Inferior Acute Myocardial Infarction Associated to Coronary Artery Dissection in the Postpartum: A Case Report

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Citation

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Abstract

The acute myocardial infarction is an infrequent disease in the pregnant women and in the post-partum period. We present a case of a young woman who arrived to our hospital with an inferior acute myocardial infarction, seven day after a cesarean intervention. She was successfully treated with stenting of the dissection.

This work was done in Coronary Care Unit and Catheterization Laboratory from Unidad Medica de Alta Especialidad No 1 Bajío. Instituto Mexicano del Seguro Social. León, Guanajuato.

BACKGROUND

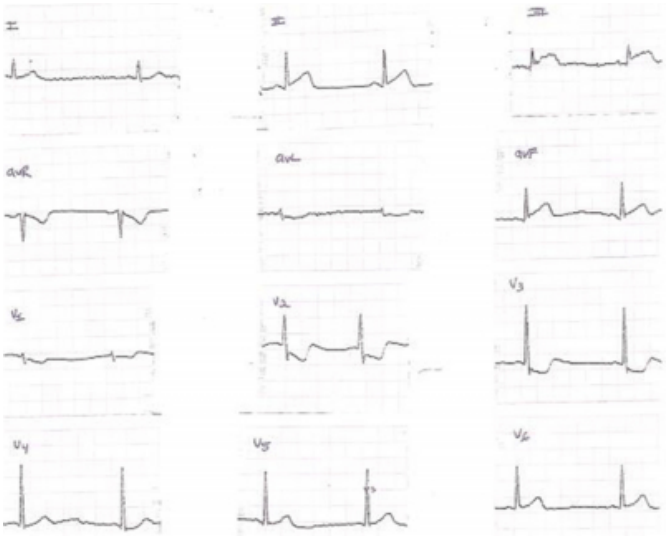
Acute myocardial Infarction (AMI) is an infrequent disease in the pregnant women and in the post-partum period. [1] In the absence of cardiovascular risk factors, the most frequent cause is the coronary dissection, with affection of the left anterior descending (LAD) artery in most cases. We present the case of a young woman who arrived to our hospital with an inferior AMI, seven day after cesarean Intervention.

CASE PRESENTATION

A 36-year old woman arrived to the emergency room from another hospital due to chest pain within one hour and a half of the onset, associated to nausea, vomiting and sweating. She had history of oral contraceptive pills consumption 9 months before her second pregnancy but had no other known coronary risk factors. She had a cesarean intervention 7 days before, without any complication and was discharged from the hospital. An electrocardiogram at arrival showed inferior acute myocardial infarction (Fig. 1) and was referred by her cardiologist to our hospital. Her vital signs were stable with normal blood pressure.

Figure 1

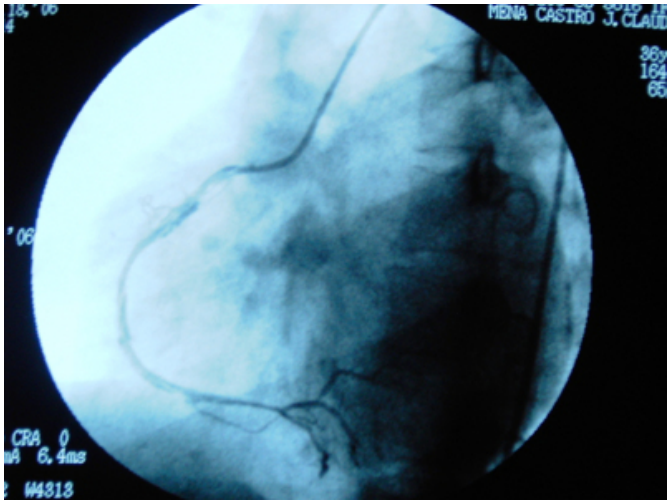
Figure 1: Electrocardiogram with inferior acute myocardial infarction



On physical examination no abnormal finding was observed. Serum lipid profile was normal. Since not eligible for thrombolysis because of recent surgery, she was initially treated with aspirin, clopidrogrel, low molecular weight heparin (LMWH), -adrenoceptor blockers and angiotensin-converting enzyme inhibitors and was taken up for coronary angiography. The coronary angiography revealed normal left coronary artery and a dissection from origin to distal segment of the right coronary artery (RCA) (Fig. 2). The left ventricle showed posterior hypokinesis.

Figure 2

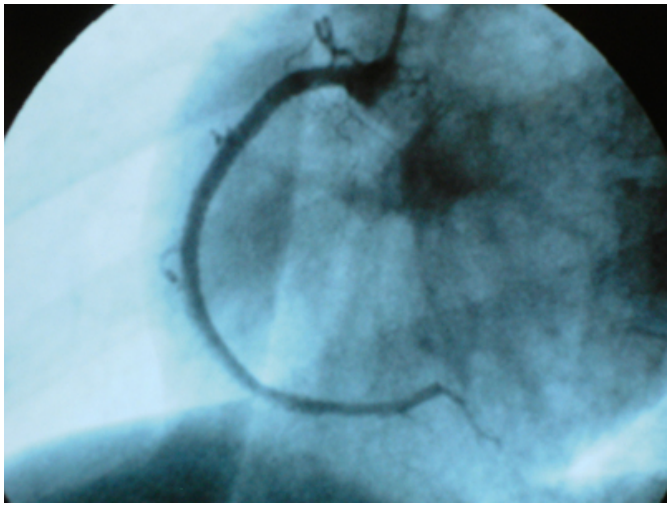
Figure 2: Angiogram of right coronary artery shows dissection.



Coronary intervention was done with placement of direct Cypher™ stenting (3.0X 33 mm, 3.5X33 mm, 3.5X28 mm and 3.5X18 mm) from distal segment to origin of RCA (Fig. 3).

Figure 3

Figure 3: Angiogram of right coronary artery after resolution with stents.



She had no post-procedure complications and the patient was discharged 8 days later.

DISCUSSION

Ischemic heart disease is an infrequent disease in young women and acute myocardial infarction (AMI) in the post-partum is anecdotal [1] . Nevertheless AMI during pregnancy has a higher probability of presentation among pregnant women than non pregnant women with similar age, specially during the third trimester of the pregnancy, postpartum and puerperium [2] . It has been estimated 1 case of AMI per 10,000-30,000 pregnancies [3,4] . A study analyzed 10 years of pregnancies in California and showed 151 cases per 35,700 pregnancies [5] . Even though fewer than 200 cases have been reported in the literature [12] , it could be possible that this condition might be missed diagnosed or not registered. The accelerated atherosclerosis could be the cause of AMI in women during pregnancy or in the post-partum; specially if one of the known risk factors are present [1,5,6] . The 47-75% of the cases of AMI during pregnancy have normal coronary arteries and AMI is associated to low perfusion during coronary artery spasm, embolism or in situ thrombosis [1,6] . The origin of coronary spasm is unknown, but it has been invocated an association to arterial hypertension during pregnancy [6] and in another cases associated to the administration of ergotamine derivates to suppress uterine loss [8,9,10] ; in patients with cocaine abuse [6,11] and in the simultaneous consumption of alcohol and amphetamines [1,6,11] . The coronary embolism is infrequent, but it has been reported in cases of endocarditis with aortic affection [1] . In situ coronary thrombosis could present in hypercoagulative states, such as: Neprhotic syndrome, antiphospholipid syndrome, protein S deficiency and XII factor deficiency [1,6] . Other potential causes of AMI in pregnancy and during post-partum are: Vascular collagen disorders, Kawasaki disease, Sick cells anemia and pheochromocitoma [1,6] . The maternal mortality of AMI during pregnancy, post-partum and puerperium is 21%; being more frequent in the post-partum and puerperium [6] . If the AMI is present 2 weeks before partum, the mortality could rise to 45% [4] .

The spontaneous coronary dissection in general is more frequent in women 3:1 compare to men, most case have been diagnosed in autopsy [12] . Few cases of acute coronary dissection have been reported during pregnancy and in the puerperium [12] . The first case of spontaneous coronary dissection during pregnancy was reported in 1931 by Pert in a 42-year old woman [13] . Now a days the most frequent cause of AMI in the peri and postpartum period is the coronary artery dissection [1,4,6,12,13] . The clinical presentation is cardiogenic shock, death or acute coronary syndrome, usually AMI with Elevation of ST Segment, with anterior localization frequently. In the pre-intervention era diagnosis was usually done post-mortem. The left descending artery is the artery most frequently affected (80%) and in some cases the left mains is involved [12] and less frequent the RCA (20%), as it was present in this case [1,4,11,12,13] . The

physiopathology is unknown, nevertheless have been proposed hormonal changes and the hemodynamic stress associated to pregnancy and puerperium, that could lead to structural changes of the collagen and elastic fibers of arterial wall [12,13]. The histological findings of coronary artery dissection are usually the separation of the third layer of the intermediate stratum or between the intermediate and the adventitia, accompany with a huge haematoma that compresses the real lumen [13]. The coronary dissection is frequently the result of proximal aortic dissection [12]. The mortality is approximately >50%, most of them occurred at the onset of presentation [13]. The survivors have a good evolution, even though; three cases have been reported with needs of cardiac transplantation because of great myocardial damage [12]. For that reason when there is suspicious of this condition during pregnancy, postpartum and puerperium in patients who present with thoracic pain; it is important to confirm the diagnosis. An ECG and cardiac enzymes should be done to establish the diagnosis of AMI. The cardiac catheterization must be done immediately.

The treatment has not been standardized, but in presence high mortality reported and the great myocardial damage; it seams reasonable to tend to use aggressive treatment. Thrombolytic treatment could be contraindicated because of pregnancy present, recent partum or recent cesarean intervention and for the risk of extension of the intramural haematoma in the dissected artery [14]. Bypass surgery has been done with good results; specially if left main is involved [12]. The Percutaneous Coronary Intervention with stent placement seems to be a good alternative for most patients with this condition, such as has been reported previously [8,15].

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