



ISOLATED INTERNAL MAMMARY NODE RECURRENCE IN BREAST CANCER- A RARE CASE AND LITERATURE REVIEW

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ABSTRACT

A 74 year old female patient diagnosed with carcinoma right breast stage IIA post right modified radical mastectomy (MRM) with axillary lymph node dissection in 2017 followed by adjuvant endocrine therapy for 4 years presented to us with complaints of right parasternal swelling associated with pain for one month. On further evaluation, Fluorodeoxyglucose positron emission tomography (FDG-PET) scan revealed isolated right internal mammary recurrence which was further confirmed by fine needle aspiration biopsy (FNAB) showing recurrent carcinoma with immunohistochemistry showing Estrogen Receptor (ER) positive, Progesterone Receptor (PR) and Human Epidermal growth factor Receptor (HER2) negative. The patient received palliative radiotherapy to the right internal mammary node (IMN) using intensity-modulated radiotherapy (IMRT) technique for a dose of 30Gy in 10 fractions followed by adjuvant endocrine therapy.

KEYWORDS : Breast, internal mammary node, recurrence, radiotherapy

INTRODUCTION

Breast cancer being the most common cancer is also the second most common cause of death in women. The mainstay of treatment currently includes surgery, adjuvant chemotherapy, radiotherapy, and endocrine therapy based on the tumor histology and stage. Though internal mammary lymph nodes are a primary drainage site in breast, they are often not included in the regional nodal irradiation in view of cardiopulmonary toxicities. Despite pathological involvement of IMN, the rate of clinical failure is extremely rare. Those patients with only IMN recurrence with no distant metastasis have significantly better overall survival demanding the need for adequate salvage therapy aiming for cure.

CASE REPORT

A 74 year old female patient presented to us with complaints of swelling and pain in the right parasternal region for one month. The patient was evaluated for complaints of lump in the right breast for one month in November 2017. Bilateral mammography showed well defined radio-opaque density in inner quadrant of right breast and right axillary lymphadenopathy-BIRADS III. The patient underwent right MRM and ALND on November 2017. The post op staging was pT2N0M0, infiltrating ductal carcinoma grade 2 with no lymphovascular invasion. IHC showed ER positive PR positive and Her2neu negative. Following this patient was on hormonal therapy for four years when she developed right parasternal swelling associated with pain for one month. On examination a 5cmx3cm hard, smooth, fixed swelling was present in the right parasternal region extending from 1 cm below the sternal notch to the 4th rib. Right chest wall, left breast, bilateral axilla and bilateral supraclavicular fossa were normal.

Patient underwent whole body FDG PET scan which showed isolated metabolically active lesion in the right internal mammary region at the level of 1st to 4th intercostal space

measuring 32x50x53mm with SUV 43.9 with erosion of manubrium sterni and the right 1st and 2nd costochondral joints suggestive of recurrence (figure 1). On further evaluation biopsy from the swelling was positive for recurrent ductal carcinoma. IHC showed ER positive (Allred score 8), PR and HER2 negative (figure 2). In view of large size of the node and the associated symptoms patient subsequently received palliative radiotherapy of 30Gy in 10 fractions, 5 fractions a week to the right internal mammary recurrence via IMRT technique using 6MV photons (figure 3). The patient was referred for adjuvant endocrine therapy following the same.

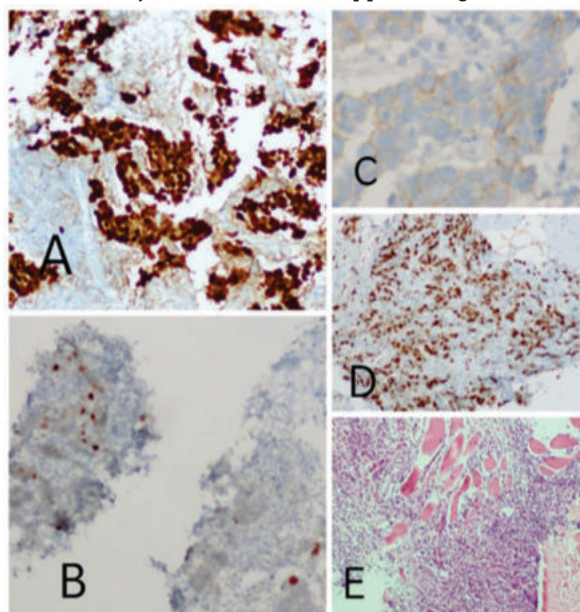


Figure 2 Immunohistochemistry studies showing (A)ER-strong positive (B) PR- weak positive (C) Her2neu negative (D) Ki67-proliferative index 40%. (E) H and E stain showing

invasive breast carcinoma.

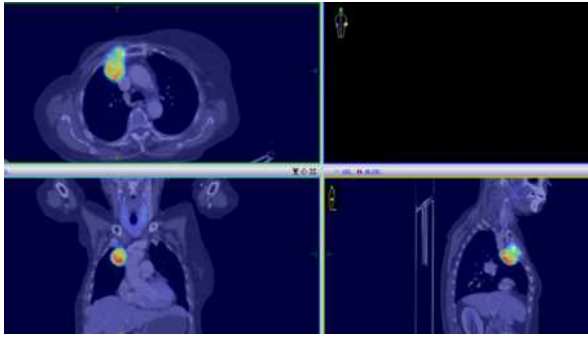


Figure 1 FDG WBPET-CT scan showing metabolically active lesion in the right IMN region.

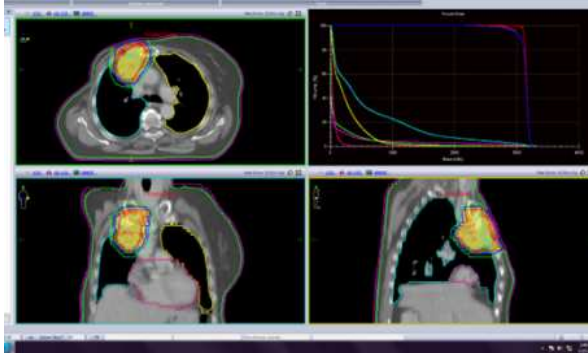


Figure 3 Red - GTV, Blue- PTV. The dose color wash of IMRT plan of 30Gy in 10Fr

DISCUSSION

Internal mammary lymph nodes are a primary drainage site in breast and are often not included in the regional nodal irradiation in view of cardiopulmonary toxicities. Internal mammary node metastases were found commonly in the first, second and third intercostal spaces with very few caudal to the fourth rib and none in the fifth. The IMN recurrences were found to be within 7mm medial and lateral to IMV in 90% cases and within 6mm dorsal and ventral to IMV in 95% cases. It was also found that the natural extension and orientation of IMN was towards the sternum.⁽¹⁾ The 15-year result of the EORTC trial showed breast cancer recurrence in 23.4% vs 26.2% in internal mammary-medial supraclavicular (IM-MS) irradiated patients vs control group. IMN recurrences were seen in 5% cases in IM-MS irradiation arm vs 16% in control arm. They concluded that significant reduction of breast cancer mortality and any breast cancer recurrence was seen in stage I-III breast cancer patients treated with IM-MS irradiation with low severity of side effects.⁽²⁾

In a study evaluating the rate of internal mammary node recurrence in patients with carcinoma breast without adjuvant radiotherapy it was found that the recurrences in the chest wall, IMN, SCF and axillary lymph nodes were 43, 37.7, 22.8, 12.3% respectively. It was also found that regardless of the tumour location, molecular subtype and staging with majority of patients under stage IIIA, the metastatic rate of IMN was higher than 40%.⁽³⁾

Jin kyoung et al showed that FDG PET/CT played a key role in early detection of extra axillary nodal recurrences. SUV max and node size were considered as significant prognostic factors for treatment outcome in these patients.⁽⁴⁾ A study by Suzanne et al showed negligible risk of clinically apparent IMN recurrence. The patients with IMN recurrence were treated with systemic therapy, radiation, or combination of both and four out of 6 patients had complete remission. Recurrences in IMN is rare but is most often associated with distant metastasis and the prognosis remains poor.⁽⁵⁾ As

patients with isolated internal mammary node recurrence has chances of complete remission with adequate treatment, optimal salvage therapy has to be provided. IMN recurrences with axillary lymph node negative at clinical diagnosis and after primary surgery showed good prognosis. In view of the same these patients must be treated aiming at cure with local and systemic therapy.^(6,7)

In conclusion, internal mammary node though being a primary drainage site in breast are not included in regional node irradiation in view of associated cardiopulmonary toxicities. Studies showed that there is negligible risk of clinically apparent IMN recurrence. But those patients with isolated IMN recurrence have better overall survival and good prognosis which demands for adequate salvage therapy aiming at cure.

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