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PRIMARY PERCUTANEOUS CORONARY INTERVENTION IN A PATIENT WITH IDIOPATHIC THROMBOCYTOPENIC PURPURA: CHALLENGES WE FACE

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Contribution
NA conceived the idea of the case report. Data collection and manuscript writing was done by NA and MI. All the authors contributed equally to the submitted manuscript.

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ABSTRACT

Idiopathic thrombocytopenic purpura (ITP) is a common hematologic disease of variable clinical severity. Low platelet counts is the clinical hallmark of disease. We report a case of young male patient with ITP who presented twice with acute myocardial infarction (MI) and reinfarction.

He underwent primary percutaneous coronary intervention (PCI) on both occasions. We highlighted the management difficulties of interventional procedure like to decide whether do only balloon angioplasty, implant bare metal stent (BMS) or drug eluting stent (DES), duration of dual antiplatelet agent (DAPT) and final outcome of our patient.

Keywords: Idiopathic thrombocytopenic purpura, primary percutaneous coronary intervention.

INTRODUCTION

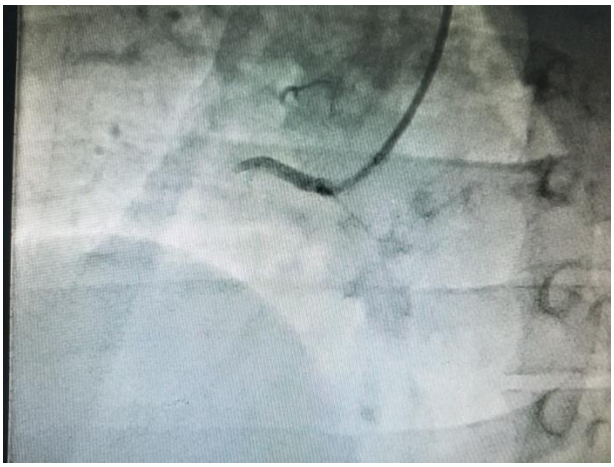
ITP is an acute or chronic disorder with low platelet counts of variable severity. Clinically patients have increased risk of mucosal and post traumatic bleeding. The reported incidence in previous literature search is about hundred patients in one million normal persons.[1] The incidence of myocardial infarction in patients with chronic thrombocytopenia is very low.[2] We report a challenging clinical scenario of a young male who presented with acute inferior wall myocardial infarction who had chronic ITP. Acute revascularization is mandatory in acute MI. Choice of revascularization strategy is not straight forward in this scenario. Thrombolysis carries a risk of bleeding higher then primary PCI especially in a patient who has underlying bleeding diathesis. Primary PCI carried out but choice and duration of double antiplatelet was again a matter of concern for the risk of increased bleeding. All these aspects were addressed in management of our patient.

CASE REPORT

24 Year old male, college student, no conventional risk factors for atherosclerotic cardiovascular disease were there like diabetes, hypertension, smoking and dyslipidemia, except obesity BMI was 34, presented in Cardiology ER with the complaints of chest pain for 4 hours. His chest pain started early morning at 8 AM while he was doing breakfast. His pain was typical to suggest acute coronary ischemic event. His past medical history was of significance because he is already a diagnosed case of idiopathic thrombocytopenic purpura (ITP), currently not taking any medication for ITP. There is no family history of ITP noted. There was no history of bleeding in recent past. His latest available platelet count report 44k of four months back. His current platelet counts pre procedure were 41000/ml. His HB was 11 g/dl and INR and aPTT were normal. Physical examination and haemodynamic status was unremarkable for any abnormality. His EKG done showed acute inferior wall myocardial infarction. Considering high risk for thrombolytic therapy for acute MI because of ITP, he was offered primary percutaneous coronary intervention. He was given 600mg clopidogrel and 300mg Aspirin as standard dose pre PCI antiplatelet agents. Heparin was also given in standard dose 100 units per kg and ACT was monitored to keep it between 250 to 300 sec with boluses of heparin as required. Cardiac catheterization was carried out via right radial approach and it revealed totally occluded right coronary artery in proximal segment. Other coronary arteries were graded as normal.

PCI was technically challenging because of multiple reasons. Firstly, high origin and take off of RCA, which was engaged with Multi Aortic Curve (MAC) guider. Secondly, there was very high organized clot burden, which despite multiple ballooning did not give way. Whether to start glycoprotein 2b3a inhibitor as additional antiplatelet agent because of high intra coronary clot burden was not opted because of fear of bleeding due to ITP and unknown current platelet counts. Thirdly, PCI was concluded with only balloon angioplasty without stent implantation for the reasons said above, high clot burden and achieving thrombolysis in myocardial infarction (TIMI 3) flow Figure 1, 2. Patient was shifted back to CCU.

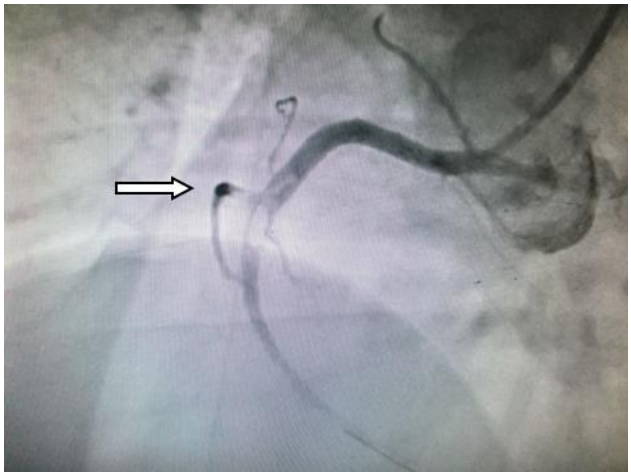
Figure 1: Total RCA proximal occlusion



His platelet count report post procedure was 38000. Hematologist consultation sought and treatment started on their advice for low platelet count. Patient was discharged on third day of admission. His post discharge rehabilitation was excellent as he returned to normal life at 30th day post MI. Until 2 months and 13 days, he remained well. Then he again presented with acute coronary syndrome (NSTEMI), cardiac catheterization done showed total occlusion

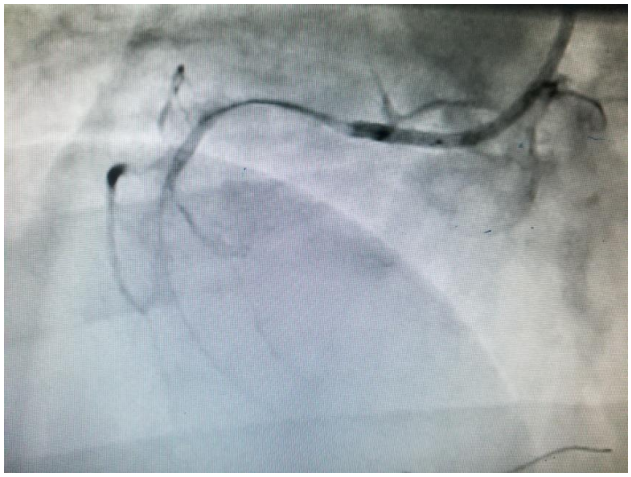
of ostio-proximal RCA. Now PCI was carried out via right femoral artery and procedure was completed through this rout, and two overlapping BMS were placed in proximal to mid RCA with acceptable final result.

Figure 2: After balloon angioplasty, large clot persists



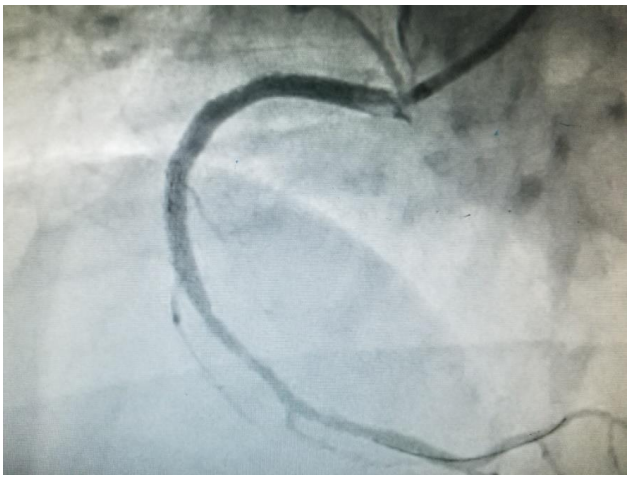
He was given 600mg clopidogrel and 300mg Aspirin as standard dose pre PCI antiplatelet agents. Heparin was also given in standard dose 100 units per kg and ACT was monitored to keep it between 250 to 300 sec with boluses of heparin as required. Small residual clot at inlet of stent was managed further balloon angioplasty and conservatively Figure 3, 4.

Figure 3: Large Clot burden from proximal to mid RCA during second intervention



Current admission was complicated by large right groin hematoma managed conservatively by bed rest and one unit of blood transfusion. Patient was discharged on 5th post PCI day in stable condition. IVIG were a good option to raise platelet count temporarily but as the count was more then 30000/ml and no bleeding and further it could not be made available because of urgency of procedure during primary PCI, so was not used. Patient is now on our clinical follow up for last 14 months. He is on corticosteroids for ITP by hematologist. He is doing best. He remained on DAPT for one year, then switched to single antiplatelet agent. His platelet counts remained between 30k to 50k. No major or minor bleeding episode documented. In his current exercise tolerant test, he achieved 9 METs with absolutely normal all exercise parameters parameters.

Figure 4: PCI with two overlapping stents, final result, small residual clot in proximal stent edge



DISCUSSION

ITP is primarily a disease of low platelet counts due to autoimmunity. These patients can have atherosclerotic cardiovascular complications despite low platelet counts. There are no precise recommendations for treatment acute coronary syndrome in this scenario. Treatment strategy therefore is guided by local expert consensus and available logistics. PCI considering to be relatively low risk for bleeding is first line revascularization strategy wherever feasible and available. Again choice of different PCI strategies like simple balloon angioplasty, or implanting a bare metal or drug eluting stent is again guided by patient factors like current platelet count, bleeding time, age, history of bleeding, age, patient preference, clot burden, result of balloon angioplasty and finally but most important the disease pattern in coronary arteries. There is

always a debate on duration DAPT duration after PCI which in this scenario is specifically pertinent

In literature there have been some cases reported where acute intervention done in such cases of ITP. They found that dual antiplatelet can be safely given to these patients. At discharge these antiplatelet have also been found safe when given for long term. During procedure heparin has also been given safely. So these observations are quite similar to what we have found in our case mitigating the unnecessary fear.[1] In another study more potent IV antiplatelet like glycoprotein IIb IIIa inhibitor because of high clot burden and found safe.[3] Stent patency has also been documented in such cases despite short term antiplatlets.[2]

Every case is different. Studies have suggested some common points like using radial approach and using BMS.[4] Specific therapy for ITP should be continued as per the case may be[5] We found that DAPT and heparin can be given safely with platelet counts between 30 k to 50 k. Acute IVIG is an option to temporary raise platelet count during elective or semi elective procedures in patients with platelet count less than 30000/ml or with active bleeding. In our case as primary PCI were being performed, platelet count was above 40000/ml and no bleeding and it was not possible to arrange it in timely fashion, so we did not use it.

In conclusion, we would suggest following points: 1; Primary PCI should be preferred on thrombolysis. 2; Radial approach should be the choice of vascular access. 3; Aspirin, clopidogrel, and unfractionated heparin can be used in routine recommended dosed during intervention and can be continued up to recommended duration with relative safety in selected low risk patient with continuous monitoring. 4; Relative safety of DAPT up to one year in our patient and other case reports also showed that DES can be used because of low risk of future in stent restenosis.

REFERENCES

1. Gracia MC, Cebollero IC, Lezcano JS, Osuna GG, Miguel JA, Peralta LP. Invasive treatment performed for acute myocardial infarction in a patient with immune thrombocytopenic purpura. Int J Cardiol. 2008;127(3):e183-5.
2. Fong MC, Chen KC, Leu HB, Chen LC. Coronary revascularization in a patient with immune thrombocytopenic purpura. J Chin Med Assoc. 2006;69(9):436-8.
3. Stouffer GA, Hirmerova J, Moll S, Rubery B, Napoli M, Ohman EM, Simpson R. Percutaneous coronary intervention in a patient with immune thrombocytopenia purpura. Catheter Cardiovasc Interv. 2004;61(3):364-7.
4. Fuchi T, Kondo T, Sase K, Takahashi M. Primary percutaneous transluminal coronary angioplasty performed for acute myocardial infarction in a patient with idiopathic thrombocytopenic purpura. Jpn Circ J. 1999;63(2):133-6.
5. Fruchter O, Blich M, Jacob G. Fatal acute myocardial infarction during severe thrombocytopenia in a patient with idiopathic thrombocytopenic purpura. Am J Med Sci. 2002;323(5):279-80.