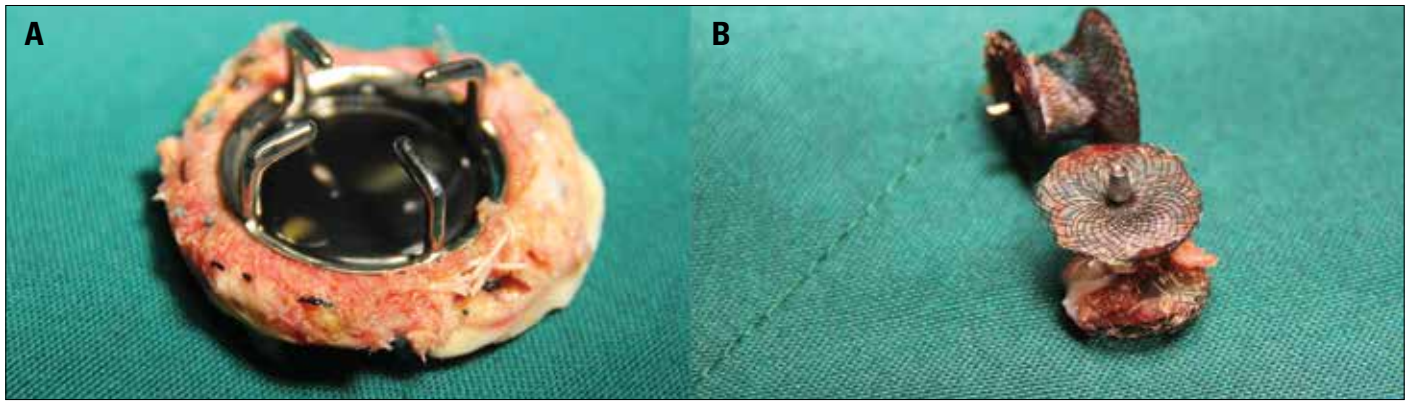

Figure 3. A, B. Removed mitral caged-disk (Cooley-cutter) prosthesis (A). Removed Amplatzer occluder devices (B)

to an associated subvalvular obstruction or a high-flow state; such occurrences can be suspected when the DVI is normal (5). Conversely, in this case-the combination of a high valve pressure gradient and a low DVI suggested intrinsic prosthesis dysfunction or prosthesis-patient mismatch (PPM); nonetheless, the persistent high transvalvular gradient and high pulmonary pressure before two percutaneous interventions were misinterpreted as PVL. Therefore the best initial treatment could be surgery rather than intervention. Distinction must be made between obstruction resulting from PPM and intrinsic prosthesis dysfunction by calculating the projected indexed EOA of the prosthesis implanted (5). Unfortunately, we could not calculate this index due to unavailable reference values for the old generated patient's prosthesis; consequently, we considered it as obstructive status.

Surgery is regarded as the gold standard of dehiscence repair (6, 7). Recently- percutaneous transcatheter closures of PVLs using a wide array of devices have been reported (6, 8). Such techniques are less invasive and can be employed in most high-risk patients instead of performing repeat surgery (6, 7). The failures of percutaneous procedure in previous studies were mainly attributed either to deployment failure, to the presence of a persistent leak or both (5, 9).

In our case, the pathological fibrous tissue between the sewing cuff and the annulus could conceivably have induced the weakening of the suture sites and produced the PVL. If the PVL is small and the surrounding tissue is clear, direct suture closure or device closure may be possible. If the leak is large or degenerative calcified tissue is present - specifically in old generated prosthetic valves, the effective treatment is valve replacement.

Conclusion

Redo replacement of PMV is the accepted method of care in most complicated prosthesis with PVLs. The device closure of PVLs should be limited to high risk patients and be performed only in the absence of other complications like infective endocarditis, valvular degeneration, and calcification.

Video 1. The transesophageal echocardiography demonstrated two side-by-side devices and confirmed significant stenosis

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Hereditary thrombophilia (factor V R2-mutation) as a contributing factor in premature myocardial infarction associated with pregnancy

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Introduction

We report two women presenting with myocardial infarction (MI) associated with pregnancy. Both had no known risk factors except late parental history of cardiovascular disease. Table 1 shows the diagnostic work-up. Genotype analysis (real-time online PCR technique) was performed for detection of inherited thrombophilia including mutations of prothrombin (G20210A), factor-V Leiden (G1691A), factor-V R2 (H1299R), factor-XIII (V34L), ss-fibrinogen (G455A), and MTHFR (C677T and A1298C). Both patients were heterozygous for factor-V R2-mutation and homozygous for MTHFR (C677T).

Case Report

A previously healthy 29-year-old pregnant woman (32nd week; G3P2) was referred to Ege University Medical School Cardiology Department with the diagnosis of MI. She had had retrosternal chest pain for 6 hours. Admission ECG (Fig. 1) and cardiac enzymes were consistent with MI. As pain and ST-segment elevation have relieved completely, medical follow up was planned. She had moderately high lipid levels and high hsCRP. At the 35th week of gestation she underwent caesarean section. Coronary angiography performed one month after the delivery revealed normal coronaries (Fig. 2), inferior and lateral wall akinesia with ejection fraction of 40%.

Second case (41-year-old woman) was referred with the diagnosis of acute MI on the 6th postpartum day (G2P2). Retrosternal chest pain was relieved spontaneously and ECG showed loss of R-waves and negative T-waves in leads V1-4 (Fig. 3). Echocardiography showed akinesia of anteroseptal wall with ejection fraction of 40%. Cardiac markers and hsCRP were elevated. Coronary angiogram showed 50% luminal loss with TIMI grade-3 flow in left anterior descending artery. She had high lipid levels including lipoprotein-a.

Discussion

Pregnant women rarely develop MI (3-6 per 100.000 deliveries) (1-3). Pathophysiological causes underlying MI in pregnancy are diverse but generally associated with coagulative and physiological changes related to pregnancy. Traditional risk factors such as hypertension, smoking, dyslipidemia, and diabetes are strongly related to development of MI in pregnancy. The maternal physiological adaptations, such as increase in lipid levels and change in glucose homeostasis, to the increased fetal-maternal needs can contribute to the development of MI. Being older, multigravida or in the third trimester is also associated with increased risk.

Coronary artery dissection, spasm, and thrombosis are the proposed mechanisms of pregnancy related MI. Coronary dissection is observed in 15% of these patients and suggested to be related with progesterone-mediated changes in the vessel wall (3). Coronary spasm is suggested to be caused by endothelial dysfunction and enhanced vascular reactivity. Pregnancy induces increase in concentration of coagulation factors, fibrinogen, and platelet adhesiveness, as well as diminished fibrinolysis. Coronary thrombosis is observed in 20% of the pregnancy associated MIs (3, 4).

Our cases are particularly interesting since they suffered from MI at a very young age during pregnancy and postpartum period. First case was a very young pregnant woman with no apparent coronary risk factors. As she underwent coronary angiogram one month after acute coronary event, thrombus was not detected. Indeed, left ventricular

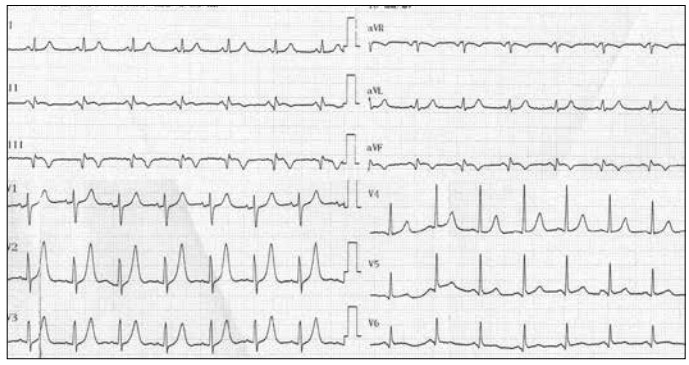

Figure 1. 12-lead ECG showing symmetric tall T waves in V_{1-3} and ST segment elevations and q waves in leads II-III-aVF consistent with acute inferior wall myocardial infarction

Table 1. Laboratory diagnostic work up for premature myocardial infarction

	Case 1	Case 2
Total cholesterol, mg/dL	266	340
Triglycerides, mg/dL	285	450
High-density lipoprotein, mg/dL	62	71
Low-density lipoprotein, mg/dL	147	191
Hematocrit, %	35.1	43
Sensitive C-reactive protein, mg/dL	7.35	2.2
Fasting blood glucose, mg/dL	98	89
Thyroid stimulating hormone, µIU/mL	2.79	2.5
Fibrinogen, mg/dL	728	342
Homocysteine, µmol/lt	5	12.8
Lipoprotein a, mg/dL	28	40
Protein-C activity, %	124	94
Protein-S activity, %	112	69
Antithrombin-III activity, %	117	87
Anticardiolipin antibodies	Negative	Negative

wall motion abnormality, elevated cardiac enzymes, typical ECG findings, and the clinical course all indicated MI associated with coronary thrombosis and/or spasm. Second case was a relatively older woman with MI in puerperium. Her hyperlipidemia was probably associated with atherosclerosis. High lipoprotein-a might also be a contributor of coronary thrombosis superimposed on an atherosclerotic plaque.

To the best of our knowledge, there are only two reported cases with inherited thrombophilia (heterozygous for factor-V Leiden mutation) and pregnancy associated MI (4, 5). Both were in the postpartum period with normal coronary angiograms. Our patients are the first presented cases showing a possible association between factor-V R2-mutation and coronary arterial event. This mutation is relatively common with 11.9% prevalence in Caucasians and 8.5% in Turkish population (6, 7). It's associated with decreased factor-V levels leading to increased risk of venous-tromboembolism. However, its contribution to arterial thrombosis is unknown (6).

Coexistence of Factor-V R2-mutation and MTHFR C677T polymorphism could have aggravated the risk of arterial thrombosis in our patients. C677T substitution within MTHFR gene is a relatively frequent

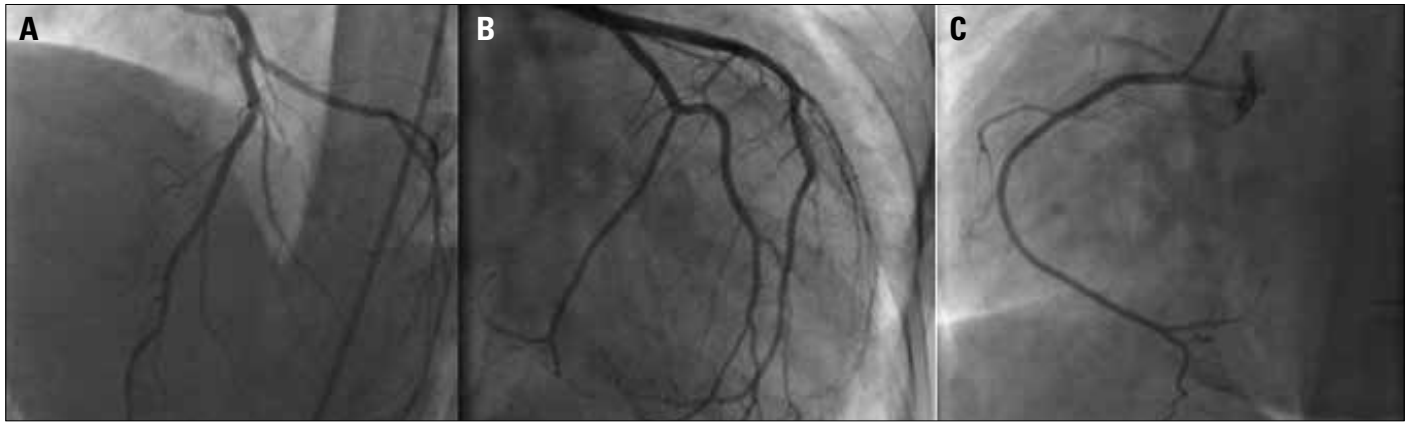

Figure 2. A-C. Coronary angiography showing normal coronary arteries

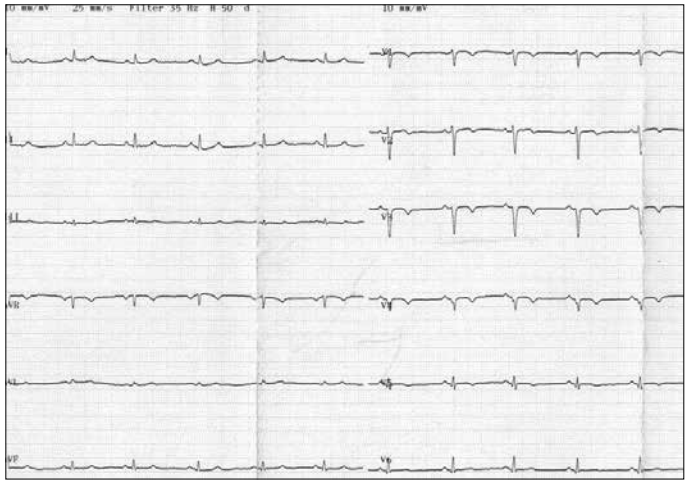

Figure 3. 12-lead ECG showing symmetrical T wave inversions in V_{1-4}, and loss of R waves in V_{1-4} consistent with anterior myocardial infarction

missense mutation leading to high homocysteine levels and mildly increased risk of thrombosis (8).

Conclusion

Our cases support the hypothesis that inherited thrombophilias increase the risk of arterial thrombosis in young individuals with hypercoagulable states as in pregnancy (9-10). Although there is no evidence for routine screening of hereditary thrombophilia in pregnancy, high risk gravidas should be in close follow-up for development of thromboembolic events including MI.

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Cardiac tamponade in a patient treated by sunitinib for metastatic renal cell carcinoma

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Introduction

Sunitinib is an oral, multi-targeted receptor tyrosine kinase inhibitor (TKI). Based on current data, sunitinib is now one of the preferred drugs