CASE REPORT

Metastatic spinal cord compression by gastric cancer: a case report

Teiko Kawahigashi1,*, Takashi Kawabe1, Hirokazu Iijima2, Yuto Igarashi2, Yuma Suno2, Mutsuo Takagi2, Fuminori Yamaji2 and Kazunao Watanabe2

1Department of Emergency Medicine, Tokyo Nishi Tokushukai Hospital, Tokyo, Japan, 2Department of Surgery, Tokyo Nishi Tokushukai Hospital, Tokyo, Japan

*Correspondence address. Department of Emergency Medicine, Tokyo Nishi Tokushukai Hospital, 3-1-1 Matsubara-cho, Akishima City, Tokyo, 196-0003, Japan. Tel: +81-42-500-4433; E-mail: teikokawahigashi@gmail.com

Abstract

Metastatic spinal cord compression (MSCC) is one of the serious complications of malignancy. Most cases of MSCC occur from breast or prostate cancer primaries; MSCC secondary to gastric cancer is rare. We herein report a case of a patient with gastric cancer with weakness of the lower limbs and urinary retention on initial presentation. This case demonstrates that although rare, bone metastases and MSCC may occur from gastric primaries. It also highlights the importance of prompt diagnosis and early treatment of MSCC.

INTRODUCTION

Metastatic spinal cord compression (MSCC) is an oncological emergency. It is a devastating complication of cancer, caused by compression of the dural sac and its contents by an extradural or intradural mass, which leads to irreversible neurologic damage, such as paraplegia [1, 2]. Early diagnosis and treatment are particularly important for preventing permanent neurological damage [1–3]. Bone metastases, most common in breast, prostate and lung cancer, are most likely to be responsible for MSCC [1–3]. But any cancer can be associated with MSCC. In some patients, MSCC can be the first sign of cancer. However, MSCC from gastric cancer is rare. We herein report a case of gastric cancer, which presented with lower limb weakness due to MSCC as the first symptom.

CASE REPORT

A 67-year-old woman developed low back pain 1 month before admission. Despite initial improvement of the pain with a painkiller from the local physician, it gradually got worse. She reported not experiencing any gastrointestinal symptoms such as abdominal pain, nausea, vomiting or melena. However, she started to feel abnormal sensations under both the thighs at noon on the day of admission and subsequently developed progressive lower limb weakness. Afternoon onwards, she noticed that she could not urinate despite having the urge. She could not walk by herself because of weakness of the legs and was subsequently brought to the emergency department. On physical examination, we identified weakness and loss of sensation in both lower limbs up to the T4 level. The patient had manual muscle testing scores of 3 (out of a possible 5) and 5 in the lower and upper limbs, respectively. The diagnosis of spinal cord compression was made based on magnetic resonance imaging of the entire spine, which revealed multiple bone metastases in almost all the vertebral bodies; in particular, severe osteoclastic changes were noted in Th3, 11 and 12 (Fig. 1). The
contrast-enhanced computed tomography scans of the thorax, abdomen and pelvis showed a thickened gastric wall, multiple lymph nodes around the stomach, a para-aortic lesion, ascites and peritoneal dissemination (Fig. 2); no other solid tumor was observed. An esophagogastroduodenoscopy was performed; it revealed scirrhous-type gastric cancer on the posterior wall of the middle body (Fig. 3). Histopathology from the biopsy specimen showed poorly differentiated adenocarcinoma. On the basis of these findings, she was diagnosed with gastric cancer with multiple bone metastases and peritoneal dissemination (CT4aN3M1, stage IV, according to the Union for International Cancer Control/American Joint Committee on Cancer staging classification system 7th edition).

The patient was immediately treated with oral prednisolone at a dose of 30 mg once daily for 1 week from the 2nd day of admission; this was tapered gradually. Radiation therapy to the thoracic spine was started from the 3rd day of admission at a dose per fraction of 3.0 Gy, up to a total dose of 30 Gy. In addition to these treatments, a decompression laminectomy was performed on the 12th day of admission because her neurological symptoms did not improve in spite of several days of treatment with prednisolone and radiation therapy. Chemotherapy and radiotherapy were scheduled after surgery and radiation therapy, but this was postponed because the patient had shingles. During treatment with oral valaciclovir at a dose of 3000 mg once daily for 1 week, she developed progressive disseminated intravascular coagulation and liver dysfunction as complications of the cancer. The patient’s baseline performance status score declined to less than 2, and we decided to offer best supportive care; the patient’s family agreed. She ultimately died on the 44th day of admission.

DISCUSSION

This case provides two important messages. Firstly, although MSCC from gastric primaries is far less common than those from the breast, prostate and lung, these patients may also present with symptoms associated with MSCC such as weakness or loss of sensation of the lower limbs and/or loss of bladder and bowel control. Autopsy findings from previous studies have reported that the incidence of bone metastases in gastric cancer is 13.4% [4]. More than 80% of bone metastases in gastric cancer have a histological diagnosis of poorly differentiated adenocarcinoma; our case had the same histology [5]. Our case is particularly rare because the primary presentation in this case of gastric cancer was with symptoms of MSCC [5, 6]. A search of the PubMed database for articles from 1980 to 2018 yielded just two additional reported cases.

Secondly, physicians should have a high level of suspicion for underlying malignancies when they encounter elderly patients with back pain. Pretreatment motor function is the most important prognostic factor for preservation of neurological function. Previous studies have reported that patients who were ambulatory prior to treatment continued ambulation, while only 7% of those who were paraplegic prior to therapy could ambulate after treatment [7, 8]. In this case, the patient may have retained ambulation if she had been treated while still ambulatory. Neurological function might have been preserved even though it would be difficult to achieve long-term survival. However, MSCC is often not diagnosed and treated early because most low back pain experienced by patients is benign. Kudo et al. studied the differences in the duration from onset of neurological symptoms to initiation of radiation therapy in a central regional hospital, between patients with and without a history of malignancy [7]. The duration in the latter patients was approximately 37.5 days more than that in the former patients. The authors speculated that this difference might have reflected either the differences in the target population of each hospital or clinic.
or the difference in clinical skills of the physicians, because patients who consulted local clinics tended to have delays in the initiation of treatment [7]. Several studies have reported on the ‘red flags’ that should prompt screening for malignancy in patients with low back pain, such as older age, insidious onset of pain, constant progressive pain which fails to improve after 1 month, previous history of cancer, fever and spine tenderness. Most of them provide little or no evidence to recommend their diagnostic accuracy [9, 10]. Detailed screening for malignancy should be considered in elderly patients with low back pain.

ACKNOWLEDGEMENTS
We would like to thank Editage (www.editage.jp) for English language editing.

CONFLICT OF INTEREST STATEMENT
None declared.

FUNDING
None of the authors received any funding for this study.

ETHICAL APPROVAL
This case report was approved by the institute’s Institutional Review Board.

CONSENT
Written informed consent was obtained from the patient’s husband for publication of this case report and any accompanying images.

GUARANTOR
Teiko Kawahigashi is the guarantor of this article.

REFERENCES
1. Al-Qurainy R, Collis E. Metastatic spinal cord compression: diagnosis and management. BMJ 2016;353:i2539. http://dx.doi.org/10.1136/bmj.i2539.
2. Wacker D, McCurdy MT, Nusbaum J, Gupta N. Managing patients with oncologic complications in the emergency department. Emerg Med Pract 2018;20:1–2.
3. Ropper AE, Ropper AH. Acute spinal cord compression. N Engl J Med 2017;376:1358–69. http://dx.doi.org/10.1056/NEJMra1516539.
4. Nishiodi H, Koga S. Clinicopathological study of gastric cancer with bone metastasis. Gan To Kagaku Ryoho 1987;14:1717–22.
5. Hussain S, Chui S. Gastric carcinoma presenting with extensive bone metastases and marrow infiltration causing extradural spinal haemorrhage. Br J Radiol 2006;79:261–3. doi: https://doi.org/10.1259/bjr/64677209.
6. Gazzeri R, Galarza M, Faiola A, Gazzeri G. Pure intramedullary spinal cord metastasis secondary to gastric cancer. Neurosurg Rev 2006;29:173–7. doi: https://doi.org/10.1007/s10143-005-0015-3.
7. Kudo C, Niitani T, Wada H, Sato Y, Ichikawa S, Inoue M, et al. A retrospective study of delays in diagnosis and treatment for malignant spinal cord compression. Palliat Care Res 2015;10:305–9. doi: https://doi.org/10.2512/jspm.10.305.
8. Loblaw DA, Laperriere NJ. Emergency treatment of malignant extradural spinal cord compression: an evidence-based guideline. J Clin Oncol 1998;16:1613–24. doi: https://doi.org/10.1200/JCO.1998.16.4.1613.
9. Henschke N, Maher CG, Ostelo RW, de Vet HC, Macaskill P, Irwig L. Red flags to screen for malignancy in patients with low-back pain. Cochrane Database Syst Rev 2013;CD008886. doi: https://doi.org/10.1002/14651858.CD008886.pub2.
10. Verhagen AP, Downie A, Maher CG, Koes BW. Most red flags for malignancy in low back pain guidelines lack empirical support: a systematic review. Pain 2017;158:1860–8. doi: https://doi.org/10.1097/j.pain.0000000000000998.