CASE REPORT

Breast metastasis from medullary carcinoma of thyroid: A case report with literature view

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Abstract

Primary Breast cancer is the most common malignancy in females but secondary involvement of breast is very rare. The Most common sites of primaries for breast metastasis are breast carcinoma of contra lateral side, Lymphoma and leukaemia. Medullary Thyroid Carcinoma (MTC) itself is rare and commonly metastasises to liver, lung and bones. Secondary breast involvement by MTC is very rare with only few case reports in literature. Clinically and radiographically breast secondaries mimic benign lesions and may cause diagnostic challenges. To avoid unnecessary surgery and for appropriate treatment decision,accurate diagnosis is important. We present here our experience of a similar case of secondary breast carcinoma from MTC seen at MINAR cancer hospital Multan. The patient presented clinically and radiologically with benign breast lumps. Fine needle aspiration (FNAC) showed atypical cells and Ultra sound guided Trucut biopsy confirmed it to be a secondary from MTC. Patient is under treatment of an oncologist, has been treated with chemotherapy and is on follow up till date.

Keywords: Breast metastasis, medullary carcinoma of thyroid, Fine needle aspiration, Mammography.

DOI: https://doi.org/10.5455/JPMA.48120

Introduction

Primary Breast cancer is the most common cancer in females constituting 30 % of total cancers[1,2] but the secondaries to breast are rare and account for 0.2% to 1.3 % of total breast malignancies.[3,4] Most common primary sites for breast metastasis are lymphoma and leukaemia. Medullary Thyroid Carcinoma (MTC) arising from parafollicular C cells of thyroid gland is rare site for breast metastasis.[5] This tumour is unresponsive to chemotherapy and radiotherapy and currently there is no specific treatment effective for advanced disease, locally or distant.[5] Ten years survival is approximately 75% but the overall survival rate depends upon extent of the disease at the time of presentation. Common sites for secondaries from MTC include liver, lungs and bone.[5] Metastatic involvement of breast secondary to MTC is very rare and as per literature only few cases have been reported. Although it's a rare case but its diagnosis may be challenging as its clinical and radiological features mimic a benign breast lesion. If patient is not evaluated on history for MTC diagnosis might be easily missed. Differentiation of secondary breast lesion from a primary breast tumour is crucial to prevent unnecessary surgery and to plan appropriate treatment.

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Case Report

A 36 years old lady presented in July 2017 with complaints of multiple lumps in both breasts for the last few days. On clinical examination lumps were well circumscribed and freely mobile palpable in both breasts. Mammography showed BIRADS 0 with breasts being extremely dense with poor sensitivity for detection of small lesions (Figure-1) High resolution breast ultrasound (HR USG)revealed multiple hypo echoic nodules with well-defined margins in both breasts (Figure-2) and was reported as benign nodules (BIRADS 2). On detailed history and previous

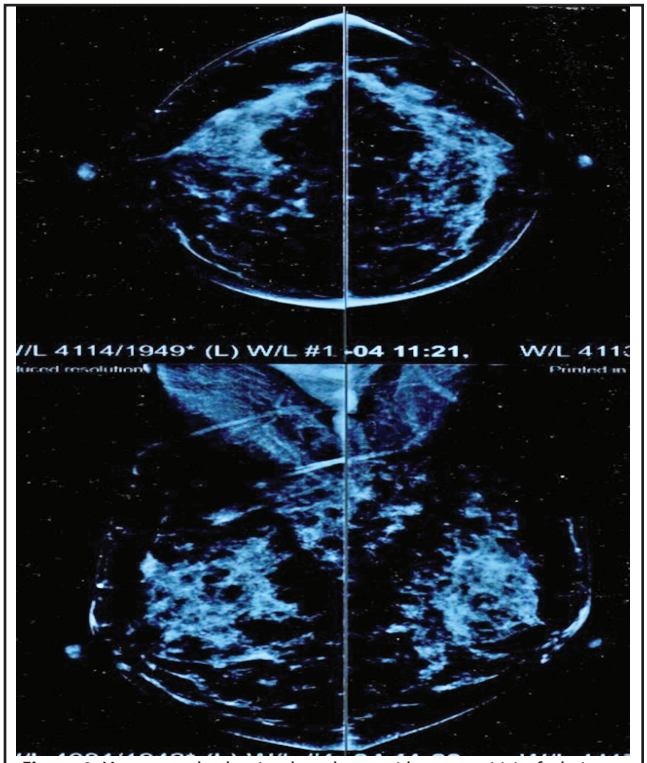

Figure-1: Mammography showing dense breast with poor sensitivity for lesion detection.

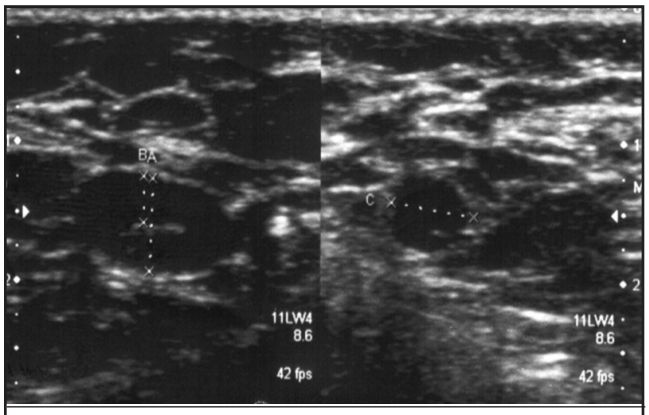

Figure-2: HR USG breast showing bilateral benign looking well defined nodules.

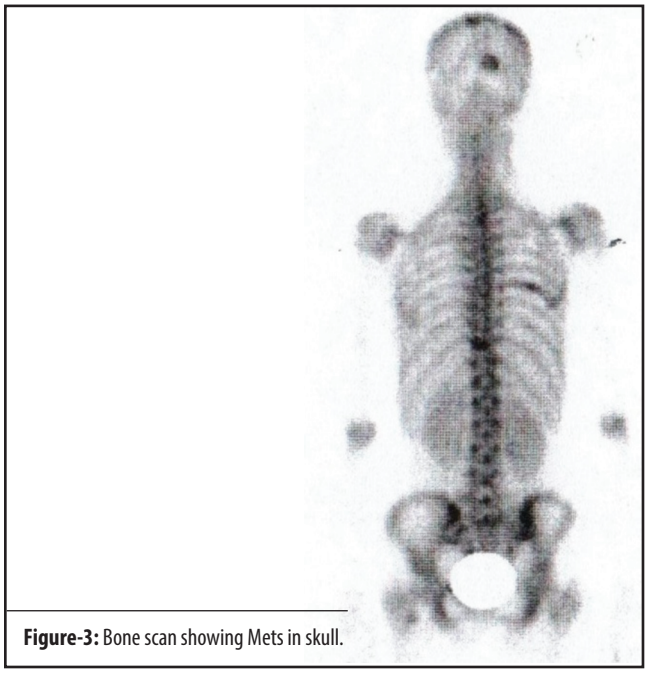

Figure-3: Bone scan showing Mets in skull.

record evaluation she was found to be a patient of MTC diagnosed in stage 1V with bone metastases since April 2016 (Figure-3). Serum calcitonin and CEA level were >2000 (n=<11.5) and 17.6(n=5.5) respectively. Pathologic TNM stage was pT3, Nx. Considering her age and history, FNAC of lesion was done and high grade atypia on cytology raised the suspicion for malignancy. Histopathology of USG guided Trucut biopsy confirmed it to be metastatic lesion from MTC. Immunohistochemical stains for Cytokeratin AEI/AE3, TTF, Calcitonin and Synaptophysin were positive. Patient was referred to an oncologist for further treatment. She is on targeted chemotherapy (Sorafenib) and is on follow up till date with last follow upon 4th May 2019 with stable disease on HRUSG. Informed consent from patient was taken to report her case.

Discussion

Primary Breast carcinoma is the most common malignancy in females. Secondary metastatic involvement of breast is a rare entity but may increase in frequency because of better treatment and long survival of cancer patients.[1] The common primary sites of metastasise to breast include leukaemia , lymphoma and primary breast carcinoma on other side.[1]

MTC is a rare thyroid malignancy arising from parafollicular cells.[5] It constitutes 3-4% of all thyroid malignancies.[5] It may occur sporadically or in association with multiple endocrine neoplasia type 2 (MEN 11 syndrome) that is one of inherited syndrome.[6] Typical sites for metastases are mediastinal lymph nodes, lungs, liver and bones with highly rare metastasis to breast.[5] To our knowledge only few cases have been reported.[5] Previous data analysis show only 6 to 8 such case reports have been published.[7,8] This tumour does not respond to conventional chemotherapy and radiotherapy so currently no recommended effective treatment is available in literature.[5]

Typically breast metastatic lesions appear as round discrete single or multiple nodules but may be partly irregular without speculations.[9] The most common presentation is single solitary lesion.[2] Rarely diffuse parenchyma and skin involvement may occur.[10] Calcifications of metastatic lesion are also very rare.[1] Mammographically and sonographically appear well defined lesions with smooth margins and might be easily misdiagnosed as benign lesion if patient is not evaluated properly for previous or associated history. Same was in our case. Patient presented with bilateral multiple freely mobile nodules. Mammography showed BIRADS 0 grading that explains extremely dense breast with poor sensitivity for detection of small lesions. High resolution ultrasound(HR-USG) revealed well defined benign looking multiple nodules in both breasts and was reported as benign nodules. Considering her age and previous history FNAC was done that raised the suspicion for malignancy with high grade atypia. So Trucut biopsy was done. Histopathology of Trucut biopsy revealed it to be a metastatic lesion from MTC. Mastectomy could be an option but as there is no consensus on standard treatment recommended for metastatic MTC Patient was referred to the oncologist for further treatment. She was treated with targeted chemotherapy. Prognosis of MTC with breast metastasis is minimally discussed in literatures.[1] Our patient is on follow up for two years of diagnosis without adverse events.

Conclusion

MTC metastasis to breast is a very rare entity and may easily be missed, as usually on Mammography, HR and USG

shows the features of benign lesions. Proper history and previous patient record evaluation in all patients is mandatory and FNAC, a minimally invasive test is recommended in all apparently benign breast lesions with previous or associated history of any malignancy.

Disclaimer: None.

Conflict of interest: None.

Funding Sources: None.

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