

**ELECTRICAL ALTERNANS REVEALING A BREAST CANCER RECURRENCE**

Saadia Ouarrak, M.D.\*<sup>1</sup>, Safia Ouarrak, M.D.<sup>2</sup>, Zineb Bouchbika M.D.<sup>1</sup>, Nadia Benchakroun, M.D.<sup>1</sup>, Rachida Habbal M.D.<sup>2</sup>, Hassan Jouhadi, M.D.<sup>1</sup>, Nezha Tawfiq, M.D.<sup>1</sup>, Souha Sahraoui, M.D.<sup>1</sup>, Abdellatif Benider, MD<sup>1</sup>

<sup>1</sup>Department of Radiation Oncology, University Hospital of Ibn Rochd, Casablanca, Morocco.

<sup>2</sup>Department of Cardiology, University Hospital of Ibn Rochd, Casablanca, Morocco.

\*Corresponding Author: Saadia Ouarrak M.D.

Department of Radiation Oncology, University Hospital of Ibn Rochd, Casablanca, Morocco.

Article Received on 02/05/2021

Article Revised on 23/05/2021

Article Accepted on 13/06/2021

**ABSTRACT**

We report the case of a 72-year-old woman whose electrocardiogram showed a sinus tachycardia, negative T waves diffusely and an electrical alternans. This electrocardiographic pattern corresponded to a typical aspect of a large pericardial effusion.

**KEYWORDS:** Pericardial effusion, Echocardiography, Cardio-oncology, Cancer, Electrocardiogram.

**CASE REPORT**

A 72-year-old woman with a 8-years history of breast cancer declared cured, presented to the emergency unit with severe dyspnea and palpitation evolving from 1 month. On physical examination, blood pressure was at 90/60 mmHg with a heartbeat at 107 b.p.m. There were muffled heart sound and jugular venous distension. Chest X-ray showed a striking cardiomegaly with a cardiothoracic ratio of 0.8. The electrocardiogram (ECG) showed a sinus tachycardia with negative T waves diffusely and an electrical alternans (Figure 1). Echocardiogram confirmed a large pericardial effusion. Pericardiocentesis removed 1 liter of bloody exudative pericardial fluid with a protein rate of 70 g/L, with presence malignant cells on the cytological study. The hemogram was normal, but CA15.3 was elevated (100 UI/mL, normal range < 30).

**DISCUSSION**

Breast cancer is the second most important cause of malignant pericardial effusion.<sup>[1]</sup>

However, the diagnosis of malignant cardiac effusion can be challenging, since the symptoms are non-specific and mimic other more frequent complications of advanced cancer. ECG can be useful to detect a pericardial effusion (PE). Several electrical disturbances are associated with PE. These include diffuse PR-segment depression, ST-segment elevation, sinus tachycardia, low QRS voltage and electrical alternans. The electrical alternans is due to variation of the myocardial electrical axis in precordial leads. It is pathognomonic of severe PE.<sup>[2]</sup> The simultaneous presence of sinus tachycardia, low QRS voltage and electrical alternans is quite rare (8.3% of patients with

PE) but their combination has a high sensitivity in the diagnosis of PE.<sup>[3]</sup>

In our case, ECG pattern was highly suggestive of severe PE. Echocardiography confirmed the presence of a large PE with a right ventricle collapse (Video). Pericardiocentesis removed 1L300 of light-yellow exudative liquid. Normalization of the ECG was observed after pericardiocentesis.

**CONCLUSION**

This case highlights the role of a 12-Lead Electrocardiogram in the diagnosis of PE. PE should be evoked in a patient with a current or past diagnosis of cancer especially when ECG is abnormal.

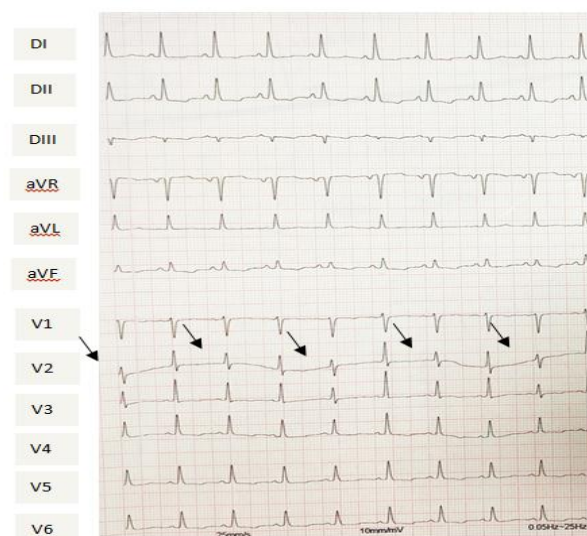


Figure 1.



Video.mp4

#### **ACKNOWLEDGEMENTS**

None.

#### **FUNDING SOURCES**

None.

#### **DISCLOSURES**

None declared.

#### **REFERENCES**

1. Ikeda H, Kikawa Y, Nakamoto Y, Takeo M, Yamamoto M. A Patient with Recurrent Breast Cancer Showing Long-Term Survival after Developing Pericardial Effusion and Cardiac Tamponade Caused by Carcinomatous Pericarditis. *Breast Care*, 2013; 8(1): 71-3.
2. Scarpa D, Famoso G, Zorzi A. Electrical swimming. *Emerg Med J. mai*, 2019; 36(5): 280-6.
3. Argula RG, Negi SI, Banchs J, Yusuf SW. Role of a 12-Lead Electrocardiogram in the Diagnosis of Cardiac Tamponade as Diagnosed by Transthoracic Echocardiography in Patients With Malignant Pericardial Effusion: ECG in cardiac tamponade. *Clin Cardiol mars*, 2015; 38(3): 139-44.