Unusual presentation of more common disease/injury

Successful laparoscopic investigation and resection of solitary colonic metastasis from breast cancer (with video)

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Summary

Metastasis to gastrointestinal tract from breast cancer is an uncommon situation. We report a case of a 52-year-old woman who had a mastectomy for solid-tubular carcinoma of the breast 16 years ago and bilateral salpingo-oophorectomy for metastatic ovarian tumours 5 years ago, was incidentally found to have colonic metastatic tumour detected by positron emission tomography/CT (PET/CT) during follow-up. After identifying a definite location of the tumour in the ascending colon under laparoscopic investigation, laparoscopy-assisted partial colectomy was successfully performed. Histopathology of the resected specimen showed it to be metastasis from solid-tubular carcinoma of the breast. We should be aware that breast cancer can metastasise to the gastrointestinal tract even after the long interval from initial therapy. An index of high suspicion and detailed assessment is mandatory to make a correct diagnosis and following less invasive surgical treatment.

BACKGROUND

Gastrointestinal (GI) metastases from breast cancer are infrequently recognised clinical entity and usually occur years after the primary tumour.^{1–3} Although it is rare, the recognition of these entities is of outmost importance for making prompt diagnosis and providing appropriate management.

CASE PRESENTATION

A 52-year-old woman underwent right modified radical mastectomy and axillary lymph node dissection for breast carcinoma 16 years ago. Histological examination at that time revealed invasive ductal carcinoma (solid-tubular type) with nuclear grade,³ but no lymph node metastasis was seen. The tumour was weakly positive for estrogen/progesterone receptor but negative for HER2, thus she received adjuvant tamoxifen therapy for 5 years. However, her CA125 level was increased and bilateral ovarian tumours were detected by CT after 11 years since the initial surgery, and bilateral salpingo-oophorectomy was performed for metastatic ovarian tumours from breast carcinoma 5 years ago. Following six cycles of combination chemotherapy consisting of 5-FU, epirubicin and cyclophosphamide, CA-125 level became negative. Capecitabine and anastrozole therapy was introduced afterward. She remained well without any symptom, but her CA-125 level again increased after 5 years since the second operation. Abdominal CT scan showed a mass in the ascending colon which was confirmed by positron emission tomography/CT (PET/CT) scan, showing a lesion of increased fluorine-18-fluoro-deoxy-glucose uptake in the ascending colon wall (figure 1A,B), but any other metastasis was found. Barium enema detected a partial defect of the ascending colon without stenosis, and

colonofiberscopy demonstrated a submucosal mass protruded into the lumen without mucosal lesion (figure 1C, D). Thus, we suspected a metastatic lesion from breast carcinoma in the ascending colon, and laparoscopic investigation and resection of the lesion was scheduled.

TREATMENT

After risks, benefits and potential complications were explained, the patient agreed to the procedure. Under thorough observation through laparoscopy, the solitary tumour was found situated in the ascending colon, without any implantation to the surrounding peritoneum. Laparoscopy-assisted partial colectomy was successfully performed (figure 2A–C, video 1). Total operative time was 188 min and estimated blood loss was minimal. The surgical specimen macroscopically demonstrated a 2 cm-sized clear round mass located between the submucosa and subserosa (figure 2D). Histologically, infiltration of the tumour cells, exhibiting nest-like pattern in submucosa through subserosa (figure 3), was observed and thus it was diagnosed as the recurrence of breast carcinoma.

OUTCOME AND FOLLOW-UP

The patient recovered soon postoperatively, and she underwent chemotherapy with S-1. She remained asymptomatic and her periodic imaging tests showed no signs of recurrence for 8 months since her operation.

DISCUSSION

Breast cancer is the most frequent malignancy and a significant cause of morbidity and mortality in the female population.⁴ Breast carcinoma usually metastasises to lymph nodes, lung, bone, liver or brain, while GI

Figure 1 Preoperative findings. (A) Abdominal CT showing a mass in the ascending colon (arrows). (B) PET/CT scan showing a lesion of increased fluorine-18-fluoro-deoxy-glucose uptake in the ascending colon wall. (C) Barium enema showing the partial defect of the ascending colon without stenosis. (D) Colonofiberscopy showing a submucosal mass protruded into the lumen without mucosal lesion.

involvement, especially colorectal metastases, is rare.^{1 4 5} Symptoms of colorectal metastases are usually non-specific as in the current case, and clinical presentation is diverse.^{1–3}

Most case reports concerning GI metastases from breast carcinoma were related to invasive lobular carcinoma, and invasive ductal carcinoma of the breast was reported in few papers.^{3 6} The predilection of lobular carcinoma for metastasising in the GI tract may be explained by its distinct histological and biological features, such as lack of cohesiveness due to inactivation of E-cadherin,⁷ or slow-growing behaviour due to typically a HER2-negative less aggressive nature.⁸ According to one analysis which showed difference in metastatic patterns among a large population of patients with breast cancer (over 2600 patients involved), the frequency of GI metastasis was significantly higher in lobular carcinoma than in ductal carcinoma (4.5% vs 0.2%).⁶ Another clinical study noted no difference between lobular and ductal carcinoma in the metastatic pattern.⁹ In any case, it is important to be aware that breast cancer can metastasise to GI tract even after the long interval from initial therapy, regardless of its histological type.

In most reported cases, colorectal metastases are part of widespread metastatic disease, and systemic treatment by

chemotherapy and/or endocrine treatment is usually employed.^{1 4} However, as shown in some articles concerning a recent trend in the management of colorectal metastasis,^{10 11} patients with metastatic disease limited to organ-specific sites may have an opportunity to undergo potentially curative surgical resection at the time of diagnosis or following conversion therapy with the appropriate integration of chemotherapy, and thus can be cured or at least prolong the survival with valuable quality of life, like the current case.

With the advent of minimally invasive surgery and its expected benefits, many surgical procedures are now being performed or attempted laparoscopically. Several reports have shown advantages of laparoscopic colon resection compared with conventional open surgery, including less scarring, decreased narcotic use, quicker return of bowel function and fewer wound complications.^{12–15} Our case highlights diagnostic laparoscopy and laparoscopy-assisted partial colon resection as a potential and feasible tool even in such a rare metastatic lesion of the colon. The ability to confirm diagnosis and plan to target small incisions for treatment make laparoscopic surgery a viable treatment option, even in such a complicated case as in the current study.

Figure 2 Intraoperative findings and laparoscopic procedures. (A) Laparoscopy-assisted partial colectomy was performed using standard five-port access accompanied by additional 4 cm incision. (B) Under thorough observation through laparoscopy, the solitary tumour was found situated in the ascending colon. (C) After the right side of the colon was mobilised, the ascending colon was brought outside the abdomen and partial resection of the colon with the tumour was performed. (D) Resected specimens macroscopically demonstrated a 2 cm-sized clear round mass located between the submucosa and subserosa.

Figure 3 Histological examination revealed infiltration of the tumour cells in submucosa through subserosa, exhibiting nest-like pattern (the right lower inset, high-power magnification), and thus it was diagnosed as the recurrence of breast carcinoma (H&E, low-power magnification).

Video 1 Under thorough observation through laparoscopy, The solitary tumor was found situated in the ascending colon. There were no implanted mass in the peritoneum. Laparoscopy-assisted partial colectomy was performed using standard 5-port access as follows: after the terminal ileum, cecum, and ascending colon were mobilized from the line of Toldt by using electrocautery or LCS, the port at the right upper quadrant was removed and the incision was extended to 4cm total in length. The ascending colon was then brought outside the abdomen and partial resection of the colon with the tumor was performed with electrocautery, following hand-sewn closure of the colon. The colon was pushed back into the abdomen and the fascia and skin was closed.

Learning points

- ▶ Gastrointestinal metastases including colorectal involvement from breast cancer are infrequently recognised clinical entity.
- ▶ Symptoms of colorectal metastases from breast cancer are usually non-specific, and clinical presentation is diverse.
- ▶ We should be aware that breast cancer can metastasise to the gastrointestinal tract even after the long interval from initial therapy.
- ▶ An index of high suspicion and detailed assessment is mandatory to make a correct diagnosis and following less invasive surgical treatment.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Amin AA**, Reddy A, Jha M, *et al*. Rectal metastasis from breast cancer: an interval of 17 years. *BMJ Case Rep* 2010. doi:10.1136/bcr.01.2011.3683.
2. **Saranovic D**, Kovac JD, Knezevic S, *et al*. Invasive lobular breast cancer presenting an unusual metastatic pattern in the form of peritoneal and rectal metastases: a case report. *J Breast Cancer* 2011;**14**:247–50.
3. **Matsuo S**, Susumu S, Tsutsumi R, *et al*. Recurrent breast cancer presenting as ureteral and colonic metastasis. *Acta Med Nagasaki* 2007;**52**:35–7.
4. **Bamias A**, Baltayiannis G, Kamina S, *et al*. Rectal metastases from lobular carcinoma of the breast: report of a case and literature review. *Ann Oncol* 2001;**12**:715–18.
5. **Taal BG**, den Hartog JFC, Steinmetz R, *et al*. The spectrum of gastrointestinal metastases of breast carcinoma: II. The colon and rectum. *Gastrointest Endosc* 1992;**38**:136–41.
6. **Borst MJ**, Ingold JA. Metastatic patterns of invasive lobular versus invasive ductal carcinoma of the breast. *Surgery* 1993;**114**:637–41. discussion 41–2.
7. **Berx G**, Cleton-Jansen AM, Strumane K, *et al*. E-cadherin is inactivated in a majority of invasive human lobular breast cancers by truncation mutations throughout its extracellular domain. *Oncogene* 1996;**13**:1919–25.
8. **Venanzi FM**, Soverchia L, Felicetti P, *et al*. HER-2/neu oncogene sequence revisited. *J Natl Cancer Inst* 2002;**94**:1808–9.
9. **du Toit RS**, Locker AP, Ellis IO, *et al*. An evaluation of differences in prognosis, recurrence patterns and receptor status between invasive lobular and other invasive carcinomas of the breast. *Eur J Surg Oncol* 1991;**17**:251–7.
10. **Abdalla EK**, Vauthey JN, Ellis LM, *et al*. Recurrence and outcomes following hepatic resection, radiofrequency ablation, and combined resection/ablation for colorectal liver metastases. *Ann Surg* 2004;**239**:818–25. discussion 25–7.
11. **Sugihara K**, Uetake H. Therapeutic strategies for hepatic metastasis of colorectal cancer: overview. *J Hepatobiliary Pancreat Sci* 2012. doi:10.1007/s00534-012-0524-8.
12. **Guller U**, Jain N, Hervey S, *et al*. Laparoscopic vs open colectomy: outcomes comparison based on large nationwide databases. *Arch Surg* 2003;**138**:1179–86.
13. **Klarenbeek BR**, Veenhof AA, de Lange ES, *et al*. The Sigma-trial protocol: a prospective double-blind multi-centre comparison of laparoscopic versus open elective sigmoid resection in patients with symptomatic diverticulitis. *BMC Surg* 2007;**7**:16.
14. **Rosman AS**, Melis M, Fichera A. Metaanalysis of trials comparing laparoscopic and open surgery for Crohn's disease. *Surg Endosc* 2005;**19**:1549–55.
15. **Tong DK**, Law WL. Laparoscopic versus open right hemicolectomy for carcinoma of the colon. *JSLs* 2007;**11**:76–80.

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