

## Bifurcation Lesion Stenting With Mini Crush Technique

Lesion occurring at or adjacent to a significant division of a major epicardial coronary artery is termed as a bifurcation lesion. Bifurcation vary in anatomy like location, diameter of branches, angle between branches, location of plaque, plaque burden etc. In addition to this, dynamic changes also occur at this site during the cardiac cycle.

Bifurcation lesions represent up to 20% of coronary stenosis that demands PCI. Compared to non-bifurcation lesions, these procedures are renowned for being technically challenging and historically have been associated with lower procedural success rates, worse clinical outcomes and increased long term risk of stent thrombosis and need of repeat intervention. But with introduction of much safer second generation drug eluting stents and more effective anti-platelet agents like prasugrel and ticagrelor, overall safety and efficacy of this procedure is likely to increase satisfactorily.



Although, intervening small size branches may be ignored, if the side branch is important in terms of its size and territory of distribution and if the disease extends for  $> 5$  mm beyond ostium, it needs to be protected and treated. Various strategies like only provisional side branch stenting or intentions to treat with two stents (mini crush, Culottes, V stenting, simultaneous kissing stents etc.) exist and a cardiologist needs to carefully select one depending upon the case.

### Case Presentation:

A 45 year old male, with family history of CAD and diabetes for last 5 years presented with crescendo angina for last 1 month.

### Diagnosis and Management:

His global LV function was normal and had significantly positive exercise stress test with ST depression and angina at 4 minutes of exercise. His CAG was showing LAD-D1 bifurcation lesion. As both the branches were of good size and important, it was decided to place two second generation

DESs (Resolute integrity from Medtronic). Through femoral artery 7F guide catheter was engaged and both the branches were pre-dilated. Two stents were delivered one in D1 and the other LAD across D1 branch. D1 stent followed by LAD stent were deployed at high pressure. Wires were re-crossed and proximal large balloon dilation was given. Procedure ended with simultaneous kissing balloons.

### Outcome:

The end result was excellent with brisk flow in both branches without any residual stenosis. Patient was discharged next day with dual anti-platelet (Aspirin + Prasugrel), high dose statin and other drugs. After 9 months, he had no complaints and is NYHA class I doing all routine and strenuous activities. His exercise TMT is normal up to 12 minutes on Bruce protocol.

### Conclusion:

By selecting proper strategy and optimizing performance we can achieve good short and long term results for bifurcation disease in current era with the existing devices and drugs.

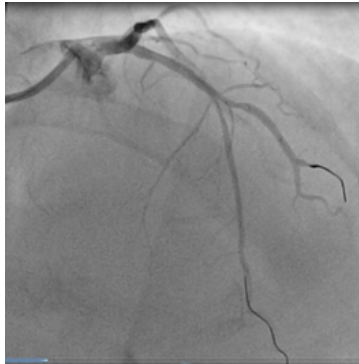


Fig 1: Bifurcation Lesion at LAD – Major Diagonal Branch Junction

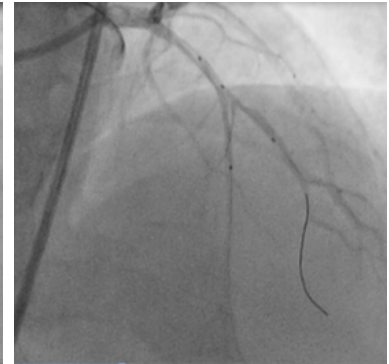


Fig 2: Two Stents Placement: LAD and Major Diagonal

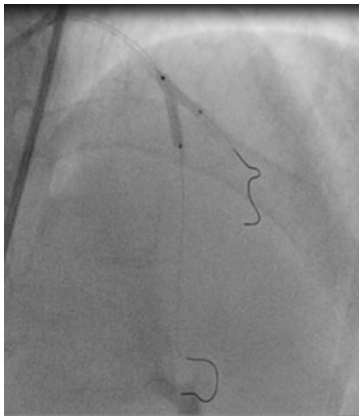


Fig 3: Kissing Balloon To Optimize The Result



Fig 4: Final Result : Brisk Flow, No Residual Lesion in Either Branch