



Case report

Gastric metastasis from breast cancer in male patient - Case report and literature review

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ABSTRACT

Introduction: Male breast cancer has a low incidence, and its metastases are considered even rarer and a sign of seriousness for the patient. Breast metastases are difficult to diagnose even in female patients, with few cases of gastric metastasis described in the current literature.

Presentation of case: Male patient, 54 years old, obese, diagnosed with breast cancer for 8 years, underwent 5 years of cancer follow-up. After this period, he began to experience epigastric pain and weight loss, among other symptoms. Endoscopy was performed, showing rounded elevated lesions with central depression. After anatomopathological and biochemical tests, a diagnosis of differentiated carcinoma as a metastasis of breast origin was concluded.

Discussion: MBC is rare when compared to the incidence in females. Its risk factors differ between genders, and due to its rarity, there are few studies in the male population. This fact makes the evaluation of metastases more difficult. Gastric metastasis has a very low incidence even in women, approximately 8.9% of all breast cancer metastasis's locations. Other pathologies can mimic GM, always associating anatomopathological and biochemical tests. Oncological follow-up must always be carried out, and the possibility of screening must be evaluated.

Conclusion: Despite the rare incidence and little information in the literature, the association between MBC and GM should be considered. Currently, there is no guidance for conducting systematic screenings and treatment is usually palliative due to the severity of the disease.

1. Introduction

Male breast cancer (MBC) has a very small worldwide incidence, corresponding to less than 1% of cases in both sexes. Distant metastases usually occur in the lungs, liver, bones, and soft tissue in the total population, and generally require palliative treatment as a consequence of case severity [1].

In females, stomach metastasis is uncommon and of very difficult diagnosis. In males, despite the similar etiology and risk factors, such as age and obesity, not many gastric metastasis (GM) cases have been observed in previous publications [2].

Here we present a case of gastric tumor secondary to breast cancer in a male patient and its diagnostic difficulties. This case follows 2020

SCARE guidelines for reporting of cases in surgery [3].

2. Presentation of case

A male, 54-year-old, hypertensive, obese patient diagnosed with left breast cancer for eight years, who underwent left radical mastectomy, radiotherapy, and chemotherapy in the year of diagnosis. He remained under oncology follow-up for 5 years but was asymptomatic during this period. After this period, he started presenting diarrhea, epigastric pain, episodes of fever, loss of appetite, and weight loss. He denies other symptoms.

A diagnostic investigation through colonoscopy and endoscopy was performed. Colonoscopy did not show any changes. Results of the

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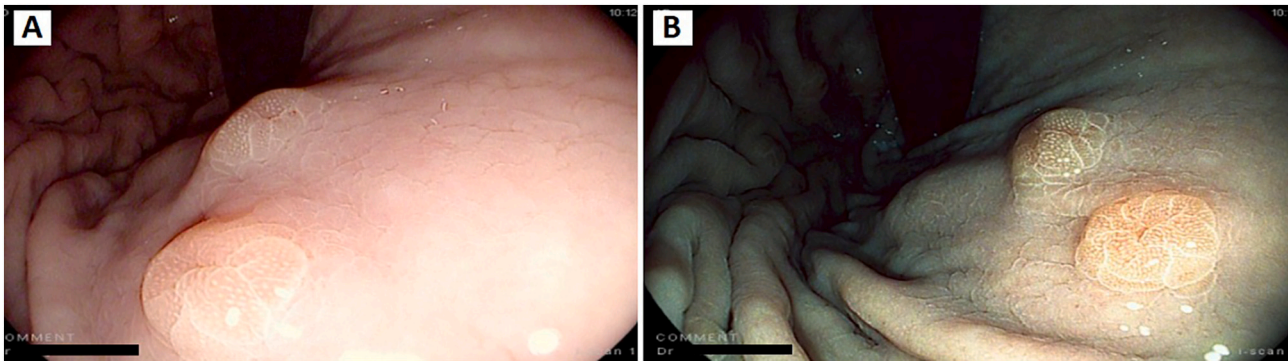


Fig. 1. Digestive endoscopy image, showing elevated gastric lesions (A), and with digital chromoscopy (B).

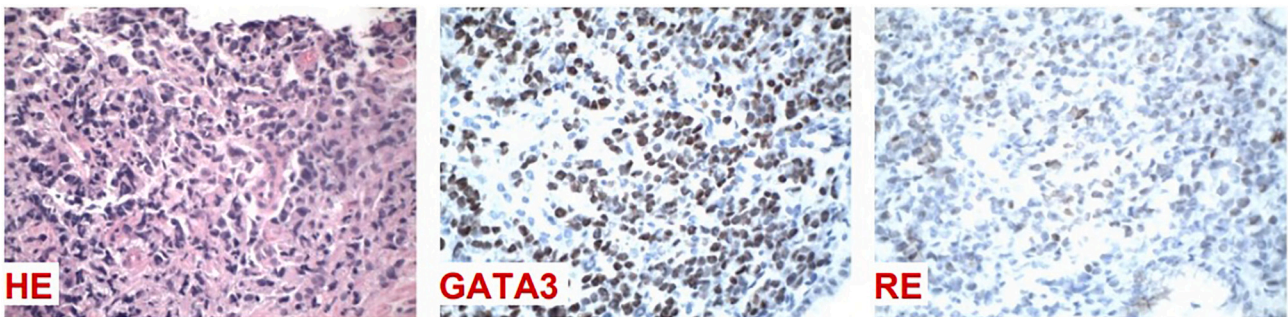


Fig. 2. Gastric mucosa infiltrated by malignant neoplasm composed of loosely cohesive cells (HE). Cytokeratin positivity indicates the epithelial origin of the neoplasm with positivity for GATA-3 and estrogen receptor (RE).

endoscopic examination revealed rounded elevated lesions with central depression, scattered across the cardia, body and gastric fundus, with the largest ones of about 6 mm, whitish surface with oval and tubular crypt pattern, with no changes in gastric fold architecture (Fig. 1). The lesions were classified as Paris 0-IIa + IIc. Biopsies of the gastric lesions were performed, and the anatomopathological results showed gastric mucosa infiltrated by poorly differentiated carcinoma, composed of little cohesive cells, positive for cytokeratin, indicating that the neoplasm was of epithelial origin. Immunohistochemistry (IHC) was positive for the ES05, AE1/AE2 and L50-823 antibodies. The findings favored the mammary origin of the lesion, showing metastasis from the mammary tumor to the stomach (Fig. 2).

Unfortunately, the patient evolved with worsening of the condition, requiring care in the urgency and emergency services, evolving to death 2 months after the diagnosis of gastric metastasis.

3. Discussion

MBC is considered a rare disease when compared, in numbers, with female breast cancer. Recent studies have shown that the incidence of cases in men does not exceed 1% [4]. It is believed that predisposing factors and etiology, such as genetic factors, high estrogen level, obesity and Klinefelter syndrome, are similar in both sexes [1]. In men, there is an association between castration due to treatment of other diseases and predisposition to breast cancer [4,5]. Due to the low frequency of MBC cases, there is a lack of studies addressing this disease conducted with large samples, which hinders the assess to its etiology and risk factors.

One of the first relevant studies about MBC presented little information on distant metastases. Currently, the most affected sites in the female population are the bones, lungs, liver, and soft tissue [2]. The incidence of GM is low in studies of general populations, reaching 8.9% among all metastasis sites originating from breast cancer [6]. However, due to the rarity of the relationship between breast cancer and its metastasis in male patients, this association was observed in only two

cases. One of the cases reported an old patient with a terminal condition of breast cancer with multiple metastases, not only to the stomach, but also to pulmonary and pleural tissue, who died of pulmonary insufficiency [7]. In another case reported, the male patient evolved with severe hemorrhage due to gastric metastasis, causing his death [8]. Continuous monitoring of patients through oncological screening for possible metastases after resection of the primary tumor is the standard approach to avoid these outcomes.

Dyspeptic symptoms, such as epigastric and abdominal pain, heartburn and dysabsorption, in patients with risk factors for this neoplasia indicate endoscopic investigation [1]. When there is association with other neoplasms or previous treatment, as in the aforementioned report, distant metastasis is suggested as a diagnostic hypothesis [9]. Despite being objective, recent studies have shown that only 48% of metastatic tumors in the gastrointestinal tract had metastasis as a hypothesis at the beginning of the clinical investigation, hindering assessment and prognosis in these cases [10].

GM mimicking other primary tumors of the stomach is another hindering factor. Endoscopic evaluation in women shows that the gastric tumor can take on different aspects, such as verrucous and varioliform gastritis, or even linitis plastica [7,11]. Due to the hematogenous and lymph node nature of breast cancer metastases, installation in the subserous and submucous layers tends to be more common [7].

Another relevant detail is the incidental finding of GM. In cases where breast cancer has not been evaluated or diagnosed, finding a gastric tumor can lead to incorrect diagnosis of primary neoplasm [12]. However, this scenario tends to be very rare. Immunohistochemistry can assist with differentiating between metastasis and primary tumor, since the histopathological evaluation is similar between these cases. Immunohistochemistry also assists with confirming whether there is a relationship between tumors [13].

Unfortunately, the prognosis of patients with distant metastases is complex. Most of these patients present advanced conditions and no possibility for curative treatment, even those who previously underwent

surgical resection, as in this case report [14]. Whenever possible, small tumors should be excised with a safety margin, but biopsy associated with IHC should always be performed [10]. Resection of larger tumors can be considered only in cases where there is a life-threatening factor for the patient, such as intestinal obstruction. Systemic therapy should be considered in these cases, especially if there is need for palliation [13].

4. Conclusions

Association between male breast cancer (MBC) and gastric metastasis (GM) is extremely rare, and there is lack of information or research to evaluate it. Despite being similar to female breast cancer, MBC can present peculiarities and differences in tumor spread. Biopsy of the metastatic lesion should always be performed, even if there is no possibility of curative resection, for further immunohistochemical analysis, which is essential for association with the primary tumor. The endoscopic finding was extremely important and we emphasize that the earliest finding of metastasis is the most important for the patient's prognosis. Systemic and palliative treatment should also be considered for these patients because of disease progression and probable tumor without prognosis. We hope that this report will stimulate specific studies of this disease in men, despite the rarity of the metastasis found.

Ethical approval

As the manuscript is not a research study, we only have the family consent for writing and others forms of publication. Also, the ethical approval for this case reports has been exempted by our institution.

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CRedit authorship contribution statement

Joanna Cohen and Juan Rodriguez made contributions to conception and design. Collected the patient details and wrote the paper. Juan Rodriguez, Tiago Cardoso made contributions to patient management. Tiago Cardoso and Douglas Dias critically revised the article. All authors read and approved the final manuscript.

Guarantor

Tiago Magalhães Cardoso

Research registration

N/A

Informed consent

Written informed consent was obtained from the patient and family

for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

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Declaration of competing interest

This report does not present conflicts of interest by the authors.

References

- [1] W.F. Anderson, I. Jatoi, J. Tse, P.S. Rosenberg, Male breast cancer: a population-based comparison with female breast cancer, *J. Clin. Oncol. Off. J. Am. Soc. Clin. Oncol.* 28 (2010) 232–239, <https://doi.org/10.1200/JCO.2009.23.8162>.
- [2] M. Kita, M. Furukawa, M. Iwamuro, K. Hori, Y. Kawahara, N. Taira, T. Nogami, T. Shien, T. Tanaka, H. Doihara, H. Okada, Breast cancer metastasis to the stomach that was diagnosed after endoscopic submucosal dissection, *Case Rep. Gastrointest. Med.* (2016), 2085452, <https://doi.org/10.1155/2016/2085452>.
- [3] for the SCARE Group, R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, The SCARE 2020 guideline: updating consensus Surgical Case Report (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230, <https://doi.org/10.1016/j.ijssu.2020.10.034>.
- [4] N. Treves, A.I. Holleb, Cancer of the male breast; a report of 146 cases, *Cancer* 8 (1955) 1239–1250, [https://doi.org/10.1002/1097-0142\(1955\)8:6<1239::aid-cncr2820080622>3.0.co;2-e](https://doi.org/10.1002/1097-0142(1955)8:6<1239::aid-cncr2820080622>3.0.co;2-e).
- [5] J.R. Weiss, K.B. Moysich, H. Swede, Epidemiology of male breast cancer, *Cancer Epidemiol. Biomarkers Prev.* 14 (2005) 20–26.
- [6] H. Kimura, S. Kinoshita, I. Takahashi, Gastric metastases from accessory breast cancer, *Gastrointest. Endosc.* 56 (2002) 566–567, <https://doi.org/10.1067/mge.2002.127150>.
- [7] A. Yamaguchi, M. Hirano, N. Kamimura, O. Kim, J. Watanabe, K. Kinoshita, K. Kimura, T. Domoto, K. Shimizu, M. Ogawa, Fujibayashi, gastric metastasis of breast cancer in a male patient: report of a case, *Ann. Cancer Res. Ther.* 17 (2009) 36–39, <https://doi.org/10.4993/acrt.17.36>.
- [8] H.L.J. Davis, R.K. Murray, B.C. Korbitz, Breast carcinoma metastatic to the stomach. Report of a case in a male and review of an autopsy series, *Am. J. Dig. Dis.* 13 (1968) 868–873, <https://doi.org/10.1007/BF02237571>.
- [9] S.I. Kaylıoğlu, C. Akyol, E. Esen, C. Cansız-Ersöz, A.F. Kocaay, V. Genç, İ. Kepenekçi, S. Demirel, Gastric metastasis of ectopic breast cancer mimicking axillary metastasis of primary gastric cancer, *Case Rep. Gastrointest. Med.* (2014), 232165 <https://doi.org/10.1155/2014/232165>.
- [10] M.M. Gilg, H.-P. Gröchenig, A. Schlemmer, A. Eherer, C. Högenauer, C. Langner, Secondary tumors of the GI tract: origin, histology, and endoscopic findings, *Gastrointest. Endosc.* 88 (2018) 151–158.e1, <https://doi.org/10.1016/j.gie.2018.02.019>.
- [11] P.Guturu Malhotra, M.S. Basim, G.S. Raju, A rare case of breast cancer metastasis presenting as linitis plastica of the stomach and colon (with videos), *Gastrointest. Endosc.* 70 (2009) 552–553, <https://doi.org/10.1016/j.gie.2009.04.029>.
- [12] T. Kudo, T. Matsumoto, S. Nakamura, S. Nakamura, M. Esaki, S. Yada, M. Hirahashi, T. Yao, M. Iida, Solitary minute metastasis from breast cancer mimicking primary intramucosal gastric signet-cell cancer, *Gastrointest. Endosc.* 62 (2005) 139–140, [https://doi.org/10.1016/s0016-5107\(05\)00514-6](https://doi.org/10.1016/s0016-5107(05)00514-6).
- [13] N. Trouillet, B. Robert, S. Charfi, E. Bartoli, J.-P. Joly, D. Chatelain, Gastric metastases. an endoscopic series of ten cases, *Gastroenterol. Clin. Biol.* 34 (2010) 305–309, <https://doi.org/10.1016/j.gcb.2010.01.019>.
- [14] G.H. Kim, J.Y. Ahn, H.-Y. Jung, Y.S. Park, M.-J. Kim, K.D. Choi, J.H. Lee, K.-S. Choi, D.H. Kim, H. Lim, H.J. Song, G.H. Lee, J.-H. Kim, Clinical and endoscopic features of metastatic tumors in the stomach, *Gut Liver.* 9 (2015) 615–622, <https://doi.org/10.5009/gnl14032>.