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Breast Implant May Delay Primary Coronary Intervention Case Report

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Introduction

An Electrocardiography test is a reflection of the heart's electrical activity, always being used in the emergency department to figure out the cause of chest pain.

In terms of improving the quality and patient safety, investigators from Europe highlighted that breast implants are associated with abnormal ECG recordings and suggested having an ECG before a breast implant procedure, which can be kept on an individual file and used for future comparison if needed. (Sok Sithikun Bun, et al 2017).

Discussion

ECGs are used to diagnose acute myocardial infarction by certain criteria, such as ST-segment elevation, new left bundle branch block, and other high-risk features like diffuse T waves inversion and ST elevation in AVR. Hence, necessitate urgent coronary revascularization.

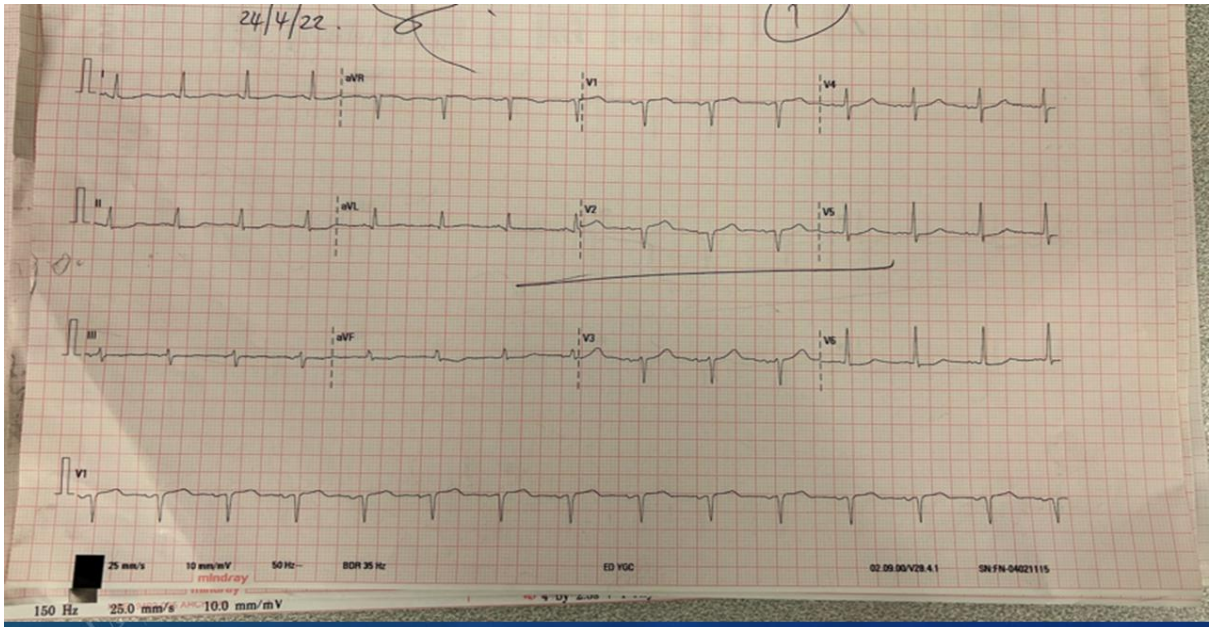
According to the plastic surgeon statistical data, breast implantation is one of the most common cosmetic surgeries in the world, which represents a 4% increase from the rates observed since 2010. In addition to being used cosmetically, breast implants are used to reconstruct the breasts after mastectomy for breast cancer, which contributes to the high prevalence of these procedures. Currently, the three most commonly used breast implants are silicone implants (these are filled with silicone gel), double-lumen silicone implants (these have two chambers, one filled with saline and the other with silicone gel), and saline implants (these have a silicone outer shell, but are filled with saline).

Based on that, the breast implant materials may act as a barrier and interfere with the transmission of the true electrical signals from the heart to the ECG recording machine. Ultimately, that may result in a serious outcome if the reperfusion strategy or decision gets delayed upon the initial ECGs interpretation.

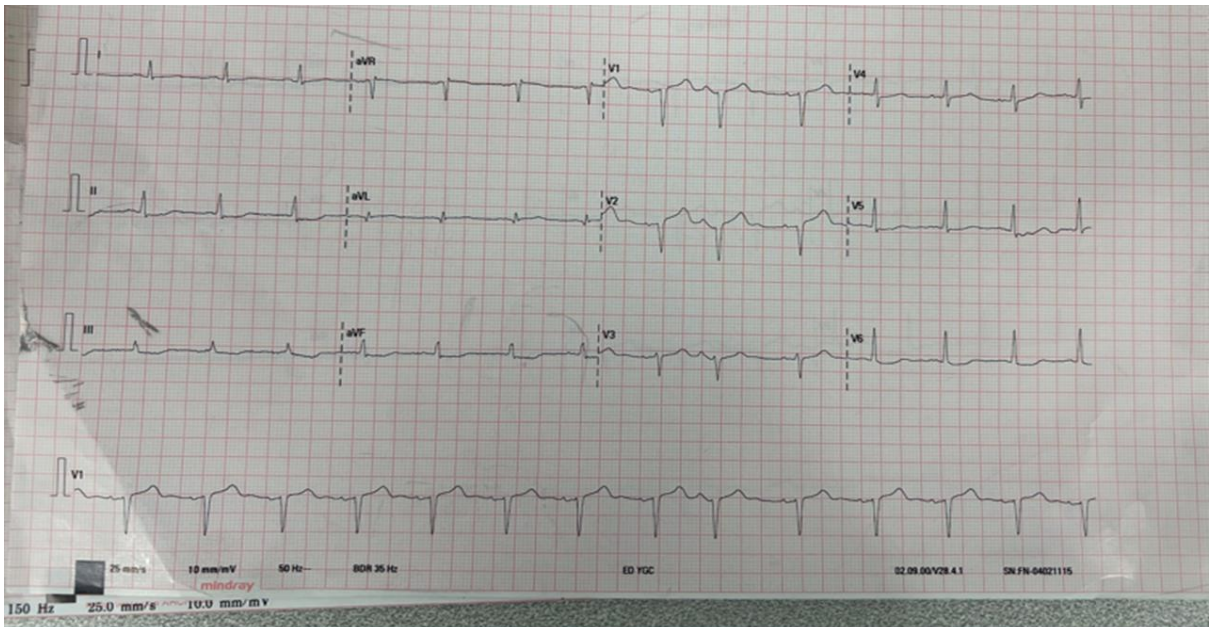
Case Report

A 59-year-old radiology assistant, who has silicone breast implantation, presented to A&E with chest pain at around 09:55 am. Her chest pain was exertional, retrosternal, and radiated to the left arm. While the patient was waiting in the triage room, 1st and 2nd Electrocardiography were not met the primary PCI criteria (Figures 1 and 2), and 1st Troponin was 486. Thus, she was admitted with non-ST elevation myocardial infarction, subsequently, a combination of aspirin with ticagrelor and

fondaparinux were commenced and a 55-minute later was admitted to CCU following the onset of symptoms.



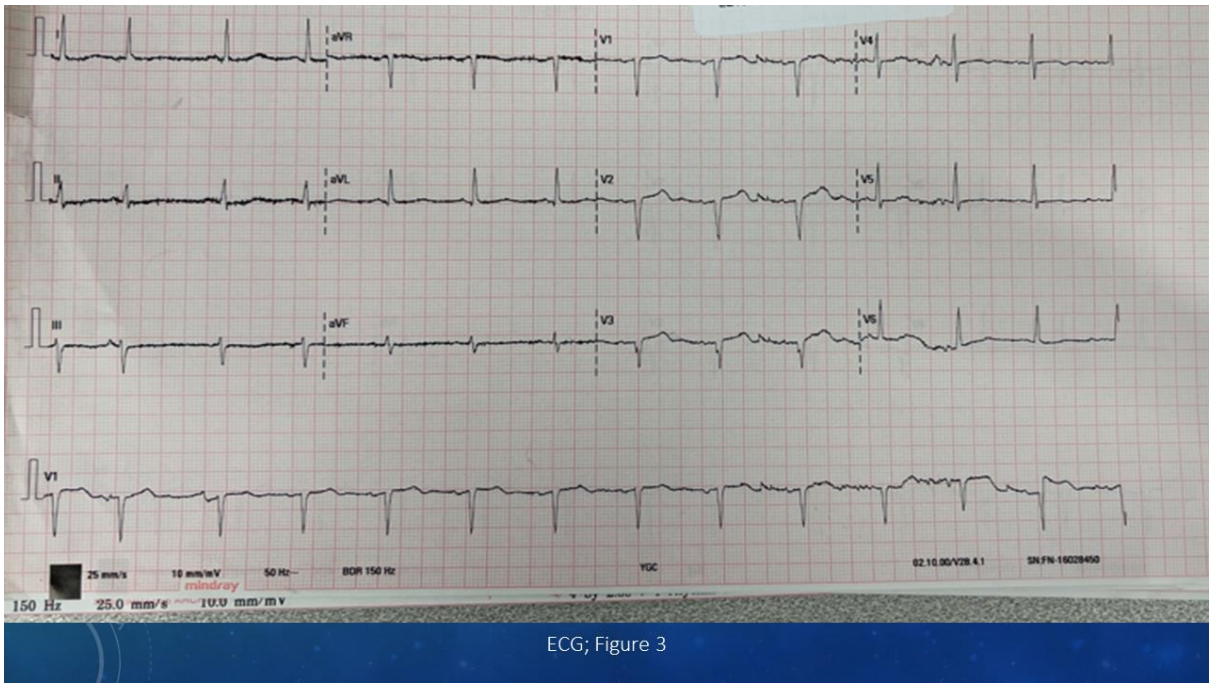
ECG; Figure 1



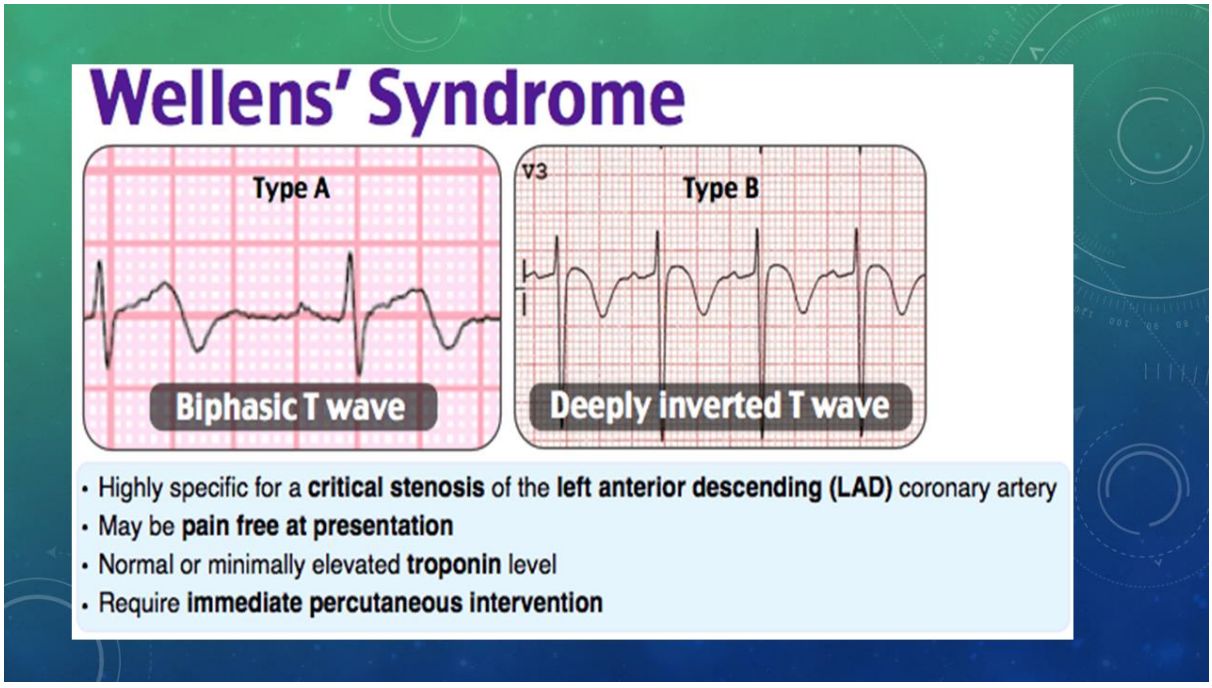
ECG; Figure 2

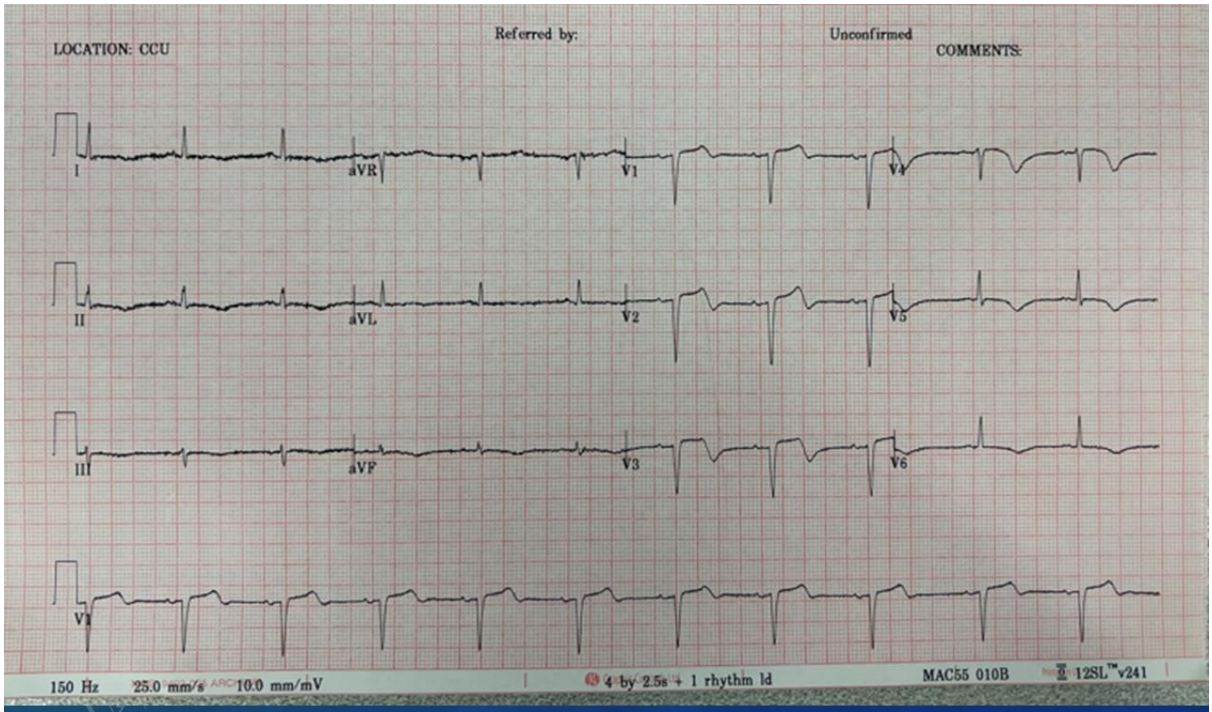
Case report

Upon arrival at CCU, she had less chest pain, however; the initial CCU Electrocardiography (Figure 3) was not convincing, thereafter, we kept adjusting the Electrocardiography pads and leads away from the round area of the implanted breast, and finally, a Wellens syndrome (which is reflecting ostial to proximal LAD lesion) was recorded (Figures 4 and 5). Hence, the patient underwent coronary angiography, which was consistent with later findings and a stent was placed successfully into the left anterior descending coronary artery (Figures 6, 7, 8, 9, 10).

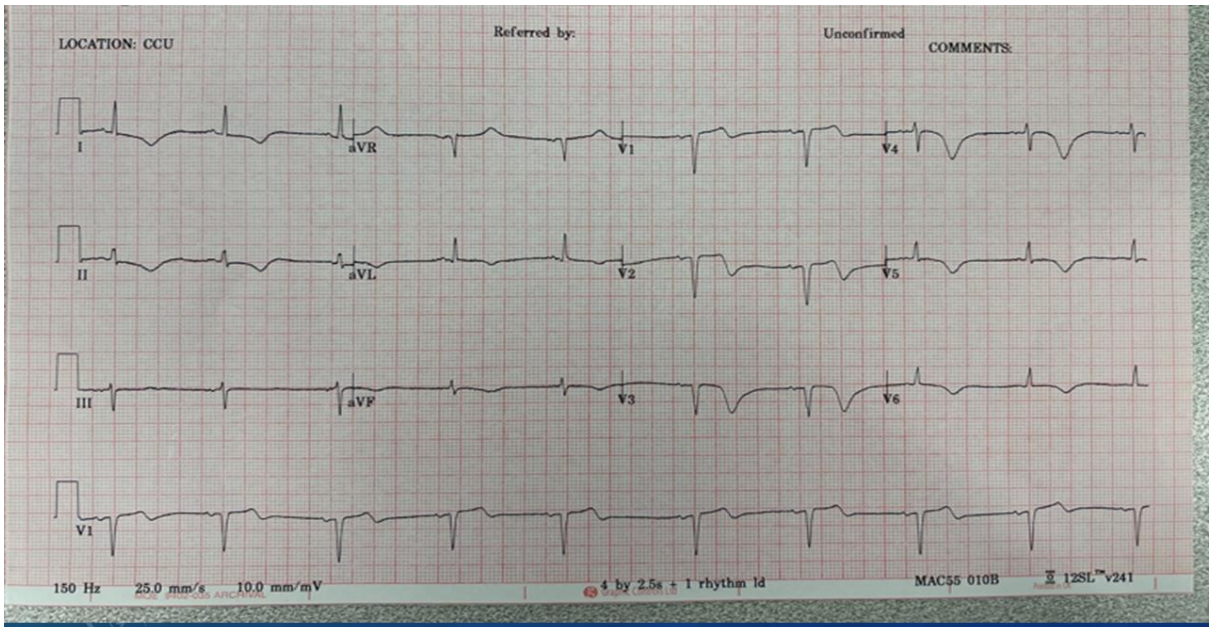


ECG; Figure 3

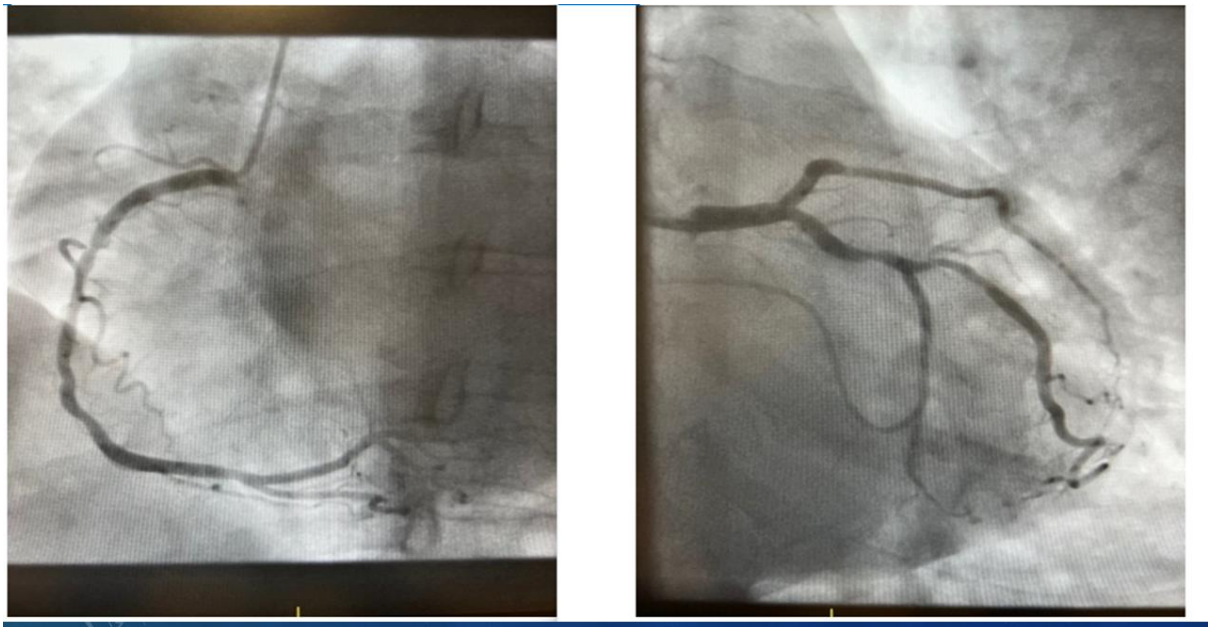




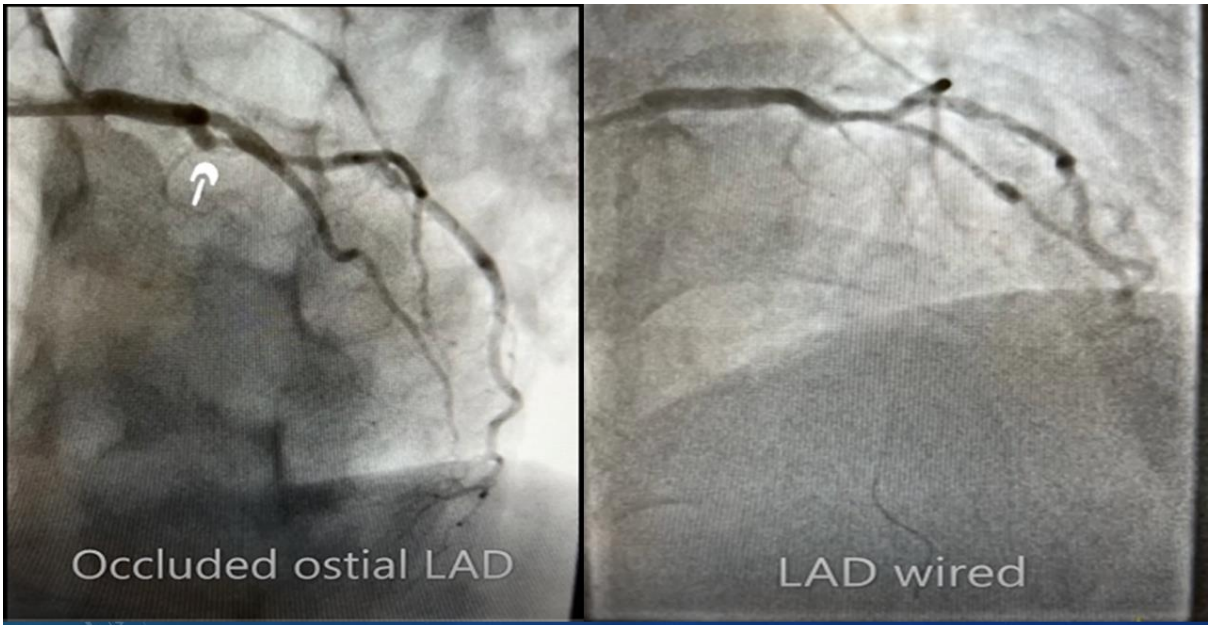
ECG; Figure 4



ECG; Figure 5



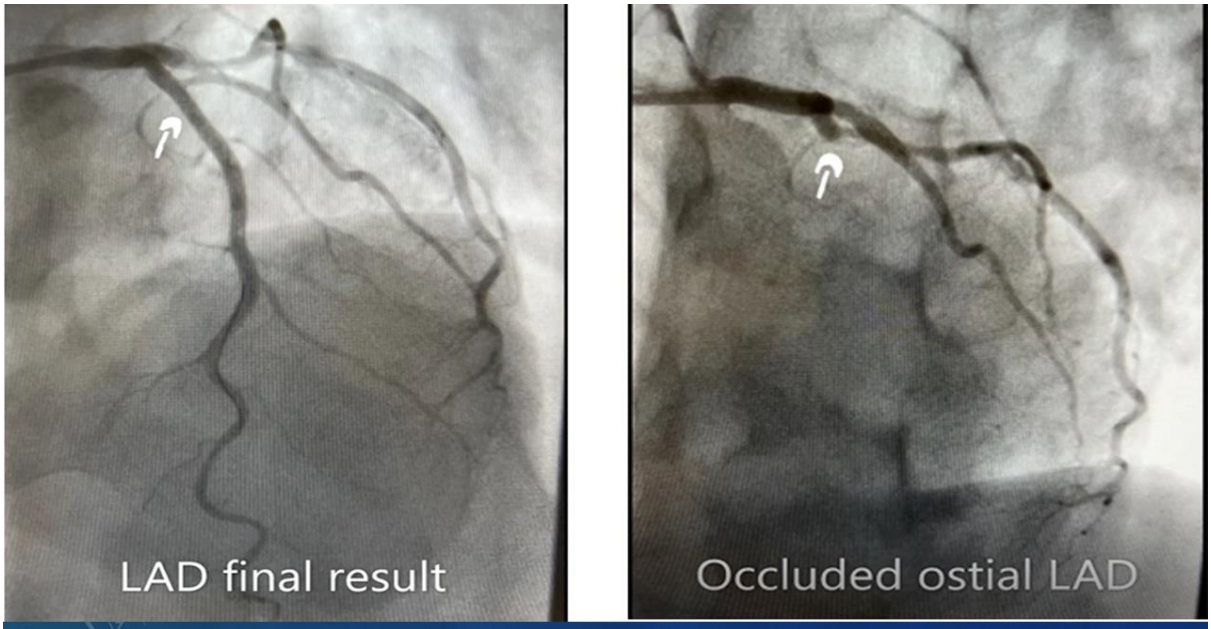
Coronary angiography; Figure 6



Coronary angiography; Figures 7, 8

Conclusion

All physicians should be aware that ECG interpretation can be misleading in patients with breast implants. In case of any doubts regarding the diagnosis, ECG lead adjustment can be tried multiple times. In addition, serial serum troponin needs to be performed depending on the patient's clinical symptoms.



LAD pre and post revascularization; Figure 11.

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Breast implants may impede ECG and lead to false heart attack diagnosis

21 Jun 2017

Topic(s): *Arrhythmias and Device Therapy;*

Vienna, Austria - 21 June 2017: Breast implants may impede an electrocardiogram (ECG) and could result in a false heart attack diagnosis, according to research presented today at EHRA EUROPACE - CARDIOSTIM 2017.1

"Our experience shows that breast implants make it difficult to see the heart with echocardiography because ultrasound cannot penetrate through the implant," said lead author Dr Sok-Sithikun Bun, a cardiologist at Princess Grace Hospital, Monaco. "We wanted to find out if implants also disrupt an ECG."

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Atypical chest pain syndrome in patients with breast implants

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PMID: 7939925 DOI: 10.1097/00007611-199410000-00003

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Breast Implants Can Impede With ECG Test, Give False Heart Attack Diagnosis

Jun 21, 2017 05:37 PM By Dana Dovey

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