Metastatic lobular carcinoma of the breast masquerading as a primary rectal cancer

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Abstract

Background: Colorectal metastasis of lobular carcinoma of the breast is a diagnostic challenge. It may macroscopically simulate primary colon cancer or inflammatory bowel disease. In some cases, the interval between the primary breast cancer and metastatic colorectal lesions is so long that the critical records for diagnosis including history might be lost or missed. Reported herein is a case of metastatic lobular carcinoma of the breast masquerading as a primary rectal cancer in a 62-year-old Japanese woman.

Case presentation: Endoscopic examination of the colon revealed two circumferential strictures at the ascending colon and rectum (Figure 1a). Hematoxylin and eosin (HE) image of the endoscopic biopsy of the rectal lesion led us to a diagnosis of poorly differentiated adenocarcinoma of the rectum (Figure 1b). The biopsy of the lesion of the ascending colon revealed colitis. Total resection of the tumor was predicted to be difficult due to size and infiltrative border of the tumor. Therefore, the patient was subjected to chemo-radiotherapy. After five courses of the chemo-radiotherapy in total of 45 Gy of radiation plus tegafur gimeracil oteracil potassium (TS-1) and irinotecan (CPT-11) as chemotherapy with minimal clinical response, a...
proctectomy was performed with low anterior resection. Macroscopically, the rectal mass was a diffusely invasive lesion with no clear border. Cut surface showed white trabeculae penetrating vertically through the muscularis propria (Figure 2).

Microscopic examination of resected specimen revealed a diffuse and infiltrative proliferation of small tumor cells (Figure 3a,b). There was no apparent degeneration or necrosis of the tumor cells, suggesting the minimal pathological effect of chemo-radiotherapy on the tumor cells. Minimal cohesion was observed among the tumor cells. Of note was the single-file arrangement of the tumor cells (Figure 3b), characteristically observed in lobular carcinoma of the breast, but rarely found in colon cancer. These observations of an HE-stained specimen made us suspect metastatic lobular carcinoma of the breast, instead of primary rectal cancer.

To confirm this, immunohistochemical analysis was performed (Figure 3c-3f). The tumor cells were positively stained for CK7 (Figure 3c) and Estrogen receptor α (Figure 3e), while they were negative for CK20 (Figure 3d) and E-cadherin (Figure 3f). In contrast, the background colon epithelial cells were positive for CK20 (Figure 3d) and E-cadherin (Figure 3f), while they were negative for CK7 (Figure 3c) and estrogen receptor α (Figure 3e).

We reexamined the patient’s history and found that she had undergone surgery for left breast cancer 24 years earlier. The pathological diagnosis of the cancer was found to be ‘poorly differentiated adenocarcinoma, scirrhous type,’ with metastasis in her left axillary lymph nodes. Unfortunately, the glass slides and the paraffin blocks of the breast cancer were lost during the turmoil of the Hanshin-Awaji Earthquake in 1995. Therefore, we could not reconfirm the diagnosis of the primary breast cancer.

We reexamined the endoscopic biopsy of the rectum (Figure 1b) immunohistochemically using the same set of the antibodies used for the resected specimen. The immunophenotype of the rectal biopsy was identical to that of the resected tumor (data not shown). Reexamination and comparison with this biopsy sample revealed that the tumor cells in the resected specimen appeared less cohesive than those in the rectal biopsy. This is probably due to the effect of the chemo-radiation therapy on the tumor cells before surgical resection.

Mammography, ultrasonography, and 18F-fluorodeoxyglucose-positron emission tomography (FDG-PET)/computed tomography (CT) examination revealed no evidence of cancer in her remaining right breast and a local recurrence of the left breast cancer (data not available).
Figure 3 (See legend on next page.)
shown). There were two hot spots at the rectum and thyroid on FDG-PET/CT examination (data not shown). The former was considered to result from radiation therapy and/or proctectomy procedure, and the latter was presumably due to chronic thyroiditis.

Although we could not reconfirm the diagnosis of the primary breast cancer, the results described above strongly support our final diagnosis of rectal metastasis from lobular breast carcinoma.

Discussion

In this paper, we reported a case of rectal metastasis from lobular breast carcinoma, masquerading as a primary rectal cancer. The correct diagnosis was obtained by histopathological examination of the resected rectal mass after chemo-radiotherapy.

To our knowledge, at least 21 cases have been reported on metastatic lobular carcinoma of the breast to the colorectum [1-21]. There have been four reviews on the clinical or radiological spectrum of metastatic lobular carcinoma of the breast to the colorectum [22-25]. McLemore et al. reported that cases of gastrointestinal metastasis from primary breast cancer were as rare as 73 cases among 12,001 cases [22]. Among them, intestinal metastasis from primary breast cancer were as rare as 73 cases among 12,001 cases [22]. Among all the cases reported in the literature, 25 years was the longest interval between the diagnosis of the primary breast lobular carcinoma and the recognition of its metastasis to the colorectum [4]. Mistrangelo et al. reported a case for sigmoid colon metastasis from the primary lobular carcinoma of the breast 25 years before [4]. However, in that case, there was an episode of bone metastasis of the breast cancer 12 years before the colon metastasis [4]. In contrast, in our case, the 24-year interval was the second longest one and was disease-free. This suggests that a long-term, close follow-up as well as recognition of patients’ history is required for correct diagnosis of rectal metastasis from lobular breast carcinoma.

Secondly, metastatic lobular carcinoma of the breast to the colorectum presents endoscopic and radiologic appearance of limitis plastica-type lesion with circumferential stricture and wall thickening of the colorectum [1,25]. Arrangoiz et al. reported a case in which only pediatric colonscope could pass the narrowed lumen of the lesion [1]. Colorectal metastasis of lobular breast carcinoma is sometimes accompanied by nodular and cobble stone-like thickening of mucosa [5]. These macroscopic characteristics will present impression of the lesion as a poorly differentiated carcinoma as is often seen in the stomach. When the metastasis occurs around the terminal ileum lesion, a misdiagnosis may be made as an inflammatory bowel disease as Cronh’s disease [6,7,15]. In fact, Calafat et al. reported metastasis of lobular carcinoma of the breast to ileum-colon, mimicking inflammatory bowel disease such as Cronh’s disease [6]. Koos et al. reported a case where multiple metastases simulating Cronh’s disease were found radiologically and intra-operatively in the colon and small bowel [7]. When metastatic cancer remains in submucosa, it will be difficult to obtain enough biopsy
samples endoscopically, further strengthening the impression that the lesion may be non-tumorous [15].

Conclusions
Poorly differentiated adenocarcinoma of the colorectum is rarer than that of the stomach. Linitis plasatica-type cancer of the colorectum is also rarer than that of the stomach. A lesson from the present case is that before we conclude a linitis plasatica-type cancer of poorly differentiated type as a primary colorectal cancer, it is critical to exclude the possibility of metastatic colorectal cancer.

Consent
Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review with the Editor-in-Chief of this journal.

Abbreviations
CT: Computed tomography; FDG-PET: 18F-fluorodeoxyglucose-positron emission tomography; HE: Hematoxylin and eosin.

Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
IM and SH participated in the pathological final diagnosis of the case and helped IM and SH in preparation of the manuscript. All authors prepared and edited the manuscript. NA performed the preoperative emission tomography; HE: Hematoxylin and eosin.

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References
1. Arrangoiz R, Papavasiliou P, Dushkin H, Farma JM: Case report and literature review: metastatic lobular carcinoma of the breast an unusual presentation. Int J Surg Case Rep 2011, 2:301–305.
2. Razzetta F, Tassara E, Saro F, Sironi M, D’Ambrosio G: Rare abdominal metastases from occult lobular breast cancer: report of two cases. Updates Surg 2011, 63:29–33.
3. Rosati G, Ferrara D, Scarano E, Siciliano P: Colon and muscle metastases from lobular breast carcinoma: a very rare entity. Breast J 2012, 18:77–79.
4. Mistrangelo M, Cassoni P, Mistrangelo M, Castellano L, Codognotto E, Sapino A, Lamanna G, Cravero F, Bianco L, Foria G, Sandrini S: Obstructive colon metastases from lobular breast cancer: report of a case and review of the literature. Tumori 2011, 97:800–804.
5. Malhotra A, Gutun P, Basim MS, Raju GS: A rare case of breast cancer metastasis presenting as linitis plastica of the stomach and colon (with video). Gastrinost Endosc 2009, 70:552–553.
6. Calafat P, de Dillier AB, Sanchez G: Breast carcinoma metastasis in ileum-colon and gallbladder simulating inflammatory diseases. Rev Fac Cien Med Univ Nac Cordoba 1999, 56:123–127.
7. Koos L, Field RE: Metastatic carcinoma of breast simulating Crohn’s disease. Int Surg 1980, 65:359–362.
8. de Lima DC, Alberi LR: Breast cancer metastasis to the colon. Endoscopy 2011, 43:E143–E144.
9. Bustamante-Balén M, Navarro-Hervás M, Cuevas JM, García-Díez JV: Colon metastasis of a lobular breast carcinoma. Rev Esp Enferm Dig 2008, 100:249–250.
10. Landi F, Marti Gallostra M, Espin Basany E, Landolfi S, Armengol Carrasco M: Colon metastasis of lobular breast carcinoma. Crs Exp 2012, 90:470–471.
11. López Deogracias M, Flores Jaime L, Arias-Carrión I, Zamacola I, Murillo Gilbert J, Suensc García R, Querejeta Ubasaga J, Martínez García F: Rectal metastasis from lobular breast carcinoma 15 years after primary diagnosis. Clin Transl Oncol 2010, 12:150–153.
12. Martínez Lesquereux L, Paredes Cotóre JP, Ladra González MJ, Beiras Tomado A: Colon metastasis of lobular breast cancer. Crs Exp 2010, 88:122–124.
13. Okido M, Sato M, Harnady Y, Kurihara S, Matsunoto K, Konorni H, Kato M: Metastatic breast carcinoma simulating linitis plastica of the colon: report of a case. Surg Today 2011, 41:542–545.
14. Signorelli C, Pomponi-Formiconi D, Nelli F, Poliera CF: Single colon metastasis from breast cancer: a clinical case report. Tumori 2005, 91:424–427.
15. Szabó J, Falkus B, Simon E, Brünner S, Baranyay F: Late gastrointestinal metastases of invasive lobular breast carcinoma mimicking Crohn’s disease. Onk Hcöl 2010, 151:1666–1671.
16. Hanslaf SS, Andersen LM, Hoyer U, Christiansen JJ: Breast cancer metastasis to the colon. Ugeskr Laeger 2010, 172:2309–2310.
17. Bañà MP, Vidaljak DV, Stanic M, Šišić S, Supić DK, Knzevic F: Rectal metastasis from lobular carcinoma of the breast: a case report. Coll Antropol 2010, 34:719–721.
18. Cervi G, Vettoretto N, Vinco A, Cervi E, Villanacci V, Grigolato P, Giulini SM: Rectal localization of metastatic lobular breast cancer: report of a case. Dis Colon Rectum 2001, 44:453–455.
19. Hernández V, Flor-Lorente B, Burgués O, Flor-Civera B, Oliver V: Anasarca as presentation of lobular breast carcinoma. Gastroenterol Hepatol 2000, 23:338–340.
20. Rabau MY, Alon RJ, Werbin N, Yossipov Y: Colonic metastases from lobular carcinoma of the breast. Report of a case. Dis Colon Rectum 1988, 31:401–402.
21. Voruvud N, el-Naggar AK, Balch CM, Theriault RL: Metastatic lobular breast carcinoma simulating primary colon cancer. Am J Clin Oncol 1992, 15:365–369.
22. McLemore EC, Pockaj BA, Reynolds C, Gray RJ, Hernandez JL, Grant CS, Donohue JH: Breast cancer: presentation and intervention in women with gastrointestinal metastasis and carcinomatosis. Ann Surg Oncol 2005, 12:886–894.
23. Taal BG, den Hartog Jager FC, Steinmetz R, Peterse H: The spectrum of gastrointestinal metastases of breast carcinoma: II. The colon and rectum. Gastrointest Endosc 1992, 38:136–141.
24. Schwarz RE, Klimstra DS, Turnbull AD: Metastatic breast cancer masquerading as gastrointestinal primary. Am J Gastroenterol 1998, 93:111–114.
25. Winston CB, Hadar O, Teitsher JB, Caravelli JF, Sklarin NT, Panicek DM, Liberman L: Metastatic lobular carcinoma of the breast: patterns of spread in the chest, abdomen, and pelvis on CT. AJR Am J Roentgenol 2000, 175:795–800.

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