Optical Coherence Tomography Guided Approach to Postpartum Coronary Artery Dissection: A Case Report

Francesco Soriano, Stefano Nava, Valentina Vaccaro, Margherita D’Anna, Irene Maria Bossi, Giuseppe Bruschi, Paola Colomb, Silvio Klugmann

Niguarda Ca’ Granda Hospital, Milano

Address for correspondence: Francesco Soriano, Cardiologia 1 - Emodinamica, Ospedale Niguarda Ca’ Granda, Piazza Ospedale Maggiore 3, 20162 – Milano ITALY
Telephone Number +39 02 6444 7795 - +393398547041
E-mail Address: frasori@yahoo.it

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Postpartum spontaneous coronary dissection (SCAD) is a rare and dramatic complication of pregnancy. SCAD is a separation of the coronary artery wall by intramural hematoma which can occur by a spontaneous intramedial hemorrhage with or without intimal rupture. Diagnosis and treatment can be difficult from a clinical and an angiographic point of view.1,2,3

In this setting intravascular imaging can be essential because it allows to confirm diagnosis, to detect possible intimal ruptures or thrombus and it can guide the treatment.

Our case is about a SCAD of ambiguous angiographic diagnosis, the use of optical coherence tomography (OCT) had a crucial role both in characterization of coronaropathy and in pharmacological and interventional management.

A 42 years old woman (G2, P2) was discharged home, doing fine, after giving birth to a healthy baby after an uncomplicated vaginal delivery. Her cardiovascular risk factors were: a family history of CAD and nicotine addiction, five days post partum she came to our emergency room for acute chest pain, this symptom started the day before with several transient episodes. The EKG showed an ST elevation in the anterior leads. At the echocardiography there was an apical hypokinesia and the ejection fraction was 45-50%. An urgent coronary angiography was performed and it showed a severe lumen narrowing in proximal and middle tract of left anterior descending (LAD) and circumflex arteries (Cx) without stagnation of contrast. (Fig a). The right coronary was normal. The reduction of caliber was irreversible despite the use of intracoronary nitrates.

The OCT let us recognise the presence of coronary dissection by visualising exactly the intimal tears located both in the left main (LM) (Fig. b) and in the proximal Cx with a wall hematoma diffused to the distal tracts of the main vessels (Fig. c). OCT showed us also the presence of red thrombus in the intima discontinuity point where the media tunica was exposed.(Fig. d), so we promptly started tirofiban infusion intra and post procedural.

In consideration of ongoing ischemia we decided to perform coronary angioplasty. The identification of the tear in the middle tract of Cx guided us in performing a T stenting angioplasty, placing the first stent starting from the ostium of Cx, and only after, we placed the second stent from the ostium of LM to the proximal tract of LAD with a good angiographic and OCT result (Fig. e, f). In this way, we avoided to recross a disseced vessel with the risk to widen the false lumen and to extend the hematoma. The post procedural course was regular, the patient was asymptomatic and the pre discharge echocardiography showed a mild reduction of the ejection fraction (48%).Dual antiplatelet therapy was indicated for 12 months. After four months we performed a coronary angiography with demonstration of a good result of angioplasty and a significant improvement in vessel lumen distal to the stents (Fig. g). The OCT control showed good stent apposition and a significant reduction of the wall hematoma (Fig. h).

Conclusions
The SCAD is a very rare and dramatic event that can occur after delivery. It may occur in different ways, with a tear in vessel wall or just with an intramural hematoma. Our case strengthens the concept still expressed by other groups that intracoronary imaging is the best way to approach SCAD. The OCT is the best imaging technique to recognise the precise mechanism of the vessel damage and also to evaluate the best way of intervention, in particular in our case it guided stents implantation technique and medical therapy showing us the position of intimal tears and the presence of thrombus.

* Corresponding author: frasori@yahoo.it

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Declarations of Interest
The authors declare no conflicts of interest

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