

Management of late/very late stent thrombosis: Utility of intravenous ultrasonography (IVUS) in clinical practise

Geç/çok geç stent trombozu yönetimi: İntravenöz ultrasonografi (IVUS)'nin klinik kullanımında yararlılığı

Emre Yalçınkaya*, Barış Bugan, Yalçın Gökoğlan, Erkan Yıldırım

Department of Cardiology (E. Yalçınkaya, MD, Y. Gökoğlan, MD, E. Yıldırım, MD), Gulhane Military Medical Faculty, TR-06018 Ankara, Cardiology Clinic (B. Bugan, MD), Malatya Army Hospital, TR-44080 Malatya

Geliş tarihi/Received: January 18, 2013; **Kabul tarihi/Accepted:** January 20, 2013

***Corresponding Author:**

Dr. Emre Yalçınkaya, Kardiyoloji Anabilim Dalı, Gülhane Askeri Tıp Akademisi, TR-06018 Ankara. E-mail: dremreyalcinkaya@gmail.com

To the editor

We read with great interest the article by Aksu et al. [1] on the management of very late bare metal stent thrombosis. They performed intracoronary thrombus aspiration and inflated balloon in-stent for restenosis.

During percutaneous coronary interventions, interventionalists have often to deal with thrombus-laden lesions in coronary vessels. Plaque characteristics and distribution, severity and extent of calcification, arterial remodeling and the presence of dissection or thrombi can affect the decision to use a particular treatment before and after PCI. Clear identification of the characteristics of culprit vessels can help to improve clinical outcomes after interventions [2].

While the mechanism of stent thrombosis is yet to be completely understood, stent fracture and/or late acquired stent apposition could set the stage for late stent thrombosis (LST). Some types of late-acquired stent malapposition are caused by positive vessel remodeling due to biological reactions to the stent, which may allow motion and/or kinking of the stent, leading to stent fracture. Alternatively, stent fracture can lead to local mechanical irritation of the vessel, which may lead to stent malapposition. Exposure of a free metal strut after fracture into the vessel lumen could trigger platelet activation, stent thrombosis and subsequent myocardial infarction.

Intravascular ultrasound (IVUS) is a useful diagnostic tool for the assessment of lesion severity leading to revascularization, selection of the revascularization strategy and assessment of lesion composition leading to a change in interventional strategy and can contribute to reaching an optimal decision for intervention [3, 4]. In this case, if had considered, an IVUS study may have revealed late-acquired stent malapposition was highly prevalent in patients with LST.

In addition, in real world, most very late stent thrombosis cases are associated with discontinuation of anti-platelet agents due to dental procedure or non-cardiac surgery and it appears more closely related to discontinuation of aspirin. In stent thrombosis cases, despite ongoing anti-platelet agent, resistance must be considered and evaluated to avoid future complications.

References

1. Aksu T, Bařer K, Durukan MK, řen T, Gray . Very late thrombosis of a bare metal stent despite ongoing aspirin therapy after 10 years of implantation. *Cumhuriyet Med J* 2012; 34: 481-4.
2. Iyisoy A, Celik M, Celik T, Yuksel UC. The role of intravascular ultrasound guidance in the treatment of intramural hematoma probably caused by spontaneous coronary artery dissection in a young woman with acute anterior myocardial infarction. *Cardiol J* 2012; 19: 532-5.
3. Kosonen P, Vikman S, Jensen LO, Lassen JF, Harnek J, Olivecrona GK, Erglis A, Fossum E, Niemel M, Kervinen K, Ylitalo A, Pietil M, Aaroe J, Kellerth T, Saunamki K, Thayssen P, Hellsten L, Thuesen L, Niemel K. Intravascular ultrasound assessed incomplete stent apposition and stent fracture in stent thrombosis after bare metal versus drug-eluting stent treatment the Nordic Intravascular Ultrasound Study (NIVUS). *Int J Cardiol* 2012.
4. Armstrong EJ, Kwa AT, Yeo KK, Mahmud E, Javed U, Patel M, Shunk KA, Macgregor JS, Low RI, Rogers JH. Angiographically confirmed stent thrombosis in contemporary practice: Insights from intravascular ultrasound. *Catheter Cardiovasc Interv* 2012