



Myocardial Infarction Management in a Patient with Owren's Disease: Balance Between Hemorrhage and Thrombosis

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ABSTRACT Owren's disease (Parahemophilia) is a very rarely seen type of hemophilia. It is characterized by the deficiency of factor V, a factor usually involved in bleeding diathesis, could be also considered a prothrombotic condition. A challenge about thrombosis is the occurrence of this process in a patient with impaired coagulation, especially at young ages. Despite this defect in blood coagulation, the patient was referred to us because of acute anterior myocardial infarction. The patient was treated with aspirin, ticagrelor, heparin and then with stenting, no hemorrhagic and thrombotic events being recorded in the following 30 days while on dual anti-platelet therapy.

Keywords: Acute myocardial infarction; Owren's disease; factor V deficiency; thrombosis; hemorrhage

Parahemophilia known as Owren's disease is characterized by congenital deficiency of coagulation Factor V (FV). It was first described in 1944 by Paul Owner as a fifth coagulation factor. It catalyses the interaction of prothrombin, thromboplastin and calcium in the formation of thrombin. Though defects in FV may cause either bleeding or thrombosis, it is rare for FV deficiency per se to predispose to thrombosis. Acute coronary syndrome (ACS) which is characterized by platelet aggregation and concomitant fibrin formation is very rarely seen in patients with coagulation factor deficiency. In here we describe a case with severe FV deficiency (<1%), who suffered from acute anterior myocardial infarction (MI).

CASE REPORT

A 49 year-old man, was referred to our hospital because of acute anterior MI (Figure 1). There were no risk factors for coronary artery disease and his vital signs and physical examination were within normal limits. The patient was transferred to the coronary angiography laboratory for primary percutaneous coronary intervention (PCI) following administration of 300 mg acetylsalicylic acid and 180 mg ticagrelor and the left anterior descending (LAD) artery was found to be totally occluded in mid portion (Figure 2a). Two everolimus eluting stents were implanted successfully after 10.000 unit heparin administration: Xcience (Abbott, USA) 3.0 *15 mm in the distal LAD and Xcience (Abbott, USA) 3.0*28 mm in middle LAD (Figure 2b). During the PCI, the patient had been stating congenital FV deficiency.



FIGURE 1: ST segment elevation seen in V1-V6 derivations.

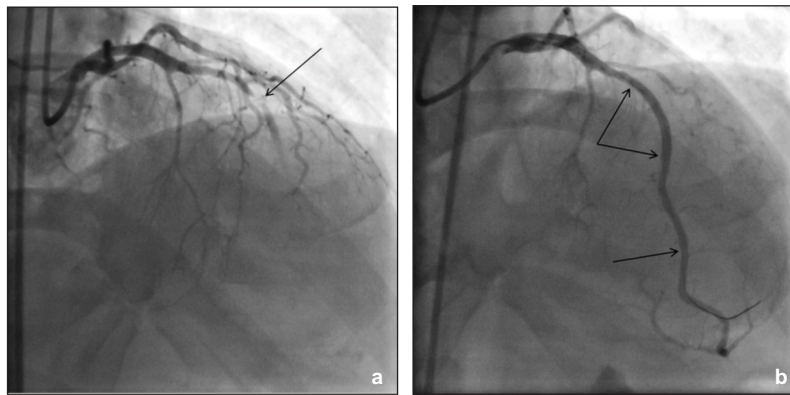


FIGURE 2: a: Total occlusion of left anterior descending artery in mid portion (arrow); b: TIMI-3 flow after successfully implantation of two drug-eluting stents (3,0x28 mm to mid portion and 3,0x15 mm to distal portion).

There were no history of bleeding or thrombotic event, even after fibrinogen concentrate infusions. After the procedure, screening coagulation tests performed before starting dual anti-platelet therapy (DAPT) showed a slightly prolonged activated partial thromboplastin time and a marked prolongation of international normalized ratio (INR) which was 4. FV activity was <1% (normal value 70-130%). Because FV is an extremely labile protein and no FV concentrate or recombinant FV is available, two units fresh frozen plasma (FFP) were intravenously administered immediately and control INR was measured as 1.2. The patient had an uncomplicated recovery and was discharged 4 days later with DAPT (aspirin 100 mg qd and ticagrelor 90 mg bid), no hemorrhagic and thrombotic events being recorded in the following 30 days while on DAPT. Informed consent was taken from patient.

DISCUSSION

Occasional thrombotic phenomena are seen even in rare congenital bleeding disorders. Owren's disease (Parahemophilia) which is characterized with congenital deficiency of FV is very rarely encountered clinical entity. While haemophilia A and B are seen in 1 of every 500 male births, FV deficiency alone is seen in 1 in 1 million in the general population. It is autosomal recessively inherited disorder and incidence increases up to 10 times in countries where consanguineous marriages are frequent. While clinically significant bleeding can be seen in patients with homozygous mutations, heterozygous carriers are usually asymptomatic. Replacement therapy for FV-deficient patients can only rely on administration of FFP because specific FV concentrates are unavailable and FV is not present in cryoprecipitate or prothrombin complex

concentrates.¹ Acute coronary syndrome characterized by acute thrombotic occlusion of coronary arteries is rarely seen in patients with haemophilia. But atherosclerosis increases with aging in hemophiliac patients like in normal population. Death owing to arterial thrombosis is less than 50% in patients with haemophilia than in normal population. Regard to deficiency of coagulation factors, tendency to bleeding instead of thrombosis is more overt. Thus, factor deficiencies are protective against atherosclerosis and coronary obstruction. There are only few case reports and critical analysis about acute coronary syndrome occurred in haemophilia patients in literature. Girolami et al. analysed ACS cases seen in different coagulation disorders. They investigated ACS occurrence in rare congenital bleeding disorders.² A total of 53 patients are included in this report while only 2 of them were FV deficient patients. Koklu et al. reported successful PCI of ACS in a patient with Hemophilia B.³ They implanted bare metal stent and shortened DAPT time to one month without bleeding complication. In another case report Kacprzak et al presented a patient with Hemophilia A and ST Elevation Myocardial Infarction (STEMI) treated and followed with ticagrelor and aspirin as DAPT without any complication. It is important to show the safety of ticagrelor use in a patient with hemophilia.⁴ Management of ACS in patients with bleeding disorders is very challenging in points of intervention site, stent choice, periprocedural antithrombotic regimen, bleeding control and post-procedural antiaggregant treatment type and duration. While time for intervention is longer and questioning the patient is easier in Non-ST segment elevation ACS and stable patients, acute management of ST elevation MI may be troublesome because there is not enough time for waiting the lab results and need for urgent intervention which may easily increase bleeding complications. ESC recommendations for haemophilia patients lightened this area well. It recommends primary PCI for

STEMI via radial access and bare metal stent implantation instead of drug eluting to decrease the needed time for DAPT. In our patient we used femoral artery for coronary access and implanted DES. Ticagrelor was used as a second antiaggregant therapy beside aspirin. Beside this his INR was measured 4 and 2 units FFP administered without any thrombotic complication. He was followed for 1 month without any thrombotic or bleeding problem.

This case report states successful approach to STEMI in a patient with Owren's disease. As for the issue of anticoagulant and DAPT administration to patient with coagulation factor deficiency, the good result obtained in our patient would favor to give priority to the clinical setting rather than to the potential contraindication of a deficiency of FV.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Fatih Kahraman, Mesut Pınar; **Design:** Fatih Kahraman, Mesut Pınar; **Control/Supervision:** Fatih Kahraman; **Data Collection and/or Processing:** Fatih Kahraman, Mesut Pınar; **Analysis and/or Interpretation:** Fatih Kahraman, Mesut Pınar; **Literature Review:** Fatih Kahraman; **Writing the Article:** Fatih Kahraman, Mesut Pınar; **Critical Review:** Fatih Kahraman, Mesut Pınar; **References and Fundings:** Fatih Kahraman, Mesut Pınar; **Materials:** Fatih Kahraman, Mesut Pınar.

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