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Case report

Synchronous rectal and breast cancer in a 40-year-old woman

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Abstract

Multiple primary malignancies have an increasing incidence in the general population due to better diagnostic tools and the increased life expectancy. However, synchronous lesions are still rare and have a rate which varies between 0,17 and 0,69%. Second primary tumours usually develop after some time from the first cancer diagnosis. Although there is an arsenal of therapeutical options – the order and priority of the therapeutic choices are debatable and need to be tailored to every patient. The present paper illustrates the case of a 40 years old woman who presented to the emergency department with diffuse abdominal pain, nausea and bloating. The patient had done a fine needle biopsy of a suspicious lump in her right breast one week before the presentation and had no other relevant medical history. The CT scan revealed intraperitoneal free liquid with a paracolic mass at the rectosigmoid junction. The surgical team decided to perform an exploratory laparoscopy. At exploration, the mass was intensely adherent to the uterus and fixed to the pelvis.

Conversion to laparotomy and extemporaneous exam of the mass were undertaken, which revealed adenocarcinoma. En-bloc rectosigmoidian resection with hysterectomy and bilateral adnexectomy. The histopathology report staged the tumour as pT4N2M0 adenocarcinoma. Breast biopsy pathology report revealed no special type (NST) carcinoma, with luminal B breast cancer on immunohistochemistry. Clinical staging of the breast was cT1N0. After discussion of the case in the multidisciplinary team, it was decided for Madden mastectomy with axillary lymphadenectomy. Breast reconstruction with retropectoral expander was done in the same operating procedure. Post-mastectomy pathology report revealed pT1N0 and no metastases were present at standard imaging. The immunohistochemical profile of the resected breast tumour proved to be Luminal A. Adjuvant therapy consisted in chemoradiation for the rectum. The breast neoplasia was treated with tamoxifen as adjuvant therapy. Synchronous primary neoplasia exists and even if they have a low incidence once identified their treatment requires particular treatment for each case. A multidisciplinary approach is essential.

Keywords : synchronous neoplasia, breast, colorectal, cancer, multidisciplinary

Highlights

- ✓ Multidisciplinary discussions are a must when treating a patient with synchronous adenocarcinoma.
- ✓ The decisions on how to treat and in what order synchronous tumours from an oncological point view are delicate and need to be tailored to the patient – as the guidelines are limited in recommendations.

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Introduction

Malignant lesions which derive from multiple origins are defined as multiple primary cancers (MPC). Therapeutically, a multi-disciplinary and patient-oriented approach is to be considered. In the general population – synchronous lesions are rare and have an incidence which varies between 0,17 and 0,69% (1).

The mechanism by which MPC develop has yet to be understood and there is still debate regarding the factors that may influence their occurrence: immunology, heredity, environment, viruses and radiotherapy. The number of patients diagnosed with multiple malignancies is steadily rising probably due to improved diagnostic techniques and a larger elderly population (2).

If such an evolution is suspected the physician needs to determine whether the tumours are metachronous or synchronous. The term metachronous describes two or more tumours of similar pathological type detected at different times within the body while synchronous refers to multiple tumours identified simultaneously in different locations usually with different origins. The more massive tumour is defined as "index" cancer or "first primitive" (3).

Synchronous and metachronous tumours differ in treatment. This is due to the fact that in metachronous tumours one treats each tumour at different time interval and standard of care exists.

Triple neoplasms have a rate of occurrence of 0,5% from the group of patients diagnosed with MPC while 5 different tumours are encountered in 0,1% of this population (4, 5). This case-study presentation aims to highlight the difficulties encountered in treating a relatively young female with synchronous cancer of the breast and rectum (advanced-T4) from a surgical and oncological point of view where protocols and past knowledge does not apply.

Also, the authors emphasize the importance of the multidisciplinary oncological teams in the modern era of patient-tailored therapy.

Case report

This is the case of a 40-year woman who presented to the emergency department with intense abdominal pain, bloating and nausea – which debuted 2 days before presentation. The patient had done in the recent past a fine needle biopsy for a suspicious lump in her left breast with pending pathology report at the time of presentation. The breast lesion had 3/2 cm diameter, was located in the central area and no axillary lymphadenopathies were present. She had no other relevant medical history. The clinical examination revealed pale extremities with tachycardia, diffuse pain in the abdomen (distended) with signs of peritoneal irritation at palpation.

At rectum examination the rectal ampulla was empty. Laboratory blood work identified leukocytosis with systemic inflammation (elevated VSH, Fibrinogen, C Reactive Protein and Procalcitonin). Abdominal X-ray identified hydrometric levels – and the abdominal ultrasound identified free liquid in the peritoneal cavity. An emergency abdominal CT with contrast was done which identified a parasigmoidian abscess rising the suspicion of acute diverticulitis and free intra-abdominal fluid. The decision the operate was undertaken.

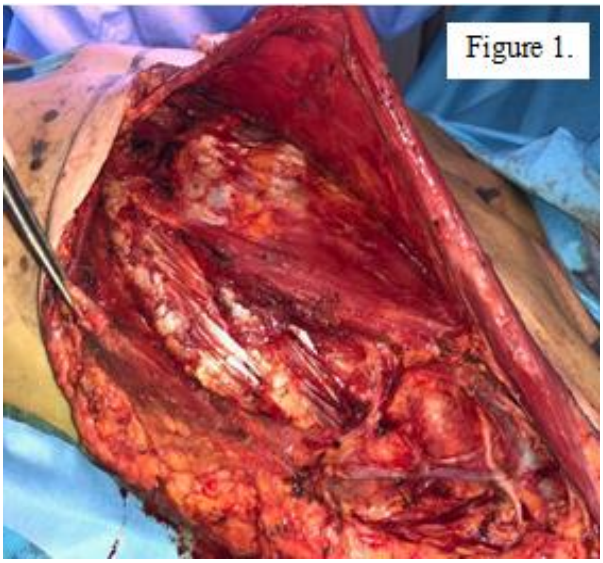
The initial laparoscopic exploration identified a tumoral mass (fixed) at rectosigmoidian junction which could not be separated from the posterior uterus by dissection. Material for extemporaneous pathology exam was prelevated. After several attempts of laparoscopic dissection conversion to open surgery was done. Pathology confirmation of malignancy was received, and an en-bloc Dixon resection with total hysterectomy and bilateral adnexectomy was performed.

The postoperative evolution was uneventful and the patient was discharged on day 6. The histopathology report staged a tumour as pT4N1M0 adenocarcinoma of the rectum with 3 of 16 lymph nodes with metastasis spread. In the meantime, the histopathology report of the breast biopsy revealed the presence of a synchronous no special type -NST breast carcinoma. The pathology report of the breast confirmed the presence of NST breast carcinoma, but immunohistochemistry in the tumour revealed luminal A profile (ER-90%, PgR-95%, cerB2-, ki67-10%).

After discussion in the MDT which included surgical oncology, medical oncology, plastic surgery and radiotherapy the decision to perform modified radical Madden mastectomy, ipsilateral axillary lymphadenectomy with breast reconstruction with retropectoral expander in the same intervention was taken.

Within six weeks, the patient started adjuvant chemo-radiotherapy for rectal cancer. For the synchronously operated breast cancer she received adjuvant hormone therapy (tamoxifen).

Six months after surgery there was no local recurrence identified on CT scan.



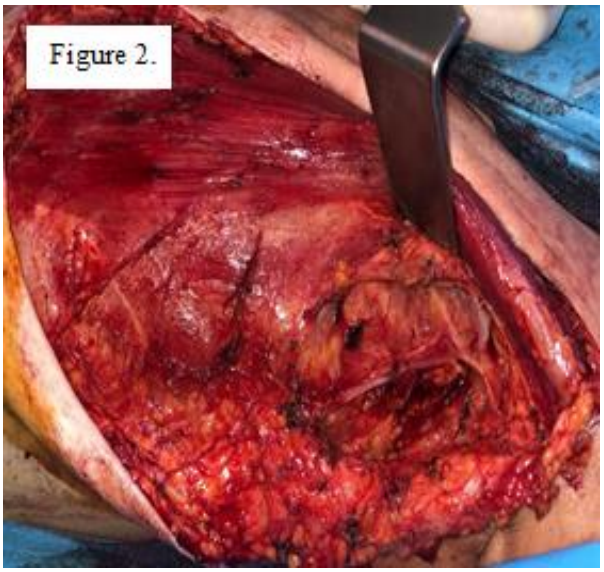


Figure 1 and 2. The aspect of the axila and pectoral muscle after mastectomy and axillary lymphadentectomy.

Discussions

Breast cancer is the most commonly occurring cancer in women and the second most common cancer overall. There were over 2 million new cases in 2018 (6).

Colorectal cancer is a significant cause of morbidity and mortality throughout the world. It accounts for over 9% of all cancer incidence. It is the third most common cancer worldwide and the fourth most common cause of death (7).

Any of these two neoplasms pose difficulties regarding treatment because they both can benefit from chemotherapy, radiotherapy, neoadjuvant therapy and adjuvant therapy. Having these two malignancies in the same patient, at the same time represent implies a big therapeutic challenge. No specific guidelines are present for treating these two simultaneously, so a compilation of the current recommendations has to be done. Clinical experience and a multidisciplinary approach are paramount.

The breast originates from the ectoderm during embryologic development while the colo-rectum derives from the endoderm thus the tumours are embryologically different and less likely to respond to the same treatment regimens (8).

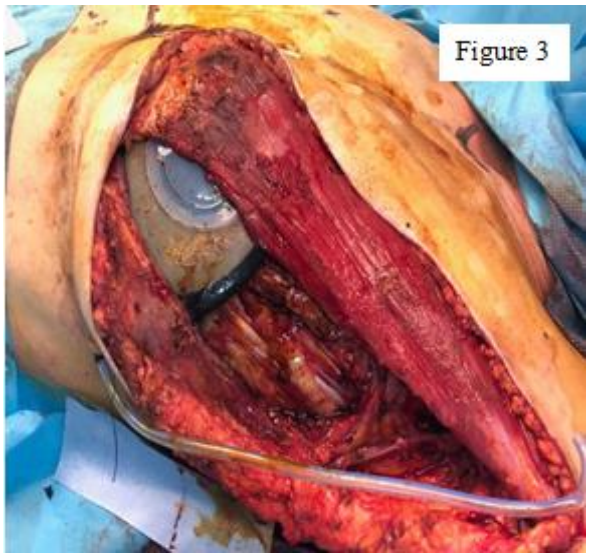


Figure 3 and 4 – reveal the expander placed under the large pectoral muscle which will be distended to ensure there will be enough skin for the breast reconstruction.

Due to the fact, there is no definite guideline regarding the treatment a step-by-step procedure was

undertaken during the multidisciplinary meetings. This case was especially difficult from the start due to the fact that the patient required emergency surgery for intestinal obstruction (without biopsy from the tumour) – thus neoadjuvant chemoradiotherapy could not be administered. The patient was young and did not have any other comorbidities so the postoperative evolution was swift.

After receiving the histopathology report for the breast biopsy and consultation with the plastic surgery department and oncology – the authors decided to perform modified Madden mastectomy because of the central location of the breast tumour, even if the size would have permitted a conservative approach. In Romania, sentinel lymph node biopsy is available only in a few centers with long waiting lists. In our patient, opting for this approach would have implied a long waiting time. These options were discussed with the patient and she opted for immediate surgery.

In this patient, rectal cancer was always considered the priority. After surgery, she received adjuvant chemoradiotherapy: a total dose of 50 Gy in 28 fractions was delivered to the pelvis. Adjuvant chemotherapy with FOLFOX VI regimen was then administered (9).

Conclusions

Given the fact that the breast tumour proved to be Luminal A in the operative specimen, adjuvant chemotherapy for breast cancer was not considered mandatory.

Therefore, tamoxifen 20 mg daily was proposed to the patient. Even if the patient was premenopausal at diagnosis, because bilateral oophorectomy was performed during surgery for the extensive rectal cancer, there was no need for luteinizing hormone-releasing hormone LHRH analogue.

Hormone administration will be maintained for a period of 10 years with a periodical evaluation. Switch to anastrozole will be discussed with the patient after 2-3 years (10, 11).

Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article, and there was no financial support that could have influenced the outcomes. The manuscript was read and approved by all authors.

Compliance with ethical standards

Any aspect of the work covered in this manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

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All authors had equal scientific contribution to this article and share first authorship.

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