

KORONER ARTER PERFORASYONUNDA FARKLI BİR YAKLAŞIM

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Koroner arter perforasyonu nadir fakat perkütan koroner girişimin ciddi bir komplikasyonudur. Teşhisi koyar koymaz tedaviye karar vermek büyük önem taşır. Teşhisten sonra perkütan onarım mı yapılmalı ya da acil cerrahi mi uygulanmalı halen tartışmalıdır. Biz burada 63 yaşında sol ön inen artere perkütan girişim-stent uygulanması esnasında koroner arter perforasyonu gelişen ve

sonrasında başarılı sonuçlanan acil ameliyata giden vakayı sunduk.

Anahtar kelimer: Koroner perforasyon, Kaplı stentler, Acil cerrahi

(Türk Girişimsel Kard. Der. 2008;12:186-188)

INTRODUCTION

Coronary artery perforation (CAP) is a rare but particularly feared complication of percutaneous coronary interventions (PCI)¹. CAP occurs 0.1% of percutaneous transluminal coronary angioplasty (PTCA) and 1.0% of atherectomy cases (eg, rotablation, directional coronary atherectomy, and excimer laser treatment). Contrast extravasation is typically evident in 80% to 90% of cases at the time of intervention. However, up to 20% of cases can present several hours after the procedure and are frequently due to hydrophilic wire perforation of a small vessel procedure.

Treatment usually requires prolonged balloon inflation and reversal of anticoagulation. Covered stents, coils, or surgical repair may be required for definitive management². In this report, we have described a patient presenting ST elevation myocardial infarction and suffering from CAP complicating primary PCI.

CASE REPORT

A 63-year old man was admitted to the hospital with a chest pain since 2 hours. Electrocardiogram showed marked ST segment elevation in leads V1-V6 and ST depression in leads II, aVF and III. The patient was transferred to the catheter laboratory for primary PCI with diagnosis of acute anterior myocardial infarction (MI). After left selective coronary angiography

(CAG) the LAD was visualized and then the LAD lesion was crossed with a floppy guide wire. (Figure 1) and a bare metal stent (3.0x20 mm, at 16 atm pressure) was positioned on the occluded region, the mid portion of the LAD. However, no-reflow was observed and no-reflow has persisted upon 400 µg nitroglycerin and 50 cc isotonic fluid infusion intracoronary. Therefore PTCA (2.0x20 mm troya balloon at 8-atm pressure) was performed to the distal portion of the occluded region for thrombus dissolution. After balloon deflation and following contrast injection, the LAD was visualized. There was TIMI-III distal flow. However, obvious constrast extravasation into the pericardial space was observed (Figure 2). Then the PTCA

Figure 1: Right anterior oblique caudal view. Left selective coronary angiography

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Figure 2: Angiographic demonstration of coronary perforation immediately after its occurrence (extravasation of dye free in the pericardial space).

Figure 3: Right anterior oblique caudal view. Balloon inflation at proximal of the perforated segment

balloon was re-inflated at 8-atm pressure and left on the proximal portion of the perforated segment to prevent cardiac tamponade (Figure 3). Since we didn't have any greft-stent in our hospital at that time, the patient was referred to the cardiac surgery immediately and approximately one hour later, he underwent a coronary artery bypass grafting surgery. Until the surgery, there were no significant drop of systolic blood pressure and no change at heart rate. With the opening of the pericardium, a small volume of hemorrhagic fluid was aspirated. The distal portion of the LAD, 2-cm perforated segment, was sutured and saphenous vein graft was anastomosed to the distal end of the perforated segment. The proximal of the saphenous vein was anastomosed to the aorta. There was no complication during the surgery and after five days the patient was discharged from the hospital.

DISCUSSION

Rates of CAP and subsequent adverse events including cardiac tamponade and urgent CABG surgery as well as mortality had been declining throughout observation period³. The optimal management and predictors of adverse outcomes for these patients remain to be defined^{3,4}. Causes of perforations were complex stenoses, chronic occlusions, calcified lesions, small predicted and minimal vessel lumen, high percent stenosis, use of excimer laser or thromboextractor³. Advances in management such as the use of polytetrafluoroethylene-covered stents have not been critically examined in terms of efficacy. In one study the use of polytetrafluoroethylene-covered stents to manage perforations was not asso-

ciated with any reduction in adverse outcomes, such as the development of tamponade, the need for emergency CABG surgery, or in-hospital death⁴ In another study; no in-hospital Q-wave myocardial infarctions, emergency CABG surgeries, or deaths resulted, polytetrafluoroethylene-coated jostent coronary stent graft may be a reliable and highly effective treatment option for sealing CAP complicating PCI⁵. In conclusion, CAP remains a feared complication in the contemporary interventional era with significant in-hospital mortality.

Our patient suffering from CAP complicating LAD coronary artery primary PCI underwent subsequent a successful emergency surgery. Until the surgery; the inflation of the PTCA balloon on the proximal of the perforated segment prevented the blood extravasation and cardiac tamponade. It maintained the hemodynamic stability. The PTCA balloon served as a bridge between the PCI complication and the surgery. As a consequence, it saved the patient's life. Some hospitals/institutes in our country are lacking in some kinds of surgical conditions, equipments, and stuffs. In hospitals/ institutes however, as we have seen here, it is very important to be capable of performing emergency surgeries. In this patient, prolonged balloon inflation served as a bridge until the emergency surgery and prevented thereby the development of cardiac tamponade and saved this patient's life. If the surgery is considered as the choice/ option of treatment in CAP due to PCI complication, leaving the PTCA-balloon inflated in the proximal segment of the perforated section, will serve to stabilize the hemodynamia and also most possibly save the life.

In conclusion, CAP during PCI is a rare complication, but is associated with significant morbidity and mortality⁶. In the majority of patients, non-surgical management (conservatively follow up with echocardiographic examination and pharmacological support or PTFE covered stents, especially if prolonged balloon inflation failed) is both feasible and associated with a high success rate⁷. In this case prolonged balloon inflation was the technique to prevent cardiac tamponade and death due to CAP. To the best of our knowledge, this is the case of CAP which was managed successfully by endovascular clamping until the definite surgical repair.

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