CASE REPORT

Severe mitral regurgitation, an unusual manifestation of chemotherapy-induced cardiotoxicity

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Cardiotoxicity is one of the most feared side effects of chemotherapy with enhanced morbidity and mortality in survivors. Arrhythmia, heart failure, myocardial ischemia, hypertension, and thromboembolism are commonly reported as side effects. Hereby, we are reporting a case of severe mitral regurgitation as a complication of chemotherapy.

Key words: Cardiotoxicity, chemotherapy, mitral regurgitation

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INTRODUCTION

Cardiotoxic side effects related to chemotherapy limit dosing and impose cancer survivor to enhanced morbidity and mortality.[1] Current established guidelines for screening of chemotherapy-related cardiotoxicity are mainly based on a serial assessment of the left ventricular ejection fraction.[2] Cardiac tissue is damaged by variety of ways during cancer treatment.[3] The speculated mechanism of valvular regurgitation could be secondary to chemotherapy-induced reduced ejection fraction, but insufficient data favors this mechanism as the whole. Degenerative valvular regurgitation disproportionate to decrease in the left ventricular ejection fraction and valvular or myocardial damage should be considered in survivors of chemotherapy survivors.[4]

CASE REPORT

Our case was a 48-year-old woman who underwent chemotherapy for treatment of invasive ductal carcinoma of the breast. She was under close observation of cardiologist from the beginning of therapy. Her chemotherapy started by Adriamycin and Cyclophosphamide. After 4 courses of this therapy, 4 courses of combination therapy by Pertuzumab/Trastuzumab and Taxotel started. Combination therapy followed by surgery and then radiotherapy. Pathologic examination of removed tissue specimen revealed no residual malignant cell, but she faced myocardial dysfunction during chemotherapy. Furthermore, she suffered from severe mitral regurgitation during her therapy. Precise evaluation of mitral valve showed no obvious cause for this severe mitral regurgitation and severe mitral regurgitation was not secondary to left ventricular dilation or mitral valve annulus dilation. Aggravation of mitral regurgitation was so obvious that lead to consideration for its management. The patient was evaluated for mitral valve repair or mitral valve clip. In the worst period of heart injury, left ventricular ejection fraction decreased to 30%–35%. In this state, chemotherapy was discontinued. Medical therapy that had initiated from the first days of chemotherapy, increased and aggressive medical treatment for heart failure continued. In the peak time of myocardial dysfunction, left ventricular end diastolic volume was 130 ml. After several months of dilemma for how to

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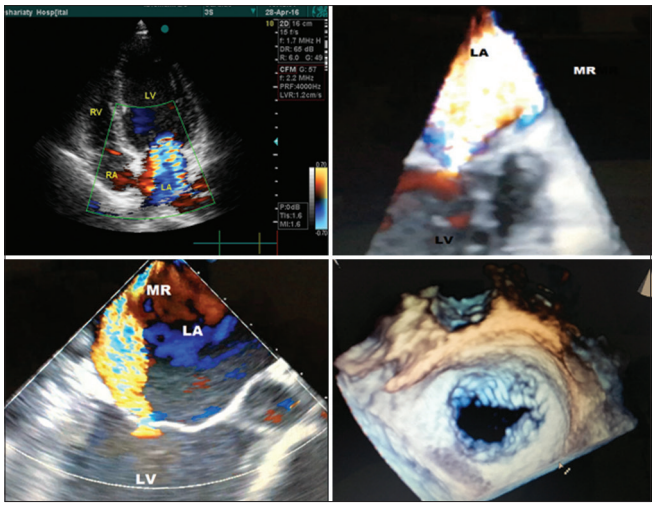

Figure 1: Severe mitral regurgitation and increased left ventricle volumes induced by chemotherapy

approach mitral regurgitation, cardiac condition started to recovery. Mitral regurgitation improved much better than cardiac contraction during a year after that. Finally, mitral regurgitation severity decreased to mild degree and left ventricular end diastolic volume decreased to 80 ml. Two-dimensional (2D) and 3D echocardiography images before and after recovery are depicted in Figures 1 and 2, respectively.

DISCUSSIONS

Hereby, we presented a case of severe mitral regurgitation during chemotherapy which improved significantly by cessation of chemotherapy, in addition to appropriate cardiac treatment. Severe mitral regurgitation is a yet unreported manifestation of chemotherapy-induced cardiotoxicity which needs prompt attention. Fortunately, mitral regurgitation was reversible similar to left ventricular dysfunction, and we did not need an interventional and invasive strategy to manage it. Since each chemotherapy agent has an impact on cardiovascular system, cardio-oncology knowledge should be joined from the beginning of patient management.

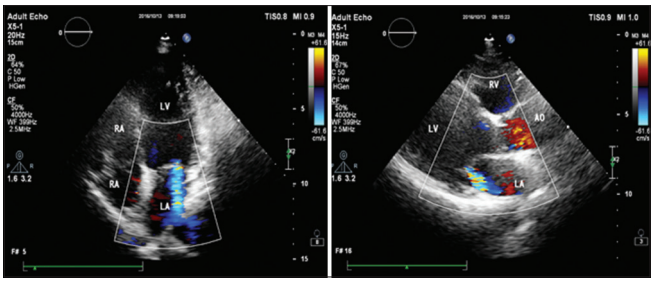

Figure 2: Decreased severity of mitral regurgitation and decreased left ventricle volumes after cessation of chemotherapy

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understand that name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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