

Acute Postpartum Coronary Syndrome Secondary to Spontaneous Coronary Dissection: A Case Report and Review of the Literature

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Abstract: *Pregnancy MI is a serious complication that leads to high maternal morbidity and mortality. In pregnant women, the most common cause of MI was coronary dissection. We report the clinical observation of a 29-year-old young woman who presented with extensive anterior MI 25 days after childbirth, related to a dissection of the proximal part of the anterior interventricular artery. The treatment of this pathology may, depending on the clinical and angiographic presentation, call for medical treatment, revascularization or transluminal angioplasty. The prognosis seems quite favorable*

Keywords: postpartum, spontaneous coronary dissection, coronary syndrome

1. Introduction

Spontaneous dissection of a coronary artery (DSAC) is a rare cause of acute coronary syndrome with poorly understood pathophysiological mechanisms.

Approximately 400 documented cases of DSAC alone that have been reported in the literature.

We report the observation of an anterior postpartum infarction in a young woman, secondary to a dissection of the anterior ventricular artery. From our observation and with the help of a review of the literature; we will try to underline the clinical, angiographic and therapeutic features of this pathology

2. Observation

This is a 29 year old patient, with no notable pathological history, G3P3, first and second pregnancy: full term delivery without dysgravidia.

Third pregnancy: full term delivery without incident.

The patient was readmitted 25 days postpartum for a typical chest pain (acute constrictive retro sternal acute, at rest, radiating to the left arm and lower jaw) and which lasted more than 30 min. The electrocardiogram on admission showed an over-shift of the ST segment at the level of the anterior territory (V2 V3 V4 V5 V6). The patient immediately received a loading dose of clopidogrel® (4cp of 75mg) + heparin 50 mg in IVD + aspirin 250mg in IVD.

To assess her cardiac function, an echocardiography was performed at the patient's bed and which showed severe hypokinesia of the antero-septal wall and the tip with an ejection fraction estimated at 50%.

The patient was referred directly to the catheterization room. Angiography revealed a coronary dissection involving the

proximal part of the anterior inter ventricular artery with an indication of angioplasty with placement of a stent.

The evolution was favorable and the patient was put out on treatment combining Clopidogrel 75mg 1cp / d + Aspirin 100mg 1s / d + Beta blocker (Bisoprolol® 5mg 1cp / d) + statin 20mg 1cp / d.

3. Discussion

PIDD during pregnancy is a serious complication that leads to high maternal morbidity and mortality estimated at 7.3%. Although the probability of having a heart attack during pregnancy is very low, estimated at 1 in 16,000 deliveries, the risk is still three to four times higher in pregnant women compared to women of the same age who are not expecting a child, and the more women delay their first pregnancy, the more the incidence of MI will increase [1,2]. Atherosclerosis is the most common cause of MI in the general population. However, it is only seen in a third of pregnant women. In the latter, the most common cause of MI is coronary dissection. The latter is defined by a separation within the coronary arterial wall secondary to an intra mural hemorrhage, with or without tearing of the intima, creating a false channel. This separation can sit between the intima and the media or between the media and the adventitia. Angiographically, it is a flow image in two lights (separated by a non-opacified area). Its pathophysiology remains hypothetical, it is often associated with predisposing arterial anomalies, with or without precipitating stressor of an emotional, physical or hormonal nature.

Coronary dissection of the peripartum is linked to hormonal changes, increased blood flow as well as changes in the architecture of the arterial wall with incrimination of the intense physical effort produced during labor and delivery [3]. Early diagnosis is crucial for adequate management of DSAC. However, angiography remains an essential examination despite its limits in differentiating between the atherosclerotic and non-atherosclerotic origin of coronary

obstructions. The treatment of this pathology is not consensual, and may require, depending on the clinical and angiographic presentation, medical treatment, revascularization by aorto-coronary bypass with resection of the hematoma of the arterial wall, or Transluminal angioplasty [4]. The medical treatment includes a dual therapy of antiplatelet agents (aspirin + clopidogrel), considering that a large proportion of the DSAC involves an intimal tear, thus forming a pro-thrombotic environment. It is considered that the reduction of the thrombus at the false channel by PAA agents could theoretically decrease the compression on the real lumen. The role of anticoagulant therapy is controversial given the risk of extending the dissection. This risk is offset by the potential benefit of resolving the overlying thrombus and improving arterial permeability. Thrombolytics should be avoided in the DSAC due to the increased risk of extended dissection [5].

B-blockers in aortic dissection are administered from the acute phase of the DSAC as well as in the long term. Nitrogen derivatives are useful in the acute phase to relieve symptoms secondary to vasospasm, but are not commonly used in the long term. The administration of statins for non-atherosclerotic lesions has not yet been studied. These dyslipidemic patients are recommended. Angioplasty with stent placement showed an efficiency of 91% in the series of 32 patients from Moukarbel and Alam, but with a major risk of catheterization of the false channel, or even stenting of the latter. Usually medical treatment with percutaneous coronary intervention (PCI) is sufficient to restore coronary circulation and stable hemodynamics. Aortocoronary bypass surgery is indicated for dissection of the left coronary trunk, and in dissections involving multiple coronaries. The prognosis of patients with DSAC has not been well studied, given the limited cases reported in the published series. However, recent retrospective series show that most patients survived their initial hospitalization, with a low mortality rate ranging from 0 to 4%. The recurrence of coronary dissection varies according to the different studies. In a cohort carried out by SAW J., the rate of recurrent dissection is approximately 10%. They reported a rate of major adverse events after 10 years estimated at 47%. In the study by Koller et al, the rate of recurrent dissection beyond 24 hours in postpartum women was 17% [4, 5].

4. Conclusion

Coronary dissection is a rare but serious cause of acute coronary syndrome associated with pregnancy in the majority of cases. It should be suspected in young multiparous women with chest pain in the perinatal period, even in the absence of cardiovascular risk factors. It is an urgent diagnosis made by coronary angiography, and the treatment must be adapted according to individual circumstances. The long-term course of patients who survive their DSAC event is generally good. However, they are at risk of recurrent dissection and major cardiovascular events. Therefore, they should be closely monitored by their cardiologist.

5. Conflicts of interest

The authors declare no conflict of interest.

6. Author Contribution

All the authors contributed to the conduct of this work. All authors also declare that they have read and approved the final version of the manuscript.

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