

# Small bowel obstruction due to ductal breast cancer metastasis

Marta Reia, Guilherme Fialho, Hugo Capote, Amélia Coelho, Ilda Barbosa

## ABSTRACT

The most frequent sites of breast cancer metastasis are the bone, lung and liver. Metastasis to the gastrointestinal tract, central nervous system and adrenal glands are rare, the gastrointestinal tract more frequently with being affected by lobular breast cancer metastasis, and rarely by ductal breast cancer. The case reports a 52-year-old female patient, previously diagnosed with locally advanced ductal breast carcinoma - cT4N+M0, who received neoadjuvant chemotherapy, followed by modified radical mastectomy – ypT2N3aM0 – and adjuvant radiotherapy. During follow-up there were no signs of recurrence, but the patient experienced several episodes of sub-acute intestinal obstruction, which resolved with medical treatment. In 2017, January the patient had another intestinal obstruction, but this time a laparotomy was performed, and two small bowel metastasis were found, which were resected. The pathologic exam revealed metastasis from ductal breast cancer. In the article have we discussed

the patterns of breast cancer metastasis, with special consideration for gastrointestinal tract.

**Keywords:** Breast cancer, Diagnosis, Ductal breast cancer, Gastrointestinal metastasis

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## INTRODUCTION

Breast cancer is the most common cancer in women, with an incidence in Europe of 94, two cases per 100.000 individuals [1]. Approximately 75% of all metastases from breast cancer occur beyond the first five years of the diagnosis of early-stage disease [2]. The initial presentation in stage IV disease is found in about 5% of the cases [3].

The most frequent sites of breast cancer metastasis are the bone, lung and liver. Metastasis to the gastrointestinal tract, central nervous system and adrenal glands are rare, with the gastrointestinal tract more frequently affected by lobular breast cancer metastasis, and rarely by ductal breast cancer [4]. In this case report, we report a rare case of intestinal metastasis due to ductal breast cancer.

## CASE REPORT

We report the case of a 52-year-old female patient, with past medical history of epilepsy and cognitive

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deficit, previously diagnosed in September, 2014 with locally advanced ductal breast carcinoma, triple negative, poorly differentiated (G3), Ki-67 80%, E-cadherin immunoexpression positive, clinically staged as cT4N+Mo (skin invasion). The patient went neoadjuvant chemotherapy, with a favourable response to the treatment (downsize and downstage), followed by modified radical mastectomy in February, 2015. The pathologic analysis confirmed the invasive tumor, ductal type, triple negative, G3, Ki-67 80%, with lymphovascular invasion. Twenty-one lymph nodes were isolated, with metastatic invasion of 19 nodes. The pathologic staging was ypT2N3a. This case was discussed by multidisciplinary group, and the patient underwent adjuvant radiotherapy (homolateral thoracic wall, supraclavicular and axillary regions). During follow-up, there were no signs of recurrence, but the patient experienced several episodes of sub-acute intestinal obstruction, which resolved with medical treatment. There was the need for hospital admission in two of these episodes, although with successful resolution with medical treatment. In January, 2017 the patient had another intestinal obstruction, two days after hospital discharge. In the complementary exams, there were found signs of a mechanic cause for the obstruction (Figures 1 and 2), so a surgery was purposed, and consented.

A laparotomy was performed, and two small bowel metastasis were found: one with total obstruction of the small bowel, and the other (smaller one) without obstruction. A segmentar enterectomy was performed for the bigger metastasis – with a manual end-to-end anastomosis - and a patch resection with transversal enterorrhaphy for the smaller one. No hepatic or peritoneal metastasis were detected. The post-operative period went without complication, with normal evolution, and the patient was discharged on the seventh day after the surgery. The pathologic exam of the resected specimens revealed metastatic tissue from ductal breast cancer for both lesions. The Estrogen and Progesterone receptors were negative, as well as HER2 status (triple negative), with positive E-cadherin immunoexpression (Figure 3) and CK-19 (Figure 4). The patient was re-staged with breast ultrasound, mammography, thoraco-abdomino-pelvic computed tomography (CT) scan and fluorodeoxyglucose-positron emission tomography (FDG-PET CT). The breast ultrasound and CT scan showed no metastasis but the FDG-PET CT detected metastatic focuses in homolateral supra-clavicular nodes, homolateral axillary nodes, soft tissues of the arm and another one in the vertebral body of L2 (Figure 5). After multidisciplinary discussion, it was decided to go adjuvant treatment with chemotherapy, but her family refused due to her mental complications. The medical group decided radiotherapy treatment. The patient remains signs of disease progression, during follow-up.



Figure 1: Abdominal X-ray (Tangential rays): air-fluid levels.

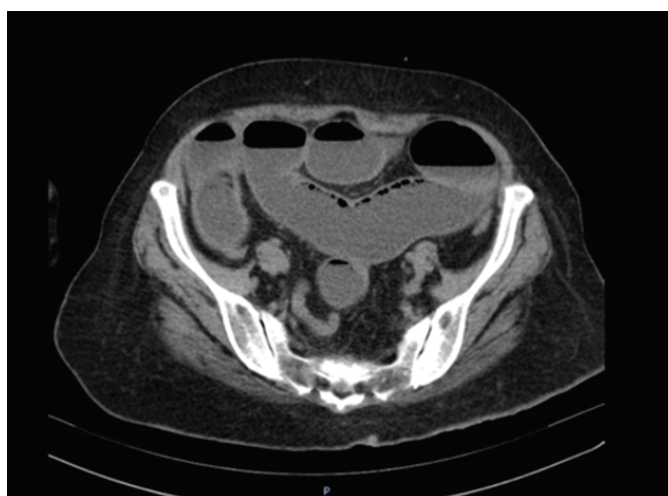


Figure 2: Computed tomography scan: dilated small bowel, and normal sized colon.

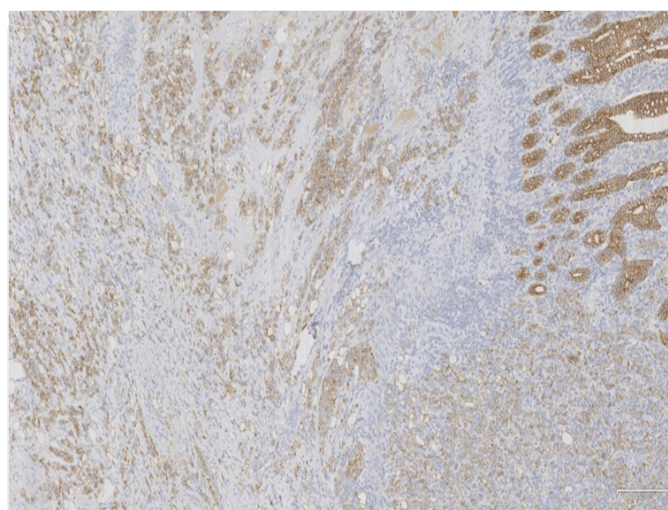


Figure 3: E-cadherin immunoexpression positive.

## DISCUSSION

The most frequent sites of metastasis are the lymph nodes, lung, pleura, bone, soft tissue, liver, suprarenal glands and brain [2]. The gastrointestinal metastasis



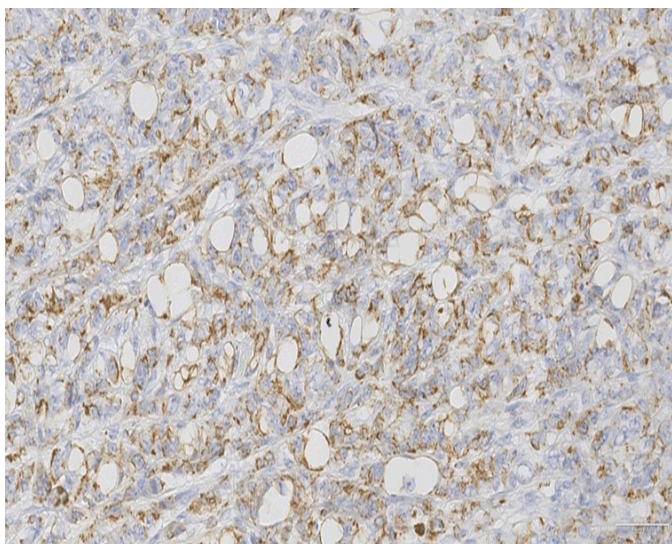


Figure 4: CK 19 positive.

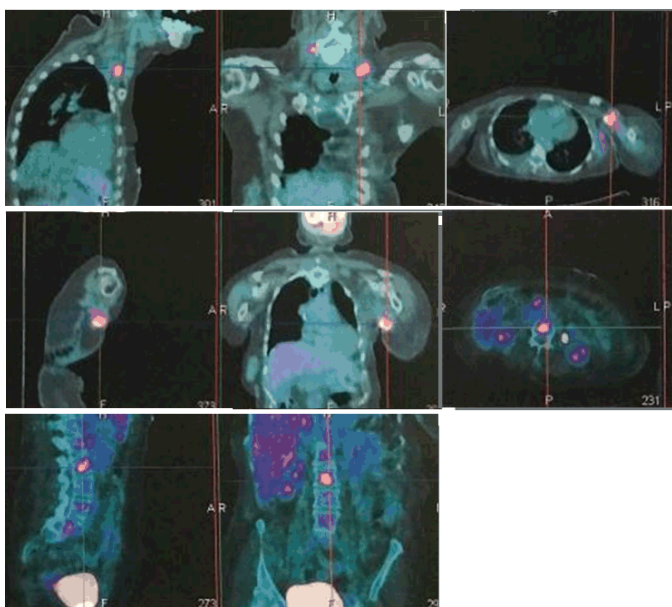


Figure 5: FDG-PET-CT: Metastatic foci in homolateral supra-clavicular nodes, homolateral axillary nodes, soft tissues of the arm and in the vertebral body of L2.

occurs rarely in these patients, and when it happens the complaints may be quite unspecific, and interpreted as other more frequent benign clinical conditions, or may lead to think about primary colorectal or bowel carcinomas [4, 9]. The most common location in the gastrointestinal tract for metastasis is not clear, with several studies documenting different values for each gastrointestinal organ. In a Mayo Clinic study from 2005 [5], of 73 patients with breast cancer, reviewed retrospectively from 1985–2000, which was diagnosed at 0.6% to the gastrointestinal tract and peritoneal. For the gastrointestinal tract, the distribution of the the metastasis was 8% for esophagus, 28% of stomach, 19%

in the small bowel, and 45% in the colon and rectum. In a study from Cifuentes et al. [6] involving 707 autopsied patients with metastatic breast cancer, to determine the pattern of metastatic spreading of the disease, detected the presence of intestinal metastasis in up to 16%. The stomach was involved in 10% of the cases, small bowel in 9%, colon in 8% and peritoneum in 25%. In another paper, reviewing the literature about the sites of gastrointestinal breast cancer metastases, the stomach involvement was reported to be 60% of the cases, followed by esophagus (12%), colon (11%) and small intestine (8%) [7]. In general, ductal and lobular carcinomas can metastasize to the same sites, but the gastrointestinal involvement is more frequent in the lobular subtype (4.5%), with a lesser number of cases described for the ductal subtype (0.2%) [4, 8]. The reason for this is nuclear, but some authors think this could be related to a particular tropism of lobular cells [5, 9]. In the scenario of breast cancer metastasis, it is recommended by the International Guidelines for the re-staging of the disease, by an individualized approach [10]. This evaluation is made by symptoms assessment, physical examination, performance status, complete blood tests with alkaline phosphatase, mammary ultrasound, mammography, thoraco-abdomino-pelvic CT scan, Positron Emission Tomography (PET), Computed Tomography (CT) and bone scan. If there are neurological symptoms a brain or vertebral MRI can be used as a diagnostic tool [10]. For gastrointestinal symptoms, according to the presentation, an endoscopic or endoscopic ultrasonography (if indicated, with biopsy), could help to identify the cause of the complaints [7]. It is recommended also that the hormonal and HER2 status of the metastatic focus be characterized, after biopsy, whenever it is possible, to better define if the metastases are related to the primary tumor (or if we are in the presence of a new one), and to better select the appropriated treatment [10].

### Clinical practice points

- A 52-year-old white woman with multiple intestinal subocclusive episodes, in one-year time-span.
- Previous medical history with locally advanced ductal breast cancer - cT4N+Mo -, undergone neoadjuvant treatment, followed by modified radical mastectomy, and adjuvant radiotherapy, two years before.
- Because of the recurrent occlusive episodes, a laparotomy was performed, and two obstructive lesions of the small bowel were found and resected; the histology of these lesions revealed metastatic tissue from ductal breast cancer.
- Metastasis to the gastrointestinal tract from ductal breast cancer subtype is a very rare site of metastasis (0,2%), being this pattern more attributable to the lobular subtype (4,5%).
- Metastasis to the gastrointestinal tract is oftenly accompanied by other metastatic focuses.

- The treatment of the gastrointestinal metastasis varies according to the location in the gastrointestinal tract, and the presenting symptoms.
- The survival depends also on the hormonal and Her2 status from the primary tumor, and from the metastasis.

## CONCLUSION

Gastrointestinal metastasis from ductal breast cancer subtype is a very rare site of metastasis of breast cancer, oftenly non-symptomatic, and frequently associated with other metastatic focuses. Despite its documented rarity, all care providers should be alert for the vague gastrointestinal symptoms, most commonly nausea/vomiting, obstruction and/or bleeding, which could be sentinel clues for gastrointestinal metastasis.

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## Author Contributions

Marta Reia – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guilherme Fialho – Substantial contributions to conception and design, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Hugo Capote – Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Amélia Coelho – Acquisition of data, Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Ilda Barbosa – Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

## Guarantor of Submission

The corresponding author is the guarantor of submission.

## Source of Support

None

## Consent Statement

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

## Conflict of Interest

Authors declare no conflict of interest.

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