

Is there any Disease in the Left Main?

A 70 y diabetic and hypertensive gentleman presented with recent onset of class III effort angina. His angiography was done outside and he was referred to us for PCI to LAD. Left coronary angiogram in LAO caudal view (spider) revealed significant disease at the LAD ostium (Video 1, Fig 1,2). The confluence and the left main appeared normal (Video 1, Fig 1,2). As there was no adequate angiographic landing zone in ostio-proximal LAD, we decided to do left main to LAD crossover stenting. Regardless, we asked every member of our team to opine if distal left main was diseased. The uniform opinion was that there is no disease in distal left main. Then we presented the multiple angiographic images to AI (Chat GPT and Gemini) and asked it about left main and the way to treat this patient. Both indicated that there is no disease in the left main.

Fig 1

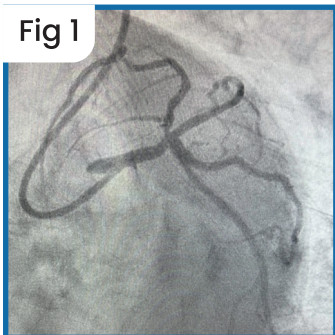


Fig 2

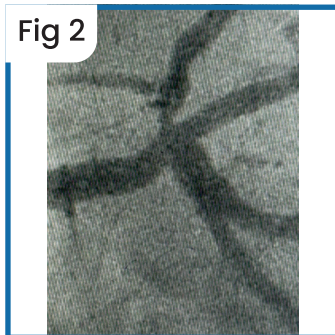
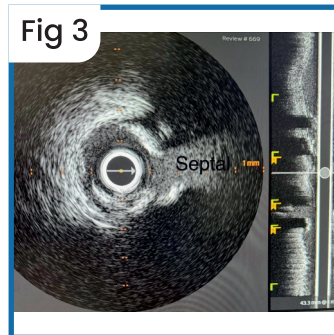


Fig 3



Vid 1



Fig 4

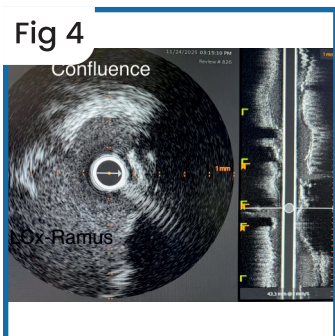


Fig 5

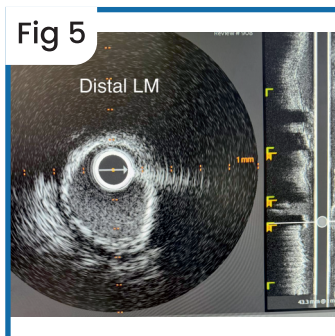
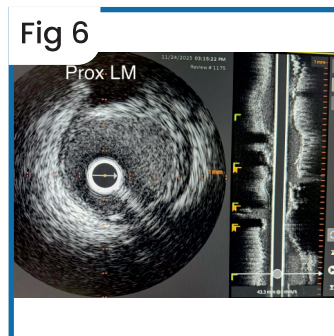


Fig 6



Vid 2

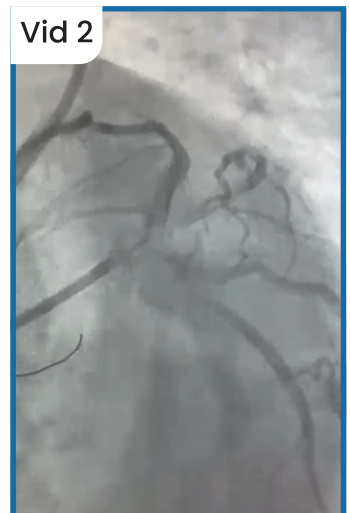


Fig 7

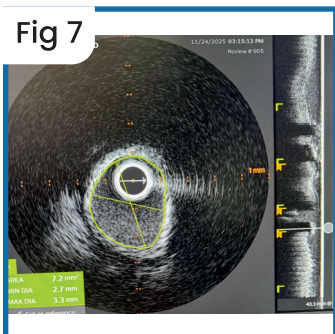


Fig 8

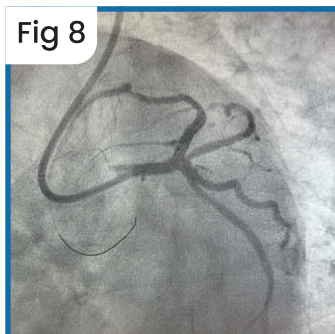
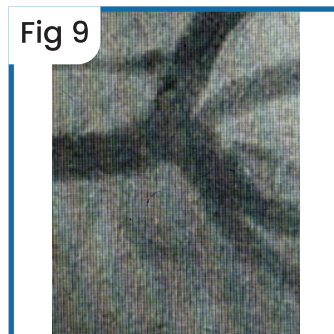


Fig 9



The AI reply was as follows (verbatim):

1. Is the Left Main Normal? From the images:

The left main (LM) appears smooth, without eccentric filling defect, tapering, or obvious haziness.

There is no suggestion of thrombus or dissection flap.

The LM-LAD and LM-LCX takeoff look clean and of normal calibre.

The appearance is consistent with a normal left main or at least no significant LM disease in these views. (As always, confirmation in orthogonal views is ideal, but from what is shown: LM looks normal.)

2. Proximal LAD Lesion – How to Stent?

The lesion appears in the proximal LAD, just distal to the LAD-Ramus bifurcation, and looks focally significant with some plaque extending slightly into the proximal segment.

General Strategy (simple, effective, safe):

A. Assess Side Branch (Ramus) Involvement

From the images, ramus appears not severely diseased, and the lesion is mainly in the LAD.

This means provisional stenting is the correct strategy.

Nevertheless, we performed IVUS from LAD to left main. The IVUS cross sectional images were taken at proximal LAD at the level of septal branch (Fig 3), area of confluence (Fig 4), distal left main (Fig 5) and proximal left main (Fig 6). It revealed a critical stenosis with a rim of 360 degree calcium in distal left main just proximal to the area of confluence (Fig 5). The MLA at the LM stenosis was 7.2 sq mm indicating a significant stenosis (Fig 7). Stenting was performed by stenting from LM to LAD crossover stent after adequate and appropriate treatment of distal LAD lesion with excellent angiographic result (Video 2, Fig 8 & 9).

Lessons:

- 1. Distal left main is often diseased when there is ostial LAD lesion**
- 2. Distal left main area is often difficult to assess angiographically**
- 3. AI is not always reliable in assessing coronary lesions and should not be relied upon while treating important areas like distal left main**
- 4. When in doubt always do crossover stenting rather than trying to nail the LAD ostium**



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