A ~~Carcinosarcoma a~~ Rare Breast Carcinosarcoma~~Cancer~~ In A Young Female~~, Case Study~~

Abstract :

Metaplastic breast cancer is a rare aggressive type of breast cancer. ~~A~~as this form of cancers makes up only 1% of overall breast cancers. It mainly presents with a rapid-growing mass.Establishing the diagnosis is based on histopathology as imaging study has the same features of other types of breast cancer. Treatment protocol of MPC is similar to treatment guidelines of invasive ductal carcinomas. In that there is no standardized management modality for metaplastic breast cancer per se.

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Introduction

Metaplastic carcinoma of the breast was recognized by the World Health Organization as a unique pathologic entity due its rare and aggressive nature. It accounts for 0.2-5% of all breast cancers. It is characterized, histologically, by the presence of two or more cellular types; epithelial and mesenchymal components typically. Its diagnosis is complicated as it shares many similarities with invasive ductal carcinoma and benign lesions on mammography. Due to its rarity, standardized treatment guidelines are lacking and little is known about its prognosis. Yet, studies suggest greatest benefit is achieved with surgical removal and adjuvant radiation therapy. [1, 2]

Here, we report a case of metaplastic breast cancer and provide our suggested treatment plan.

Case Presentation

A 31 year-old- female previously healthy multigravida patient, who has a history of giving birth to eight offspring by normal vaginal delivery, presented with a huge right breast mass. This has started gradually for eight months prior to presentation. As a result, the patient sought medical advice where her previous physician performed a fine needle aspiration with a large amount of brownish-colored fluid. Our patient did not follow up with her physician. However, when her breast started to get bigger and painful; as she said, she came to our facility asking for medical advice. She denies a similar condition among family members; although there is family history of breast cancer from the paternal side. At clinical

examination, an obvious asymmetry of both breasts with right-sided nodular huge mass occupying the whole breast along with dilated congested looking veins. Mammogram and Ultrasound were performed showing a mixed solid and cystic mass occupying most of the right breast measuring about 17.3 * 15.23* 16.4 cm with scattered calcification, internal color flow and surrounding sub-areolar stellate masses. Moreover, Multiple thickened cortices and compressed fatty hila of right axillary lymph nodes were detected. These findings are highly suggestive of malignancy ; BIRADS 5.

No doubt that core needle biopsy is an asset in diagnostic process of breast cancer, as a result the core biopsy confirmed the presence of a MPC, a breast true cut core biopsy was carried out to result in the presence of infiltration of invasive Mammary Carcinoma ductal type However, Ductal Carcinoma In Situ was not identified as well as lympho-vascular invasion.

Nevertheless, few foci of the tumor shows infiltration by high grade tumor Sarcomatoid like features representing the histological findings of metaplastic carcinoma. Fine needle aspiration of Right axilla shows Clusters & single cells with atypia (high Ni ratio irregular Nuclear Membranes admixed. With reactive lymphoid cells & Macrophages suspicious of Malignancy. On the other hand left FNA declares that Hemorrhagic smear reveals reactive lymphoid cells Macrophages with no malignant cells.
A staging study was an obligatory next step in the management of our patient; therefore, CT scan was conducted to rule out distant metastases which was confirmed as there is no radiological signs of infiltration. Moreover, bone scan study showed no bone metastatic lesions.

Treatment?

Radio-imaging**Attached photos?**

Ultrasound a mass occupying most of right breast measures 17.3 * 15.23* 16.4 mm with intra mass scattered calcification , correlate with ultrasound complex solid and cystic mass.There is focal asymmetry at upper outer left breast about 3.8 cm from the nipple.

Mammogram showed huge mixed solid and cystic mass occupying most of the right breast with internal color flow and surrounding subareolar stellate mass. There are left breast mildly dilated ducts with mobile internal debris.

There are right axillary lymph nodes with thickened cortices and compressed fatty hilum, and left axillary lymph node with mildly thickened cortex and preserved fatty hilum.

Chest abdomen and pelvis CT scan

right sided breast mass measuring 17.3*15.23*16.4 mm and right axillary lymph nodes.

no definite lung mass or nodule, no significant hilar or mediastinal lymphadenopathy, no pneumothorax, no plural thickening, or plural effusion.

the liver, spleen, pancreas, both adrenals and both kidneys appear unremarkable apart from small cortical cyst seen in the left kidney.

no evidence of para-aortic or mesenteric lymph nodes enlargement.

laboratory findings

serum level of AST was high 35.4 U\L Also ALT was high 67.3 U\L, LDH was 285 U\L (135-214), creatinine was low 34 (44-79).

Other laboratory values of the patient were within the normal range.

Discussion

Metaplastic carcinomas are a rare entity of malignant aggressive neoplasms. Metaplastic carcinoma can affect breast, ovary, and uterus [3][4]. Metaplastic breast cancers (MBC)accounts for 0.08–0.2% of all breast malignant tumors. The SEER database reported less than 10,000/ year cases of MBC in USA between 1973 and 2015 [5].

In order to distinguish MBC from the other types of breast neoplasms and specifically the rare tumor types, it is important to identify the clinical and pathological features of the mass. According to the histopathology, these tumors have malignant fibroblastic and epithelial cellular components [3]. Many theories have discussed the MBC origin. Collision theory, combination theory and the conversion/metaplastic theory were introduced. Collision theory reported that sarcomatous and carcinomatous cells develop from separate progenitor cells. However, the monoclonal combination theory suggests that both sarcomatous and carcinomatous cells were generated by common multipotent cells. On the other hand, the conversion/metaplastic theory conveys that the sarcomatous portion made out of carcinomatous particles via a metaplastic process. The conversion/metaplastic theory had an evidence of reported data concluding that both epithelial and mesenchymal components of the tumor have cytokeratin expression [5]. Some new studies convey that these tumors have an origin of a single stem cells that develops into myoepithelial cells with a biphasic differentiation[3], as myoepithelial markers including CD10, p63, and actin are positive in this entity[6]

Breast carcinosaromasare subdivided – according to the WHO classification- as mixed metaplastic carcinoma, low-grade adenosquamous carcinoma, fibromatosis-like, squamous cell carcinoma, spindle cell carcinoma, and metaplastic carcinoma with mesenchymal differentiation. Wargotz used another subtype categorization that MBCs were divided into five major groups (carcinosarcoma, matrix- producing carcinoma, spindle-cell carcinoma, squamous cell carcinoma and osteoclastic giant cell carcinoma).[4]

Most of the MBC cases are diagnosed in the fifth decade. The clinical reports of the SEER database (from January, 1998 to December, 2016) showed that, the majority (81.2%) of the MBC subjects were above 50 years.[4] Nevertheless, the median age was 45.5 years due to a retrospective study that was done in Ankara hospital [8]. The clinical picture was a well-defined, nodular, firm, concrete breast mass. However, a number of patients may present with more benign-like clinical features such as well-defined circular-shaped regular lump. This may be misdiagnosed by the similar benign presentation of the fibro-adenomas [4]

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To asses any breast mass the triple-modality approach, the physical examination, the radiological tests and the histopathological features of the biopsy. The imaging modalities includes the ultrasonography, Mammography, magnetic resonance mammography . In this point of time, these techniques are suboptimal when it comes to diagnose breast neoplasms. To come over that, the preoperative diagnosis of breast neoplasms can be obtained by the bed-side biopsies including fine needle biopsy and or core biopsy. On the other hand, preoperative diagnosis can be challenging [9] . The diagnosis of breast masses by frozen section is accurate, with a sensitivity and specificity percentage of more than 90 and 99%, respectively [9]. Conversely , in MBC, there may be some limitations to frozen section diagnosis.

By the histopatholgical and hormonal tests, this type of cancer is typically considered a triple-negative breast cancer (TNBC). In other words, there is no expression of estrogen receptor (ER), progesterone receptor (PR), nor human epidermal growth factor 2 receptor (HER2) [6]. Talking about our patient the histopathological est reveals that it had negative response to receptors (TNBC). On the other hand, there is an essential need to have more understanding for MCB.

In addition to that, in the comparison of other TNBC, metaplastic carcinoma of the breast has a more worse prognosis. Despite of MBC has similar clinical presentation to invasive ductal carcinoma[3], MBC presents with large tumors, high histological grade, heterogeneity, overexpression of Ki-67 and p53 as well as less lymphatic invasion as the metastasis of the tumors is through a hematogenous rout . [6],[10]. As a consequence, it is far more aggressive than invasive ductal carcinoma, even when compared with the same age, stage, and tumor grade [8]. Most of MBC patients already present with an advanced stage of the disease at time of the diagnosis with the spread to the pleura and the lungs then metastases to bone and liver are followed [4],[9].

When compared to the triple negative breast neoplasms whether lobular or ductal types, metaplastic carcinomas present with more advanced aggressive disease on local basis. The

management plan almost follow the guidelines of TNBC because there is no any standard protocol for the treatment of such rare tumor type [7]. Surgical approach could be used as an option of treatment as seen in some reported case of young age [9].Systemic chemotherapy is a bad treatment modality due to that is more chemorefractory than TNBC along with unsatisfactory response to neoadjvant therapy [6], with poor clinical side effects observed [6] . In addition to that, these patients have a higher recurrence rate, and a short remission period as well as less overall survival time[6].

Conclusion

Metaplastic carcinoma of the breast is one of the rarest breast neoplasms that has a bad prognosis when comparing to other malignant breast tumors. There is no enough data resources for the epidemiological distribution, staging guidelines or prognostic factors for such a case, wishing to conduct more research focusing on the treatment options and the prognostic staging to improve the patients' outcomes.

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