Management of Neck Metastasis in Operated Case of Breast Carcinoma by Laser Ablation in a her2 Positive Case - A Case Report

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Abstract

It is well known fact that shower metastasis is quite common occurrence after Breast cancer surgery. The appearance of distant metastasis after surgery is commonly treated by Chemotherapy and lately addition of Immunotherapy has increased the overall survival. Immunotherapy is effective in Her 2 positive tumours. The most common drug is Tratzumab in these patients. In failed cases of Tratzumab the latest option is TDM1 a combination of Tratzumab and chemotherapy drug Emtansine.

This is mildly better than tratzumab in failed cases and increases survival by a few months. There are isolated cases of complete remission after administering this drug.

We present a case which had metastasized to both sides of neck. This patient underwent laser ablation of all positive lymph nodes followed by combination therapy drug administration. She had a complete response in 3 months and was still negative at Pet scan with no sign of any lymph nodes after 12 months.

Keywords: Laser ablation; Metastases in neck; Post surgery cancer spread; Her 2 Positive breast cancer.

Introduction

Single receptor hormone status patients have a poorer prognosis than triple positive cases. This is due to lack of responsiveness of hormonal treatment on ER-PR_+ve patients [1].

Human Epidermal growth factor or HER2 receptor was initially recognized as a poor prognosis factor but was consequently identified as a better prognosis marker after the introduction of Tratzumab in 1998. Consequently, addition of Tratzumab with Emtansine was shown to have a better response than tratzumab alone in Her 2 positive tumours [2].

The approval of tratzumab in the first-line combined with chemotherapy was based on a single phase 3 study that randomized patients with HER2-positive breast cancer and metastatic disease to an anthracycline regimen (or paclitaxel if prior anthracycline) with or without concomitant trastuzumab [3,4]. There was a significant improvement in median time to progression (TTP; 7.4 vs 4.6 months, p < 0.001), overall response rate (ORR, 50% vs 32%, p < 0.001), and median overall survival (OS, 25.1 vs 20.3 months; p=0.046), along with an unacceptably high risk of cardiotoxicity with the concomitant administration of trastuzumab and an anthracycline.

EMILIA registration trial randomized 991 patients previously treated with trastuzumab and a taxane to ado-trastuzumab Emtansine versus lapatinib plus capecitabine [5]. There was a significant improvement in PFS favouring the ado-trastuzumab
Emtansine arm (9.6 vs 6.4 months, HR=0.65, p < 0.001), OS (30.9 vs 25.1 months, HR=0.68, p < 0.001), and ORR (43.6% vs 30.8%, p < 0.001), and a favourable toxicity profile except for thrombocytopenia and elevation of transaminases.

The above figure of 9 months is important in this case study. Since complete response after 9 months is virtually unknown. Continuation of TDM1 in absence of any significant toxicity results in approximately 2 yr survival rate.

There have been isolated reports of patients having a complete remission on TDM-1 after failing tratzumab therapy in Metastatic Breast Cancer (MBC) [6]. Complete response in skin was observed in 2 patients [7]. Most investigators have had a PFS of 8 to 9 months only [8].

The TH3RESA study investigated the use of T-DM1 in comparison to the treatment of the physician’s choice in patients with HER2-positive breast cancer who had received at least two prior regimens of HER2-directed therapy. The primary endpoints were PFS and OS. The median PFS was 6.2 months in the T-DM1-treated group vs. 3.3 months in the physician’s choice group [9].

Patient and Methods

75 yr. old lady with a history of Mastectomy 8 months back presented with history of neck metastases on Pet scan. There was no sign of extra neck spread anywhere in the body. She had history of HER2 positive and HR negative biopsy report. She had 12 cycles of paclitel and 6 cycles of Tratzumab and had relapsed on treatment.

Her informed consent for the procedure was taken

It was decided to laserised her lymph nodes with percutaneous laser under sonography control. This was achieved in a single session where all lymph nodes which were seen on sonography on both sides of the neck were laserised using a standard percutaneous approach. Of special interest was a 2.9 cms lymph node situated on the bifurcation of carotid artery. This too was laserised.

She was consequently administered a 3-weekly regime of Tratzumab with Emtansine.

Her side effects included thrombocytopenia and nodular sarcoid like deposits which had no uptake value on consequent PET scan.

She was monitored monthly with MRI neck monthly and HRCT scans 2 monthly.

She tolerated the Tratzumab with Emtansine regime quite well with no significant clinical side effects.

Results

Her pet scan done after 8 months did not show any uptake in any part of her body. Her previous lymph nodes had completely regressed and did not show up on Pet scan. (Figure 1-4)

She is currently on the same drug and will be started to phase out after 1 year.

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**Figure 1:** Cross section view of Neck metastases. Red arrow pointing to Neck Nodes. Picture on right shows a complete regression with no uptake in the Neck.

**Figure 2:** Lower level 4 lymph nodes Red arrow pointing to lymph nodes which are positive on Ct scan. Picture on right shows a complete regression with no uptake in the Neck.
Discussion

Surgery is mainstay of cancer management in virtually all solid tumours. Although the spread of cancer following surgery is often, a subject rarely discussed. It is an acknowledged fact that surgery itself can cause the spread of metastases and be the main cause in an early recurrence following a successful resection with clear margins.

Surgery induces increased shedding of cancer cells into the circulation, suppresses anti-tumour immunity allowing circulating cells to survive, upregulates adhesion molecules in target organs, recruits immune cells capable of entrapping tumour cells and induces changes in the target tissue and in the cancer cells themselves to enhance migration and invasion to establish at the target site. Surgical trauma induces local and systemic inflammatory responses that can also contribute to the accelerated growth of residual and micrometastatic disease. The primary tumour secretes inhibitors for the micrometastatic cells. On removal of the primary tumour, these inhibitory factors are reduced in circulation. This prompts the micromets to start growing with renewed vigour. Tumour removal can result in decrease of levels of antiangiogenic factors such as angiostatin, endostatin and thrombospondin [10-13].

The spread of metastases in Breast cancer can be in any part of the body. It can occur at single organ or multiple sites. The spread in most cases is like a shower metastasis with the size of metastases approximately same in all spread. This suggests a single point of origin namely surgery itself.

In this case fortunately the spread was to an accessible part of the body for Laser.

The procedure of laser ablation of soft tissue tumours is now a well-accepted concept and approved by USFDA. In our center Laser ablation of lymph nodes is a routine procedure in breast and oral cancers. The process of laserising the positive enlarged lymph nodes visualized on sonography decreased the tumour load to a great extent [14].

Emilia trial and other reports mention a progression free survival of only 6 to 9 months and this is corroborated by on ground results of patients [5]. As such, a complete clinical remission can be attributed to a combination of Laser and combination drug of Tratzumab and Emtansine.

Conclusion

Distant spread after surgery is quite common after surgery of breast cancer. Addition of laser ablation to treatment of distant metastases in Breast cancer can have a positive factor on the outcome of these patients.

More studies are needed to confirm the combined approach as a standard procedure in laser accessible areas before starting the second line of treatment in Breast cancer recurrence cases.
Declarations

Patient approval was obtained for consent to publish.

The authors declare that there were no competing interests.

All authors were involved in management and authorship of the publication.

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