

Coronary Rupture During Stent Implantation of LAD, a Frightening Complication: Original Image

Korkutan Bir Komplikasyon: LAD'a Stent İmplantasyonu Sırasında Koroner Rüptür

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A 44 year old male patient was referred to our center with an ongoing post myocardial infarction (MI) angina pectoris. Two days ago, the referring center had administered thrombolytic therapy in the course of acute anterior wall myocardial infarction. After the thrombolytic therapy his angina had resolved for a while but then he had been suffering paroxysmal anginal attacks. He did not have any systemic illness and atherosclerotic risk factors. On his physical examination, blood pressure and heart rate were 125/70 mmHg and 95 bpm, respectively. Heart and respiratory auscultation findings were normal. The ECG showed a sinus rhythm with biphasic T waves and slight (0,5 mm) ST segment elevations in the anterior leads. Transthoracic echocardiography showed mildly impaired LV systolic dysfunction with particularly severe hypokinesis

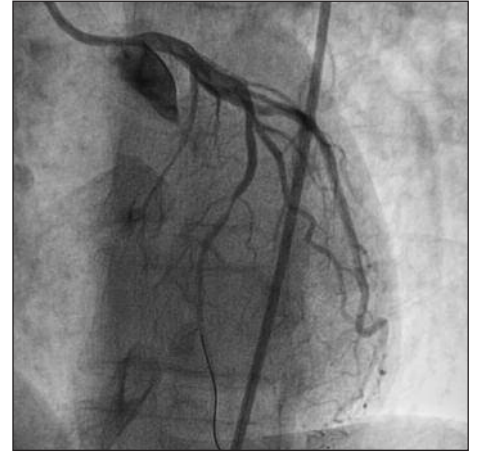


FIGURE 1A: Coronary angiography demonstrating the severe narrowing of the left anterior descending artery in the left anterior oblique cranial view.

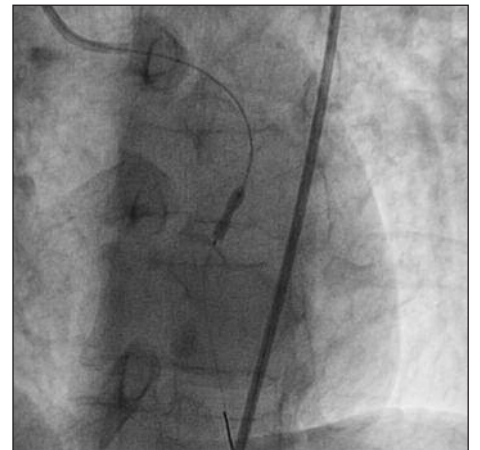


FIGURE 1B: Stent balloon (2.75x18 mm) during the PTCA of the left anterior descending artery lesion under 24 atm pressure.

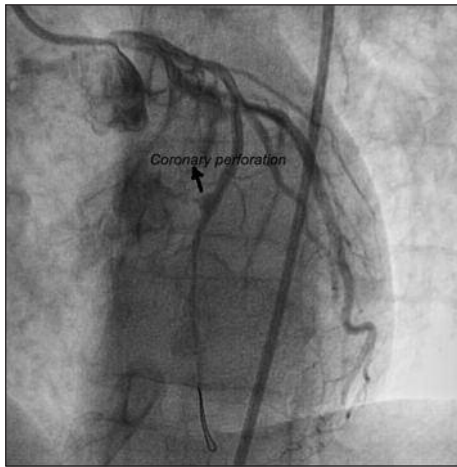


FIGURE 1C: After the deflation of balloon, contrast medium showed extravasation from the LAD into the pericardial space. Arrow is demonstrating the coronary perforation.

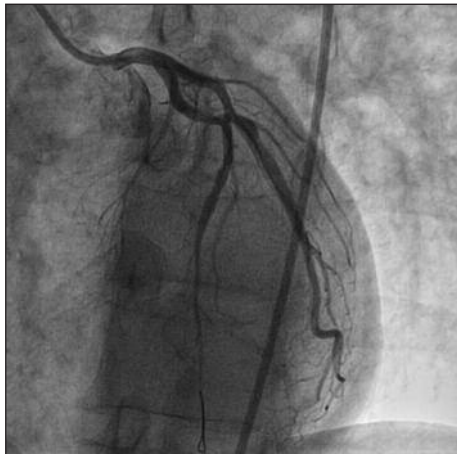


FIGURE 1D: After the deployment of covered stent (In Situ 2.5x16 mm), the perforation was completely sealed and control injection showed no extravasation.

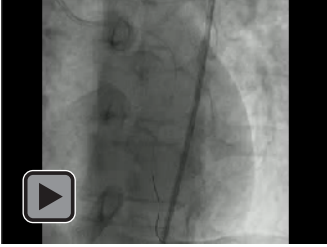
involving the apex, and the apical septum (ejection fraction: 46%). A coronary angiography was done. The left anterior descending artery (LAD) had a short severe narrowing (85% diameter reduction) in its midportion with good distal filling (Figure 1A, Video 1A). The left circumflex coronary artery had mild stenosis in the mid portion and the right coronary artery was unobstructed. Direct stent implantation was planned for the significant LAD lesion. The lesion was crossed with a J-tipped soft

guidewire and 2.75x18 mm bare metal stent (Integrity) was began to be deployed. Balloon pressure was gradually raised to 20 atmosphere pressure (atm) however, mid portion of the stent was not expended optimally and the pressure was gradually raised to 24 atm in order to achieve optimal result (Figure 1B, Video1B). After the balloon deflation, an injection of contrast medium showed extravasation from the LAD into the pericardial space (Figure 1C, Video1C). Prolonged balloon inflation at the site of contrast extravasation and immediate reversal of anticoagulation with protamin was performed. Patient was hemodynamically stable, however, a repeat injection of contrast medium still showed extravasation through type-3 coronary perforation. A InSitu polytetrafluoroethylene-coated stent (CS) (2,5x16 mm) was deployed immediately under 18 atm to seal the rupture. After the deployment, CS sealed the perforation completely and control injection showed no extravasation (Figure 1D, Video 1D). Subsequent echocardiographic examination showed minimal pericardial effusion without signs of cardiac tamponade. The patient was followed with standard anticoagulant and anti-ischemic therapy and was uneventfully discharged.

Coronary perforation (CP) is the most frightening complication during percutaneous coronary intervention (PCI). The reported incidence of CPs ranges from 0.1% to 0.6%.¹⁻⁴ CPs mostly occur immediately after stent deployment or adjunctive ballooning. The best solution is protection and keeping away from coarse maneuvers. However, if CP occurs, immediate deployment of a polytetrafluoroethylene-covered stent is a life-saving option to seal coronary perforation. But, the high profile and low flexibility may compromise its deliverability. Such a situation may require urgent surgical management. In this particular patient, if post dilation was performed with the non-compliant balloon instead of rising stent balloon pressure to unacceptable levels, CP might be prevented. We were lucky to treat such a challenging complication without severe morbidity.

REFERENCES

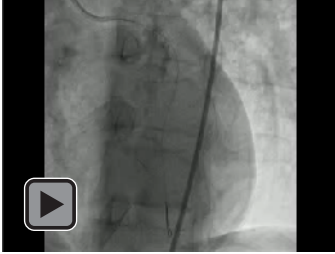
1. Ellis SG, Ajluni S, Arnold AZ, Popma JJ, Bittl JA, Eigler NL, et al. Increased coronary perforation in the new device era. Incidence, classification, management, and outcome. *Circulation* 1994;90(6):2725-30.
2. Gunning MG, Williams IL, Jewitt DE, Shah AM, Wainwright RJ, Thomas MR. Coronary artery perforation during percutaneous intervention: incidence and outcome. *Heart* 2002;88(5):495-8.
3. Gruberg L, Pinnow E, Flood R, Bonnet Y, Tebeica M, Waksman R, et al. Incidence, management, and outcome of coronary artery perforation during percutaneous coronary intervention. *Am J Cardiol* 2000;86(6):680-2, A8.
4. Shimony A, Zahger D, Van Straten M, Shalev A, Gilutz H, Ilia R, et al. Incidence, risk factors, management and outcomes of coronary artery perforation during percutaneous coronary intervention. *Am J Cardiol* 2009;104(12):1674-7.



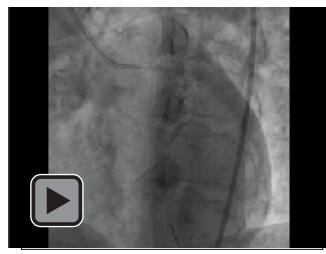
Video 1A



Video 1B



Video 1C



Video 1D