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*RESEARCH ARTICLE*

# BILATERAL BREAST METASTASES OF RECTAL ADENOCARCINOMA: CASE REPORT AND REVIEW OF THE LITERATURE

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## *Abstract*

Breast metastasis from extramammary neoplasm is rare and with poor prognosis. A 25-year-old patient presented with a lump in her right breastthree months after concurrent chemoradiotherapy for an IIc stage rectal adenocarcinoma (T4bN0M0) and during her neoadjuvant chemotherapy with FOLFOX. The investigationsconfirmeda bilateral breast metastasis of rectal adenocarcinoma.



## Introduction:-

Metastases from rectal cancer to multiple organs have been reported either as synchronous or metachronous lesions(1). The breast is an uncommon site for metastasis from other malignancies.Extramammary malignant neoplasms metastasize to the breast at a rate of approximately 0.3–2.7% among all malignant mammary tumors(2).

Herein, we report a case of bilateral breast metastasis of rectal adenocarcinoma and review the literature.

**Case Report:**

Our patient is a 25-year-old female with no previous medical history. The symptoms began four months before her consultation in our department for rectal bleeding,anal pain and constipation.

She consulted a gastroenterologist where she underwent a colonoscopy with biopsy. An abdominopelvicMRI was requested.

The colonoscopy showed at eight cm from the anal margin on the left lateral rectal wall a five cm long, non-stenosing ulcerating tumor. Biopsy of the tumor revealed a poorly differentiated, infiltrating rectal adenocarcinoma.

Abdominopelvic MRI found a parietal thickening of the anterior wall of the mid and upper rectum extended to the recto-sigmoid junction, measuring 32 x50 mm. The tumor is six cm from the anal margin and extends to the fascia recti and focally invades the cervico-isthmic region of the uterus.no evidence of lymphadenopathy.CT scan of the chest; showed no abnormalities: T4bN0M0 stage IIc.(figure 1)

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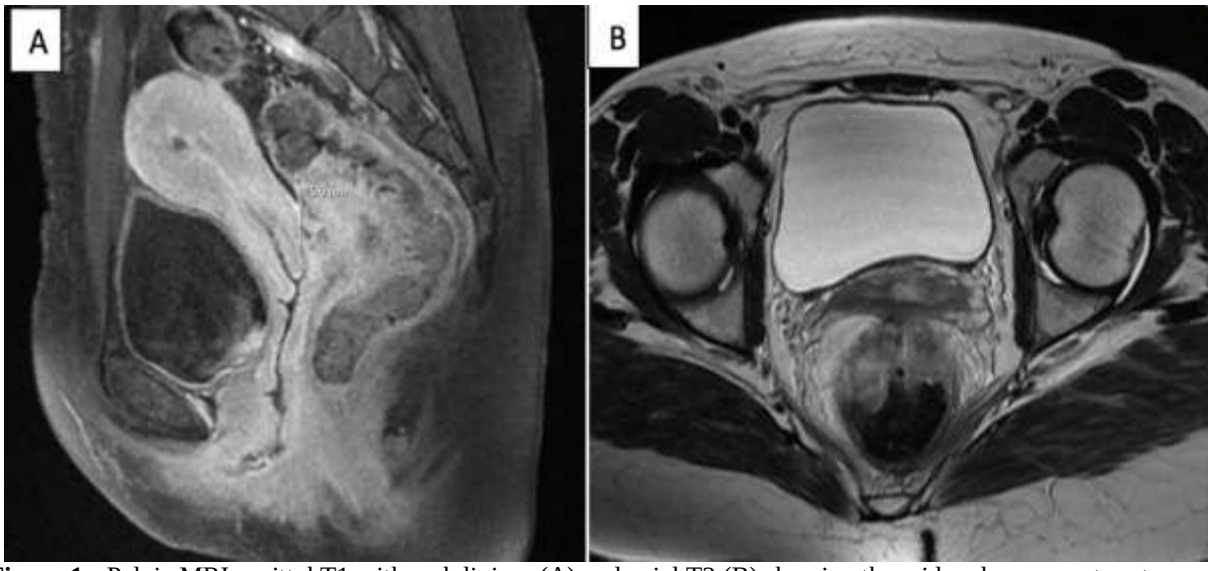


**Figure 1**:- Pelvic MRI sagittal T1 with gadolinium (A) and axial T2 (B) showing the mid and upper rectum tumour

The case was discussed by the multidisciplinary tumor (MDT) board and the decision was a total neoadjuvant treatment with concurrent radio-chemotherapy (Cap 50): 46 Gy on the pelvis + boost of 4 Gy with a concomitant chemotherapy (capecitabine 825mg/m2/12h during the days of radiotherapy) and then a neoadjuvant chemotherapy with FOLFOX (Oxaliplatin, Folinic acid and 5-fluorouracil).

She was scheduled for a total dose of 50 Gy of RT in 25 fractions, at a daily dose fraction of 2 Gy over five weeks with conformal 3D radiotherapy. We were able to keep the tolerance doses of the organs at risk within normal limits and, at the same time, deliver the intended dose of radiation to the target volumes.(figure 2)

She was able to receive her concurrent radio chemotherapy (CCRT) as planned and was seen weekly with good tolerance, with no side effects noted except for grade 2 diarrhea.

**Figure 2:-** Disposition of multiple 3DRT beams and dosimetry images in the 3 planes of the 95% isodose conforming to PTV (in blue).

Three months after CCRT, and during her FOLFOXtreatment our patient noticed a lump in her right breast. Breast echo mammography revealed lesions in both breasts: 12 mm on the right and 8 mm on the left, rated ACR4. (figure 3)

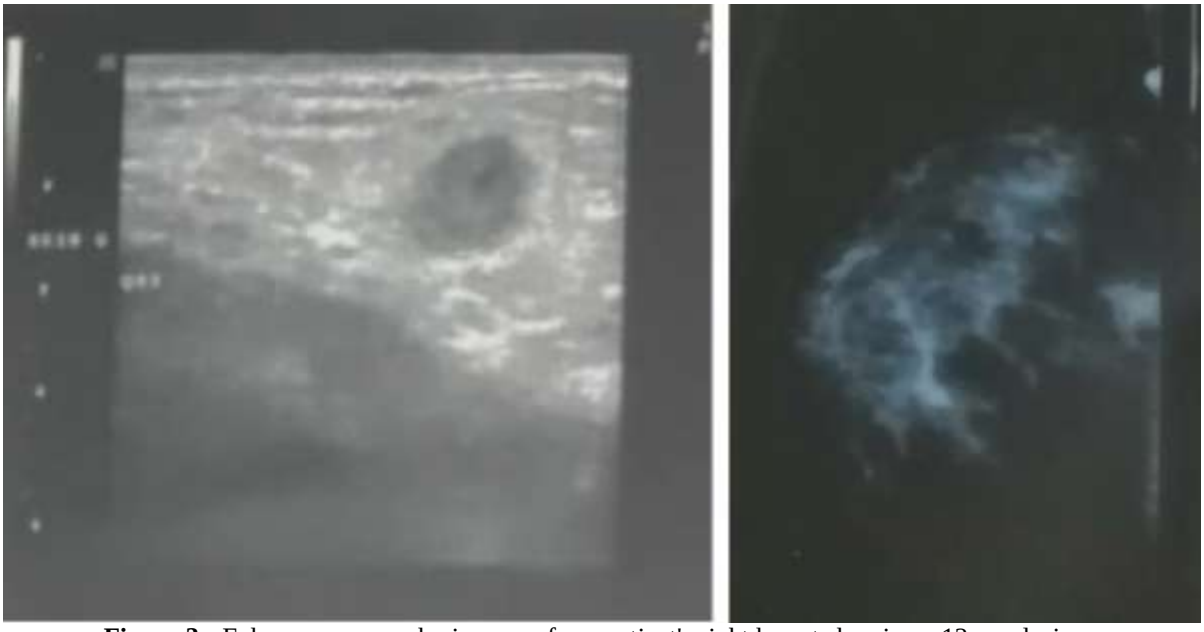

**Figure 3**:- Echo mammography images of our patient's right breast showing a 12 mm lesion.

Bilateral core biopsy reported a mucinous cell carcinoma GATA3-, CDX2+, CK7-, ER-, PR-, HER2-, and Ki67 70%. (figure 4)

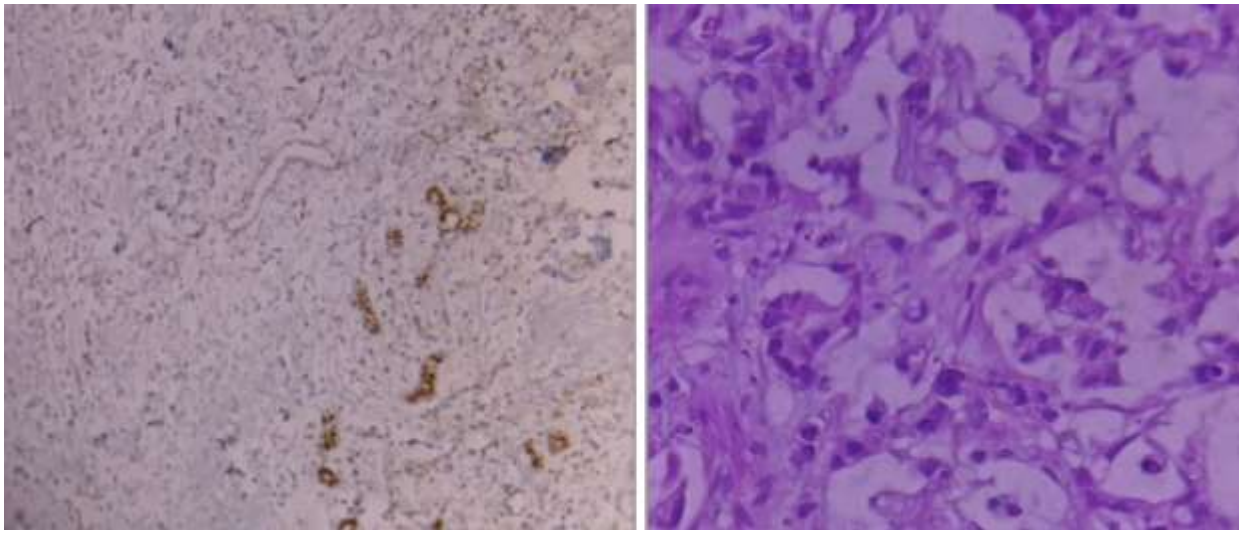

**Figure 4**:- Pathological images of the breast core biopsy.

The case was re-discussed by theMDTboard, the diagnosis of rectal metastasis was confirmed and she will undergo a PET CT scan and analysis of KRAS status rectal biopsy specimen. She is being followed up by oncology department.

## Discussion:-

Colorectal cancers metastasize most frequently to regional lymph nodes and then the liver, lungs and bones. Metastases to the breast from extramammarycarcinomas are extremely rare. In about 25 – 40% of cases, the breast lesion is the initial manifestation of the disease(3). Metastases from colon to breast was first reported by McIntosh and from rectum by Lal in 1999(4).

Fragments of cellular genome may be released into the bloodstream and taken up by white blood cells. The fragments of genetic material may be passed to other cells in the reticulo-endothelial system and possibly to other normal cells, leading to the development of cancer cell phenotypes in unexpected locations.(3)

These metastatic lesions must be differentiated from primary breast tumors on the basis of history, clinical, radiological features, morphology of tumor and immunohistochemistry. The majority of breast adenocarcinomas are negative for CDX2 andCK20 and positive for CK7, whilecolorectal adenocarcinomas are positive for CDX2 and CK20, andnegative for ER, PR, HER2, and CK7(5).

Breast lesionsare characterized as rapidly growing, with the predominance of theleft breast. It is rare to find patients with bilateral or multiplelesions.(6)

The management plan of rectal metastases to the breast isextremely complex and depends on many factors such as age, clinical characteristics of breast mass, presence of metastasesinanothersite such as liver or lung, and general condition of the patient(5)

In previous cases, surgical excision with negative margins or excisional biopsy has been shown to be effective in treating solitary nodules within the breast.

With the introduction of ant-epidermal growth factor receptor (EGFR) therapies targeting EGFR transduction cascade, treatment options for patients with metastatic colorectal cancer have changed considerably.

In metastatic colorectal cancer(mCRC) treatment, KRAS genotyping is mandatory before undertaking (EGFR) monoclonal antibody therapy. KRAS mutations have been identified as a reliably strong negative predictive factor for anti- EGFR monoclonal antibody therapies in mCRC patients.(7)

## Conclusion:-

Metastases to the breast are extremely rare especially bilateral or multiplelesions. Pathologic examination and considering known clinical history may be helpful to differentiate the primary breast cancer and metastatic cancer.

Metastatic disease from the rectum to unusual sites carries substantially poor prognosis and indicates disseminated metastatic disease.Since our patient has bilateral breast metastases, she is most likely to receive systemic treatment.

**Consent**:

The examination of the patient was conducted according to the Declaration of Helsinki principles.

**Conflicts of interest:**

The authors do not declare any conflict of interest

## Bibliography:-

1. Rare case of breast tumor secondary to rectal adenocarcinoma - PubMed. Disponible sur: https://pubmed.ncbi.nlm.nih.gov/18791504/
2. Characteristics of metastasis in the breast from extramammary malignancies - Lee - 2010 - Journal of Surgical Oncology - Wiley Online Library. Disponible sur: https://onlinelibrary.wiley.com/doi/10.1002/jso.21453
3. Breastmetastasesfrom colorectal carcinoma - ScienceDirect [Internet]. [cité 6 avr 2023]. Disponible sur: https://www.sciencedirect.com/science/article/pii/S0960977603001255
4. Li HC, Patel P, Kapur P, Huerta S. Metastatic rectal cancer to the breast. Rare Tumors. 22 juill 2009;1(1):e22.
5. Arnaout K, Hawa N, Agha S, Kadoura L, Aloulou M, Ayoub K. A case report of multiple bilateral breast metastases after colorectal cancer. International Journal of Surgery Case Reports. 1 avr2021;81:105759.

6. Vergier B, Trojani M, de Mascarel I, Coindre JM, Le Treut A. Metastases to the breast: differential diagnosis from primary breast carcinoma. J Surg Oncol. oct 1991;48(2):112‑6.
7. Unexpected destination! Rectal carcinoma metastasis to breast - PMC.Disponible sur: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6416825/