



## Isolated Duodenal Carcinoma from Ductal Breast Carcinoma with 7 Years of Latency

Prashant Deo Ranjan<sup>1\*</sup>, Neeraj Saxena<sup>1</sup>, Devadatta Poddar<sup>1</sup> and Akash Kumar<sup>1</sup>

<sup>1</sup>Department of Surgery, Atal Bihari Vajpayee Institute of Medical Sciences, Dr. RML Hospital, New Delhi, India.

### Authors' contributions

This work was carried out in collaboration among all authors. Author PDR designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors NS and DP are the operating surgeons. Authors NS and DP managed the analysis of the study. Author AK managed the literature searches. All authors read and approved the final manuscript.

### Article Information

#### Editor(s):

(1) Dr. Ashish Anand, GV Montgomery Veteran Affairs Medical Center, USA.

#### Reviewers:

(1) Niazvand Firoozeh, Abadan University of Medical Sciences, Iran.  
(2) Elizaveta Mitkina Tabaksblat, Aarhus University Hospital, Denmark.  
Complete Peer review History: <http://www.sdiarticle4.com/review-history/67826>

Case Study

Received 05 March 2021

Accepted 11 May 2021

Published 15 May 2021

## ABSTRACT

Advanced Breast cancer mostly metastasizes to the bone, liver and lungs. Metastatic to the duodenum from the primary breast cancer is extremely rare and encountered only after occurrence of symptoms. Diagnosis is only confirmed by histopathology and Immunohistochemistry. However lobular cancers of breast are mostly associated with serosal metastasis to pleura and abdomen but here, we report a rare case of isolated duodenal carcinoma from ductal breast carcinoma with 7 years of latency without taking the adjuvant chemotherapy and radiotherapy.

*Keywords: Isolated duodenal carcinoma; breast carcinoma; immunohistochemistry.*

## 1. INTRODUCTION

Breast cancer is a major public health problem for women throughout the world. Worldwide,

breast cancer is the most frequently diagnosed cancer and leading cause of cancer death among females accounting for 25% of cancer cases and 15% of cancer deaths [1]. Cancer of

\*Corresponding author: E-mail: [prashantdevranjan@gmail.com](mailto:prashantdevranjan@gmail.com);

breast with estimated 1.5 lakh new cases during 2016, is the number one cancer overall [2]. For every 2 women newly diagnosed with breast cancer, one woman dies of it in India.

Metastatic breast cancer is defined by tumor spread beyond breast, chest wall and ipsilateral regional lymph nodes. The most common sites for breast cancer metastasis include the bones, lung, liver, lymph nodes, chest wall and brain [3]. However, case reports have documented breast cancer dissemination to almost every organ in the body with GI involvement in less than 10%. However, the metastasis of breast IDC to the duodenum is very rare, and only a few cases have been reported in English literature [4]. Moreover, the vast majority of the reported cases were ILCs. Hormone receptor positive tumors are more likely to spread to bone as the initial site of metastasis therefore duodenal metastasis from primary breast cancer is mostly hormone receptor negative and her2neu positive tumors.

## 2. CASE REPORT

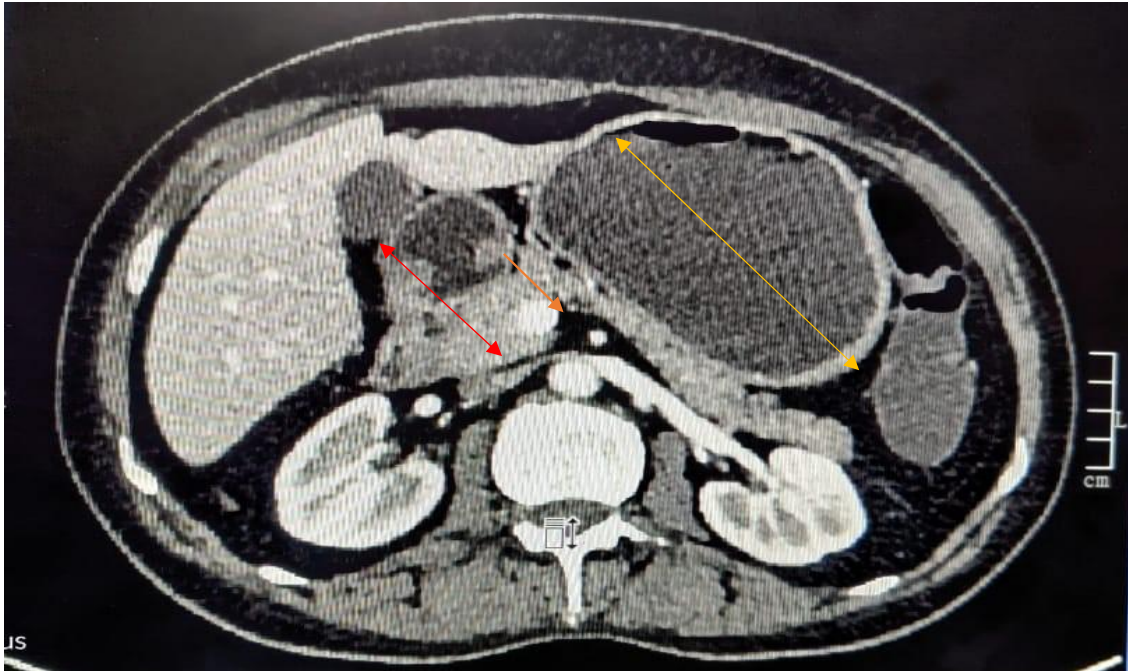
A 55-years-old postmenopausal woman presented with complaints of vomiting since last 2 months and non- passage of stools and flatus since last 12 days. Patient also complained of loss of appetite and weight loss. She had a history of right sided modified radical mastectomy for Ca Right breast 7 years back with 7 cycles of neo-adjuvant chemotherapy. Patient didn't take adjuvant chemotherapy or radiotherapy. There was no family history of breast cancer or other cancers related to BRCA1 and BRCA2. She is known smoker since last 30 years.

On physical examination, patient was dehydrated and tachycardia was present. Abdominal examination did not reveal any mass and tenderness in any quadrants of abdomen. Laboratory investigations (Hb:12, TLC 7100, Ur/Cr:29/0.8, Na/k:134/4.2, AST/ALP: 43/33) were within normal limit. X-Ray abdomen with pelvis was unremarkably normal. Ultrasonography of abdomen revealed mild irregular wall thickening involving junction of 1<sup>st</sup> and 2<sup>nd</sup> part of duodenum of approximately 1.4 cm with dilation of stomach. No obvious mass lesion seen. CECT abdomen with pelvis (Fig 1.) showed that there is abrupt narrowing of duodenum lumen noted at the junction of D1 and D2 segments for about 16 mm in length. There is associated wall thickening of maximum thickness 8.7 mm and adjacent fat stranding. The D1 part

of duodenum and stomach are prominently distended. There is visualization of contrast in distal bowel loops. UGIE duodenal biopsy showed sub-mucosa infiltrated by tumor cells arranged in cords, small nests, singly dispersed and occasional glandular pattern. Immunohistochemistry showed CK7-positive, CK20- positive, ER and PR- positive, E-cadherin positive. Histo-morphological and Immunohistochemistry features are suggestive of poorly differentiated duodenal adenocarcinoma (periampullary carcinoma). Patient was initially managed conservatively with intravenous medications but after the confirmation of biopsy report, patient was planned for Whipple's procedure. Intra-operatively, there was a growth present intraluminally at D1-D2 junction. Liver, omentum, peritoneum and surrounding structures are free from tumor. Bilateral drains were placed and feeding jejunostomy was created for nutritional support. Post-operative period was uneventful; feeding through FJ was started and drains were removed in view of decrease output(<30ml). Post-op HPE from the pancreatic duodenectomy shows presence of tumor arranged in the form of clusters, nests, cords and singly scattered cells. Tumor is diffusely infiltrating the duodenal wall. It is predominantly based in the serosa, muscularis propria and reaching upto the sub-mucosa of duodenum at several foci. Immunohistochemistry shows tumor cells are diffusely positive for epithelial markers CK 7 and CK20 but also positive for ER, PR, E-cadherin. Tumor cells are negative for synaptophysin, chromogranin and CD X-2 which are the markers of neuroendocrine origin. Features were suggestive of duodenal cancer of epithelial in origin secondary to primary breast cancer.

## 3. DISCUSSION

Breast carcinoma mostly metastasizes to bones, however breast metastasis to the duodenum is very rare and only a few cases have been reported till now. Hormone receptor positive tumors are more likely to spread to bone as the initial site of metastasis, hormone receptor negative and her2neu positive tumors are more likely to recur initially in viscera. Lobular carcinoma is mostly associated with serosal metastasis as compared to ductal carcinoma. In this case, isolated duodenal metastasis occurred in hormone receptors positive tumor and in ductal type. Although IDC is the most common type of breast cancer, IDC metastasizing



**Fig. 1.** Computed tomography shows there is abrupt narrowing of duodenum lumen noted at the junction of D1 and D2 segments for about 16 mm in length. There is associated wall thickening of maximum thickness 8.7 mm and adjacent fat stranding. Stomach is distended due to duodenal obstruction



**Fig. 2.** Gross specimen showing perampullary cancer of duodenum

to the duodenum without any confirmatory findings is extremely rare, and the exact mechanism is unclear. The signs and symptoms of metastatic duodenal malignancy have no identifiable features as compared to primary duodenal cancer, hence diagnosis is very challenging. Mostly patients present with features of obstruction and diagnosis is confirmed only by Immunohistochemistry of the duodenal biopsy taken through UGIE [5]. There is latency period of 7 years between primary breast cancers and metastatic duodenal, and the radiologic imaging is unremarkable, making diagnosis extremely difficult. Endoscopic evaluation and biopsy are necessary for definitive diagnosis.

Duodenal metastasis is associated with poor prognosis. If the patient is having favorable nutritional status and the metastasis is solitary, like in the reported case, surgical options such as pancreatoduodenectomy relieve the obstruction and offer a survival advantage. If patient is having poor nutritional as well as performance status along with multiple metastasis to different sites including duodenum, liver and surrounding structures then palliative care is the only appropriate option [6,7].

In this case, patient didn't take the adjuvant chemotherapy and radiotherapy after the primary operation of mastectomy 7 years back. Patient now presented to us with features of obstruction. UGIE suggestive of poorly differentiated adenocarcinoma of duodenum (periampullary carcinoma). Immunohistochemistry was suggestive of metastatic duodenal cancer. Patient underwent surgery due to isolated duodenal metastasis and good nutritional status. Patient was discharged without any postoperative complications. Only in this way, we can prevent misdiagnosis of duodenal metastasis. It can help us to establish the definitive diagnosis and evaluate the prognosis, as well as make reasonable treatment plans.

#### 4. CONCLUSION

Isolated duodenal metastasis is extremely rare due to ductal carcinoma of breast. The most common site of duodenal metastasis is the periampullary region followed by duodenal bulb. Accurate incidence is hard to find and diagnosis is challenging as signs and symptoms of duodenal metastasis is not distinguishable from the primary duodenal cancer. Diagnosis of duodenal metastasis from primary breast lesions is proven only by duodenal biopsy and

Immunohistochemistry which shows positive for CK 7 and CK20 (epithelial markers) along with ER and PR positive (hormonal receptors) and E-Cadherin positive (ductal in origin). Its also negative for neuroendocrine markers like Synaptophysin and Chromogranin A [8,9]. One of the reason behind the metastasis of duodenum is may be due to not taking the adjuvant chemotherapy and radiotherapy after the mastectomy of ductal carcinoma of breast.

In summary, we report a rare case of isolated duodenal carcinoma from ductal breast carcinoma with 7 years of latency with not taking the adjuvant chemotherapy and radiotherapy.

#### CONSENT

Informed consent was taken from the patient.

#### ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s)

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

#### REFERENCES

1. Porter PL. Global trends in breast cancer incidence and mortality. *Salud Pública de México*. 2009;51(supplement2):s141–s146. DOI: 10.1590/s0036-36342009000800003. [PubMed] [CrossRef] [Google Scholar]
2. Abulkhair OA, Al Tahan F, Young SE, MUSAAD SM, Jazieh A. The first national public breast cancer screening program in Saudi Arabia. *Annals of Saudi Medicine*. 2010;30(5):350–357. DOI: 10.4103/0256-4947.67078. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
3. Saudi Cancer Registry. Cancer Incidence Report 2005. Riyadh, Saudi Arabia: Saudi Cancer Registry; 2005. Available: <http://www.chs.gov.sa/Ar/HealthRecords/CancerRegistry/CancerRegistryReports/Incidence%20Report%202005.pdf>. [Google Scholar]
4. Kobayashi T, Adachi S, Matsuda Y, Tominaga S. A case of metastatic lobular

- breast carcinoma with detection of the primary tumor after ten years. *Breast Cancer*. 2007;14(3):333–336. DOI: 10.2325/jbcs.14.333. [PubMed] [CrossRef] [Google Scholar]
5. McLemore EC, Pockaj BA, Reynolds C, et al. Breast cancer: Presentation and intervention in women with gastrointestinal metastasis and carcinomatosis. *Annals of Surgical Oncology*. 2005;12(11):886–894. DOI: 10.1245/ASO.2005.03.030. [PubMed] [CrossRef] [Google Scholar]
  6. Pectasides D, Psyrris A, Pliarchopoulou K, et al. Gastric metastases originating from breast cancer: report of 8 cases and review of the literature. *Anticancer Res*. 2009;29:4759–63. [PubMed] [Google Scholar]
  7. Taal BG, den Hartog Jager FC, Steinmetz R, et al. The spectrum of gastrointestinal metastases of breast carcinoma: II. The colon and rectum. *Gastrointest Endosc*. 1992;38:136–41. [PubMed] [Google Scholar]
  8. Lamovec J, Bracko M. Metastatic pattern of infiltrating lobular carcinoma of the breast: an autopsy study. *J Surg Oncol*. 1991;48:28–33. [PubMed] [Google Scholar]
  9. Sastre-Garau X, Jouve M, Asselain B, et al. Infiltrating lobular carcinoma of the breast. Clinicopathologic analysis of 975 cases with reference to data on conservative therapy and metastatic patterns. *Cancer*. 1996;77:113–20. [PubMed] [Google Scholar]

© 2021 Ranjan et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*  
*The peer review history for this paper can be accessed here:*  
<http://www.sdiarticle4.com/review-history/67826>