

Invasive ductal breast cancer with extensive subcutaneous metastases in trunk: a case report

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Abstract. The metastases sites of advanced breast cancer contain vast majority of tissues and organs, which most common are bones, lungs, liver, brain and distant lymph nodes. We report a woman with unusual extensive subcutaneous metastases of breast cancer in her abdomen, back and back of the neck. The patient was diagnosed with invasive ductal breast cancer and had been treated 4 months earlier with modified radical mastectomy and three cycles of chemotherapy. Later she presented painless multiple small tubercles on the abdomen wall, back and back of the neck. She sought treatment in our department to perform a 18FDG PET-CT scan, confirming the multiple subcutaneous tubercles. Histopathological studies supported that the tubercles were rare subcutaneous metastatic of breast origin. The patient underwent another two cycles of chemotherapy and evaluation of curative effect was stability.

Key Words:

Ductal carcinoma of the breast, Advanced breast cancer, Subcutaneous metastasis, Chemotherapy.

Introduction

Breast cancer is the most common cancer among women worldwide and the almost the highest of cancer-related deaths among worldwide women over the past few decades. The increasing tendency and high mortality rate of breast cancer in the developing world is necessary to be studied^{1,2}. There are so many types of breast cancer. The classification includes the carcinoma *in situ* and the invasive. The former contains ductal carcinoma *in situ*, lobular carcinoma *in situ*. That latter are consist of the invasive ductal carcinoma not otherwise specified (75%), the invasive lobular carcinoma (10%), the medullary carcinoma (5%), Paget disease and other forms less common³. The treatment of breast cancer mainly adopt integrated therapy: surgery com-

bined with radiotherapy, chemotherapy, endocrine therapy, molecular targeting agents and so on. Notwithstanding the early diagnosis and the application of integrated therapies, the reasons for treatment failure are still local recurrence or distant metastasis⁴. Unfortunately patients with metastatic breast cancer will uniformly die to their disease; survival may range from a few months to several years⁵. Breast cancer can invade skin in the local expansion, caused skin adhesion, edema, and orange peel like changes, satellite nodules or ulcers. The main metastases ways to spread were lymph node metastases and hematogenous metastases. The most common metastases sites of breast cancer are distant lymph nodes, bones, lungs, liver and brain. Some rare sites of metastases were reported which comprise pancreatic⁶, thymic⁷, aryepiglottic fold⁸, subcutaneous of locality⁹ and so forth. But extensive subcutaneous metastases from breast invasive ductal carcinoma origin are rarely. So we have to bring to your attention on a case of multiple subcutaneous metastases from invasive breast ductal carcinoma, which first presented clinically as multiple small tubercles on the abdomen, back and back of the neck, with no other clinical evidence of recurrence and metastasis.

Case Report

We present the case of a 56-years-old woman who was referred to our Institution with multiple subcutaneous small tubercles in her abdomen, back and back of the neck that on further evaluation was diagnosed as metastatic invasive ductal carcinoma of the breast. She had been treated four months earlier, in breast surgery of our hospital, with two cycles of neoadjuvant chemotherapy and modified radical mastectomy, due to the right breast invasive ductal carcinoma with 26 axillary metastatic lymph nodes. She had a stage IIIC pathological T2N3M0 (ER positive at 90%, PR negative, HER-2 1+ positive). She suffered infection of operation area because of stage IV

bone marrow suppression which due to postoperative adjuvant chemotherapy. Then the anti-tumor therapies were interrupted and she had to turn round to handle the infection. At the time of diagnosis of breast cancer the patient reported to be under treatment with oral methimazole, about 5 year ago, to treat a severe form of hyperthyroidism. She had engaged in chemical industry that exposures to chloroform about 8 years. At the physical examination, performed at her weekly medical check-up, she presented multiple subcutaneous small tubercles in her abdomen, back and back of the neck (Figure 1). After further questioning she revealed that approximately 4 months after the surgical intervention of mastectomy. She had not felt subcutaneous tubercles, also had never brought it to family members' attention. She didn't feel fever, rigors, night sweats or ostealgia, but acknowledged a fact about itchy of tubercles of skin. Her chest was clear to auscultation bilaterally and she had a regular rate and rhythm, without murmurs, rubs, or gallops. There were no palpable giant masses and no Courvoisier's or Murphy's signs. There was no evidence of ascites or hepatosplenomegaly, edema. The subcu-

taneous small tubercles were about 0.5cm, slightly stiff to the touch. Until the number of tubercles has increased, she was awake and alert. She was immediately referred to Department of Oncology, the Affiliated Hospital of LuZhou Medical College (China) for further examination. She underwent an ^{18}F FDG PET-CT scan scan, demonstrating the multiple subcutaneous tubercles were tumor metastases which without abnormal glucose metabolism and the left axillary lymph nodes were displayed. Histopathological studies attested that the tubercles were cutaneous metastatic adenocarcinoma which consistent with a breast primary, Immunohistochemistry reveals ER positive, PR negative, HER-2 negative (Figure 2).

The patient was taken for chemotherapy because of wide-range induced operation or radiotherapy was not suitable. Her blood, urine and stool routine were normal. The liver and kidney function and electrocardiographic examination weren't abnormal. She was assigned to receive 2 cycles of vinorelbine (25 mg/m^2 on days 1 and 8 of a 3 week cycle, intravenously) plus cisplatin (75 mg/m^2 on day 1 of a 3 week cycle, intra-



Figure 1. Picture demonstrating the clinical presentation of the metastasis.

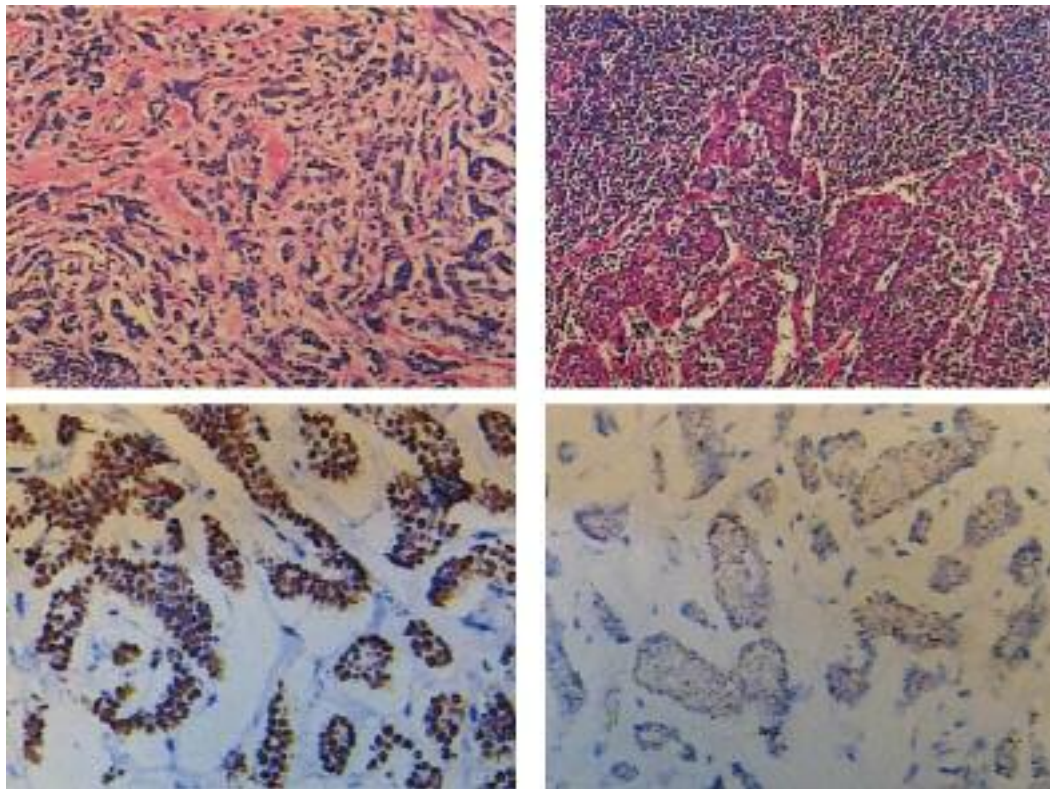


Figure 2. Histological examination showed the tubercles were subcutaneous metastatic adenocarcinoma which consistent with a breast primary. Immunohistochemistry reveal ER (+), PR (-), HER-2 (-).

venously). Chemotherapy combined with antiemetic, protecting gastric mucosa, enhancing immunity and other symptomatic treatment. At present, her general condition was good and the subcutaneous tubercles were not grown and increased. She was ready for the next cycle of chemotherapy.

Discussion

Breast cancer usually recurs within 5 years after surgery. Takeuchi et al¹⁰ reported that 284 of 1116 patients with breast cancer experienced recurrence after surgery. Characteristically, late, ipsilateral, locoregional recurrence (such as metastasis to the ipsilateral chest wall, axillary lymph nodes, or supraclavicular lymph nodes) accounts for the majority (74%) of all recurrences, and distant metastasis accounts for a small proportion of all recurrences¹¹.

Finally, to summary this woman who had a stage IIIC pathological T2N3M0 right breast invasive ductal carcinoma (ER positive at 90%, PR negative, HER-2 1+ positive) experienced recur-

rence after her treatment about surgery and chemotherapy. The patient had considered only subcutaneous tubercles as erythra, without any other clinical symptom or sign. She delayed her medical attention, without taking into account any relation with the previous breast carcinoma. The biopsy obtained from the subcutaneous tissue of the tubercles showed metastatic ductal carcinoma of the breast. In fact, immunohistochemistry revealed tumor cells staining positive for ER positive, PR negative, HER-2 negative.

Reported in the literature, invasive lobular carcinoma of the breast has a tendency to spread to bones, gynecological organs, peritoneum, retroperitoneum and the gastrointestinal tract. The ductal carcinoma tends metastasize more commonly to the liver, lung, and brain¹², however the subcutaneous metastasis has not yet been mentioned. The clinical diagnosis of metastatic of breast carcinoma becomes even more unlikely on the rare occasion when it represents as unusual presentation. So the most valuable side of our case is the involvement of the extensive subcutaneous metastases from ductal carcinoma, which is described for the first time.

The clinical diagnosis of the metastatic lesions can be not easy, but the immunohistochemistry analyses can accurate diagnosis. In fact, some markers as estrogen, progesterone and HER-2 receptors allow confirming the diagnosis¹³.

Conclusions

Our patient's tumor stag was locally advanced at the beginning. Postoperative adjuvant chemotherapy was not enough because of infection, caused wide subcutaneous metastases which proved by immunohistochemistry. At the time of writing this case report (two months after chemotherapy of subcutaneous metastases), the patient has no signs of tumor progression and be ready to next cycle of chemotherapy with well tolerated. Our plan at this point is to finish 6 cycles of chemotherapy with current treatment protocol and then assess her condition with a CT scan of the chest, abdomen and pelvis, bone scan and head MRI or ¹⁸FDG PET-CT scan¹⁴. Anti-estrogen therapy will be adopted when the possibility of tumor progression is rule out.

Conflict of Interest

The Authors declare that there are no conflicts of interest.

References

- 1) KANTELHARDT EJ, ZERCHE P, MATHEWOS A, TROCCHI P, ADDISSIE A, AYNALAM A, WONDEMAGEGNEHU T, ERSUMO T, REELER A, YONAS B, TINSAE M, GEMECHU T, JEMAL A, THOMSEN C, STANG A, BOGALE S. Breast cancer survival in Ethiopia: A cohort study of 1,070 women. *Int J Cancer* 2014; 135: 702-709.
- 2) AFSHARFARD A, MOZAFFAR M, ORANG E, TAHMASBPOUR E. Trends in epidemiology, clinical and histopathological characteristics of breast cancer in Iran: results of a 17 year study. *Asian Pac J Cancer Prev* 2013; 14: 6905-6911.
- 3) IOBAL N, BARRETT-LEE P. BREAST. IN: HANNA L, CROSBY T, MACBETH F. editors, "Practical Clinical Oncology". Cambridge University Press, 2008; pp. 190-212.
- 4) RAKHA EA, EL-SAYED ME, MENON S, GREEN AR, LEE AH, ELLIS IO. Histologic grading is an independent prognostic factor in invasive lobular carcinoma of the breast. *Breast Cancer Res Treat* 2008; 111: 121-127.
- 5) REGIERER AC, WOLTERS R, UFEN MP, WEIGEL A, NOVOPASHENNY I, KÖHNE CH, SAMONIGG H, EUCKER J, POSSINGER K, WISCHNEWSKY MB. An internally and externally validated prognostic score for metastatic breast cancer: analysis of 2269 patients. *Ann Oncol* 2014; 25: 633-638.
- 6) MOLINO C, MOCERINO C, BRAUCCI A, RICCARDI F, TRUNFIO M, CARRILLO G, VITALE MG, CARTENI G, DE SENA G. Pancreatic solitary and synchronous metastasis from breast cancer: a case report and systematic review of controversies in diagnosis and treatment. *World J Surg Oncol* 2014; 12: 2.
- 7) FUJIOKA S, NAKAMURA H, MIWA K, TAKAGI Y, YURUGI Y, TANIGUCHI Y, ISHIGURO K. Thymic metastasis of breast cancer 22 years after surgery: a case report. *Asian J Endosc Surg* 2013; 6: 330-332.
- 8) AVCU S, IZMIRLI M, NURSUN OZCAN H, SENGÜL I, LEMMERLING M. Aryepiglottic fold and subcutaneous metastases from breast carcinoma. *JBR-BTR* 2009; 92: 283-284.
- 9) METERE A, DI COSIMO C, CHIESA C, ESPOSITO A, GIACOMELLI L, REDLER A. An unusual subcutaneous breast cancer metastasis in a 86-year-old woman. *Eur Rev Med Pharmacol Sci* 2012; 16: 562-564.
- 10) TAKEUCHI H, MUTO Y, TASHIRO H. Clinicopathological characteristics of recurrence more than 10 years after surgery in patients with breast carcinoma. *Anticancer Res* 2009; 29: 3445-3448.
- 11) HASEGAWA S, CHISHIMA T, HIGUCHI A. A case of local recurrence of breast cancer developed 34 years after radical mastectomy. *Nihon Rinsho Geka Gakkai Zasshi (J Jpn Surg Assoc)* 2008; 69: 2804-2808. (In Japanese).
- 12) BORST MJ, INGOLD JA. Metastatic patterns of invasive lobular versus invasive ductal carcinoma of the breast. *Surgery* 1993; 114: 637-641.
- 13) AMIR E, CLEMONS M, PURDIE CA, MILLER N, QUINLAN P, GEDDIE W, COLEMAN RE, FREEDMAN OC, JORDAN LB, THOMPSON AM. Tissue confirmation of disease recurrence in breast cancer patients: pooled analysis of multi-centre, multi-disciplinary prospective studies. *Cancer Treat Rev* 2012; 38: 708-714.
- 14) MORRIS PG, ULANER GA, EATON A, FAZIO M, JHAVERI K, PATIL S, EVANGELISTA L, PARK JY, SERNA-TAMAYO C, HOWARD J, LARSON S, HUDIS CA, MCARTHUR HL, JOCHELSON MS. Standardized uptake value by positron emission tomography/computed tomography as a prognostic variable in metastatic breast cancer. *Cancer* 2012; 118: 5454-5462.