Impairment of echocardiographic acoustic window caused by breast implants

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Introduction

Any obstacle that creates a poor acoustic window would substantially limit the ability of echocardiography in the assessment of cardiac structures and function. The presence of a foreign object overlying the anterior mediastinum can markedly impair the acoustic window. There are no reports in the literature describing any interference of breast implants with echocardiographic image acquisition. Here, we report three cases with significant impairment of echocardiographic acoustic window caused by breast implants. Clinicians should be aware of this interference and women should be informed of this dilemma before considering this cosmetic surgery.

Case 1

This patient is a 52-year-old female with a past medical history of recurrent paroxysmal supraventricular tachycardia. Echocardiography was ordered for the assessment of her cardiac function. The technician performing her echocardiography had a great difficulty in obtaining adequate image quality of her interventricular septum and right ventricular cavity particularly in the parasternal long axis view. The artifact was caused by the silicone breast implant obscuring the left ventricular cavity (Figure 1).

Case 2

This patient underwent echocardiography for the evaluation of shortness of breath. There was a marked limitation of her acoustic window. The image artifact secondary to her silicon breast implant obscured her right and left ventricular cavities in the apical four-chamber view (Figures 2 and 3).

Case 3

This patient was referred for echocardiographic examination for the evaluation of her chest pain. Her echocardiogram revealed a large artifact caused by her silicone breast implant limiting the visualization of her valves in the parasternal short axis view (Figure 4).

Discussion

Breast implants as a cause of marked attenuation during cardiac gated SPEC studies have recently been reported.1-3 However, there are no reports on the effect of breast implants on the echocardiographic acoustic window. As the popularity of cosmetic surgery rises, the incidence of female patients with breast implants undergoing echocardiography will increase.4,5 It is important for the women to be aware that breast implants may interfere with echocardiographic image acquisition making the evaluation of heart disease difficult. All our cases had silicone implants limiting our observation to breast implants containing silicone.

Furthermore, the effect of the outer layer of breast implants on the image quality is not known.
Conclusion

Silicone breast implants could produce significant artifacts during echocardiographic examination of the heart. Clinicians should be aware of this problem and women should be educated about the potential future diagnostic limitations that could occur as a result of having breast implants when they are considering breast augmentation.

References


