

A Report of a Rare Gastric Cancer Case: Leptomeningeal Carcinomatosis

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Abstract

Leptomeningeal carcinomatosis (LMC) from gastrointestinal cancer would be rare. A 56-years old man with complaint of dyspepsia and histopathologic examination of the biopsy specimens has shown: adenocarcinoma. At the end of adjuvant chemo radiation therapy, the patient has affected by headache and mild confusion. In cerebrospinal fluid (CSF) cytology, a plenty of malignant cells have seen and unfortunately after a short time for about 4 days after ICU admission, the patient has died. This could be due to heavy burden of disease in central nervous system.

Keywords: Gastric cancer; Leptomeningeal carcinomatosis

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Introduction

Leptomeningeal carcinomatosis (LMC) has first described by Ebarth in 1870. The overall incidence of LMC for all types of cancer has reported as 3-8% but in autopsy series, this incidence has increased up to 20% [1]. LMC has mostly appeared with leukemia, lymphoma, malignant melanoma, breast cancer and lung cancer. However LMC from gastrointestinal cancers would be rare [2]. The diagnosis has confirmed by examination of the cerebrospinal fluid (CSF). Cytological investigation might indicate the presence of malignant cells. The prognosis would be very poor, as most of the treatments have been palliative.

Case Report

A 56-years old man with complaint of dyspepsia has evaluated by gastroenterologist. He has suffered from pulmonary disease due to exposing to chemical warfare during Iran-Iraq war and he had right-sided heart failure following chronic obstructive pulmonary disease (cor pulmonale). He had no positive familial history of cancer.

He has initially evaluated by barium-meal study, and then has detected an ulcer-niche lesion on body and lesser curvature of stomach.

The patient has undergone upper GI endoscopy and there was a massive lesion of fundus and body of gastric mucosa that biopsy has performed.

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Histopathologic examination of the biopsy specimens has shown: adenocarcinoma, well differentiated, intestinal type. He has completely evaluated for metastatic disease. All of blood tests including liver-kidney function tests were normal. CT scan of neck, thorax and abdomino-pelvic cavity was normal except thickening of proximal gastric wall and several lymphadenopathy at celiac chain.

At echocardiography, he had normal LV systolic function and LVEF was 86% but right atrium and ventricle were enlarged. He has undergone total gastrectomy in November 2012 and histopathologic examination of surgical specimens has shown: adenocarcinoma, intestinal type, grade II with extension to subserosa. 11 of 11 lymphnodes metastatic, proximal and distal margins were without tumoral involvement. Staging: T3 N3. Post-operative CEA was 6.2. He has referred to Oncology department five weeks after surgery for adjuvant therapy. The patient has planned for concurrent chemoradiation with capecitabine 1000 mg twice daily continuously during radiation by 180 cGy in one daily fraction for five days in week and for total dose of 5040 cGy.

He was good and general condition was satisfactory and ultrasonography of abdominopelvic cavity at week 5 of treatment was normal. The patient has affected by headache and mild confusion at the end of adjuvant chemo radiation. Therefore, he has admitted in hospital for reanimation and

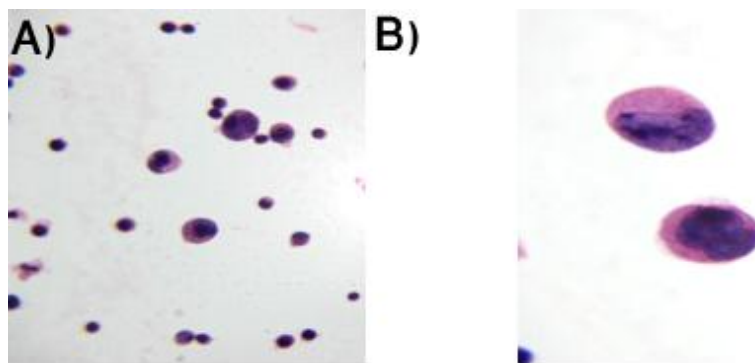


Figure 1. Cerebrospinal fluid cytology has shown atypical cells with hyperchromatic and lobulated nuclei and high nucleocytoplasmic ratio. Some reactive lymphocytes have been also present in the background. (H&E stain).

further evaluation. The consciousness status has shortly become worse, therefore; he has admitted in ICU.

He had neck rigidity and hypotension, therefore, on basis of neurologist consultation brain MRI has performed and there was no space occupying lesion, then lumbar puncture has performed for CSF examination.

At CSF cytology, plenty of malignant cells have seen (Figure 1 A&B). In biochemical study, CSF glucose was 57 mg/dl, protein was 680 mg/dl and LDH was 82 mg/dl with simultaneous blood sugar and LDH was 116 mg/dl and 432 mg/dl respectively. Unfortunately after a short time about 4 days after ICU admission, the patient has died (May 2013).

Discussion

Leptomeningeal carcinomatosis (LMC) from gastric cancer has been extremely rare [2]. The incidence of LMC has appeared increasing, perhaps due to longer survival of patient with malignancy and has been reported to occur in 2% to 25% of patients with cancer [3, 4] nevertheless, LMC has still considered infrequent, and it would be variable clinical manifestations that has made clinical diagnosis difficult to achieve [5]. Symptoms and signs of meningeal irritation including headache, confusion, cranial nerves deficits and seizures [3]. The definitive diagnosis of LMC have only done by documenting the presence of malignant cells in the CSF, but in one-third of the patients, the CSF cytology was not diagnostic, and repeated CSF cytological examination would be necessary [3,6]. Other findings in CSF examination might include elevated CSF pressure, pleocytosis, increased

protein and LDH concentration and decreased glucose concentration. Diagnosis has supported by a cerebral MRI but only MRI with Gd contrast has revealed the pathology, while cerebral CT or MRI without contrast might be negative [7]. The treatment of LMC has decided on the basis of the patient general condition and the control status of primary lesion but still had a poor prognosis. Radiation therapy, systemic chemotherapy, intrathecal (IT) chemotherapy and palliative therapy have been used. Most chemotherapeutic agents have not penetrated the BBB (Blood Brain Barrier), and given by direct IT administration. Agent that could be used for IT chemotherapy includes MTX, thiotepa, cytarabine and steroid. There would be no evidence to support the superiority of combined therapy over single agent therapy [8]. MTX has been one of the most useful agent for IT chemotherapy. The median survival of LMC has reported to be 4 to 6 months despite systemic or IT treatment [9]. LMC from a gastric cancer has been extremely rare and histopathologic type of gastric cancer in most cases has been signet ring carcinoma [2]. In our case the histopathologic type was adenocarcinoma, intestinal subtype. LMC mostly appears in the advanced stages of cancer [1] and most cases have multiple metastatic lesions outside the nervous system, including liver, lung and bone [10]. Our patient had no overt metastatic lesion at first presentation in the initial work up. In studies, the time between the first recognition of cancer and establishing the diagnosis of LMC has been approximately 12 months [11] but in our case this interval was very short (about 6 months) this could be explained by possible occult metastatic disease at the time of initial presentation. The median survival after diagnosis of LMC for patient with solid tumors has been ranged from 4 to

11 months [1, 12] but our patient has died very soon, this could be due to heavy burden of disease in his central nervous system.

Conclusion

Leptomeningeal carcinomatosis has been a rare entity and unfortunately had very poor outcome. Newly onset neurological symptoms should alert the physician to any CNS involvement and presence of malignant cells in CSF is the key of diagnosis and treatment should be established immediately.

Intrathecal MTX chemotherapy has seemed to be effective in terms of symptom improvement and might improve quality of life among patient with a short life expectancy.

Acknowledgment

None declared.

Conflict of Interest

There was not any kind conflict of interest regarding this study.

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