CASE REPORT

Priapism: A Very Rare Complication of Dual Antiplatelet Therapy after Percutaneous Coronary Intervention

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Abstract

Context: Dual antiplatelet therapy (DAPT), with aspirin and P2Y12 receptor inhibitors, is standard of care in patients with ST elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI). However, its use is associated with increased risk of bleeding. We herein report an unusual bleeding complication associated with DAPT after primary PCI. **Case Report:** A 42-year-old man, who presented with acute inferior wall MI and underwent a successful bare metal placement in circumflex coronary artery, was discharged on dual antiplatelet therapy. However, he presented 2 weeks later with priapism for 20 hours that needed surgical drainage of large amount of blood from his penis. There were no other causes to explain priapism, but since this was not known complication of DAPT, it was not discontinued given his recent stent placement. However, 3 weeks later he suffered another episode of priapism that also needed surgical drainage. Therefore, given its high antiplatelet potency, Prasugrel was eventually discontinued, and the patient was maintained on aspirin only. The decision was guided by optical coherence tomography evaluation of his recent stent to rule out local risks for stent thrombosis. The patient has done well over 14 months of follow up with no cardiac symptoms or recurrence of priapism. **Conclusion:** To the best of our knowledge, the association between priapism and DAPT was never reported previously. Given the wide use of DAPT after coronary intervention, we believe that interventional cardiologist should be aware of this rare, yet potentially devastating, complication.

Keywords: Antiplatelet Therapy; Complications, PCI

Introduction

Dual antiplatelet therapy (DAPT), with aspirin and P2Y12 receptor inhibitors, is currently a standard of care in patients with ST elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI) (1,2). The benefits of DAPT outweigh the small risk of bleeding associated with its use. Newer, more potent P2Y12 inhibitors, Prasugrel (3), and Ticagrelor (4), have been shown to reduce ischemic events when compared to Clopidogrel, albeit with a slight increase in bleeding risk.

While bleeding manifestations vary, common clinical presentations include gastro-intestinal bleeding, vascular access related bleeding, retroperitoneal bleeding, CABG-related bleeding and intra-cranial bleeding. Other less common presentations can occur (4). We herein report an unusual bleeding complication associated with DAPT after primary PCI.

Case Report

A 42 year-old-man, with no prior cardiac history, presented with acute inferior wall ST elevation myocardial infarction (STEMI). He underwent primary PCI to the circumflex coronary artery using a bare-metal stent (Vision 4.0 x 18 mm). He did well and was discharged in good condition on Prasugrel 10 mg and aspirin 81 mg per day in addition to Atorvastatin, Metoprolol, Lisinopril and Nitroglycerine. In two weeks, and after sexual intercourse, he had an episode of prolonged priapism lasting for twenty hours that needed an urgent urological intervention with needle drainage of blood (about 250 cc) from the corpora and irrigation with phenylephrine. The urologist's evaluation, stated that there was no other cause for priapism other than "possibly" DAPT.

Since priapism was never reported with DAPT, we elected to continue his DAPT given his recent stent placement and clinical presentation. However, three weeks later, he suffered another episode of priapism that also required needle drainage. On this occasion, the urology service felt that "DAPT was the only explanation for his recurrent priapism". Furthermore, they advised that future recurrences carry risk of permanent penile impairment. After a lengthy discussion with the patient and the family explaining the risks and benefits of discontinuation of dual antiplatelet therapy, coronary angiography with Optical Coherence Tomography (OCT) was performed to assess the stent and assure low risk of stent thrombosis. OCT revealed well-apposed stent struts with no evidence of uncovered struts. Therefore, prasugrel was discontinued, and the patient was maintained on aspirin 81 mg orally daily. At fourteen-month follow up the patient is doing well with no recurrence of priapism or cardiac symptoms.

Discussion

DAPT is crucial for reducing ischemic events after acute coronary syndrome (ACS), particularly after revascularization with PCI (5). These benefits come at the expense of a higher bleeding risk (6). Prasugrel is a more potent platelet inhibitor compared to Clopidogrel (7), leading to a reduction in ischemic events, albeit with a higher risk of bleeding (3).

Priapism, defined as a pathological condition of a penile erection that persists beyond, or is unrelated to, sexual stimulation is a urological emergency that can lead to penile ischemia and potential permanent organic erectile dysfunction (8,9). Common causes of priapism include sickle cell disease, anti-depressants, and trauma. Priapism can rarely be caused by certain hematological conditions causing bleeding; however, there were no previous case reports of priapism secondary to bleeding caused by DAPT. Although other causes for priapism can be speculated, in this patient, who never had priapism before, the recurrence and remission with initiation and discontinuation of DAPT is suspicious of the association between the two. The exact mechanism of DAPT-related priapism is unclear but bleeding is the most likely contributing factor. This is suggested by draining a large amount of blood from the penis on both occasions. There are several case reports of priapism associated with use of warfarin and heparin (10,11). However, at least in some of these cases, the mechanism of priapism seems to be thrombotic in nature secondary to protein C deficiency and heparin-induced thrombocytopenia (12,13).

Although priapism is not a known complication of DAPT, when occurs, it's potentially devastating outcome necessitates the need for carefully evaluation the benefit and risk of continuing DAPT. Even though it is possible to stop DAPT one month after bare-metal stent insertion in elective cases, the current guidelines still suggest an optimum duration of 12 months in the context of acute coronary syndrome (14). Moreover, there is paucity of the literature on how to handle DAPT when bleeding complications occur. Options such as using a reduced dose of Prasugrel (e.g. 5 mg), switching to a different P2Y12 with lower risk of bleeding like Clopidogrel, or using Aspirin only, remain empirical and left to the physician's discretion. When available, OCT can be used to evaluate the stent and may help to guide decision, by excluding local issues that may predispose to stent thrombosis such as stent under-deployment, mal-apposition, uncovered struts, or local thrombi (15). Despite of lacking of data to support this approach, OCT findings helped the decision making process in our patient.

Conclusion

To the best of our knowledge, priapism association with DAPT has never been reported previously. Given the

wide use of this therapeutic regimen after coronary interventions, the interventional cardiologist should be aware of this rare, yet potentially devastating, complication.

Authorship

Both authors contributed substantially to the preparation of this case report.

Compliance with ethical principals

1) Authors declared no conflict of interest. 2) No human or animal experiments are included. 3) None of the reported data can reveal the identity of the patient.

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Reviewer

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Editors

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