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GLOBAL JOURNAL OF
Medical and Clinical Case Reports

ISSN: 2455-5282 DOI: https://dx.doi.org/10.17352/gjmccr

Case Report

Breast neuroendocrine tumors multidisciplinary treatment. Single experience in our Centre

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Received: 09 June, 2020
Accepted: 04 July, 2020
Published: 06 July, 2020

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Keywords: B-NET; Neuroendocrine cancer; Breast cancer

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Abstract

Introduction: Breast Neuroendocrine Tumours (B-NETs) are rare entities; the incidence in Italy is about 1%. The great variability of manifestations and localizations made it very interested in studying. Only few cases are available in literature; actually this pathology is more difficult to treat because specific guidelines don't exist for the treatment of primary metastatic NETs.

Case presentation: The case concerns a 48-year-old woman with a diagnosis of Breast Neuroendocrine Tumours (B-NET). She was treated with multidisciplinary approach; the patient started neoadjuvant chemotherapy and then she underwent right radical mastectomy. No further chemotherapy treatment was performed. In the last ten years, no signs of local recurrence or metastases were observed.

Conclusion: The presented case is very characteristic for its multidisciplinary approach.

Introduction

B-NETs are epithelial breast neoplasms, positive to neuroendocrine marker such as chromogranin and synaptophysin. Probably they take origins from neuroendocrine transformation of breast tumoral cells and not from neuroendocrine cells primarily [1].

The WHO 2019 classification recognized two entities of neuroendocrine neoplasia: neuroendocrine tumors and neuroendocrine carcinoma. Neuroendocrine tumors are low grade of differentiation, Estrogen and Progesteron Receptor positive, low expression Ki67 and Her2 negative. Neuroendocrine carcinomas are high grade of differentiation and include small and big cancer cells [2].

In the world B-NET incidence is about 2-5% of all cancer, 0.1% of all breast cancers and 1% of neuroendocrine tumours [3]. Currently about 200 cases have been described in literature. So this is considered a rare entity.

We report a singular case of breast neuroendocrine carcinoma and its treatment.

Case report

On July 2010, a 48-year-old woman was admitted to Endocrine Surgery Unit of Azienda Ospedaliero-Universitaria Mater Domini for skin ulcer of Lower Outer Quadrant (LOQ) of left breast. In her medical history she had only Hypertension. No family members had breast cancers. She had made mammography that presented not well circumscribed lesions, with no associated microcalcifications. Ultrasonography had revealed the presence of a hypoechogenic mass with irregular morphology and undefined contours.

The patient underwent incisional biopsy; pathological examination revealed mucinous cancer with skin infiltration. On immunohistochemical examination, the tumor cells were positive for synaptophysin, ER, PgR, Ki 67 5%. Negative for HER2 FISH amplification and chromogranin. These results were consistent with neuroendocrine carcinoma of the breast. WBCT and abdomen echography were negative for secondary localization of cancer. PET–SCAN detected pathological hypercaptation of radionuclide in right iliac wing compatible

Citation: Curto LS, Gervasi R, Innaro N (2020) Breast neuroendocrine tumors multidisciplinary treatment. Single experience in our Centre. Glob J Medical Clin Case Rep 7(2): 062-063. DOI: https://dx.doi.org/10.17352/2455-5282.000101

with a secondarism (IV stadium). Laboratory data were as follows: CEA 7.98 ng/ml; Ca15.3 62.2 U/ml;

The progression of skin involvement was reported to be very rapid. In fact, surgical treatment was contraindicated for the extensive skin involvement of the breast. On September 2010, the patient started chemotherapy treatment with Talox plus Avastin for XII cycle, following multidisciplinary evaluation. On June 2011 the patient made newly PET-SCAN that revealed the absent of hypercaptation in bone segments. So chemotherapy had a good response on distant metastasis but not on primary cancer; in fact the Whole Body CT revealed massive lymphadenopathy in right axillary and breast. So in January 2012 the patient underwent right radical mastectomy.

The post-operative period was uneventful and the patient was discharged within 72h after surgery. No further chemotherapy treatment was performed. In the last ten years, no signs of local recurrence or metastases were observed.

Discussion

In 2003 the World Health Organization (WHO) recognized Neuroendocrine cancer of the breast as a distinct entity. NET is characterized by the presence of 50% of neuroendocrine cells of the entire analyzed population with the expression of both estrogenic and progestinic receptors [4].

Specific guidelines have never been defined for the treatment of primary NETs of the breast, so generally B-NETs are staged and treated similarly to breast ductal type carcinoma. Surgical treatment depends by location, dimension and stage of the neoplasia. Adjuvant or neoadjuvant therapy is recommended in some cases; hormonal therapy should be based on cellular receptor pattern [5,6].

B-NET are more aggressive than ductal carcinoma, with a better ability to relapse locally at first and then with distant metastases. According to different studies, neuroendocrine component rate and the differentiation degree could influence low OS [7]. In B-NET the absent of hormone receptor expression is a negative prognostic factor.

No particular imagine finding allows a specific diagnosis of B-NET [8]. It can be recognized only with definitive pathology and immunochemistry.

Our case report is important for its multidisciplinary treatment. According to AIOM 2009 guidelines for breast cancer, the patient was subjected to neoadjuvant chemotherapy (Avastin +Paclitaxel) because she had cancer secondary localization (cT4CN2M1). Bevacizumab together with paclitaxel was approved for treatment of metastatic breast cancer [9]. Even if PG and ER were positive, hormone therapy wasn't used because this cancer was considered aggressive for high grade skin involvement.

Conclusions

The presented case is very characteristic for its multidisciplinary approach. There is no a specific treatment guideline for B-NET for its rarity. Surgery depends on cancer dimension, location, staging and breast dimension. Metastatic disease should be treated by a multidisciplinary team based on the aggressiveness of the disease. Some studies reveal that surgery of the primary tumour has a positive impact on survival outcomes, even if there are no prospective randomized trials that confirm it, while some retrospective studies have demonstrated good survival outcomes, especially for patients with limited metastatic disease and intact primary tumour [10].

Statement of ethics

Written informed consent was obtained from the patient for publication of this case report.

Author contributions

Nadia Innaro, Rita Gervasi and Lucia Stella Curto contributed to think up the design of manuscript; Rita Gervasi and Lucia Stella Curto contribute to literature research, data analysis and language revision. All authors wrote the manuscript.

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