A rare location of metastasis in a patient with synchronous ovarian and breast neoplasia

Bogdan Filip[*,1,2], Andrian Panuta[1], Ionuț Hutanu[1,2], Mihaela Buna-Arvinte[1], Dan Ferariu[3], Dragos Viorel Scripcariu[1], Viorel Scripcariu[1,2]

[1]I[st] Surgical Unit, Regional Institute of Oncology Iasi, Romania, [2]Department of Surgery, "Grigore T. Popa", University of Medicine and Pharmacy Iasi, Romania, [3]Department of Pathology, Regional Institute of Oncology Iasi, Romania

Abstract

Ovarian and breast cancer are the most common causes of gynaecological cancer-related deaths. We hereby present the case of a patient treated in our surgical unit which was diagnosed with synchronous neoplasia of the ovary and breast with an uncommon form of clinical presentation. The particularities of this case are the presence of an ulcerated cutaneous metastasis from the ovarian cancer in the right hypochondrium that was diagnosed simultaneously and a synchronous breast neoplasia.

Keywords: *ovarian cancer, cutaneous metastasis, synchronous cancers, breast cancer, morbidity*

Introduction

The occurrence of cutaneous metastases can be encountered up to 10% of all cancers [1]. There is no direct correlation between a specific organ and the occurrence of skin metastasis. In women, the most frequent malignant tumours that metastasize to the skin are breast cancer (69%), colorectal carcinoma (9%), melanoma (5%) and carcinoma of the ovary (3.5%) [2]. Up to 75% of cutaneous metastases are observed on the anterior chest wall and on the abdominal wall skin [3]. In some cases, cutaneous metastases may act as a first clinical sign of a yet unknown malignancy. Due to the rich vascular supply the vast majority of cutaneous metastases are confined to the dermis or subcutaneous fatty tissue. A thoroughly clinical examination in any patient, not only in oncological patients, can lead to the diagnosis of a previously unidentified primary malignant tumour, provide evidence of the dissemination of a previously known tumour, or can be an early sign of recurrence of a malignant tumour apparently in remission [2].

Received: September 2015; Accepted after review: November 2015; Published: December 2015.

*Corresponding author: Bogdan Filip, MD, PhD, I[st] Surgical Unit, Regional Institute of Oncology Iasi, 2-4, Gen. Henri Mathias Berthelot Street, 700483 Iasi, Romania
Email: bfilip79@yahoo.com

Case report

We hereby present the case of a 64 year-old female, admitted in our unit, complaining of abdominal bloating, which presented an ulcerated tumour in the right hypochondrium and a lump in the right breast. Her past personal medical and family history was unremarkable, except for a chronic ischemic heart disease and an essential hypertension. Routine laboratory tests showed increased levels of specific tumour markers CA125=2554 U/ml and CA15-3=97.48 U/ml. At the admission physical examination revealed a 20 cm-sized, ovoid-shaped with irregular margins and painless, solid abdomino-pelvic mass

occupying the lower half of the abdominal cavity with the upper limit above the umbilicus. Another 7 cm-sized ovoid shaped, mobile, painless, ulcerated cutaneous mass was detected in the right hypochondrium. The examination of the right breast revealed a 5 cm-sized solid, irregular mass which encompassed both upper and lesser quadrants of the right breast with enlarged right axillary lymph nodes forming a fixed conglomerate. Other physical assessments were negative. The pathological examination of the skin mass (core-biopsy) from the right hypochondrium revealed a metastasis from a high-grade ovarian serous papillary carcinoma (Figures 1 and 2). The core-biopsy of the breast lump identified an invasive carcinoma NST of the breast.

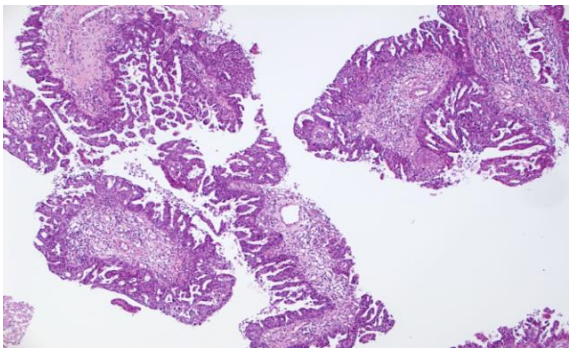

Fig. 1. Biopsy of cutaneous metastasis (HE, x 50)

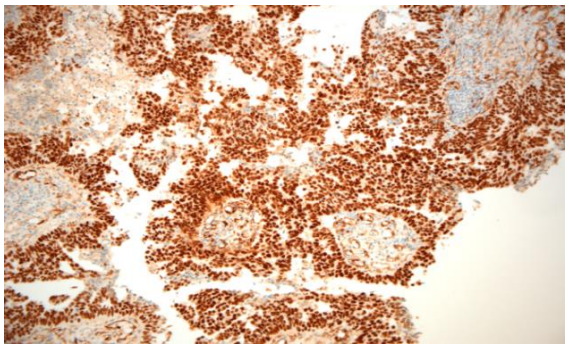

Fig. 2. Biopsy of the cutaneous metastasis (IHC, Ab anti-WT1, x 50)

The staging abdominal and pelvic tomography found a large multillocular pelvic tumour, iodophilic situated on the topography of the uterus, with multiple enlarged pelvic and para-aortic lymph nodes. A massive cutaneous metastasis with no direct relations with the intra-abdominal tumour was found in the subcutaneous tissue of the right hypochondrium (Figures 3 and 4).

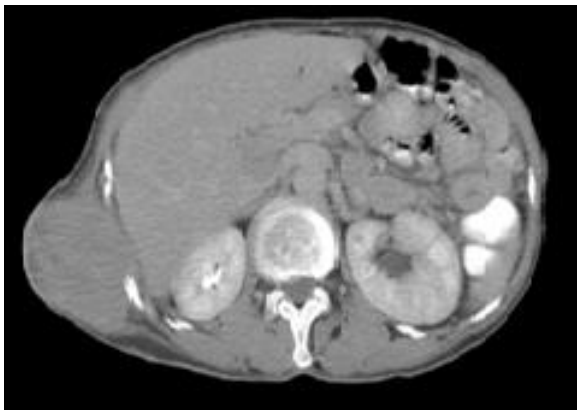

Fig. 3. Thoraco-abdominal CT-scan (venous phase). Section at the 1st lumbar vertebra. Cutaneous metastasis from an ovarian cancer. Grade I left hydronephrosis due to compression of left pelvic ureter

Fig. 4. Pelvic CT scan (venous phase). Section at the level of the 2nd sacral vertebra. Large ovarian tumour (high grade serous ovarian cancer)

The final diagnosis prior to treatment planning for the patient was: ovarian papillary serous carcinoma cT_2NxM_1 (skin metastasis), synchronous with stage IIIA invasive carcinoma NST of the breast cT_3N_2a (estrogen receptors positive in 40% of cells,

progesterone receptors positive in 20% of cells, Ki-67 positive in 30% and HER2/Neu expression was negative).

At the multidisciplinary meeting it was decided that the patient was not suitable for neoadjuvant therapy due to the fact that the cutaneous metastasis was ulcerated with chronic bleeding and that the surgical treatment of the ovarian pelvic and cutaneous tumour to be the first step of treatment. The patient undergone an exploratory laparotomy which revealed a 20 cm-sized mass in the left ovary which invaded the uterus (also enlarged by uterine polyfibromatosis) and the anterior abdominal wall, with dense adhesions surrounding the tumour. After careful dissection, a total hysterectomy with bilateral salpingo-oophorectomy, pelvic peritonectomy, appendectomy, omentectomy and pelvic lymphadenectomy was performed, with no macroscopic residual tumour masses remaining in the abdominal cavity (R_0 resection). In the same session the radical excision of the skin metastasis with part of the abdominal muscles was performed, no direct relations or contact with the peritoneum was found. No surgical procedures were practiced for the breast cancer in this operative session.

The postoperative course of the patient was uneventful except of a prolonged ileus. The patient was discharged from our surgical unit in the 9th postoperative day, in good condition, with no complains.

The results of histological examination revealed a high grade serous ovarian carcinoma (Figure 5).

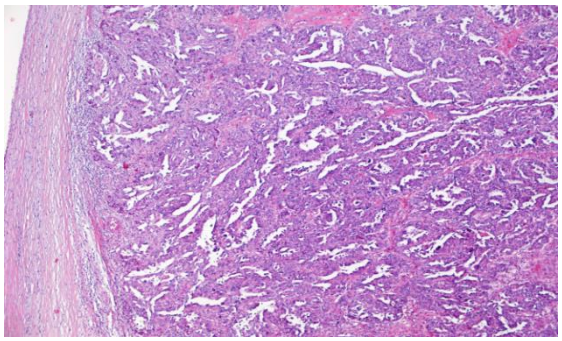

Fig. 5. Primary ovarian tumour (high grade serous ovarian carcinoma (HE, x 40)

The proliferation of tumour showed moderate nuclear pleomorphism, high mitotic activity, with necrosis and vascular invasion; the endocervix presented an area of H-SIL (high grade squamous intraepithelial lesions) and chronic endocervicitis; myometrium with multiple leiomyoma nodules.

The skin tumour was an ulcerated, abscessed cutaneous metastasis from high grade serous ovarian carcinoma (Figure 6) with associated polymorphic inflammation. No tumour involvement was revealed in the omentum or the caecal appendix. At the moment, the patient is undergoing chemotherapy for both ovarian and breast cancer, at the date of the submission she completed the 6th and final cycle of 500 mg Carboplatin and 300mg Paclitaxel after which she will be admitted to our clinic for surgical reassessment and treatment of the breast tumour.

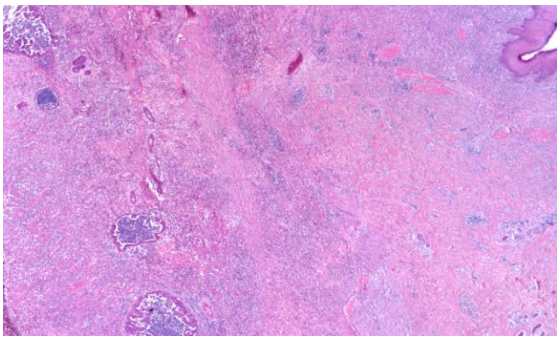

Fig. 6. Cutaneous metastasis from a high grade serous ovarian carcinoma (HE, x 40)

Discussions

Ovarian cancer is the fifth female malignancy in frequency, usually diagnosed in advanced stages, being responsible for 5% of all cancer related deaths [4]. The advanced stage at the time of diagnosis is explained by the lack of specific symptoms and the absence of appropriate screening tests. Despite achievements in both surgical treatment and the development of new drugs the 5-year survival rate remains very low, around 35% [5, 6]. Breast cancer is the leading female neoplasia, responsible for 18 % of deaths from malignancies [7]. Synchronous breast and ovarian cancer is a rare association and it is susceptible for a hereditary, genetic disorder (BRCA1/2 gene mutation). Unfortunately in our

particular case no genetic tests were performed. Skin metastasis originated from ovarian carcinoma is rare (occurring in 1.9% to 5.1 % of patients) [3]. More often the patient presents umbilical metastasis, known as Sister Mary Joseph's nodule, but this clinical sign could not be considered a skin metastasis. Literature reports cutaneous metastases from ovarian carcinoma such as pilomatricoma-like and cauliflower-type variants [8] and it can be the sign of a poorly differentiated primary tumour. The presence of psammoma bodies is useful as they rarely occur in metastases from other tumours. Serous papillary carcinoma is the most common, followed equally by mucinous and endometrioid subtypes [9]. Skin metastasis most commonly manifest as small nodular lesions but can also manifest as herpetiform erythematous lesions and scarring plaques [10]. For the development of such type of metastasis various intricate pathways were described, vascular and lymphatic being the most common, although, separation of these two pathways can be difficult as they are interconnected. Lymphatic spread is the most common initial route of dissemination in the majority of malignant tumours. Regional spread usually occurs through the body cavities, in particular the peritoneal cavity. Tumour-cell dissemination due to the surgical mobilisation of tumour during surgery or other invasive procedures it was reported [2].

One of the most difficult step in staging of any tumour is the early detection of metastases within the body, this often requires sophisticated additional tests; however, skin metastases are usually easily observed on careful, targeted physical examination. Up to a third of skin metastases are diagnosed before or simultaneously with the primary tumour. Prognosis after skin metastases is poor, the patient either present a small resectable but aggressive tumour or an unresectable tumour. The most important prognostic factor associated with survival is the interval time between diagnosis of ovarian cancer and documentation of cutaneous involvement [3]. The importance of screening is overwhelming in breast cancer. Regarding the ovarian cancer, its diagnosis is often delayed due to the absence of specific clinical symptoms [11] and appropriate screening tests. The particularity of this case is the clinical association of breast and ovarian cancer and the unusual presentation of the patient with an ulcerated skin metastasis from the ovarian tumour. The choice of treatment was made after the multidisciplinary meeting in which was decided that the priority for treatment should be the ovarian cancer (presented with an ulcerated skin metastasis), afterwards the patient should undergone systemic chemotherapy as adjuvant therapy for the ovarian cancer and as neoadjuvant treatment for the advanced breast cancer with fixed axillary lymph nodes.

Consent

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

Conflict of interest

The author(s) declare that they have no competing interests.

References

1. Nashan D, Müller ML, Braun-Falco M, et al. Cutaneous metastases of visceral tumours: a review. *J Cancer Res Clin Oncol* 2009; 135(1):1-14.
2. Fernández-Antón Martínez MC, Parra-Blanco V, Avilés Izquierdo JA, Suárez Fernández RM. Cutaneous metastases of internal tumours. *Actas Dermosifiliogr* 2013; 104(10):841-853.
3. Cormio G, Capotorto M, Di Vagno G, et al. Skin metastases in ovarian carcinoma: a report of nine cases and a review of the literature. *Gynecol Oncol* 2003; 90(3):682-685.
4. Sehouli J, Alvarez AM, Manouchehrpour S, et al. A phase II trial of pemetrexed in combination with carboplatin in patients with recurrent ovarian or primary peritoneal cancer. *Gynecol Oncol* 2012; 124(2):205–209.
5. Sehouli J, Savvatis K, Braicu EI, Schmidt SC, Lichtenegger W, Fotopoulou C. Primary vs. interval debulking surgery in advanced ovarian

cancer: results from a systematic single-center analysis. *Int J Gynecol Cancer* 2010; 20(8):1331–1340.

6. Koensgen D, Bruennert D, Ungureanu S, et al. Polymorphism of the IL-8 gene and the risk of ovarian cancer. *Cytokine* 2015; 334–338.

7. National Comprehensive Cancer Network. Breast Cancer, Clinical Practice Guidelines in Oncology, Version 2, 2015 [http://www.nccn.org/professionals/physician_gls/f_guidelines.asp available at 29/12/2015].

8. Nakamura S, Hashimoto Y, Nishi K, et al. Cutaneous Lymphangitis Carcinomatosis Metastasis of Extra-ovarian Primary Peritoneal Carcinoma. *Acta Derm Venereol* 2012; 92(6):639-40.

9. Leonard N. Cutaneousmetastases: Where do they come from and what can they mimic? *Curr Diagn Pathol* 2007; 13(4):320–330.

10. Craig CD, Iglesias DA, Watkins J, Coleman RL, Kilgore L, Ramirez PT. Extensive cutaneous metastases of ovarian cancer after prolonged response to liposomal doxorubicin. *Gynecol Oncol Case Rep* 2013; 5:64-66.

11. Samaila MO, Adesiyun AG, Waziri GD, Koledade KA, Kolawole AO. Cutaneous umbilical metastases in post-menopausal females with gynaecological malignancies. *J Turk Ger Gynecol Assoc* 2012; 13(3): 204–207.