Case Report

A rare case of metastatic small cell carcinoma of breast from mixed types of cervical carcinoma

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Article history:
Received 10 March 2022
Revised 24 April 2022
Accepted 28 April 2022

Keywords:
Cervical cancer
Breast metastasis
Small cell carcinoma

Abstract

Metastatic small cell carcinoma to the breast from the uterine cervix is an extremely rare case. We report a case of a 58-year-old postmenopausal woman who presented with postmenopausal bleeding. Further investigations confirmed the diagnosis of mixed types of squamous and small cell cervical carcinoma. She underwent chemoradiotherapy and brachytherapy. A few months later, she presented with a palpable left breast lump three months after the diagnosis. Diagnosis of metastatic small cell carcinoma of the breast was confirmed by biopsy. Due to its rarity, we report on this case along with its relevant literature review.

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Introduction

Breast cancer is the world's most prevalent malignant disease among women worldwide, accounting for 24% of new cancer cases and 15% of cancer deaths in 2018 [1]. Secondary breast metastases from the extramammary malignancies are rare with an incidence of 0.4% to 1.3% reported in the literature [2]. In this case, the patient has metastatic small cell carcinoma of the breast with the primary source coming from the uterine cervix. Metastatic breast lesion from cervical carcinoma is an extremely rare case with only one similar case reported earlier. Furthermore, this patient has mixed types of cervical carcinoma, which constitutes squamous cell carcinoma and small cell carcinoma. Uterine cervix primary small cell carcinoma is a rare neuroendocrine tumor that represents up to 6% of all uterine cervical cancers [3].

* Acknowledgments: The authors would like to express their deepest gratitude to the staff from the Radiology Department of Universiti Sains Malaysia and Hospital Raja Perempuan Zainab II and all those directly or indirectly involved in this case write-up. This study did not receive any special funding. This manuscript was produced without any financial support from any organization.

** Competing Interests: No conflict of interest has been disclosed by the authors.

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https://doi.org/10.1016/j.radcr.2022.04.058
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Case report

A 58-year-old postmenopausal woman with no known medical illness, presented with postmenopausal bleeding. On vaginal examination, there is lobulated mass at the anterior and lower part of the uterine cervix measuring 5 cm × 4 cm with contact bleeding. Biopsy was taken and revealed mixed types of squamous cell carcinoma and small cell carcinoma.

Computed tomography (CT) scan (Fig. 1) was done and showed a large lobulated heterogeneously enhancing cervical mass with the presence of multiple enlarged adjacent pelvic lymph nodes. This patient underwent chemoradiotherapy and brachytherapy.

Three months after the diagnosis, the patient was referred to the surgical department on account of a palpable painless left breast lump. Upon breast examination, a 1.5-cm sized, well-circumscribed mobile mass was palpated at the 9 o’clock position of the left breast with no associated axillary lymphadenopathy. Mammograms (Fig. 2) showed BIRADS D composition of the breast with well-defined opacity at the mid inner quadrant of the left breast. A complimentary ultrasound examination of the left breast (Fig. 3) demonstrated a well-defined lobulated hypoechoic lesion at the 9 o’clock position measuring 0.8 cm × 1.3 cm × 1.5 cm. This lesion showed prominent blood flow on a color Doppler image, consistent with malignant lesion.

Trucut biopsy was performed in which histopathological examination (HPE) revealed malignant cells with positive immunohistochemical staining for cytokeratin and synaptophysin. These results are consistent with small cell carcinoma. This patient is planning for another brachytherapy for cervical carcinoma and chemotherapy for metastatic breast lesion. Follow-up imaging showed a reduction in the size of a left breast lesion with stable cervical mass.

Discussion

Metastatic breast malignancy from the extramammary malignancies is a rare condition, with an incidence of 0.4%-1.3% reported in the literature [2]. The most common sources of secondary breast metastases are lymphoma or leukemia, melanoma, and ovarian cancer. In this patient, the primary source was from the uterine cervix which is an extremely rare location for the primary source, and only one previous case has been reported.

Small cell carcinoma of the breast is a rare malignancy, that accounts for approximately less than 1% of all breast cancers [4]. It can be divided into primary and secondary, however, it is difficult to differentiate between these2 based on clinical presentation alone. Most of the patients usually present with a breast lump. Normally, the lesions are well-defined, mobile, and firm with a lack of microcalcifications or skin changes which are often associated with primary breast carcinoma [5]. Radiological features for metastatic breast lesions generally vary, depending on the origin and location of the primary tumors. Commonly, the radiological findings for metastatic breast disease can be confusing with the benign breast lesion as it is often well-circumscribed with or without multiple lesions. In this case, the patient has a well-circumscribed mobile mass in the left breast, with no enlarged axillary node. Ultrasound examination of the left breast showed a well-defined lobulated hypoechoic lesion with prominent blood flow on a color Doppler study. The only malignant feature of the left

Fig. 1 – Contrast-enhanced CT scan at the pelvis in both (a) sagittal and (b) axial views showing heterogeneously enhancing cervical mass (yellow star) with necrotic areas (yellow arrow) within. The mass is seen indenting into the posterior wall of the urinary bladder anteriorly and the anorectal region posteriorly.
breast lesion was internal vascularity. Otherwise, the lesion was well-circumscribed which is in favor of benign lesions.

Thus, the definitive diagnosis is based on the histopathology of the tissue, with immune-histochemical staining. In this patient, the immunohistochemical studies showed the malignant cells positive for cytokeratin and synaptophysin but negative for chromogranin A, CD56, NSE, p40, ER, CK20, and TTF1. This confirmed the diagnosis of metastatic small cell carcinoma of the breast from the uterine cervix.

Cervical cancer is the fourth most common malignancy in women and is one of the leading causes of cancer death among women [6]. Most cervical cancers are related to human papillomavirus, and the other risk factors are smoking, early age of first sexual intercourse, multiple sexual partners, and immunocompromised state. The most common types of cer-
cervical cancer are squamous cells and adenocarcinoma. However, in this patient, mixed types of cervical carcinoma, constituting squamous cells and small cell carcinomas were diagnosed. Small cell carcinoma of the uterine cervix is a rare malignancy, accounting for less 5% of all cases of cervical cancer and it is related to poor prognosis [7]. The most common sites for metastases of cervical cancer are the liver, bone, and bowel. However, in this patient, the sites for metastases were the lung and breast.

There is still a lack of information or research regarding the prognosis of patients with metastatic breast disease. In one study conducted at Washington University School of Medicine from January 1, 1991 to December 31, 2006, the mean survival time following diagnosis of breast metastases was 22.4 months. It is also shown that the mean survival following breast metastases was comparable for most of their patients regardless of their primary tumor origin, except for patients with primary medullary thyroid cancer which had prolonged mean survival (51 months) [5].

In conclusion, metastatic small cell carcinoma of the breast is extremely rare, especially when the primary site is from an uncommon site such as the uterine cervix. Up to this date, due to its rarity, there is no standard therapy for both extra-pulmonary and metastatic small cell carcinoma. However, it is important for the early detection of the disease as it has significant diagnostic clinical problems as the management largely differs from the primary breast cancer. In short, the treatment of secondary malignancy of the breast should be directed at the primary disease, and palliative mastectomy should be offered to the patients.

Authors’ contributions
All the authors contribute in this case report.

Patient consent statement
Verbal and written informed consent was obtained from the patient for inclusion in this case report. Research and ethics committee approval for this case report is not a requirement according to Medical Research and Ethics Committee and Institute of Clinical Research Malaysia.

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