

high risks of perioperative SIRS occurrence can in fact be detected and early mortality and morbidity reduced with a detailed analysis of the preoperative physiological and functional conditions of patients, comorbid diseases, and myocardial functions.

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## Thrombus aspiration may decrease bleeding risk in the early postoperative myocardial infarction treated with percutaneous intervention

*Perkütan girişim ile tedavi edilen erken dönem postoperatif miyokart enfarktüsünde trombüs aspirasyonu kanama riskini azaltabilir*

Dear Editor,

We read with great interest the article by Nguyen et al. (1) entitled "Percutaneous coronary intervention in patients with active bleeding or high bleeding risk-Review" that was published recently in this journal. Myocardial infarction associated with non-cardiac surgery is still a challenging clinical issue because of the high complication rate and unclear treatment approach. In this review, the authors explained the case-sensitive strategy with a lone angioplasty procedure and avoidance of stent deployment and intensive antiplatelet therapy (1). Herein, we present a case of inferior myocardial infarction associated with tonsillectomy and adenoidectomy complicated by acute stent thrombosis and major bleeding. We emphasize the role of thrombus aspiration which was not discussed before.

A 52-year-old male patient was admitted to our center with a diagnosis of inferior myocardial infarction following a minor surgical procedure. At the initial evaluation, his clinical appearance was unstable and he was classified as Killip 3. The patient was intubated and transferred to the cardiac catheterization laboratory for primary intervention. Total thrombotic occlusion was observed in the dominant right coronary artery. Angioplasty and stent deployment were performed with a final distal TIMI 2 flow. Aspirin (300 mg), clopidogrel (600 mg), and an intracoronary loading dose of tirofiban and heparin (60 u/kg) were given during the procedure. A maintenance dose of tirofiban and anticoagulation therapy, including heparin, were not continued due to bleeding risk. Even so, minor bleeding was observed at the surgical site and pressurized compression was performed at that site in order to stop the bleeding. Eight hours after the procedure, ventricular fibrillation was observed and repeat angiography showed acute stent thrombosis. At that point, percutaneous thrombectomy with an aspiration catheter was performed and yielded a final distal TIMI 2 flow. In addition, combined therapy of ticagrelor and tirofiban perfusion was begun to decrease further thrombosis risk. However, excessive bleeding occurred at the surgical site, which required massive transfusion. After a week of supportive treatment, the patient was discharged from the hospital. Final echocardiography revealed a 45% ejection fraction with inferior and posterior wall hypokinesia.

Perioperative myocardial infarction is associated with high morbidity and mortality due to accompanying sympathetic activation, enhanced oxidative stress, a prothrombotic and proinflammatory environment, and also marked bleeding risk (2). Similar to our case, administration of antiplatelet and anticoagulant agents could trigger massive bleeding even after a minor surgical procedure. On the other hand, optimal antiplatelet and anticoagulant therapy are crucial in preventing stent thrombosis in such a specific clinical circumstance. Thrombus aspiration without balloon angioplasty is a logical approach to restricting the necessity of intensive high-dose antiplatelet and anticoagulant therapy. Stent deployment should be avoided in such instances; proven dosage and duration of antiplatelets and anticoagulants should be used in case of stent deployment because of an enhanced prothrombotic environment, despite the existing high bleeding risk.

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## Author's Reply

Dear Editor,

We would like to thank the interventional cardiologists/readers for their comments on our review "Percutaneous coronary intervention in patients with active bleeding or high bleeding risk-Review" that was published recently in this journal (1).

We agree with the comments that in case of myocardial infarction (MI) during the peri-operative period of non-cardiac surgery, the best strategy is to perform primary balloon angioplasty (PTCA) without stenting. The reason is that with this strategy, we would have to give only unfractionated heparin (UFH) and aspirin during PTCA without the need for P2Y12 inhibition (clopidogrel, prasugrel, or ticagrelor). The goal is to achieve a TIMI 3 flow with a residual stenosis of <5%.

In the letter, the interventional cardiologists/readers also presented a case of peri-operative MI requiring thrombectomy. It is imperative to use the aspiration catheter because of the heavy thrombotic burden in the setting of an acute stent thrombosis. How about thrombectomy by the aspiration catheter in patients who undergo only plain PTCA? A literature search did not reveal any results from randomized trials or even anecdotal case reports. Even so, when discussing thrombectomy in the setting of perioperative MI, there are 2 questions to answer. First, can thrombectomy alone without PTCA or stenting recanalize the infarct-related artery (IRA) to a TIMI 3 flow? Second, how does one prevent enlargement of the thrombus in a patient with an acute MI with a very short ischemic time (<15 minutes) so that there is less need for aspiration thrombectomy and lower incidence of systemic or distal embolization caused by the aspiration thrombectomy procedure itself?

First, in 2 reports, 1% of patients with AMI had the IRA recanalized to achieve a TIMI 3 flow after lone aspiration thrombectomy (2, 3). So in reality, thrombectomy alone could be performed without involving PTCA or stenting in a very small percentage of patients (1%). The decision for thrombectomy may require the deployment of a proximal or distal protection device because of the high incidence of systemic and distal embolization (~14%) following thrombectomy and PTCA and/or stenting or the deployment of the distal protection device itself (4, 5).

Second, how do we prevent the patient from having a heavier thrombotic burden in a peri-operative MI? Fresh thrombus was present in 60% of patients while an older thrombus was present in 40%. The incidence of distal embolization was higher (18 versus 12%, p=0.01) than in those with fresh thrombus (6). Recently, I had a patient who had undergone 9 minutes of Bruce protocol without chest pain. Five minutes into recovery, the patient developed chest pain with ST segment elevation. An Acute Response Team (ART) code was called, and immediately the patient was given 5000 units of UFH and one aspirin to chew. In less than 10 minutes, the pain subsided and at that time the cardiac catheterization laboratory was ready for the patient. A coronary angiogram showed a tight 80% lesion in the right coronary artery. The border of the lesion was very sharp, without sign of thrombus. The patient underwent stenting successfully.

In conclusion, I would like to thank everyone for their comments. I agree with the strategy of lone angioplasty without stenting, on top of heparin and aspirin, and no strong antiplatelet therapy if it can be avoided. A lone aspiration thrombectomy is acceptable if TIMI 3 is achieved. Two important reminders are: (1) to give aspirin and heparin as early as possible while the patient is waiting for the cardiac catheterization laboratory to be ready, and (2) a TIMI 3 flow is mandatory for the prevention of any acute thrombosis.

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## A new piece of puzzle: inflammation in the prediction of recurrence after successful electrical cardioversion in patients with nonvalvular atrial fibrillation

*Bulmacanın yeni bir parçası: Nonvalvüler atriyal fibrilasyon hastalarında başarılı elektriksel kardiyoversiyon sonrası nüksü öngörmeye enflamasyonun rolü*

Dear Editor,

We have read with great enthusiasm the recently published article entitled "Can neutrophil/lymphocyte ratio (N/L ratio) predict recurrence after electrical cardioversion in non-valvular atrial fibrillation (AF)" by Arbaş et al. (1). In that well-presented study the authors tried to investigate effectiveness of N/L ratio for prediction of recurrence after electrical cardioversion (ECV) in patients with non-valvular AF. They concluded that high sensitive C reactive protein (hs-CRP), left atrium (LA) diameter, spontaneous echo contrast (SEC) positivity, and systolic blood pressure (BP) were independent predictors of recurrence. However they did not detect a statistically significant relationship between N/L ratio and AF recurrence after successful ECV in that patient group.

Atrial fibrillation induces remodeling of the left atrium. In a previously published study LA volume index (LAVI), which is more accurate measure of LA size, was found to be a significant predictor of recurrence of AF after cardioversion (2). This study showed that larger LAVI before