A case report of very late stent thrombosis after bare-metal stent implantation

Çıplak metal stent implantasyonu sonrası gelişen çok geç dönem stent trombozu

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Abstract

Stent thrombosis is undesirable complication after percutaneous coronary interventions (PCI), despite contemporary concepts of stents and antiplatelet therapy. Stent thrombosis (ST) is defined by the Academic Research Consortium as: early (<30 days), late (30 days to 1 year), and very late (>1 year). Risk of very late stent thrombosis is considerably higher in patients with drug-eluting stents (DES), owing to delayed endothelialization. There are several cases very late ST after bare-metal stent (BMS) implantation. Our patient presented with ST-elevation myocardial infarction on account of BMS thrombosis 14 years after the implantation.

Keywords: Stent thrombosis (ST), Drug-eluting stent (DES), Bare-metal stent (BMS), Percutaneous coronary intervention (PCI), Acute Coronary syndrome (ACS)

Özet

Güncel stent konseptleri ve antiplatelet tedavilerine rağmen stent trombozu perkutan koroner girişimlerden sonra görülen arzu edilmeyen bir komplikasyondur. Stent trombozu, Academic Research Consortium’a göre erken (<30 gün), geç (30 gün ile 1 yıl arasında) ve çok geç dönem (>1 yıl) olmak üzere üç ayrılmıştır. Geceğimiz endotelizasyona bağlı olarak çok geç dönem stent trombozlarını ilaç kaplı stentlerde daha fazla görülmektedir. Hastamız çıplak metal kaplı stent implantasyonundan 14 yıl sonra stent trombozuna bağlı ST elevasyonlu myokard infarktusu ile başvurmuştur.

Anahtar sözcükler: Stent trombozu, ilaç kaplı stent, çıplak metal stent, perkutan koroner girişim, akut koroner sendrom

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Introduction

Generally, very late stent thrombosis is seen in patients with drug-eluting stents, owing to delayed endothelialization. Endothelium grows over the struts in 2 to 4 weeks in patients with bare-metal stents (BMS). Nevertheless, once in a while stent thrombosis can be seen in patients with BMS after years. Despite the low probability of this event, we must keep in mind very late stent thrombosis after BMS implantation.

Case report

A 49-year-old man who had undergone percutaneous coronary intervention (PCI) for ST-segment elevation myocardial infarction with a bare-metal stent (BMS), was seen in the emergency department of our hospital because of chest pain. He had taken dual
antiplatelet (clopidogrel 75 mg/d, acetylsalicylic acid 100 mg/d) therapy for 13 months and acetylsalicylic (100 mg/d) therapy for 15 months. On presentation, he was not taking any antiplatelet therapy. The patient was well until an hour before admission. He rated the pain at 10 on a scale of 0 to 10, with 10 indicating the most severe pain. The blood pressure was 140/90 mmHg in the right arm and 135/85 mmHg in the left arm, and the other vital signs were normal. The lungs were clear. The 12-lead electrocardiogram showed ST-segment depression in leads V1 through V3, ST elevation in leads V5, V6, I.

300 mg chewable acetylsalicylic acid and 180 mg Ticagrelor were administered. Prompt revascularization with aspiration thrombectomy (Figure 1A pre-thrombectomy), restored normal antegrade coronary perfusion within 90 minutes after the onset of pain, and tirofiban infusion was administered because of massive thrombus burden (Figure 1B post-thrombectomy). Symptom was resolved after the procedure and >70% ST-segment resolution was obtained (Figure 2). The peak troponin I and creatine kinase-MB levels were 28 ng/mL and 96 ng/mL, respectively. The severely impaired inferior and infero-lateral wall motion returned to normal within 5 days. The patient was discharged on the sixth day with dual antiplatelet therapy (acetylsalicylic acid 100 mg/day, ticagrelor 90 mg b.i.d.).

Discussion

Stent thrombosis is associated with higher thrombus burden than thrombosis of native coronary arteries [1]. Some factors are prone to ST such as stent-related factors, procedure-related factors, patient-related factors, duration of antiplatelet therapy [2]. Endothelium grows over the struts in 2 to 4 weeks [3]. Prolonged dual antiplatelet therapy is imperative in patients with DES owing to delayed endothelialization. Hence BMS should be preferred before surgery. Some procedural factors are associated with ST such as stent-edge dissection, inadequate stent expansion and incomplete stent apposition. Comorbid risk factors are also important like diabetes mellitus, renal disease and impaired LV function. Early cessation of dual antiplatelet therapy and clopidogrel resistance are also important. In patients receiving a stent (BMS or DES) during percutaneous coronary intervention (PCI) for acute coronary syndrome (ACS), P2Y12 inhibitor therapy should be given for at least 12 months (classI,B) [4, 5].

On account of delayed endothelialization, continuation of P2Y12 inhibitor therapy beyond 12 months may be considered in patients undergoing placement of DES (class II b, C) [4]. In patients receiving BMS for a non-ACS indication, P2Y12 inhibitor therapy should be given for a minimum of 1 month and ideally up to 12 months (class I, B) [4]. Owing to early endothelialization, very late stent thrombosis is rarely seen in patients with BMS. Thereby, prolonged dual antiplatelet therapy is not imperative after BMS implantation. In spite of knowledge about vascular endothelialization, our patient presented with BMS thrombosis 14 years after the implantation. To conclude, this case and similar cases suggest that we must investigate causes and prevention of late endothelialization [6, 7].

References


