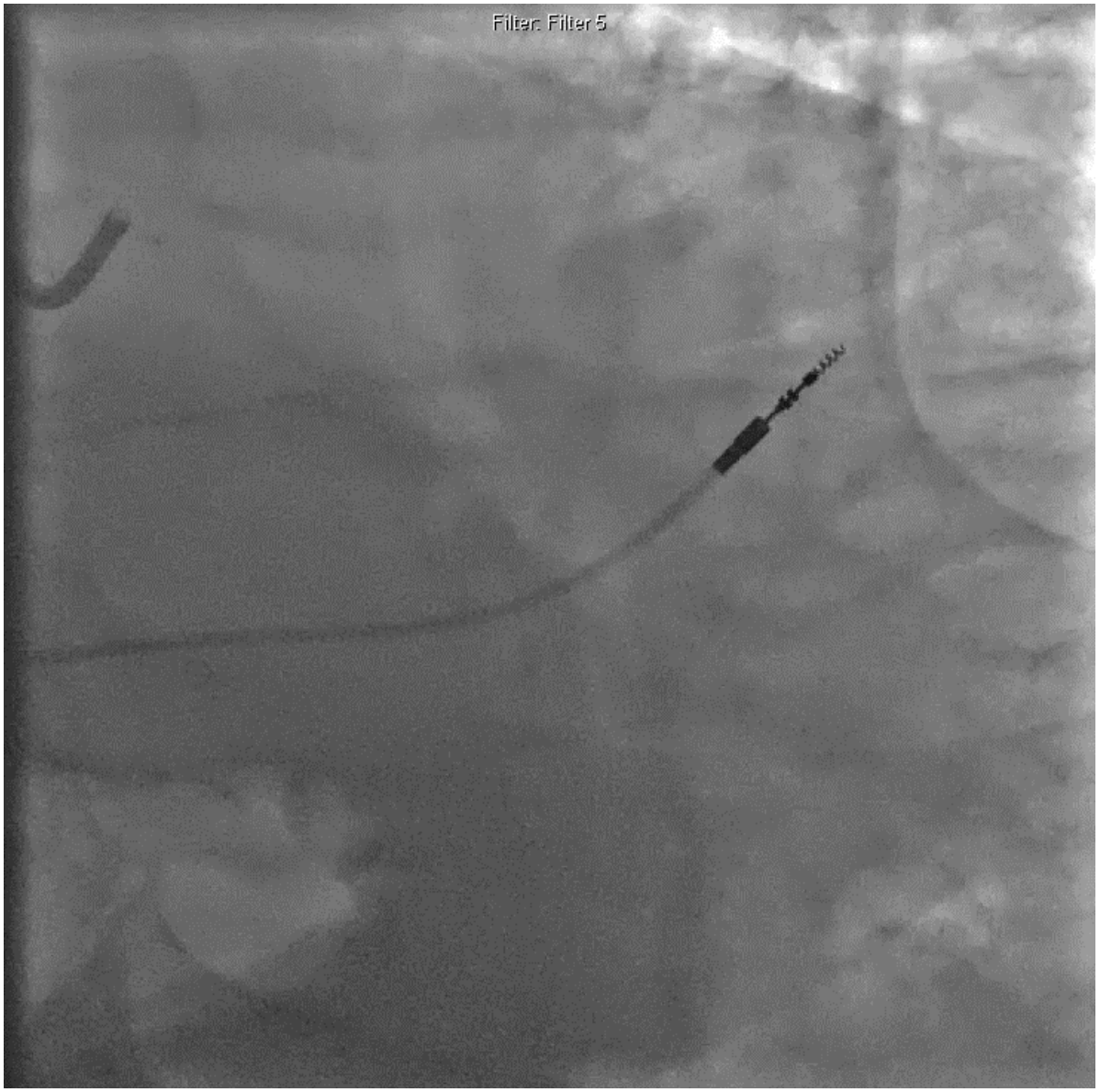
67 yo diabetic,
EF 29%, global hypokinesis on echo

Blood pressure is 118/85

Significant disease:
LEFT MAIN
LAD
SMALL DIAGONAL
RCA STENOSIS
CTO OF PDA

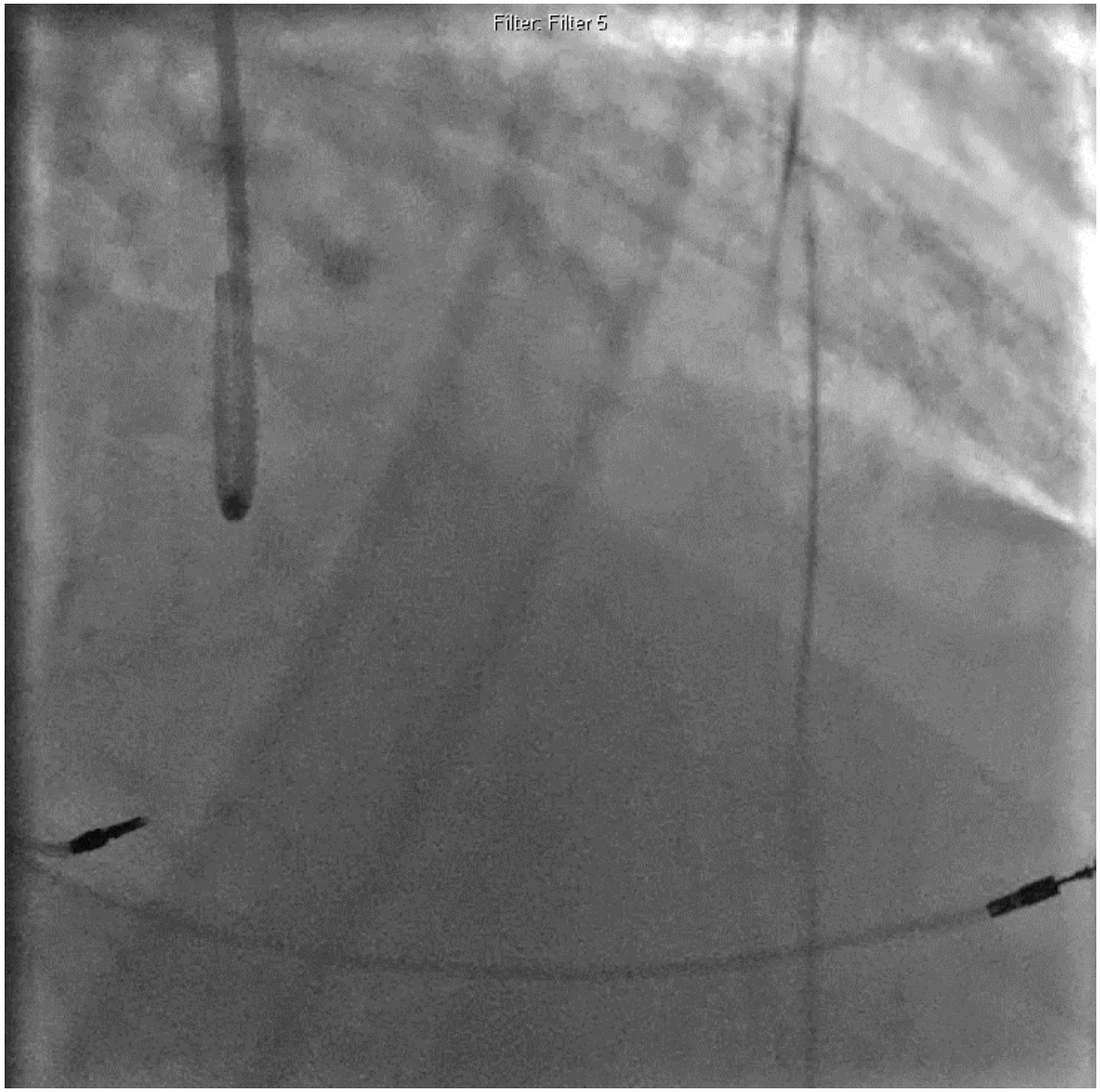
How should we treat?

Show other projections



Caudal shows Circ relatively spared

Except no OMs!



AP cranial, note the small diagonal hanging on by a thread.

67 yo diabetic,
EF 29%, global hypokinesis on echo

Blood pressure is 118/85

Significant disease:
LEFT MAIN
LAD prox and distal
SMALL DIAGONAL
RCA STENOSIS
OM occluded
CTO OF PDA

Syntax score = 27

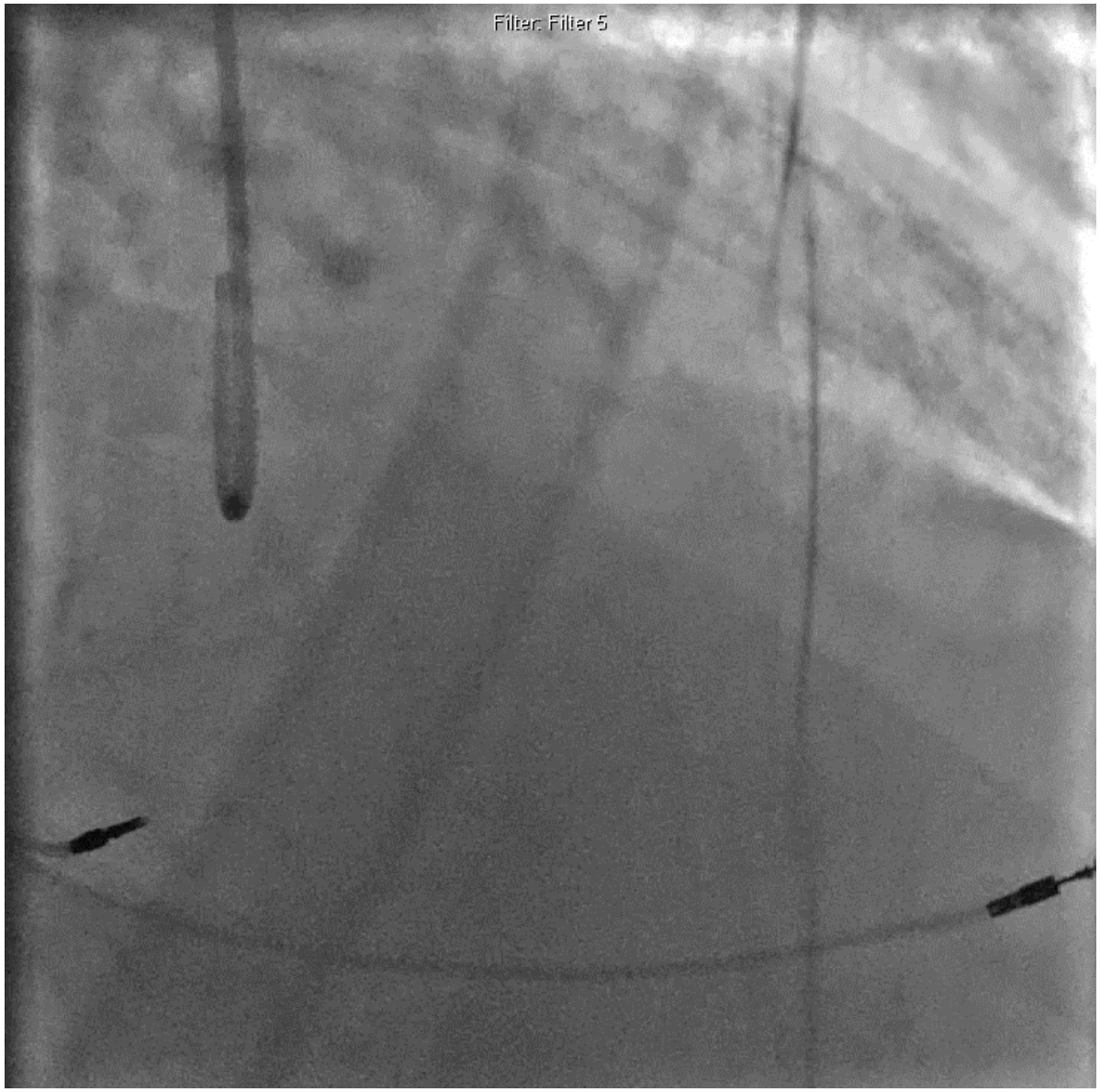
How should we treat?

Surgeon at referring hospital, in the middle of Covid crisis, is not interested in this high-risk, obese patient; low EF, poor distal LAD target

Patient in the middle of Covid crisis is not interested in surgery.

Patient is transferred for PCI.

How do we do this case? What vessel to start with? Atherectomy? Staged? MCS?



AP cranial, note the small diagonal hanging on by a thread.

Should I use MCS

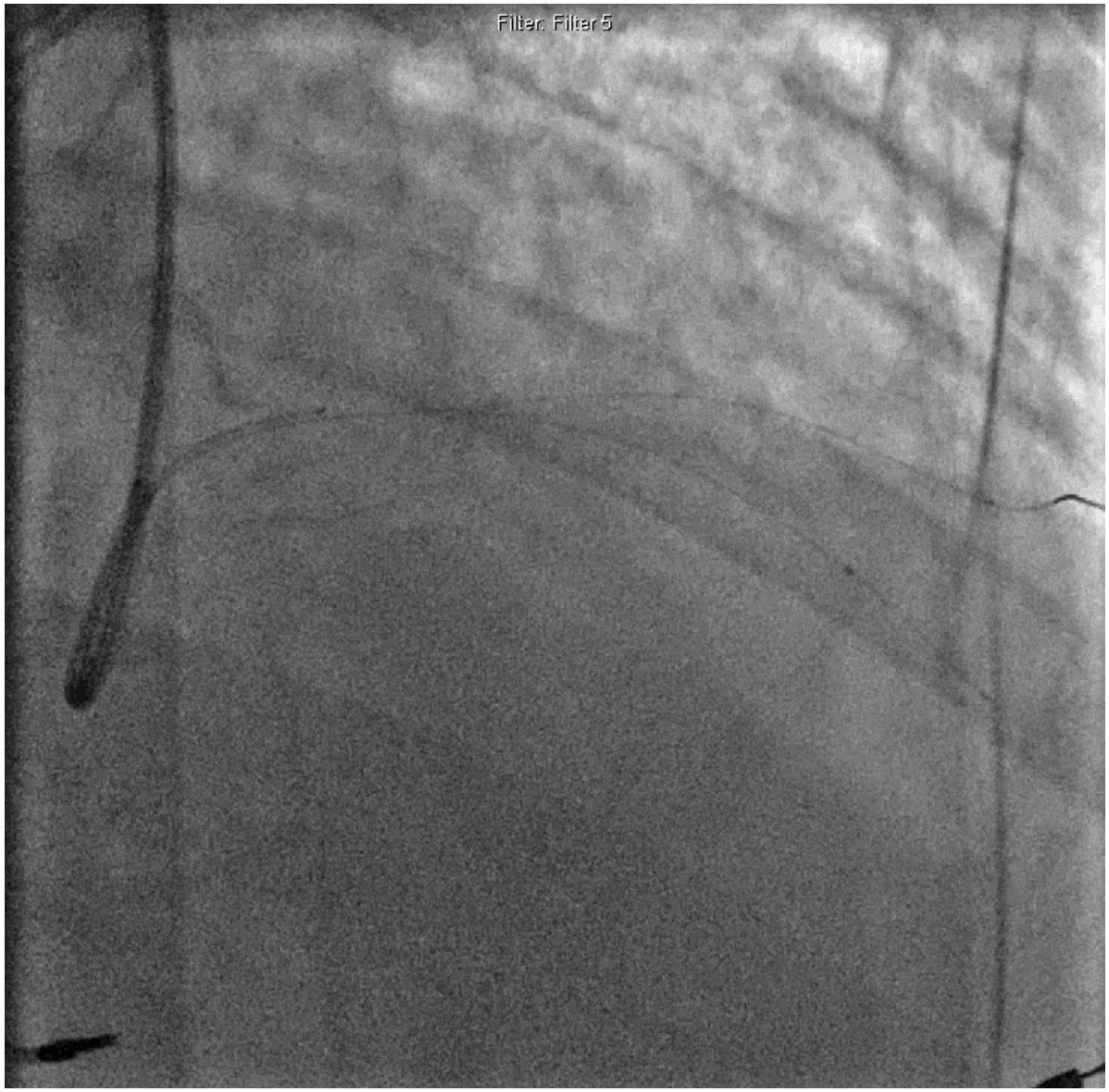
Should I use Impella?

Even EPIC gave me the following warning

Wt: 117 kg (257 lb 11.5 oz)
BMI: 32.21 kg/m² !

Simple, 10 minute left main case, maybe one long cross over stent.

I went right radial and did not use any support

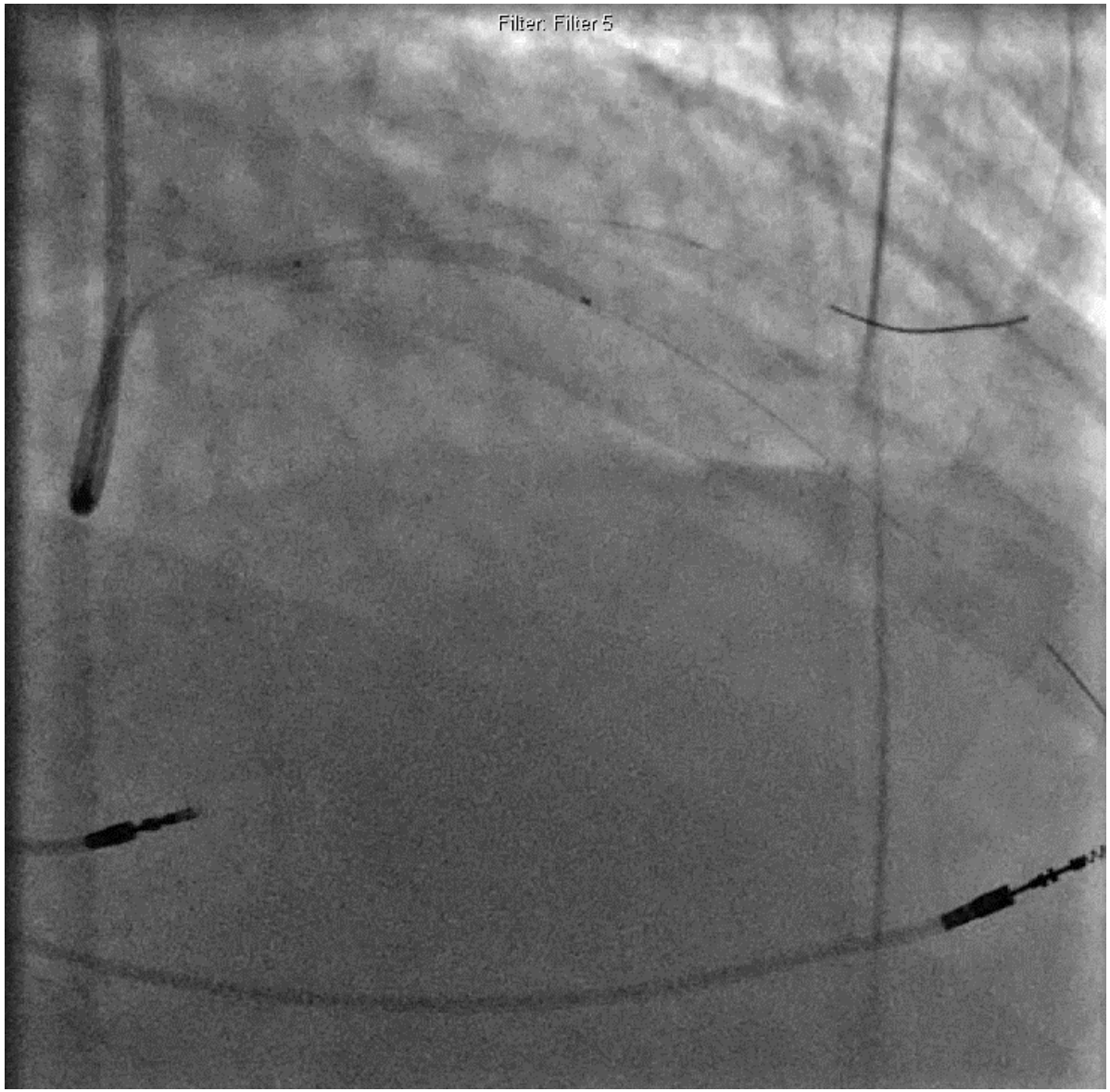


Lots of IVUS imaging for sizing and understanding left main lesion
Not a lot of calcium, circ ostium not involved

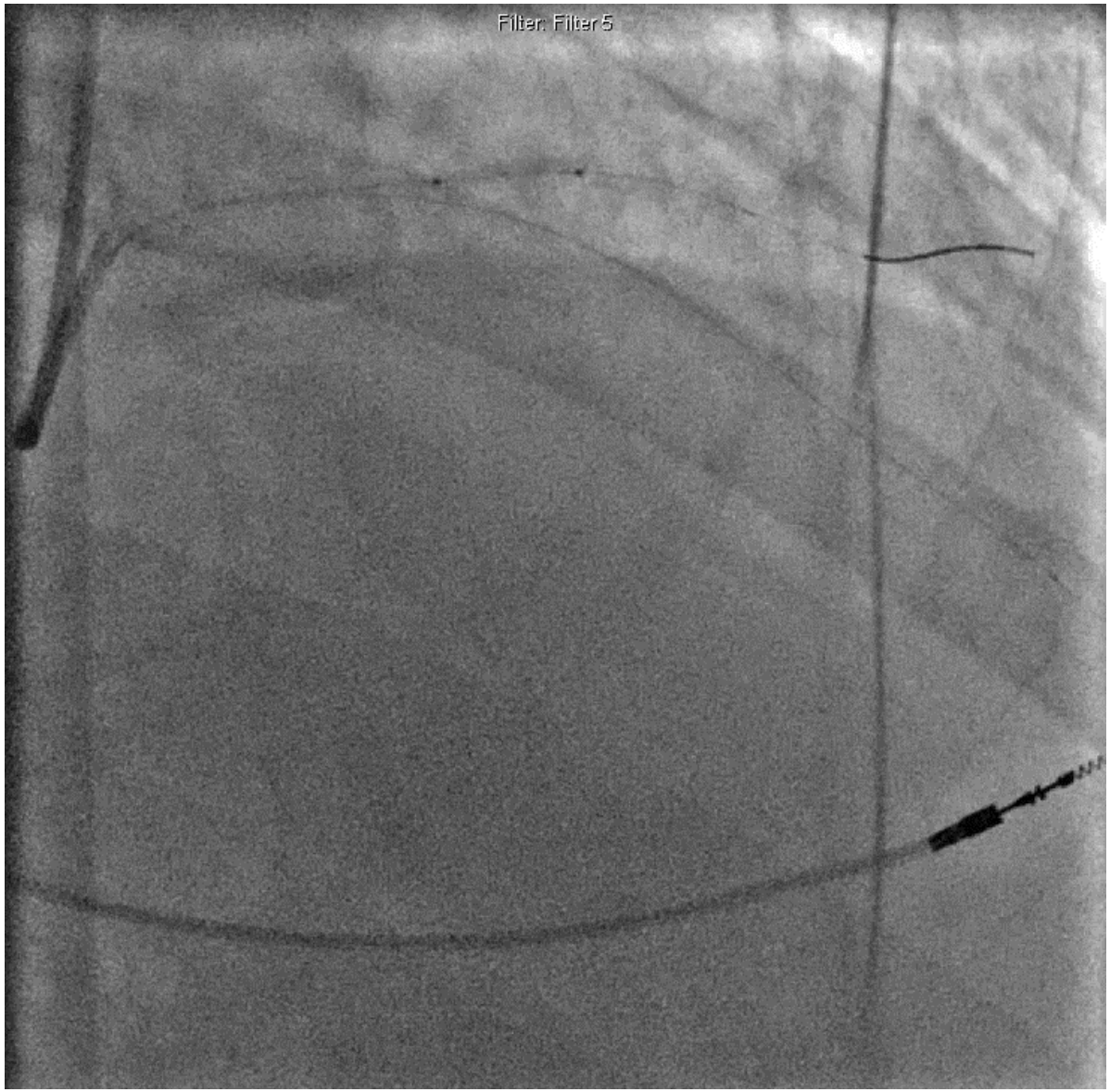
Wired both LAD and diagonal

One radial access.

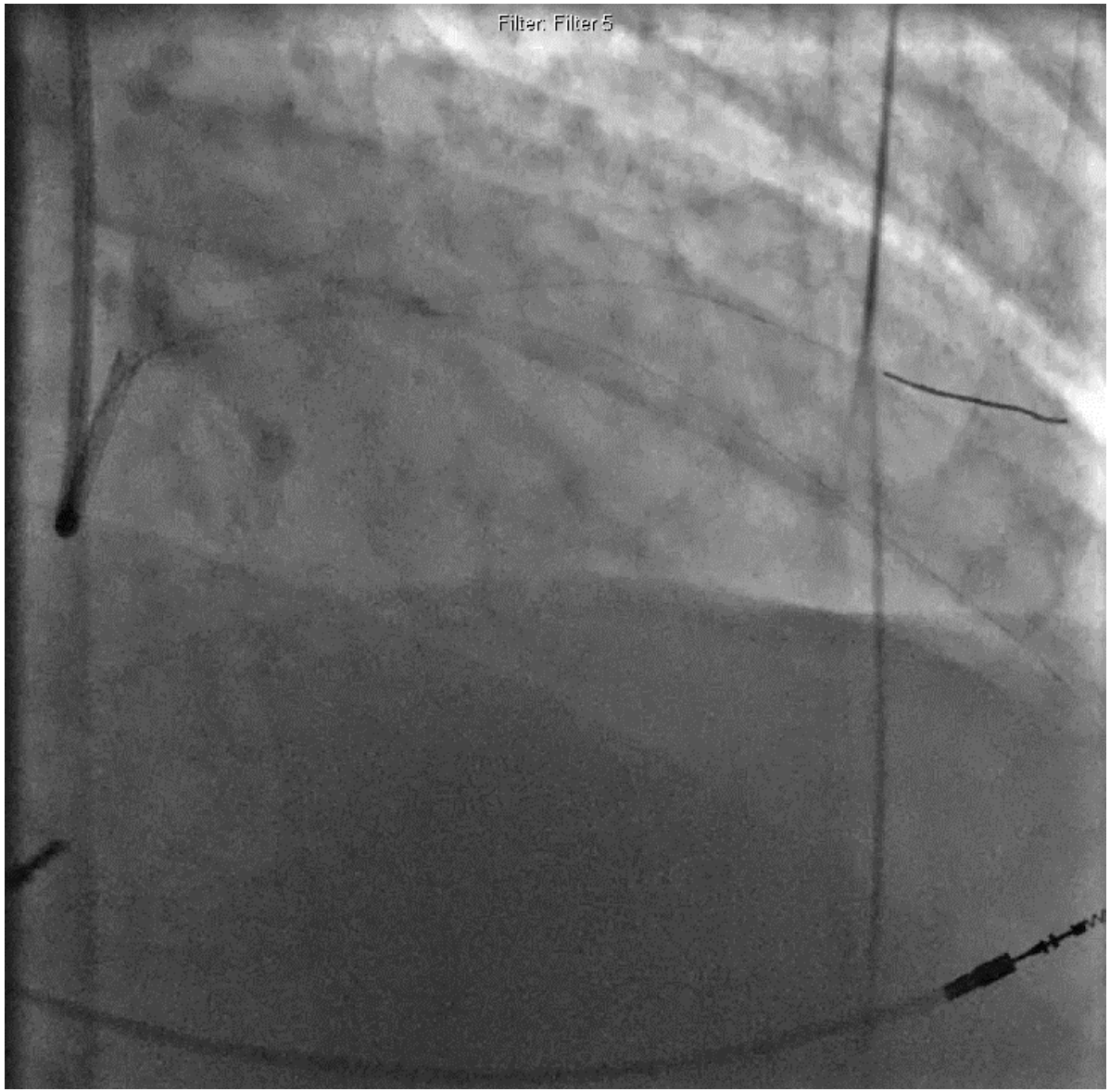
No MCS due to BSA of 32!



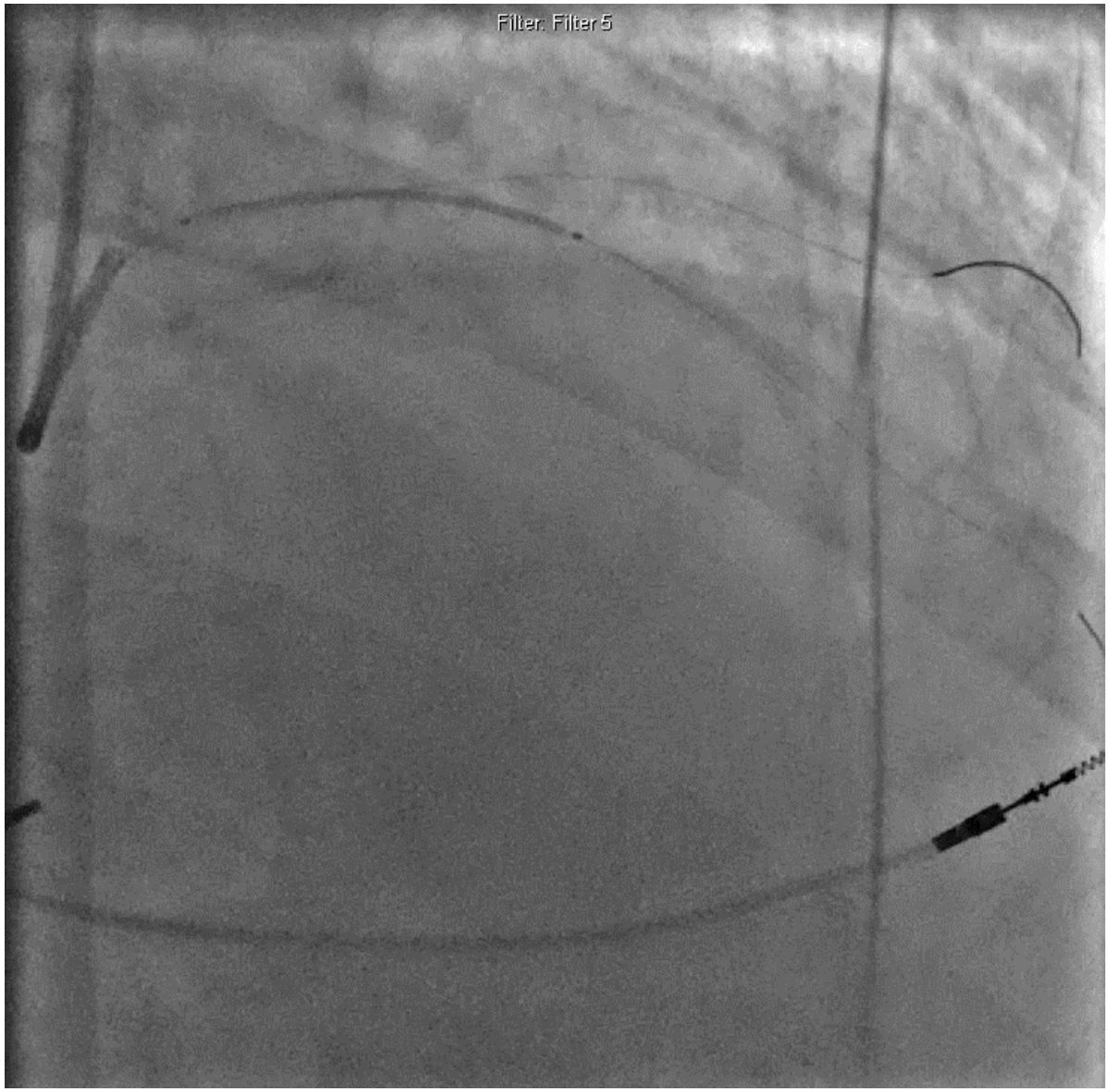
Predilated LAD



Dilated diagonal with 2.25 balloon to keep this tiny branch open



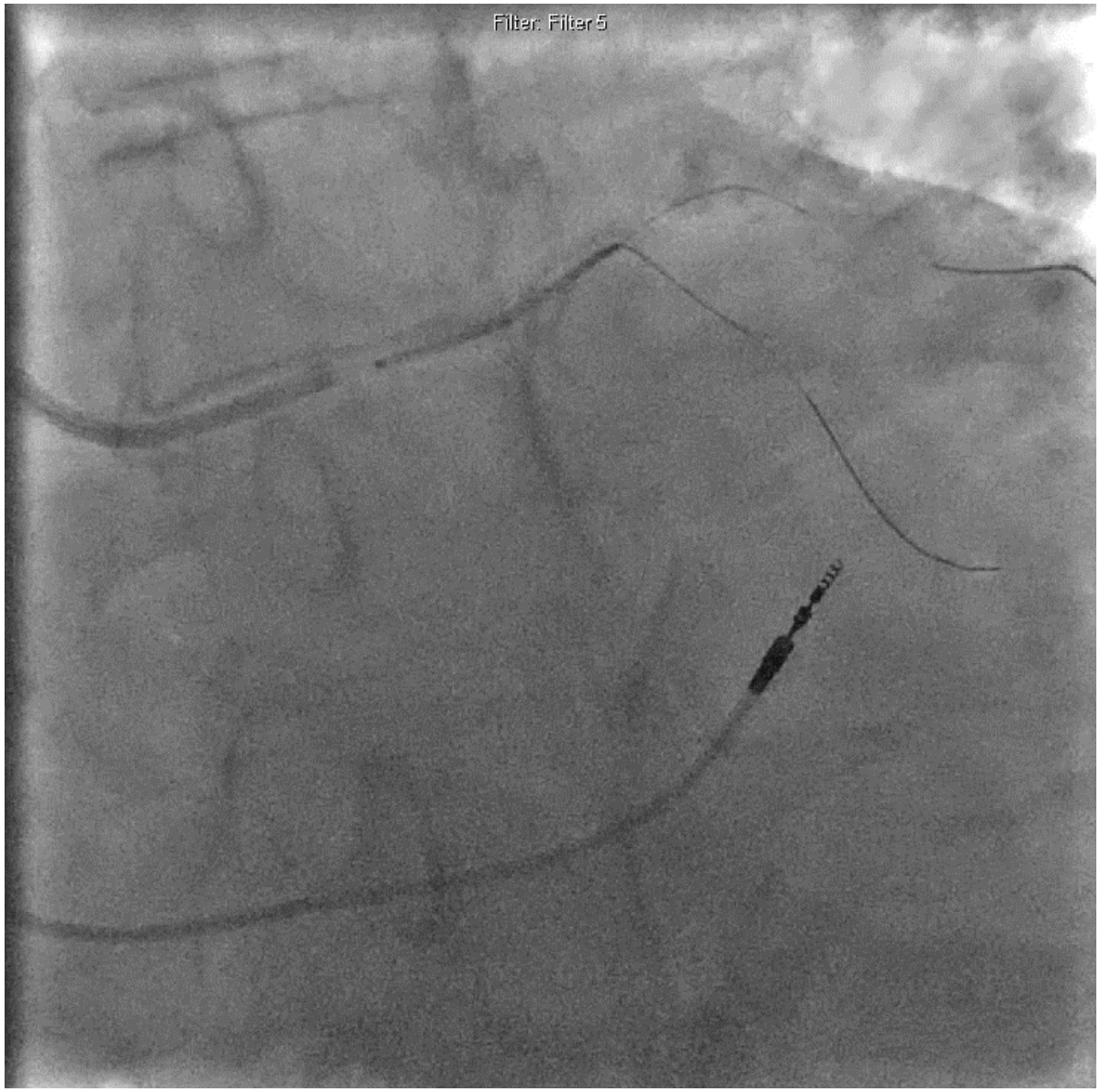
So far so good!



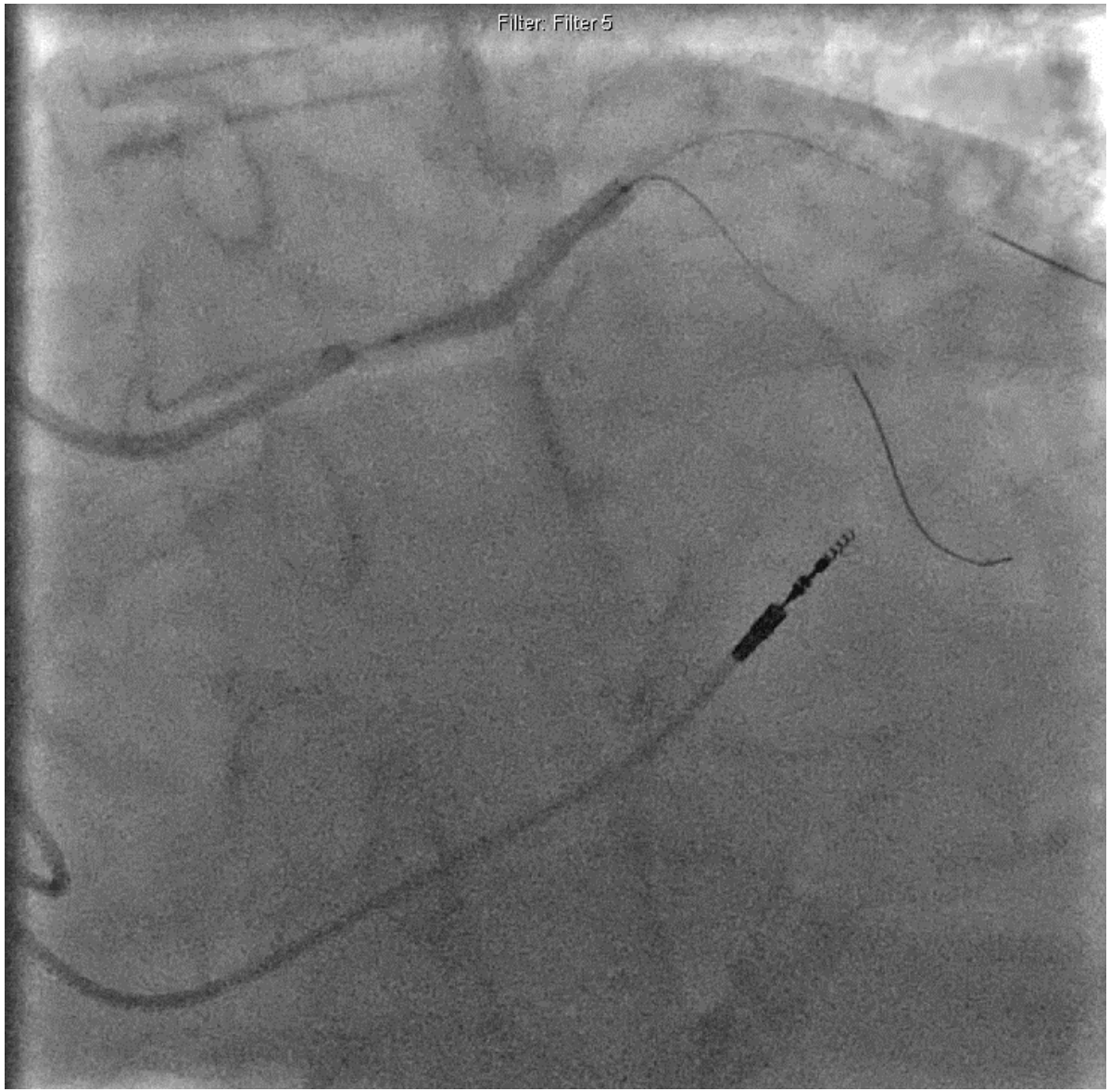
2.75mm DES based on IVUS images

Wire remains in diagonal as protection

But I thought take-off of circumflex was not diseased and had a very acute angle so I don't protect circumflex with a guide wire



Stent correctly placed at proximal lesion margin



Stent deployed

Small caliber diagonal is now occluded. BP is now 70, then 60, then 50mm Hg, CPR What should I do?

I have massive "Impella Regret"

I give "a little epi"

Per Dr Geoffrey Hartzler. "A little epi" goes like this:

Take a plastic bowel on the back table and dump everything out while firmly asking nurse to "Inject epi from the code cart into this blue bowel." Draw up about 1 cc of epi in a syringe and dilute with about 5 cc of saline and then inject about 1cc into the guidecatheter (about 0.02mg IC)

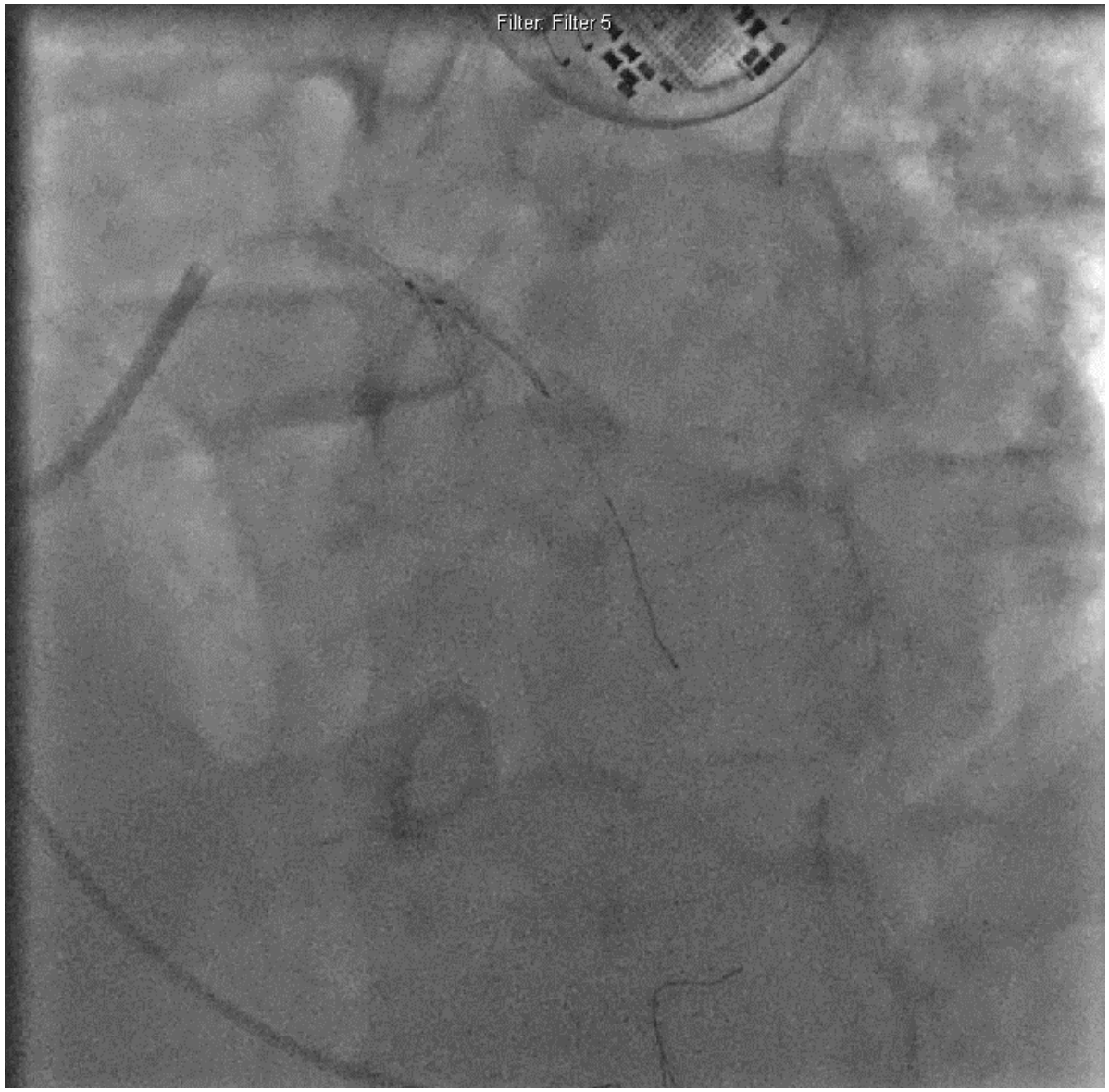
This works for most hypotensive emergencies, especially air embolus

Caveats:

1) **Immediately draw up a two full syringes of nitro because most patients will get very hypertensive, especially after you solve the problem.**
2) **If you are working with an anesthesiologist, they will now hate you!**

Pressure comes back quickly, and I quickly wire and balloon open the “tiny” diagonal

Note: Another option would have been to slide a 1.5mm balloon on the safety wire, behind the stent into the occluded diagonal.



Flow is restored but not perfect so I stent diagonal using the quick “TAP” technique

TAP of LAD/diagonal

Diagonal now looks a lot bigger than I thought it was.

Distal LAD stent margin needs a another stent.

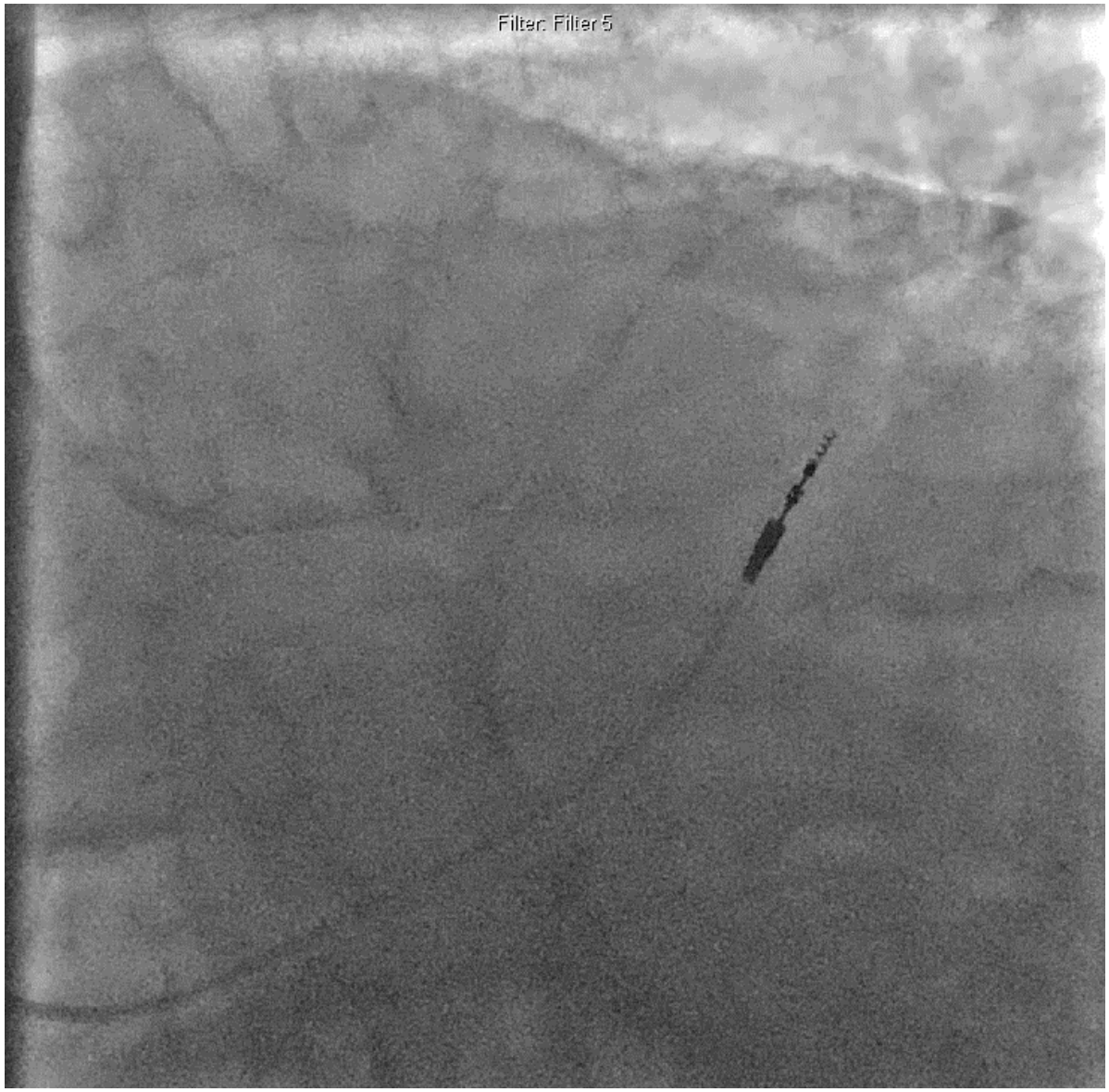
Patient is now doing a lot better and I begin looking forward to the end of this procedure

IVUS driven optimization of Left Main.

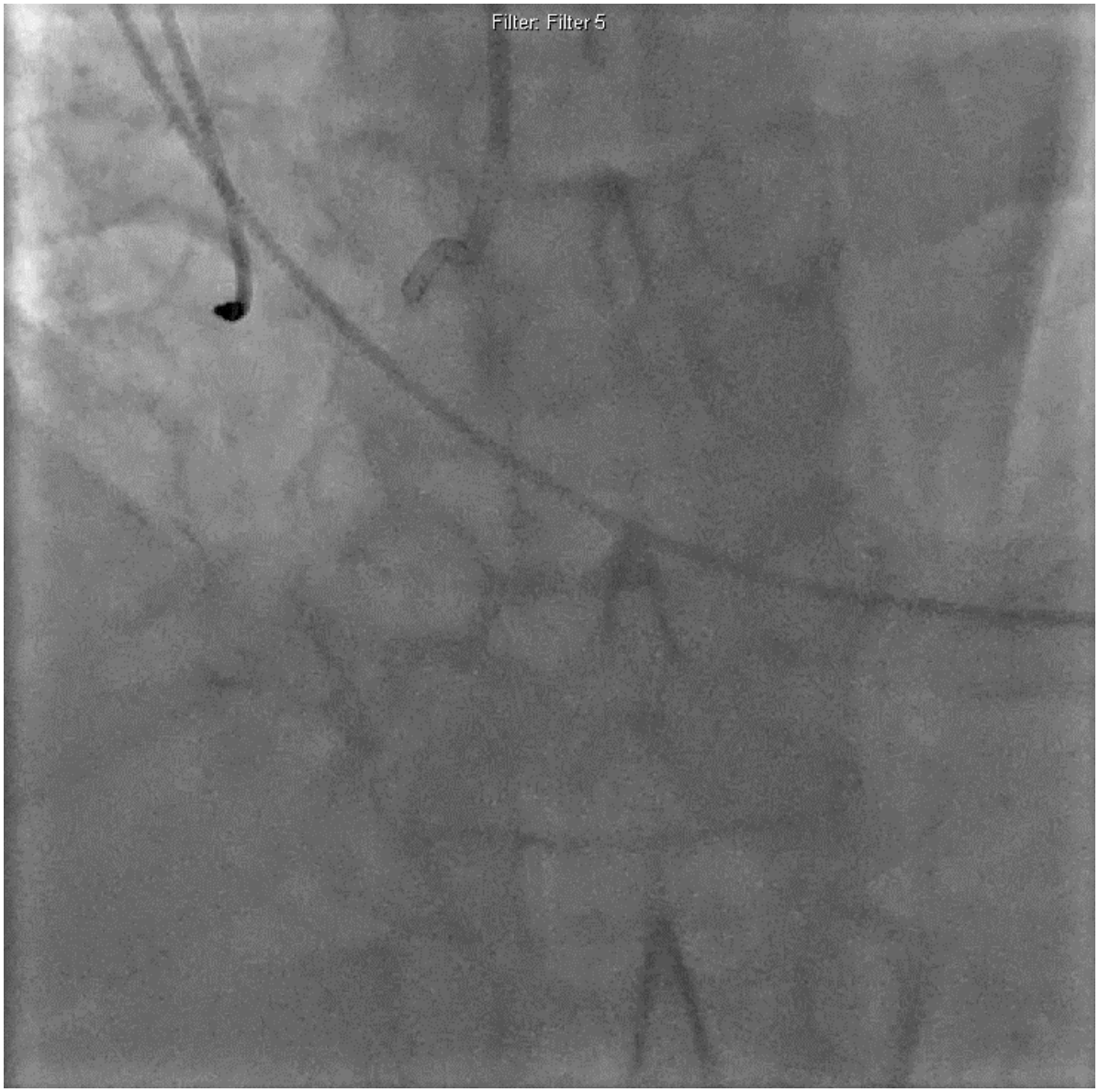
Left sided results look very good in the cranial projection

Check out the size of the diagonal

And…



And…the caudal projection



Should RCA be treated or should I be happy with left coronary success?

If RCA is to be treated do we just stent the Post Lateral or do we attempt the CTO of Posterior Descending?

We are at 3 Gy radiation and 200cc of contrast. If we think RCA should be revascularized should we do it now or wait.

Patient lives 3 hrs from San Diego

If wait…how long should we wait?

I thought both the patient and I had enough for one day, so I waited till morning for RCA CTO.

Got left radial access for guidance (remember the BMI is 32) and did antegrade CTO attempt while protecting the Post Lat branch

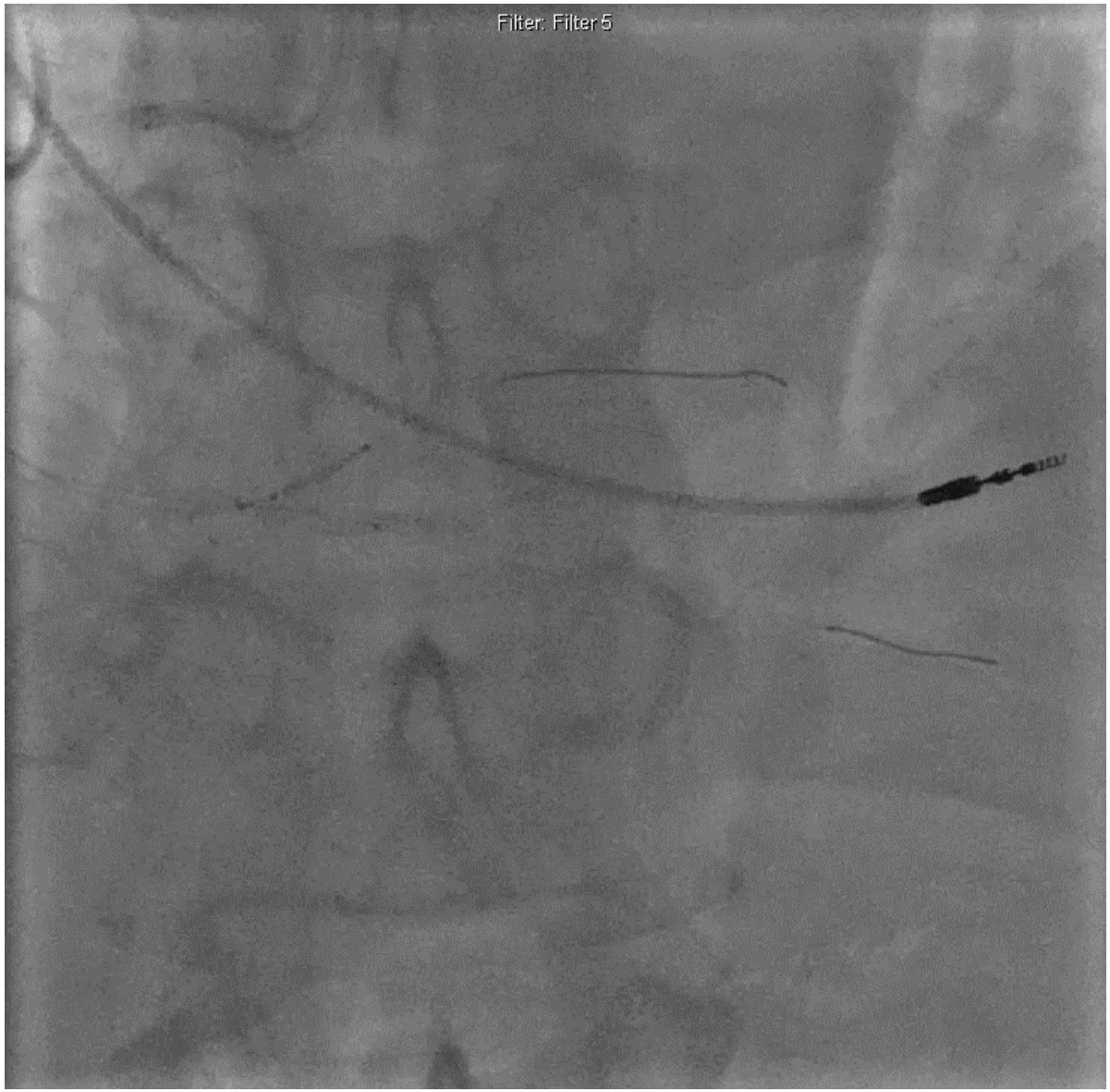
Started with a Gia 2nd wire

…it didn't work.

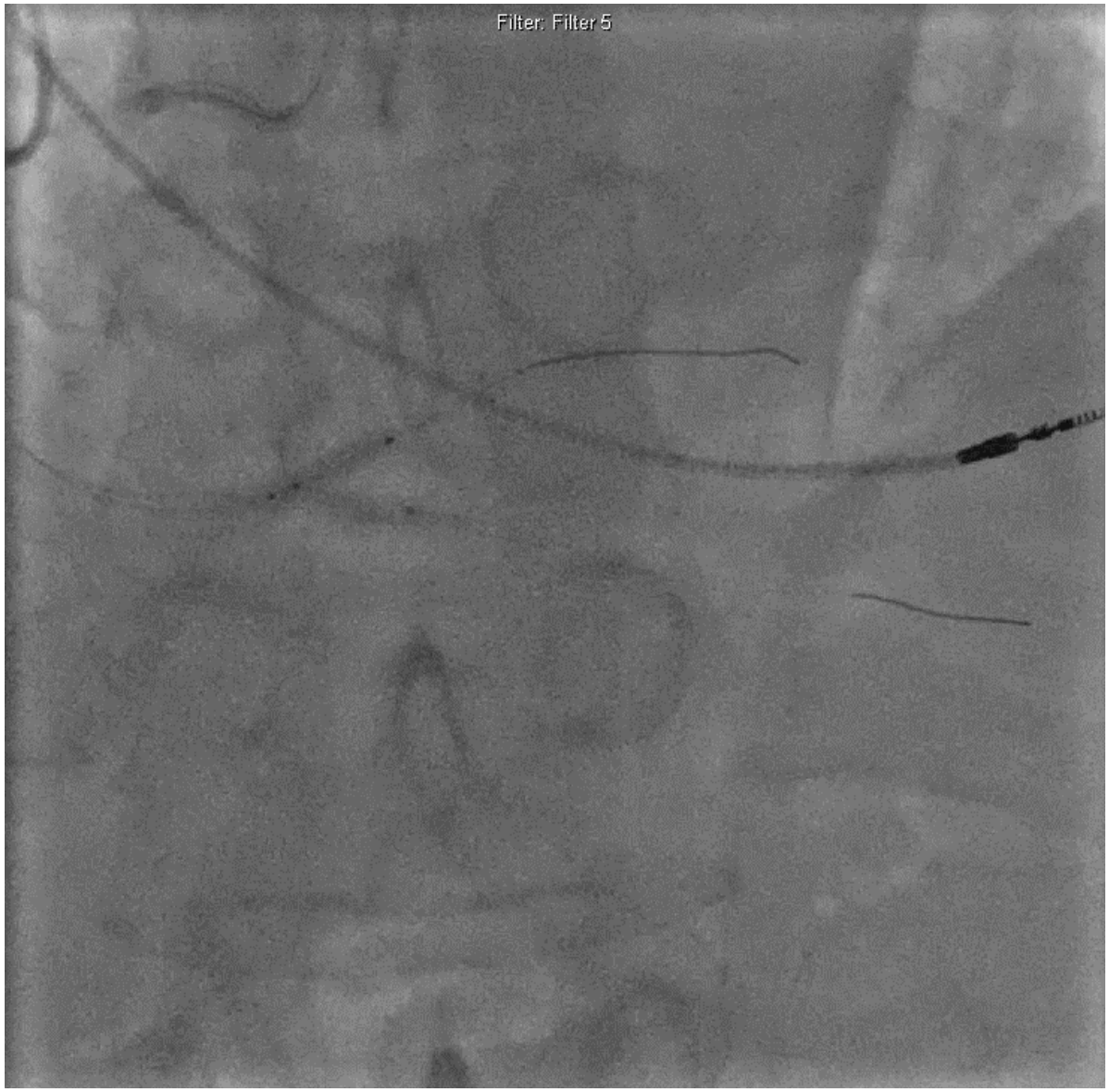
Moved to a Mongo…

Failed true to true but the Mongo did a great knuckle “STAR”

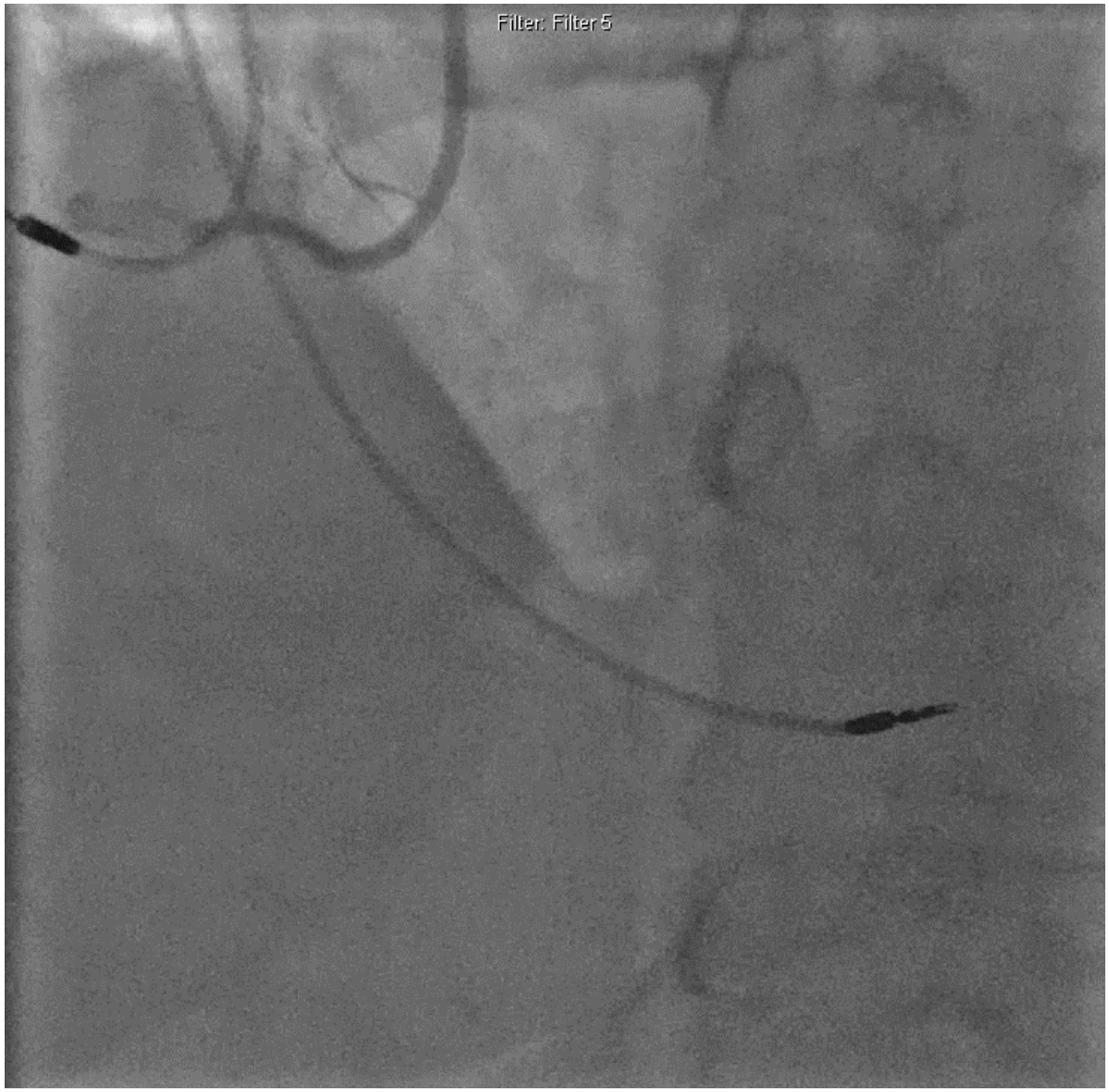
Stented from RCA into PDA



TAP stented the post lateral branch



Quick kiss with PL stent deployment



Happy arteries

Take home messages:

1) **Complex PCI is complicated**
2) **Impella regret is a significant risk.**