

Is a Bone Metastasis Common with Colon Cancer? A Case Report

Ayman Rasmy^{1,2}, Arshad Hussain¹, Mohamed Mashiaki¹

¹Department of Medical Oncology, King Saud Medical City, Riyadh, Saudi Arabia, ²Department of Medical Oncology, Zagazig University, Zagazig, Egypt

ABSTRACT

It is well recognized that bone is a rare site of metastasis from colorectal cancer (CRC). The data available regarding skeletal metastasis from CRC are limited. We report a rare case of bone metastasis from a colon cancer of 37-year-old Saudi women and review of literature.

Key words: Bone metastasis, colorectal cancer, liver metastasis, pulmonary metastasis

INTRODUCTION

At present, colorectal cancer (CRC) is one of the three most common cancers worldwide, with an estimated 1.2 million new cases diagnosed globally annually. It is one of the major public health burdens worldwide, with death usually attributed to recurrence and distant metastasis from CRC. >50% of patients with CRC will develop liver metastasis during the course of the disease. The most common metastatic sites of CRC are the regional lymph nodes, liver, lung, and peritoneum. Conventionally, bone is the metastatic site for prostate, thyroid, breast, and lung. Involvement of bone metastasis in CRC is rare, if bone mets are present in CRC, it signifies the presence of disseminated disease. Thus, the patient of CRC with bone metastasis has poor prognosis.

We, herein, report a case of a 37-year-old Saudi female patient who was found to have bone metastasis from adenocarcinoma of colon.

CASE REPORT

A 37-year-old married Saudi female G3P3A0 with no significant medical history, she initially presented with abdominal pain, weight loss, and decreased appetite. She was admitted and investigated with a series of investigations

including ultrasound abdomen, computed tomography (CT) chest, abdomen, and pelvis which revealed multiple pulmonary and hepatic metastasis. Her serum carcinoembryonic antigen and cancer antigen 19.9 levels were significantly raised. She also underwent lower gastrointestinal endoscopy which showed a hepatic flexure mass, which was biopsied and revealed adenocarcinoma colon. Her family history revealed that her father had died of metastatic colon cancer at the age of 75 years.

She is the only one among eight siblings diagnosed with colon cancer. After biopsy and staging workup was completed. Case was discussed in our tumor board meeting and it was labeled as advanced colon cancer. Hence, she was offered palliative chemotherapy based on XELOX regimen.

After completion of 4 cycles of chemotherapy, she was restaged with CT scan which showed progression of hepatic and pulmonary mets, the progression also included mediastinal lymphadenopathy, newly developed ascites and destructive bony lesion in the sternum, vertebral body metastasis, and also pathological fracture of the right proximal femur. CT scan clearly showed a pathological fracture of proximal femur due to metastasis. She also underwent bone scintigraphy which showed increased radiotracer uptake in the above-mentioned bony lesions including the right proximal femur, sternum, and vertebral.

Address for correspondence:

Arshad Hussain, Department of Medical Oncology, King Saud Medical City, Riyadh, Saudi Arabia.

E-mail: ashah@ksmc.med.sa

© 2018 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

Because of advanced and aggressive nature of disease in this case with the presence of pathological fracture in addition to poor response to chemotherapy as well as worsening her performance status, the orthopedic team cannot offer for her any surgical intervention for the pathological fracture, and from our oncology side, we was decided to stop any palliative chemotherapy and offer for her best supportive care only.

DISCUSSION

Skeletal metastasis is rare events in colorectal carcinoma in clinical scenario.^[1,2,6] However, the incidence of bone metastasis from CRC has been reported to be 10.7%–23.7% in autopsy series, with signet-ring cell pathology showing a high incidence of bony metastases.^[10]

The acute consequences of bone metastases include skeletal-related events (SREs defined as pathological fracture, the need for radiotherapy (RT) or surgery to bone, spinal cord compression, and hypercalcemia of malignancy) that may undermine patients' function and quality of life (QoL).^[20]

The first and second most common sources of the primary cancer are the rectum and right side of colon, respectively. The most common sites for the metastasis include the vertebral column, followed by the pelvis, sacrum, femur, skull, ribs, and hummers.^[9] The bony metastases are most often osteolytic, followed by mixed and osteoblastic lesions.^[7] One proposed mechanism of spread of colorectal cancer to bone is through Batson's venous plexus, a network of valveless veins that connect the deep pelvic and thoracic veins to the internal vertebral venous system.^[3-5]

Due to novel treatment approaches for patients with metastatic CRC, the median survival of affected patients has increased significantly, and as a consequence, patients have a higher risk not only to develop bone metastases but also to experience complications arising from metastatic bone destruction, such as pain, pathological fractures, spinal cord compression, or hypercalcemia.^[11-18] These SREs have the potential to severely affect patients' QoL.^[19]

The treatment of bone metastases requires a multidisciplinary approach in form of local (surgery /radiotherapy) and/or systemic treatment (chemotherapy, bone-modifying agents and supportive treatment).^[18] The bone-modifying agent's like zoledronic acid, pamidronate, and denosumab have essential roles in supportive oncology for the treatment of hypercalcemia of malignancy and bone metastases, and prevention of skeletal-related events. Their efficacy has been demonstrated in solid tumors and multiple myeloma. Radiotherapy to metastatic symptomatic area offers pain relief in 50–80% of patients. The 2018 ESMO Clinical Practice Guidelines on Cancer Pain are based on the most

recent data available. New recommendations are given for the key pain assessment question, step 2 of the analgesic ladder and for ketamine and cannabinoid use. Updated guidelines for breakthrough cancer pain, bone and neuropathic pain are included^[19].

CONCLUSION

Bone metastasis from CRC is rare and it is rarely occurring in the absence of visceral metastasis. Lung metastasis indicates the potential for cancer to metastasize to bone in the CRC population better than liver metastasis does. Bone metastasis in CRC usually reflects a disseminated disease and shows poor prognosis. The management of skeletal metastasis is usually directed toward palliation only.

REFERENCES

1. Besbeas S, Stearns MW Jr. Osseous metastases from carcinomas of the colon and rectum. *Dis Colon Rectum* 1978;21:266-8.
2. Kanthan R, Loewy J, Kanthan SC. Skeletal metastases in colorectal carcinomas: A Saskatchewan profile. *Dis Colon Rectum* 1999;42:1592-7.
3. Kato M, Unakami M, Hara M, Fukuchi S. Bone metastasis from colorectal cancer in autopsy cases. *J Gastroenterol* 1995;30:615-8.
4. Nozue M, Oshiro Y, Kurata M, Seino K, Koike N, Kawamoto T, *et al.* Treatment and prognosis in colorectal cancer patients with bone metastasis. *Oncol Rep* 2002;9:109-12.
5. Jimi S, Yasui T, Hotokezaka M, Shimada K, Shinagawa Y, Shiozaki H, *et al.* Clinical features and prognostic factors of bone metastases from colorectal cancer. *Surg Today* 2013;43:751-6.
6. Santini D, Tampellini M, Vincenzi B, Ibrahim T, Ortega C, Virzi V, *et al.* Natural history of bone metastasis in colorectal cancer: Final results of a large Italian bone metastases study. *Ann Oncol* 2012;23:2072-7.
7. Roth ES, Fetzer DT, Barron BJ, Joseph UA, Gayed IW, Wan DQ, *et al.* Does colon cancer ever metastasize to bone first? A temporal analysis of colorectal cancer progression. *BMC Cancer* 2009;9:274.
8. Hobdy EM, Ciesielski TE, Kummar S. Unusual sites of colorectal cancer metastasis. *Clin Colorectal Cancer* 2003;3:54-7.
9. Rodrigues J, Ramani A, Mitta N, P Joshi. A Rare Case of Colon Cancer with Metastases to the bone with review of the literature. *Int J Oncol* 2012;8:1-5.
10. Kato M, Unakami M, Hara M, Fukuchi S. Bone metastasis from colorectal cancer in autopsy cases. *J Gastroenterol* 1995;30:615-8.
11. Douillard JY, Siena S, Cassidy J, Tabernero J, Burkes R, Barugel M, *et al.* Randomized, phase III trial of panitumumab with infusional fluorouracil, leucovorin, and oxaliplatin (FOLFOX4) versus FOLFOX4 alone as first-line treatment in patients with previously untreated metastatic colorectal cancer: The PRIME study. *J Clin Oncol* 2010;28:4697-705.

12. Goldberg RM, Sargent DJ, Morton RF, Fuchs CS, Ramanathan RK, Williamson SK, *et al.* A randomized controlled trial of fluorouracil plus leucovorin, irinotecan, and oxaliplatin combinations in patients with previously untreated metastatic colorectal cancer. *J Clin Oncol* 2004;22:23-30.
13. Saltz LB, Clarke S, Díaz-Rubio E, Scheithauer W, Figer A, Wong R, *et al.* Bevacizumab in combination with oxaliplatin-based chemotherapy as first-line therapy in metastatic colorectal cancer: A randomized phase III study. *J Clin Oncol* 2008;26:2013-9.
14. Tournigand C, André T, Achille E, Lledo G, Flesh M, Mery-Mignard D, *et al.* FOLFIRI followed by FOLFOX6 or the reverse sequence in advanced colorectal cancer: A randomized GERCOR study. *J Clin Oncol* 2004;22:229-37.
15. Van Cutsem E, Köhne CH, Hitre E, Zaluski J, Chang Chien CR, Makhson A, *et al.* Cetuximab and chemotherapy as initial treatment for metastatic colorectal cancer. *N Engl J Med* 2009;360:1408-17.
16. Stintzing S, Grothe A, Hendrich S, Hoffmann RT, Heinemann V, Rentsch M, *et al.* Percutaneous radiofrequency ablation (RFA) or robotic radiosurgery (RRS) for salvage treatment of colorectal liver metastases. *Acta Oncol* 2013;52:971-7.
17. Scheele J, Stangl R, Altendorf-Hofmann A. Hepatic metastases from colorectal carcinoma: Impact of surgical resection on the natural history. *Br J Surg* 1990;77:1241-6.
18. Comito T, Cozzi L, Clerici E, Campisi MC, Liardo RL, Navarra P, *et al.* Stereotactic ablative radiotherapy (SABR) in inoperable oligometastatic disease from colorectal cancer: A safe and effective approach. *BMC Cancer* 2014;14:619.
19. Fallon M, Giusti R, Aielli F, Hoskin P, Rolke R, Sharma M, *et al.* On behalf of the ESMO Guidelines Committee. *Ann Oncol* 2018;29:166-191.
20. Coleman RE. Skeletal complications of malignancy. *Cancer* 1997;80:1588-94.

How to cite this article: Rasmy A, Hussain A. Is a Bone Metastasis Common with Colon Cancer ? A Case Report. *J Clin Res Oncol* 2018;1(2):1-3.