Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Cardiology

ST- Elevation Acute Myocardial Infarction after Ectopic Pregnancy: A Case Report

Abdellah Amine[1*], Issa Ismail[2], El Houcine Malki[3], Aziz Ahizoune[4]

[1]Department of Cardiology, Military Hospital of Moulay El Hassane, Guelmim, Morocco
[2]Department of Reanimation, Military Hospital of Moulay El Hassane, Guelmim, Morocco
[3]Department of Biology, Military Hospital of Moulay El Hassane, Guelmim, Morocco
[4]Department of Neurology, Military Hospital of Moulay El Hassane, Guelmim, Morocco

DOI: https://doi.org/10.36347/sjmcr.2024.v12i12.021 | **Received:** 06.11.2024 | **Accepted:** 12.12.2024 | **Published:** 13.12.2024

***Corresponding author:** Abdellah Amine
Department of Cardiology, Military Hospital of Moulay El Hassane, Guelmim, Morocco

Abstract **Case Report**

Acute coronary syndrome (ACS) is a major cause of maternal death in developed countries, accounting for 20% of cardiovascular deaths [1]. The incidence is expected to continue to rise, due to the increasing prevalence of cardiovascular risk factors in pregnant women. Associated mortality is 5% in the pregnant population [2]. We present a particular case of a young woman presenting with ACS post partum from an ectopic pregnancy complicated by deep left ventricular dysfunction with a healthy coronary artery, in whom the diagnosis of Tako-Tsubo cardiomyopathy is also discussed.

Keywords: ACS; ectopic pregnancy; post partum; Tako-Tsubo.

INTRODUCTION

Cardiovascular disease, and in particular ischaemic heart disease, is the leading cause of pregnancy-related death in many countries [3, 4]. Pregnancy-induced changes, including hormonal disruption and increased blood flow, together with the increasing prevalence of cardiovascular risk factors in pregnant women, may increase the risk of myocardial infarction (MI) during pregnancy and up to 12 weeks postpartum.

CLINICAL CASE

Patient aged 39, admitted to hospital for ACS with ST-segment elevation at 24 hours of chest pain complicated by acute pulmonary oedema (OAP).

In her recent history, the patient had undergone laparoscopic surgery for an ectopic pregnancy 5 days prior to this cardiological event. The patient received preventive anticoagulation for 3 days postoperatively.

The patient had no cardiovascular risk factors apart from being overweight, and had two successful gynaecological pregnancies at the age of 22 and 25 with uncomplicated follow-up.

Clinical examination on admission revealed an orthopneic patient in fairly good general condition, apyretic with normally coloured conjunctivae. Blood pressure was 120/60 mmHg. Heart rate was 100 beats per minute. Oxygen saturation in room air was 90%.

Cardiac auscultation revealed a left gallop. Peripheral pulses were present and symmetrical, with no murmurs on the major accessible vascular axes. Pleuropulmonary examination revealed crepitus rales arriving at mid-lung fields.

The electrocardiogram (ECG) shows a regular sinus rhythm with a ventricular rate of 78 cycles per minute (cpm) and a circumferential ST-segment elevation (Figure 1).

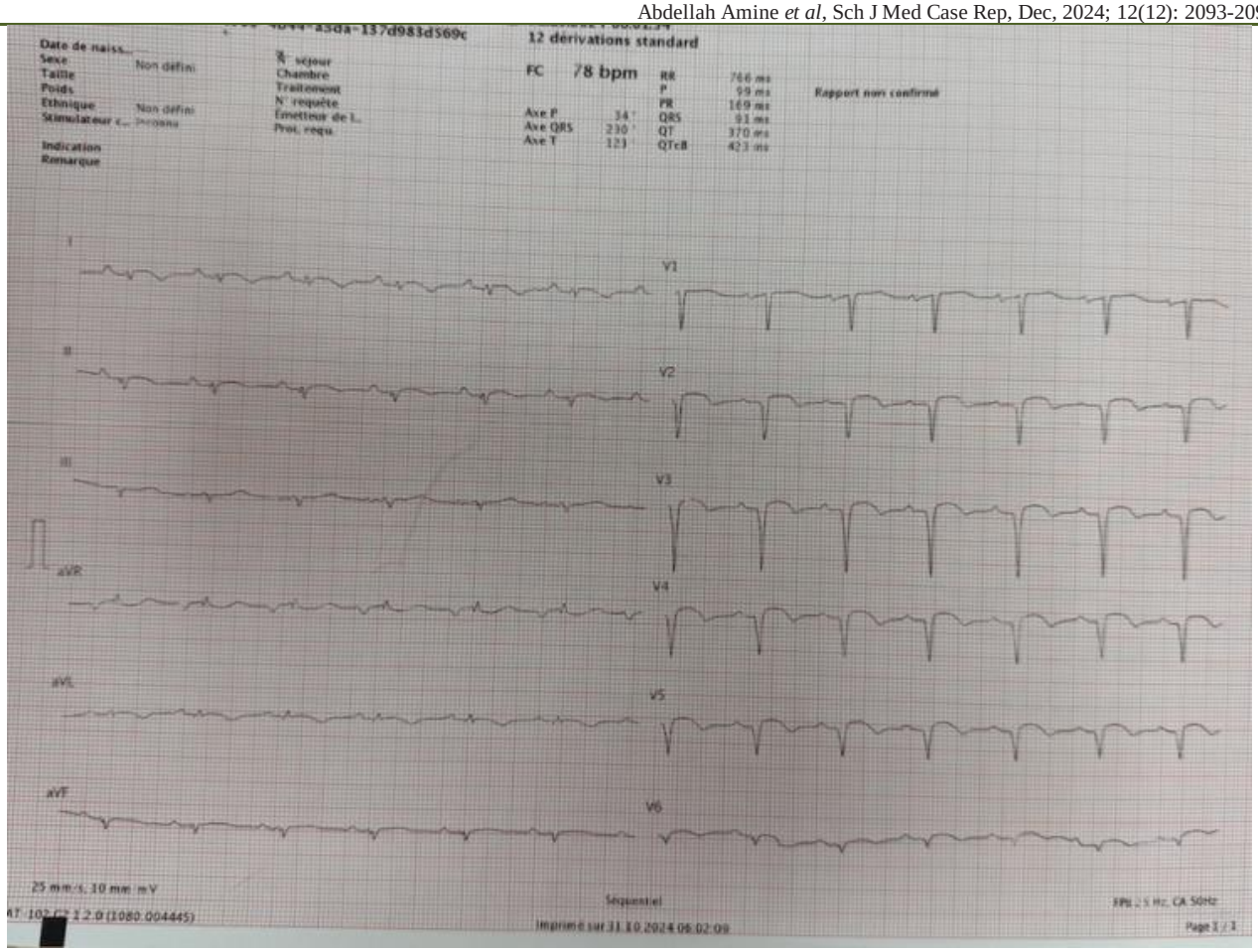

Figure 1: ECG showing regular sinus rhythm with a ventricular rate of 78 cpm and circumferential ST-segment elevation

A frontal chest X-ray showed bilateral hilar overload with vascular redistribution towards the periphery (Figure 2).

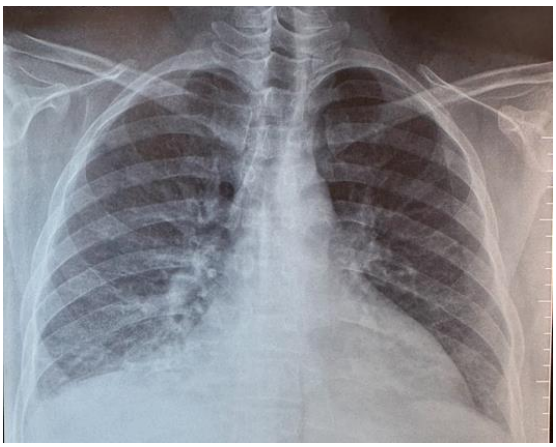

Figure 2: Front thoracic X-ray, supine position, showing hilar overload

Transthoracic echocardiography (TTE) showed a left ventricle (LV) slightly dilated to 61/51 mm with medial and apical anteroseptal akinesia, and a profound alteration in the left ventricular ejection fraction (LVEF) to 25% on the Simpson biplane.

The valve structures are thin and flexible with good kinetics. The right ventricle is of normal size with good systolic function. The pericardium was dry.

TTE at 1 month showed a slightly dilated LV at 59/47 mm with an LVEF of 30% and persistent medial and apical anteroseptal akinesia. The left atrium was dilated to an area of 21cm2 (Figure 3).

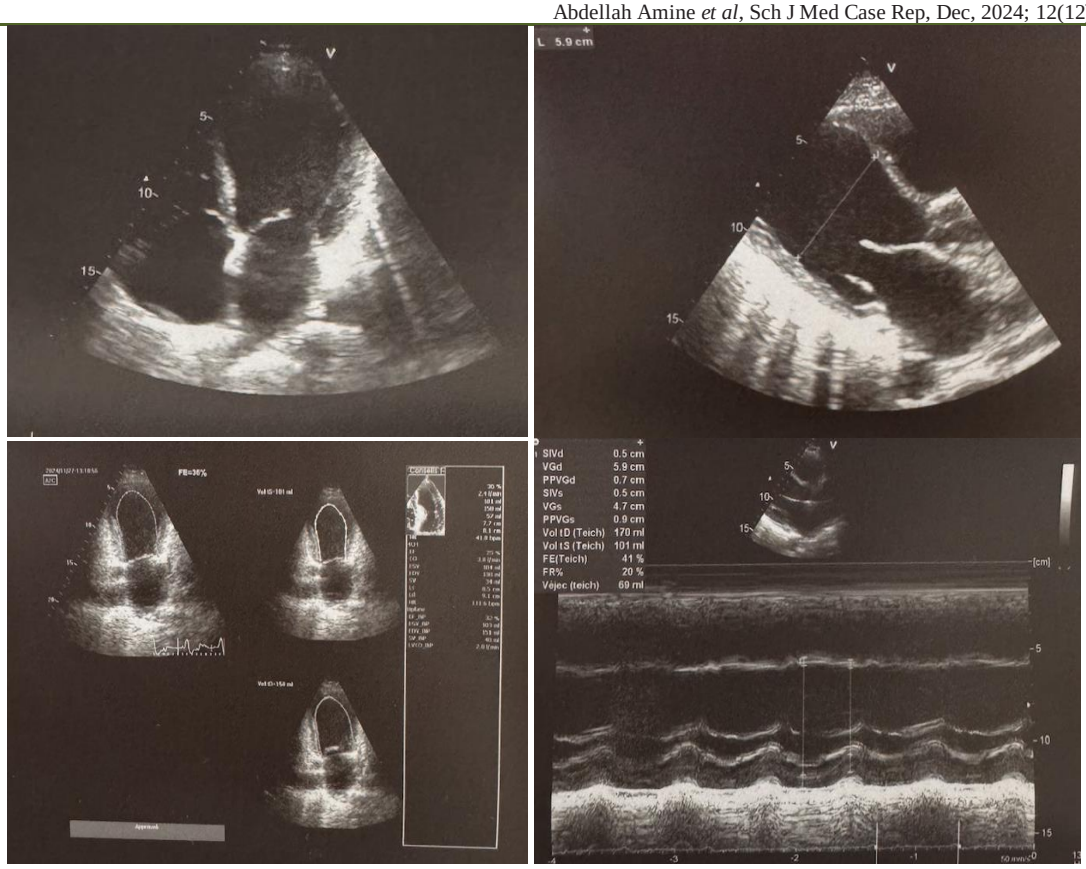

Figure 3: TTE shows a slightly dilated LV, septal akinesia and low LVEF

On admission, the biology work-up revealed elevated D-dimers, elevated troponin, CRP (22 mg/mL), and elevated BNP and pro BNP.

An immunological work-up with anti-nuclear antibodies and anti-phospholipid antibodies was negative.

A thoracic angioscan was normal. Coronary angiography was normal, with smooth coronary arteries (Figure 4).

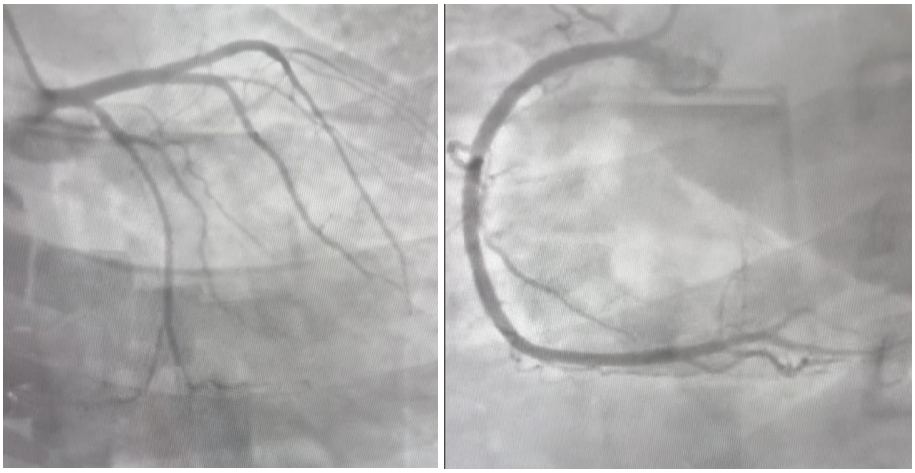

Figure 4: Normal coronary angiography

DISCUSSION

ACS is a major cause of maternal death in developed countries, accounting for 20% of cardiovascular deaths [5]. The prevalence of cardiovascular risk factors and the increase in maternal age mean that these figures are constantly rising.

Spontaneous coronary artery dissection is the most common cause of ACS (43%), while atherosclerosis accounts for only 27% of ACS. Other

pathological mechanisms of ACS in pregnancy include thrombosis (17%) and spasm (2%). Normal coronary anatomy is found in 18% of women with ACS in pregnancy [6].

In our case, the patient suffered infarcted chest pain on the 5th postpartum day of an ectopic pregnancy. She was admitted with ST-segment elevation ACS complicated by PAO at the 24th hour of chest pain. The patient received initial conditioning care. She received anti-ischaemic and anti-thrombotic treatment and treatment for heart failure.

Progress was favourable under medical treatment. TTE on admission showed profound LV dysfunction with LVEF at 25%, with medial and apical anteroseptal akinesia and akinesia of the apex. Biological tests showed elevated troponin, BNP and D dimers. Thoracic angioscan was normal.

A coronary angiography was performed after the patient's haemodynamic stabilisation and showed healthy coronaries. Follow-up after 1 month on medical treatment showed clinical improvement, but echocardiography showed LVEF dysfunction unimproved at 30%, with persistent septal akinesia.

The implication of a diagnosis of Tako-Tsubo cardiomyopathy may also be raised in this context, given the psychic and physical stress experienced by the patient during her ectopic pregnancy and the excessive sympathetic stimulation [7-10].

It has been described in several international studies that in Tako-Tsubo cardiomyopathy, recovery of LVEF and myocardial segmental disorders is observed in the month following cardiac damage, which is not the case in our patient [7, 8, 10, 11]. This criterion for the evolution of Tako-Tsubo cardiomyopathy distinguishes it from other types of MI whose clinical presentation is often similar [7-9, 12].

CONCLUSION

In recent years, cardiovascular disease has become the leading cause of death among pregnant women in Western countries.

The possibility of a pregnancy and its follow-up must therefore be anticipated and supervised by a multidisciplinary team specialising in the management of these patients.

Declaration of Interests: The authors declare that they have no conflicts of interest in relation to this article.

REFERENCES

1. Cantwell, R., Clutton-Brock, T., Cooper, G., Dawson, A., Drife, J., Garrod, D., ... & Springett, A. (2011). Saving Mothers' Lives: Reviewing maternal deaths to make motherhood safer: 2006-2008. The Eighth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom. *BJOG: an international journal of obstetrics and gynaecology*, *118*(Suppl 1), 1-203.
2. James, A. H., Jamison, M. G., Biswas, M. S., Brancazio, L. R., Swamy, G. K., & Myers, E. R. (2006). Acute myocardial infarction in pregnancy: a United States population-based study. *Circulation*, *113*(12), 1564-1571.
3. Pregnancy mortality surveillance system j maternal and infant health j CDC [Inter- net]. 2020 [cited 2021 May 17]. Available from: https://www.cdc.gov/reproductive- health/maternal-mortality/pregnancy-mortality-surveillance-system.htm
4. 2018 ESC/EACTS Guidelines on myocardial revascularization j European heart journal j Oxford academic [Internet]. [cited 2021 Feb 7]. Available from: https://academic.oup.com/eurheartj/article/40/2/87/5079120
5. Cantwell, R., Clutton-Brock, T., Cooper, G., Dawson, A., Drife, J., Garrod, D., ... & Springett, A. (2011). Saving Mothers' Lives: Reviewing maternal deaths to make motherhood safer: 2006-2008. The Eighth Report of the Confidential Enquiries into Maternal Deaths in the United Kingdom. *BJOG: an international journal of obstetrics and gynaecology*, *118*(Suppl 1), 1-203.
6. Elkayam, U., Jalnapurkar, S., Barakkat, M. N., Khatri, N., Kealey, A. J., Mehra, A., & Roth, A. (2014). Pregnancy-associated acute myocardial infarction: a review of contemporary experience in 150 cases between 2006 and 2011. *Circulation*, *129*(16), 1695-1702.
7. Madhavan, M., & Prasad, A. (2010). Proposed Mayo Clinic criteria for the diagnosis of Tako-Tsubo cardiomyopathy and long-term prognosis. *Herz*, *35*(4), 240-243.
8. Ghadri, J. R., Wittstein, I. S., Prasad, A., Sharkey, S., Dote, K., Akashi, Y. J., ... & Templin, C. (2018). International expert consensus document on Takotsubo syndrome (part I): clinical characteristics, diagnostic criteria, and pathophysiology. *European heart journal*, *39*(22), 2032-2046.
9. Sharkey, S. W., Lesser, J. R., Zenovich, A. G., Maron, M. S., Lindberg, J., Longe, T. F., & Maron, B. J. (2005). Acute and reversible cardiomyopathy provoked by stress in women from the United States. *Circulation*, *111*(4), 472-479.
10. Yayehd, K., N'kenon, W., Belle, L., Bataille, V., Hanssen, M., Leddet, P., ... & Dujardin, J. J. (2016). Management of Takotsubo cardiomyopathy in non-academic hospitals in France: The Observational French SyndromEs of TakoTsubo (OFSETT) study. *Archives of cardiovascular diseases*, *109*(1), 4-12.

11. Sato, T. H., Huchida, T., & Dote, K. M. J. (1990.). Tako-tsubo-like Left Ventricular Dysfunction due to Multivessel Coronary Spasm. Clinical Aspect of Myocardial Injury: From Ischemia to Heart Failure. Tokyo, Japan: Kagakuhyoronsha Publishing Co; p. 56–64.

12. Kurisu, S., Inoue, I., Kawagoe, T., Ishihara, M., Shimatani, Y., Nishioka, K., ... & Sato, H. (2003). Myocardial perfusion and fatty acid metabolism in patients with tako-tsubo-like left ventricular dysfunction. *Journal of the American College of Cardiology*, *41*(5), 743-748.