

Successful Pregnancy Outcome After Myocardial Infarction with PCI, a Case Report

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ABSTRACT

Pregnancy after myocardial infarction (MI) is rare and challenging both in obstetric and cardiology clinical practice. Recently MI has been observed even in younger women. This a case of 37 year old pregnant woman (G1, para 0) that presented at our clinic in 7 gestational week for a consult. She had a history of anterior AMI with PCI /stenting to LAD 3 months earlier. She received dual antiplatelet therapy prior and during early pregnancy. After discussing the risk she decided to continue with the pregnancy which was evaluated by both cardiologist and obstetrician. Maternal echocardiography in the first, second and third trimester were uneventfull with normal range parameters. Tests for heritable thrombophilia were performed as well as monthly coagulation profile. She received ASA 100mg until 36.2 gestational week and low molecular weight heparin at a preventive dose of 60mg. By an elective caesarean section at 37 gw, male newborn was delivered with a weight of 2600g, length of 48cm, Apgar score 8/9. Operative and postoperative period were unremarkable and both mother and newborn were discharged at 5th postpartal day in a good condition. Although pregnancy after MI may be possible and safe, a multidisciplinary approach involving careful evaluation by the cardiac and obstetric team is mandatory.

Keywords: Pregnancy; Myocardial Infarction; PCI

Case Report

We present a case of 37 year old pregnant woman (G1, para 0) that was referred at our clinic in 6 gestational week for a consult. She was a smoker for 20 years, (1 packet of cigarets daily), had a BMI 22 and worked as a radiology technician. Ultrasound obstetric scan revealed an early viable pregnancy with no additional symptoms or complaints. In her medical history three months earlier at the age of 37 she had an epizode of sever chest pain, was admitted in emergency

cardiology room with VF, had 3x defibrillation of 200J. EKG signs were in favour of anterior AMI (Figure 1).The coronarography revealed significant stenosis of left anterior descending artery (LAD, Figure 2).Percutaneous Coronary Intervention (PCI) was performed (Figure 2), she was afterwards treated in intensive care unit, then discharged in good condition and echocariography parametars. Dual antiplatelet, b blockers, statins and gastroprotective therapy was prescribed. Three months after this event she was pregnant and was referred at our clinic for consult.

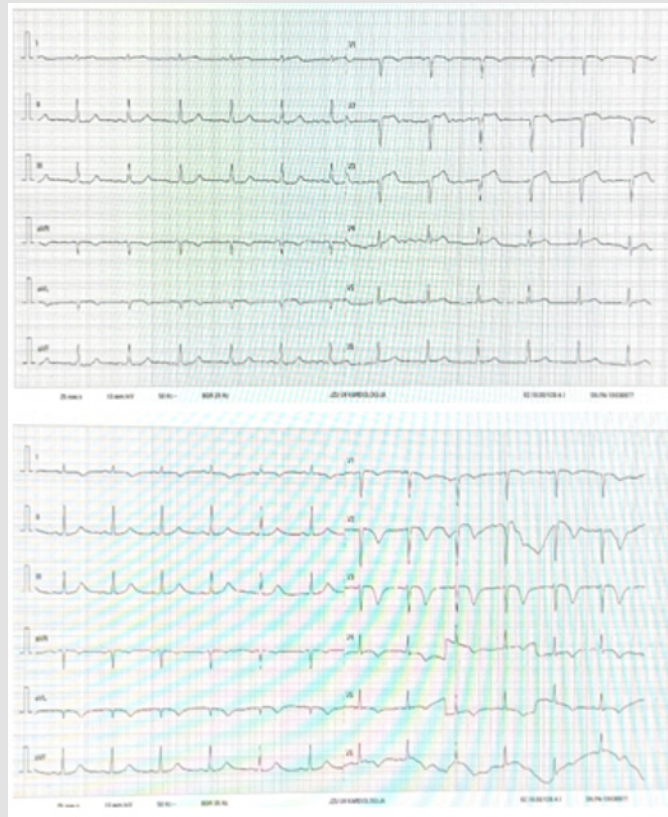


Figure 1: Electrocardiogram at admission.

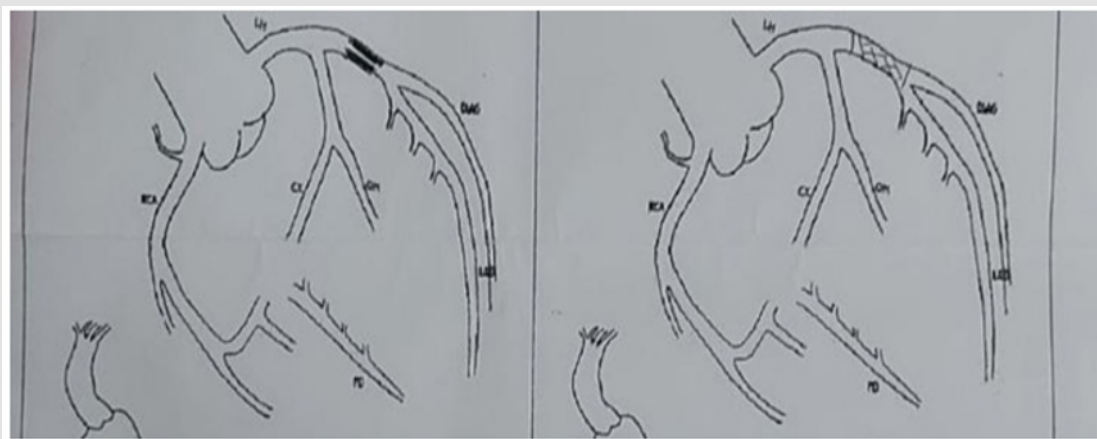


Figure 2: Stenting sheme.

After discussing the risk she decided to continue with the pregnancy. The dual antiplatelet, b blockers, statins and gastroprotective therapy was safely discontinued. Plan for interdisciplinary approach was made which included ECG at rest, echocardiogram at 4-6 week interval, regular blood pressure measurements. Monthly laboratory

analysis included full blood count, protein status, hepatic enzymes, degradation products, urine dipstick and sediment.

Maternal echocardiography revealed the dimensions, function and cinetics of cavities which were non remarkable, normal ejection fraction, valves morphologically and functionally well within the age,

no signs of stenosis or regurgitation and no pericardial effusion. Testing for inherited thrombophilias found a homozygous mutation for PAI-1 (c.-675 5G>4G) and MTHFR 1298. Testing for factor V Leiden mutation, prothrombin gene mutation, protein C, protein S, antithrombin III deficiency, antiphospholipid antibody and lupus anticoagulant screening were negative. She was maintained on ASA 100 mg and prophylactic enoxaparin 60 mg subcutaneously daily starting at 6 gw as suggested by transfusion medicine specialist.

Monthly coagulation profile was made:

Plt[10exp9/L]{150-450} : 244.. 222.. 199.. 210.. 144.. 181.. 156.. 131

Hct[%]{35-50} : 34.6..36,2..32,3..30..28,6..31,3..30,8..32,8

(PT)[cek]{9,8(13)14,2} : 9.6..10,5..9,7..9,5..9,1..9,3..10,3..9,6

APTT(sec){27,9(33)37,7} : 28.5..29,2..26,7..23,7..15,5..23,6..26,5.. 28..29,5

TT[sec]{16,1(22)24,1} : 15.4..16,1..14,3..16,4..16,1..14,7..16,7

D-dimers[ngr/mL]{0-500} : 90..154..339..325..403..406..748..892

Anti Xa 0.07..0,4..0,4..0,7..0,4

INR}{0,8-1,2} 0.7

1st trimester combined biochemical and ultrasound screening for Down syndrome came out as low risk. Non invasive test (cell free DNA) for aneuploidies was revealed low risk for aneuploidies. 2nd trimester morphology screening ultrasound scan was regular with normal morphology of the organs and systems. With 75g oral glucose tolerance test in 28 gw gestational diabetes mellitus was diagnosed, treated with diet and inositols. The 3rd trimester ultrasound screening for fetal growth revealed estimated fetal weight around 10 percentile with normal Doppler flow in blood vessels of the fetoplacental unit. Delivery was conducted by an elective caesarean section at 37 gw due to pedalic fetal lie. 24 h after the last dose of low molecular weight heparin spinal anesthesia was applied with heavy bupivacaine 0.5% and fentanyl. Male newborn was delivered with weight of 2460g, length of 48cm, Apgar score 8/9. Operative and postoperative period were unremarkable. In early postoperative period she was hemodynamically stable for the whole time with a regular ECG recording and a good saturation. Postoperatively, LMWH was continued after agreement with the transfusion specialist and both mother and newborn were discharged at 5th postpartal day in a good condition. Plan for postpartal dual antiplatelet therapy and cardiology consult was made.

Discussion

0.01% of all pregnancies occur in women with coronary artery disease. Nowadays many women postpone pregnancy at the time

when coronary risk factors are already present: smoking, diabetes, arterial hypertension, dyslipidemia, and obesity. Although pregnancy after MI may be safe a multidisciplinary approach is mandatory. There are no unequivocal guidelines for perinatal care in this group of patients [1]. In hemodynamically stable patients with preserved left ventricular systolic function pregnancy is possible and relatively safe although there is a risk of postmyocardial infarction heart failure and stent thrombosis [2]. Using clopidogrel in pregnancy is controversial due to pregnancy category C. Therefore usually clopidogrel is discontinued and replaced with antiplatelet therapy. However many factors influence the course of coronary heart disease in pregnancy: left ventricular systolic function, the condition of coronary arteries, time elapsed from myocardial infarction [3,4].

Women with significant left ventricular injury, reduced ejection fraction and heart failure should be discouraged from becoming pregnant. Women with known coronary artery disease should consult their cardiologist before pregnancy [5].

Our case was a careful evaluation simultaneously by cardiologist, obstetrician and transfusion medicine specialist. Cardiological ultrasound and EKG regular check ups were fortunately uneventful, the discontinuation of dual antiplatelet therapy and its switch to ASA and LMWH in appropriate dosage was performed. Testing for congenital thrombophilia revealed homozygous mutation for PAI-1 (c.-675 5G>4G) and MTHFR 1298. PAI-1 4G/5G polymorphism is associated with increased risk of thrombotic disease, venous thromboembolism, ischemic stroke, possibly adverse pregnancy outcomes (risk of preeclampsia, intrauterine growth restriction and recurrent pregnancy loss) [5]. Having that in mind we informed the patient for all obstetric and cardiology risk and conducted monthly and if indicated more often cardiology consult, laboratory tests and ultrasound exams. Delivery was completed by an elective caesarean section due to pedalic fetal lie in 37 gestational week. Operative and postoperative period went uneventful and she was discharged in 5th postpartal day after cardiology consult for follow up.

Conclusion

Pregnancy after MI may be possible and safe such as this case. Multidisciplinary approach involving careful evaluation and follow up during pregnancy and delivery by the cardiac, anesthesia and obstetric team is mandatory.

Conflict of Interest

Authors declare no conflict of interest.

Acknowledgment

Ethical consent from the Institutional Review Board and consent from the patient for the publication of this report were obtained.

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