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Case Report

Isolated advanced chest wall recurrence with a rectified reconstruction

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ABSTRACT

In developed nations, breast cancer stands as the primary cause of cancer-related death among females. Local recurrence is often considered an initial sign of treatment ineffectiveness, occurring on the chest wall, axilla, or ipsilateral breast post Breast-Conserving Surgery (BCS). Local recurrence is observed in approximately 30% of patients with locally advanced breast cancer. A 58-year-old postmenopausal woman, who is a known case of triple negative breast cancer presented to us with an ulcerative lesion over left chest wall. In the past, she underwent neoadjuvant chemotherapy followed by left MRM and received adjuvant chemotherapy for left breast carcinoma. The staging of her previous disease is yT2N1aM0. Now presenting as locally advanced recurrent infiltrating lesion in the anterior wall of pericardium with sternal erosion of size 7.7×9.7×15 cms. Isolated chest wall recurrences of breast cancer can be surgically treated with chest wall resection, sternal resection, and reconstruction, providing a good quality of life and disease-free survival. Titanium mesh, gaining recent popularity as a reliable and promising bone replacement, was utilized in this case.

Keywords: Adenocarcinoma, Colorectal, Carcinoma, Colonoscopy, Retrospective

INTRODUCTION

In developed nations, breast cancer stands as the primary cause of cancer-related death among females.[1] Local recurrence is often considered an initial sign of treatment ineffectiveness, occurring on the chest wall, axilla, or ipsilateral breast post Breast-Conserving Surgery (BCS). Local recurrence is observed in approximately 30% of patients with locally advanced breast cancer.[2] Surgical treatment for isolated chest wall recurrences involves complete en bloc resection, encompassing all affected or previously damaged skin, muscle, and chest wall components (such as ribs, sternum, and clavicles). Additional structures like thymus, pericardium, or lung may also be excised if required to achieve clear margins.[3]

CASE REPORT

A 58 year old postmenopausal woman, who is a known case of triple negative breast cancer presented to us with an ulcerative lesion over left chest wall. In the past, she underwent neoadjuvant chemotherapy followed by left MRM and received adjuvant chemotherapy for left breast carcinoma. The staging of her previous disease is yT2N1aM0. She claims to have had regular follow-ups for 2yrs with clinical and radiological examinations at the treating centre before she lost to follow during COVID-19 pandemic. Later she presented with an ulcerative lesion over the left chest wall for 2 months duration (Figure 1).

Patient was evaluated by biopsy and PETCT which has shown locally advanced chest wall recurrence for which she received 3 cycles of chemotherapy and was reassessed with PETCT. PET reveals a soft tissue density lesion in left internal mammary and retrosternal regions, infiltrating the anterior wall of pericardium and sternal erosion of size 7.7×9.7×15 cms. In view of progressive nature of the disease in terms of its size, patient has been taken up for wide local excision of the lesion with

complete sternal excision, bilateral 2nd, 3rd and 4th costochondral joints and ribs excision was done along with pericardiectomy and left lung wedge resection (Figure 2). Reconstruction was done with a PTFE Mesh on the pericardial side and prolene mesh on the chest wall along with the usage of titanium plates to reconstruct the bony defect (Figure 3). Soft tissue reconstruction was done with a right PMMC lap (Figure 4). HPE shows a locally recurrent invasive carcinoma breast, NST grade 2 involving sternum, pericardium and adjacent lung. All margins are free of tumour.

Figure 1: Clinical presentation.

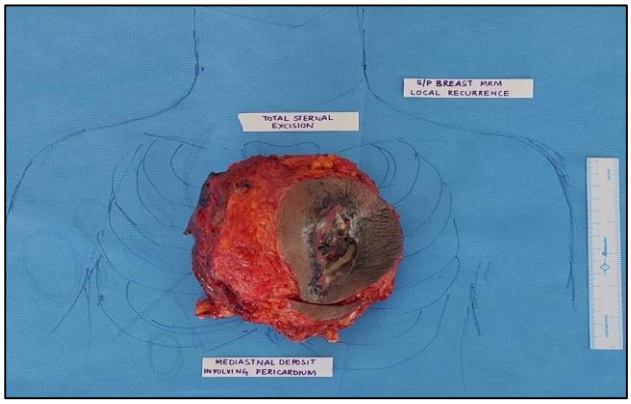

Figure 2: Resected specimen.

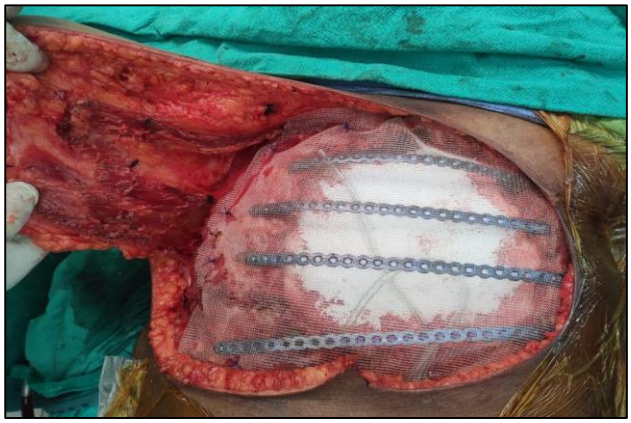

Figure 3: Reinforcement with PTFE mesh and titanium plate.

Figure 4: Post resection reconstruction by using LD flap.

DISCUSSION

The prognosis for late chest wall relapses appears to be better than for early relapses. Moran et al.'s research compared the outcomes of 213 individuals with loco regional recurrence, based on the breast or chest wall as the site of the first relapse and whether the recurrence was early or late (less than or more than 5 years from the first diagnosis. The 5-year overall survival and distant metastases-free survival after loco regional recurrence were 70% and 65% for late chest wall relapses, respectively, vs. 47% and 42% for early chest wall relapses.[4] Thoracic abnormalities resulting from surgery may arise from local recurrence affecting the deep chest wall, occasionally necessitating chest wall reconstruction.[5] Rigid reconstructions are essential with significant anterior and lateral resections exposing intrathoracic structures to external impact. Various methods using alloplastic materials, such as customized plates made of methyl methacrylate, neo ribs, osteosynthesis systems, or specialized prostheses, are employed.[6]

Titanium mesh has emerged as a revolutionary bone replacement for repair. It is known for its adaptability, ease of use, and stability, unaffected by postoperative imaging techniques like CT, MRI, and X-ray. Moreover, titanium mesh has minimal dosimetric influence and does not require adjustments to radiation treatment settings.[7] According to Faber et al. (10), rebuilding using a titanium rib bridge system had a low morbidity rate after sternectomy for cancer and allowed for a quick recovery to baseline pulmonary mechanics.[8] In our current case, the left sternum and three ribs were removed, and the chest wall was rebuilt using titanium mesh. The surgery proceeded smoothly, and the patient's prognosis and treatment results will be closely monitored.

CONCLUSION

Isolated chest wall recurrences of breast cancer can be surgically treated with chest wall resection, sternal

resection, and reconstruction, providing a good quality of life and disease-free survival. Titanium mesh, gaining recent popularity as a reliable and promising bone replacement, was utilized in this case. The success of the titanium mesh implant for chest wall reconstruction will be evaluated, and the patient's prognosis is under careful observation.

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