Gastric Lymphoma with Secondary Trigeminal Nerve Lymphoma: A Case Report

Warissara Rongthong, M.D.

Department of Radiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand.

ABSTRACT

Data supporting the role of radiotherapy in secondary trigeminal nerve lymphoma is scarce. Here, I report the case of 64-year-old Thai male diagnosed as gastric diffuse large B cell lymphoma with secondary trigeminal nerve lymphoma. He had previously received one cycle of cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP), followed by five cycles of rituximab plus CHOP (R-CHOP) with intrathecal methotrexate (MTX) and cytarabine (Ara-C). One month after the last cycle of R-CHOP, he developed a headache and numbness on the left side of his face. MRI revealed thickening of the left trigeminal nerve. He received one intrathecal injection of MTX and Ara-C, followed by systemic chemotherapy. After receiving intrathecal chemotherapy, his symptoms disappeared. Clinical response and MRI studies suggested secondary trigeminal nerve lymphoma. Two months later, our patient's secondary trigeminal nerve lymphoma had progressed. Salvage whole brain irradiation (36 Gy) with boost dose (50 Gy) along the left trigeminal nerve was given. Unfortunately, our patient developed heart failure and expired during the radiotherapy session. In conclusion and specific to secondary central nervous system lymphoma (SCNSL), radiotherapy may benefit patients who fail to respond to systemic chemotherapy and palliative treatment. The results this report fail to support the role of radiotherapy in secondary trigeminal nerve lymphoma.

Keywords: Gastric lymphoma; secondary trigeminal nerve lymphoma; radiation therapy (Siriraj Med J 2017;69: 143-146)

BACKGROUND

Gastric lymphoma with secondary trigeminal nerve lymphoma is a rare clinical presentation. Although multiple case reports of primary and secondary malignant lymphoma of the trigeminal nerve have been published, evidence supporting the role of radiotherapy in both conditions remains scarce.[1-5] The following case report profiles the first reported case of gastric lymphoma with secondary trigeminal nerve lymphoma in a Thai patient. Clinical characteristics and treatments are discussed, including the treatment protocol and outcome of radiotherapy in this patient.

CASE REPORT

Here, I report the case of a 64-year-old Thai male who was diagnosed with gastric diffuse large B cell lymphoma (DLBCL) 2 years earlier. At that time, he presented with abdominal distension, loss of appetite, and weight loss. Gastric ulcer with nodule was found by esophagogastroduodenoscopy (EGD). Pathology revealed diffuse large B cell lymphoma (CD3-, CD20+, BCL2 few weak+, ki-67: 70-80%, CD30-). On CT imaging, a 6 cm mass was observed to have invaded the right atrium, inferior vena cava (IVC), and pericardium. Moreover, multiple enlarged lymph nodes found on CT had invaded the liver, spleen, right kidney, and stomach. Echocardiogram confirmed pericardial effusion with good LVEF (62.7%) and a mass in the left atrium, right atrium, and IVC. The patient had received one cycle of cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP), followed by five cycles of rituximab plus CHOP (R-CHOP) with intrathecal methotrexate

Correspondence to: Warissara Rongthong
E-mail: warissara.ron@gmail.com
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(IT-MTX) and cytarabine (Ara-C). PET/CT was performed one month later, which showed mild FDG-avid (SUV max 2.4) thickening of the posterior antral wall (1.6 cm in maximal thickness), suggestive of viable residual gastric tumor.

A few days later, he developed a headache and numbness on the left side of face. MRI revealed thickening of the left trigeminal nerve. Cerebrospinal fluid cytology was negative. Our patient then received one intrathecal injection of MTX and Ara-C, after which his clinical condition improved. Re-evaluated bone marrow biopsy was negative, but PET/CT still showed mild FDG-avid (SUV max 3.6) posterior antral wall thickening (1.2 cm in maximal thickness), which was suggestive of viable residual gastric lymphoma. In response, rituximab was given every 2 months for 3 cycles. Follow-up PET/CT after chemotherapy detected a new marked FDG-avid (SUV max 16.6) soft tissue lesion at the right anterior abdominal wall involving the external oblique muscle, internal oblique muscle, transverse abdominis, and adjacent soft tissue along the 10th and 11th ribs – all suggestive of active lymphoma with muscular and soft tissue involvement. Accordingly, 3 cycles of ifosfamide, carboplatin, and etoposide (ICE) were given. PET/CT at one month after that course of chemotherapy was negative and stem cell transplantation was planned.

Two months later, our patient returned with pain and numbness on the left side of face that had persisted for one week prior to this hospital visit. Physical examination detected left masseter muscle atrophy and a decrease in sensation along left trigeminal nerve distribution. MRI revealed increasing size and enhancement along the left foramen rotundum and foramen ovalae compared to previous MRI, suggestive of lymphoma involvement (Fig 1). A small meningioma at the left frontal region was also observed on MRI. However, dural metastasis of lymphoma could not be ruled out. As a result, the patient was treated with whole brain irradiation with a dose of 36 Gy (Fig 2), with a boost dose to 50 Gy along the left trigeminal nerve (Fig 3). The patient was clinically stable during the radiotherapy treatment and after receiving irradiation at a dose of 42 Gy, he developed heart failure and expired.

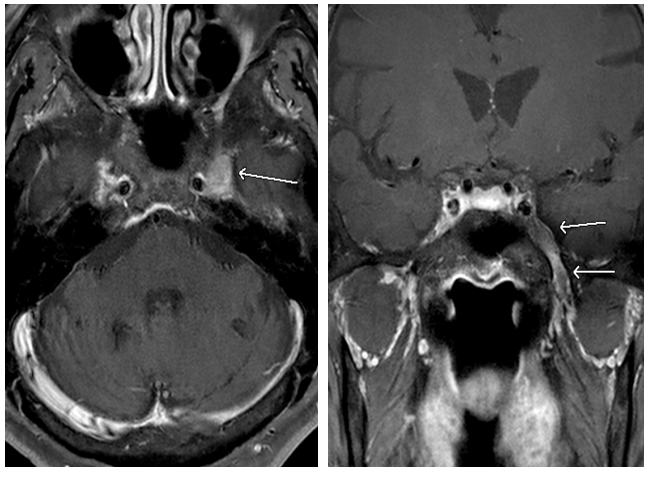

Fig 1. Prominent and enhancement along left foramen rotundum and foramen ovalae (white arrows).

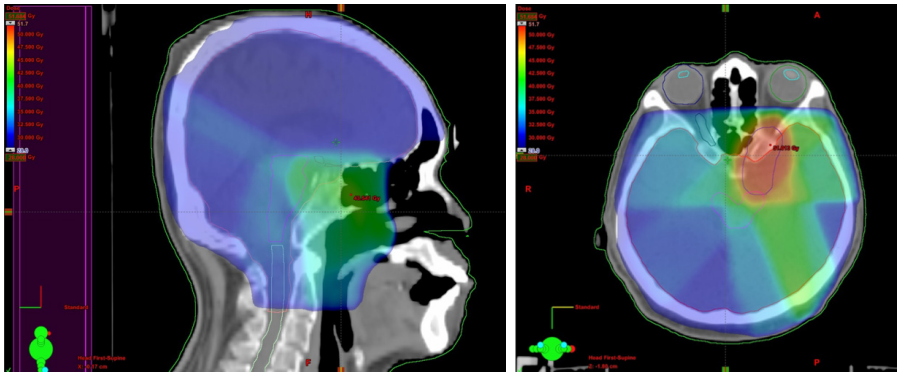

Fig 2. Whole brain irradiation dose 36 Gy.

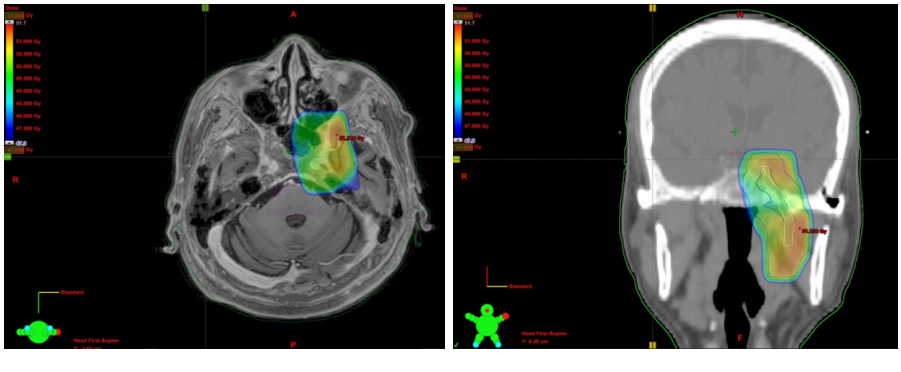

Fig 3. Boost dose along left trigeminal nerve to 50 Gy. MRI simulation (left) and CT simulation (right) are fused for target delineation.

DISCUSSION

Radiation therapy plays an important role in the treatment of primary central nervous system lymphoma (PCNSL). The central nervous system (CNS) is known as being a sanctuary site that systemic drugs are only rarely able to reach. Radiation therapy (RT) was historically used as the sole modality in all age groups, but results were disappointing. Median survival in these patients was only 12 months.[6] After the introduction of high-dose systemic methotrexate, an agent that crosses the blood-brain barrier, sequential high-dose methotrexate-based chemotherapy followed by radiation therapy became standard treatment for tolerable patients with Karnofsky Performance Status (KPS) ≥40. This combined treatment improved the survival rate in patients younger than 60-year-old and median survival increased to 50 months. However, it failed to show survival benefit in older patients.[7,8] Thus, patients older than 60 years may defer consolidation RT to avoid radiation neurotoxicity and reserve RT for salvage therapy.

In contrast, radiation therapy has limited role in secondary central nervous system lymphoma (SCNSL). Aims of treatment for SCNSL are to control CNS and systemic disease, and to prevent neurologic morbidity. Optimal treatment is still unknown. Various treatment options include high-dose intravenous (IV) chemotherapy, intrathecal (IT) chemotherapy, radiation therapy, and high-dose corticosteroids. Choice of treatment depend on disease site and patient factors. In general, high-dose IV chemotherapy (e.g., MTX, Ara-C) followed by high-dose chemotherapy with hematopoietic stem cell transplantation (HCT) without radiation is usually given to patients with parenchymal disease, with or without leptomeningeal involvement.[9-15] Radiation therapy is generally reserved for patients who have failed IV or IT chemotherapy, those with bulky parenchymal or spinal involvement, and those who are unfit for high-dose systemic chemotherapy.

Trigeminal nerve lymphoma is a rare clinical presentation. The majority of published case reports of trigeminal nerve lymphoma profile cases of primary trigeminal nerve lymphoma. Both primary and secondary trigeminal nerve lymphoma present with facial pain and hypesthesia. Cranial nerve biopsy is the gold standard for diagnosis. MRI finding includes gadolinium enhancement and enlargement of cranial nerve. Cerebral spinal fluid (CSF) cytology does not have high sensitivity for diagnosis. Combined clinical manifestation with MRI finding is a beneficial non-invasive diagnostic method.[2,16-18] The patient profiled in this report had typical clinical manifestations and MRI findings. Even when secondary trigeminal nerve lymphoma is judged to be the most likely diagnosis, infiltrative tumor, infection, and inflammation of the left trigeminal nerve should be considered possible differentially diagnoses.

Treatment of primary trigeminal nerve lymphoma is normally extrapolated from the treatment protocol for PCNSL. Kinoshita M, *et al*. reported a complete clinical response in a patient receiving rapid infusion of high-dose MTX and craniospinal irradiation (CSI).[2] Two other case reports of patients who were given high-dose chemotherapy followed by whole brain irradiation found no recurrence at the 15-month follow-up in one patient and at the 30-month follow-up in the other.[1,4]

Treatment for secondary trigeminal nerve lymphoma is consistent with the treatment protocol for SCNSL. High-dose IV chemotherapy plays an important role in controlling both CNS and systemic disease. The patient profiled in this report received intrathecal MTX and Ara-C, followed by systemic chemotherapy. Although confirmed biopsy at the trigeminal nerve was not performed, clinical response after giving intrathecal MTX and Ara-C suggested therapeutic diagnosis of secondary trigeminal nerve lymphoma. The patient's symptoms then disappeared for 2 months. Whole brain irradiation (36 Gy) with boost dose along left trigeminal nerve to 50 Gy was given as salvage treatment. During the radiotherapy session, the patient still had numbness on the left side of his face and no clinical response was observed. Due to the incomplete course of radiation therapy in this report, evidence supporting the benefit of radiotherapy in secondary trigeminal nerve lymphoma is still lacking. Specific to SCNSL, radiotherapy may benefit patients who fail to respond to systemic chemotherapy and palliative treatment.

CONCLUSION

Secondary trigeminal nerve lymphoma is a rare clinical presentation that has a poor prognosis. First-line treatment is high-dose systemic chemotherapy, which is extrapolated from secondary central nervous system lymphoma. Clinical response can be achieved with intrathecal chemotherapy and/or systemic chemotherapy. Although radiotherapy may play an important role in salvage therapy and palliation, the results of this case report do not support the role of radiotherapy in secondary trigeminal nerve lymphoma.

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Conflict of interest declaration

The author hereby declares no personal or professional conflicts of interest regarding any aspect of this report.

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