CLINICAL CASE

# CONCOMITANT NEOPLASTIC DISEASE IN A SINGLE PATIENT. METASTATIC DISEASE OR SYNCHRONOUS NEOPLASIA?

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## Abstract

*Despite known association of these malignancies, the incidence of a synchronous appearance of breast and ovarian cancer is low and the current literature does not directly address an approach to this clinical problem. We report 1year disease-free survival in a patient treated for serous carcinoma with solid genital pattern and invasive ductal carcinoma with trabecular pattern pT2N2Mx.The prolonged disease-free survival in our case may provide some guidance in this unusual clinical situation.*

**Keywords***: breast cancer, ovarian cancer, metastatic disease*

## Introduction

Despite their clinical association and molecular link through mutations in the BRCA-1 and BRCA-2 genes, the overall occurrence of synchronous breast and ovarian cancers is rare. The current literature offers little guidance regarding the management of this particular clinical situation.

In this current article we present the case of a female patient who was diagnosed at presentation in our department with medium differentiated adenocarcinoma by unknown origin as a result of a lymph node biopsy accomplished in another surgical care unit.

Besides disease-free survival at one year after surgery, this case highlights the less known genetic association between these two types of malignancies, potential diagnosis problems associated with clinical presentation, but also therapeutic dilemmas regarding the treatment for these two types of primary neoplasia.

## Case report

Female patient, 66 years of age, without significant personal history, with no family history of neoplasia, presented to our clinic with diffuse abdominal pain, approximately 5 kg weight loss during the last month and abdominal distension.

To be mentioned that a week before admission, the patient presented to another hospital care unit with the same symptoms where she underwent an exploratory laparotomy. During surgery, a retroperitoneal lymph node tumor mass was found at the root of the mesentery. Lymph node biopsy was practiced with histopathological diagnosis of medium differentiated adenocarcinoma metastasis of unknown origin.

At presentation in our department, the abdomen was tender during mesogastric palpation where a hard, painful and imprecise defined mass was found, with no clinical signs of intestinal obstruction or peritonitis; no

pathological findings were found at rectal or vaginal examination. Additionally, during clinical exam, two nodular masses were found in the right breast, which were confirmed by mammography as multifocal and multicentric breast neoplasm with BIRADS 5 (Figures 1 and 2).

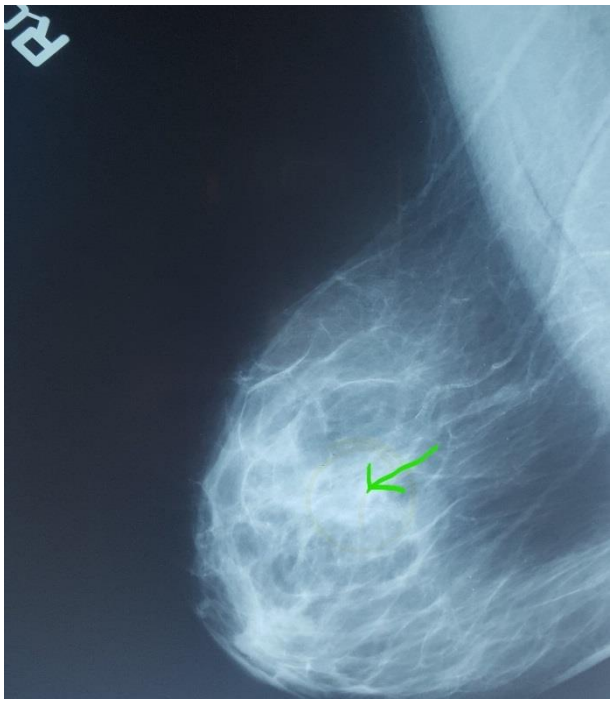

**Figure 1 - Mammography with malignant lesion**

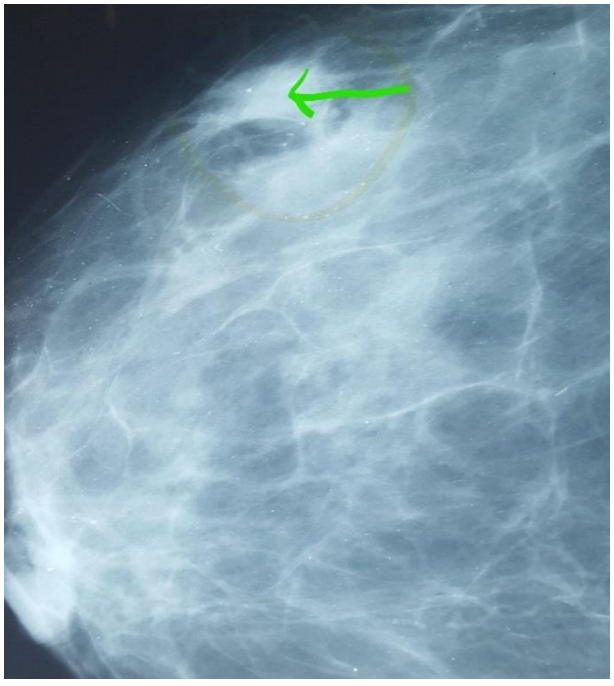

**Figure 2 - Mammography with malignant lesion**

Laboratory tests did not indicate pathological values and the immunology was negative. The ultrasonography findings were limited to perisplenic fluid blade and on the bottom of the Douglas space. CT scan showed multiple lymph nodes at the level of the splenic hilum, periaortic, mesenteric, retroperitoneal and adjacent to the celiac trunk with a maximum size of 4 cm (Figures 3 and 4).

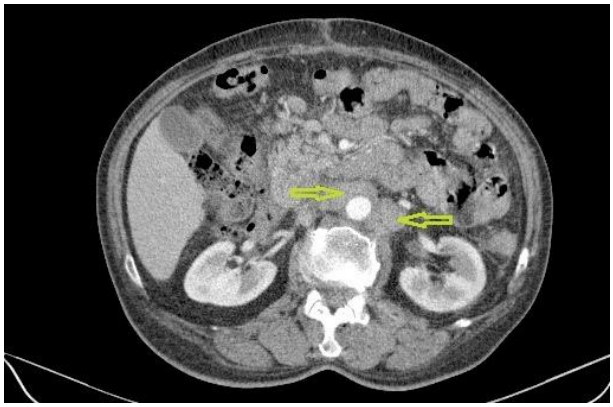

**Figure 3 - Periaortic lymph node**

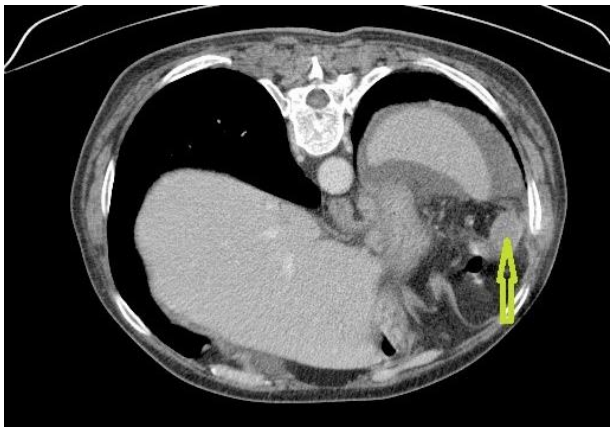

**Figure 4 - Retroperitoneum lymph node**

Superior and inferior digestive endoscopy showed no pathological findings.

We continued diagnosis with immunohistological (IHC) exam of the biopsied lymph node and the surgical intervention was postponed for the moment.

The patient returns after the IHC result with the presumed diagnosis of serous carcinoma with a high degree of differentiation of the genital origin.

The surgical strategy was to do both surgeries during the same admission. The patient underwent total radical hysterectomy with bilateral adnexectomy and pelvic lymphadenectomy associated with pelvic peritonectomy and cholecystectomy due to the presence of a carcinomatosis node located on the gallbladder peritoneum. On postoperative 8th day from surgical intervention radical

mastectomy on the right side was performed (modified Madden type).

Under antibiotic therapy, anti-inflammatory, analgesic, and prokinetic medication, supportive and hydroelectrolytic treatment, the postoperative course was uneventful and the patient was discharged on postoperative day.

The histopathological exam of the surgically removed specimens highlighted a serous carcinoma with solid genital pattern and invasive ductal carcinoma with right breast trabecular pattern pT2 pN2 pMx.

The patient is now almost 1 year after diagnosis and surgery still on chemotherapy but with no evidence of cancer recurrence. The clinical exam does not detect any sign of disease recurrence, the immunology tests remain negative, imagistic tests do not detect any signs of disease recurrence (normal bone scans and no proof of relapse or second primary breast cancer on the mammograms of the remaining breast).

## Discussions

Although clinically accepted and genetically associated, synchronous occurrence of primary breast and ovarian cancer is rare. A retrospective analysis of 7,166 cases of breast cancer and 1,758 cases of ovarian cancer published by the Duke University Medical Center and the University of North Carolina Hospitals identified only 50 cases of primary multiple breast and ovarian neoplasia.

Out of these 50 cases, only 4 of them were synchronous [1]. The mammary gland is an unusual place for metastasis, in English literature being reported only 37 cases of ovarian cancer with breast metastasis [2].

Breast cancer and ovarian cancer were associated in family cancer syndromes, with mutations of BRCA-1 and BRCA-2 genes. BRCA-1 gene, located on 17ql2-21 chromosome, although being cloned, its function is not yet completely discovered. Carriers of BRCA-1 mutations have an approximately 85% chance of developing breast cancer starting with 70 years of age and a 45% chance of developing ovarian cancer starting at the same age [3,4].

Despite the high risk of breast cancer at carriers of BRCA-1 mutations, these mutations are to be found at a very small proportion of patients with family predispositions of breast cancer determined by family history and starting age [5]. BRCA-1 was not associated with rare breast/ovarian cancer in men. A significant proportion of both cancer types, either rare cases of family predisposition, are associated with BRCA-2 gene mutation, localized on the 13ql2-13 chromosome. However, the gene mutations are less frequently associated with ovarian cancer. In a case study, only 2 out of 17 non-BRCA-1 family breast/ovarian cancers had a germinated BRCA-2 line. p53 mutations also were associated with family breast/ovarian cancer [5].

More clinical possibilities have to be taken into consideration regarding patient management who present with both breast cancer and a pelvic mass. Breast lobular carcinoma has a unique model of metastatic spread, tending to become serous and to reach genital organs simulating a second primary cancer.

The histopathological exam of the mammary and pelvic tumor is, thus, essential. Although rare, metastatic ovarian cancer has been reported at the breast level.

This way, the histopathological confirmation of our case highlights two types of primary cancer. Histopathological characteristics of the tumors clearly prove the existence of two types of lesions: invasive ductal carcinoma with trabecula mammary pattern pT2N2Mx and serous carcinoma with solid ovarian pattern. Therefore, this case represents an unusual combination of clinical entities and presumes certain treatment dilemmas.

Unfortunately, despite the existence of multiple treatments, both types of breast and ovarian cancer have evolved, and continue to have an unfavorable prognosis. The median global survival among breast cancer treated with multimodal treatments varies between 18 and 57 months, and the disease-free median survival is shorter, fitting in the interval 8 to 30 months. Outpatient’s prognosis remains reserved, both types of neoplasia being aggressive.

## Conclusions

The histopathological confirmation of our case highlights two types of primary cancer. Despite the existence of multiple treatments, both types of breast and ovary cancer have evolved and have an unfavorable prognosis.

## References

[1]Suris-Swartz PJ, Schidkraut JM,Vine MF, Hertz-Picciotto I. Age at diagnosis and multiple primary cancers of the breast and ovary. Breast Cancer Res Treat 1996; 41: 21-9.

[2]Sitzenfrey A. Mammakarzinom zwei jahre nach abdominaler radikaloperation wegen doppelseitigen carcinoma ovarii. Prag Med Wochenschr 1907;32:221-35

[3]Ford D, Easton DF, Bishop DTet al. Risk of cancer in BRCA1- mutation carriers. Breast Cancer Linkage Consortium. Lancet 1994; 343: 692-5.

[4]Miki Y, Swensen J, Shattuck-Eidens D et al. A strong candidate for breast and ovarian cancer susceptibility gene BRCA-1 Science 1994; 266: 66-71.

[5]Couch FJ, DeShano ML, Blackwood MA et al. BRCA-1 mutations in women attending clinics that evaluate the risk of breast cancer. N Engl J Med 1997; 336: 1409-15.

[6]Wooster R, Neuhausen SL, Mangion J et al. Localization of a breast cancer susceptibility gene, BRCA-2, to chromosome 13ql2-13. Science 1994; 265: 2088-90.