CASE REPORT

Headache: Could it be Esophageal Cancer?

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Introduction: Brain metastasis in patients with primary esophageal carcinoma is rare and has a poor prognosis. Here we report a case with brain metastasis as the initial presentation for patient's esophageal cancer.
Case Presentation: A 59-year-old Caucasian female with history of diabetes mellitus type 2 and hypertension presented with worsening headaches and neck stiffness lasting 4 weeks. Soon thereafter, she developed imbalance and difficulty walking. A brain MRI was done and showed diffuse brain lesions with the largest being in the cerebellum. Patient was referred to our hospital and further investigations revealed that patient had primary esophageal adenocarcinoma.
Discussion: Brain metastasis secondary to esophageal carcinoma is rare. In this patient, brain metastasis was the initial presentation from the underlying esophageal carcinoma.

Keywords: Esophageal adenocarcinoma, brain metastasis, headache

INTRODUCTION

Esophageal carcinoma has proven to be one of the most difficult malignancies to cure, compounded by an extremely poor prognosis. Esophageal carcinoma is the seventh leading cause of cancer deaths in men in the United States.

The likelihood of brain metastasis from an esophageal carcinoma has been reported to be 1-5%.[1] Studies indicate the median survival rate of an esophageal cancer with brain metastasis as 3.9 months, further worsening an already grim prognosis.

CASE PRESENTATION

A 59-year-old Caucasian female with a past medical history of diabetes mellitus type 2 and hypertension presented with worsening headaches and neck stiffness for 4 weeks. Patient was seen by her primary care physician and diagnosed with an ear infection and was started on an antibiotic regimen. Soon thereafter, she developed imbalance and difficulty walking. As symptoms did not resolve, meclizine was added. Worsening headaches ensued with nausea and vomiting, mainly in the morning. She had some intermittent confusion, dizziness, and frequent falls. Subsequently, Brain Magnetic Resonance Imaging (MRI) was ordered.

The brain MRI showed multiple brain lesions with the largest being in the

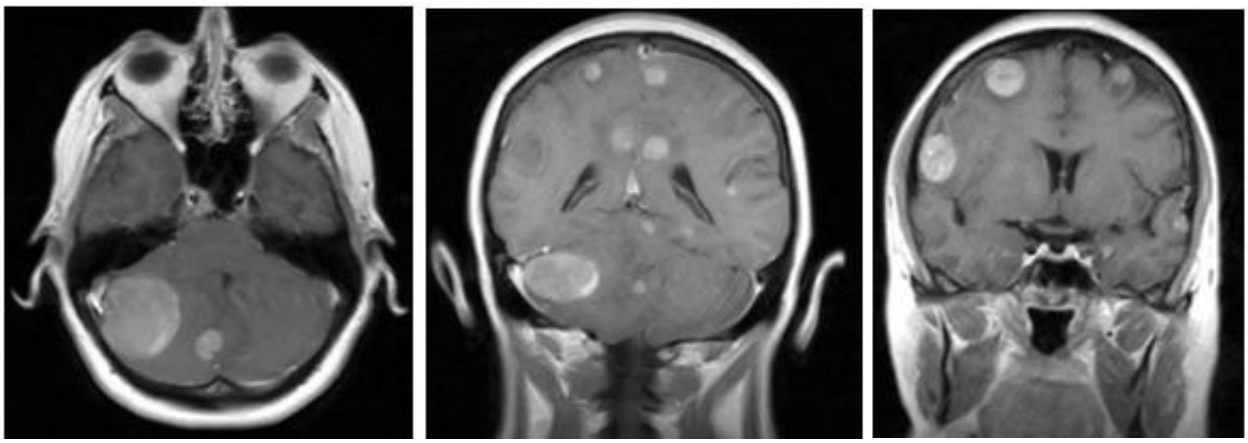

Figure 1. T1 axial and coronal with gadolinium Brain MRI showing multiple brain metastatic lesions.

cerebellum (Figure 1). At presentation, the rest of her review of systems was unremarkable and the patient had no other medical illnesses. On examination, her blood pressure was 167/100 mmHg, and had decreased motor activity in her left lower extremity with a 4/5 motor function compared to a 5/5 on the right side. She had intact sensations, normal deep tendon reflexes, and cranial nerves. Patient was noted to have ataxic gait and diplopia, but no papilledema was appreciated on the exam. The rest of her physical exam was unremarkable.

Imaging included a CT of her chest, abdomen and pelvis, which showed two right lung upper lobe nodules, hilar lymphadenopathy, as well as incidental finding of bilateral acute pulmonary emboli. Biopsy to one of the lung nodules showed metastatic moderately differentiated adenocarcinoma, mostly of a gastrointestinal source. Upper endoscopy was performed and showed a gastro-esophageal (GE) junction malignant looking mass (Figure 2), which was biopsied and was found to be an adenocarcinoma. Colonoscopy was unremarkable. Venous Doppler US to her lower extremities showed right sided DVT. An IVC filter was placed. Anticoagulation was withheld due to multiple brain metastases and an increased risk of bleeding. A PET scan showed an increased uptake in the lung nodules, as well as the peri-hilar lymph nodes. Patient was started on Dexamethasone injections and received whole brain radiation therapy. She finished chemotherapy systemically. Since the tumor was Human Epidermal Growth Factor Receptor 2 positive (HER 2+) the patient received Herceptin based chemotherapy. Herceptin, as part of the systemic chemotherapy, has shown significant benefit in overall survival in HER 2+ metastatic esophageal GE junction tumors. Ultimately, the patient chose to pursue hospice care.

DISCUSSION

Common causes for brain metastasis are usually lung cancer, breast cancer, colorectal cancer and melanomas[2] (Table 1). It has been suggested that the route of spread to the brain is via the vertebral venous system.[3] A study performed by Rice et al., showed that brain metastasis occurred in 20 of the 29 cases a year after an esophagectomy was performed[4], highlighting the importance of a neurological evaluation during an esophageal carcinoma follow up. While the median survival of stage IV esophageal carcinoma is 10 months and a 10% survival rate at 5 years[3], the median survival rate with brain metastasis drops to 3.9 months.[4]

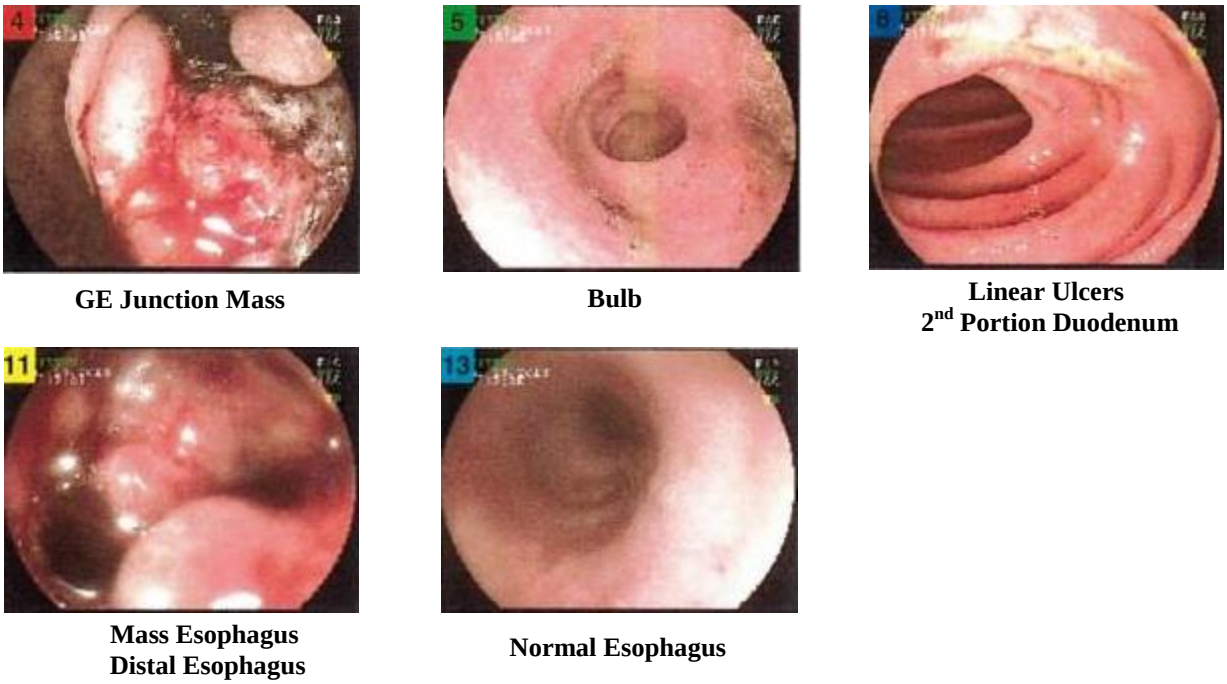

Figure 2. Upper endoscopy images demonstrating lower esophageal/GE junction mass biopsies consistent with adenocarcinoma.

It has been suggested by Ogawa et al., that multimodal treatment may result in a better prognosis in cases of brain metastasis. A subgroup of patients with limited brain metastases[1,5,6] and with good performance status who are also candidates for surgery, stereotactic radiosurgery, and/or radiotherapy may have slightly better outcomes than patients with several brain metastases and poor performance status.[3] Ogawa et al found that all patients who survived more than 1 year (14% of patients) had received both stereotactic radiosurgery as well as radiotherapy. Patients with esophageal carcinoma and brain metastases generally do poorly with a solitary brain lesion despite it being amenable to surgical treatment or above stated local modalities, however they may have a better outcome if they have a good Karnofsky Performance index, which translates into better tolerability for therapies and better prognosis.[3]

The key message from this particular case is that a headache, which is sudden or recent in onset, in patients older than 40 years, severe and progressive in nature, and associated with neurologic manifestations, such as cerebellar symptoms, should be further investigated with imaging modalities to rule out other less benign causes. Also, though it is rare, brain metastasis can still happen secondary to esophageal carcinoma.

Table 1. Most common origin sites of brain metastasis.[6]

Common origins of brain metastasis:
Lung Cancer
Breast Cancer
Colorectal Cancer
Melanoma
Renal Carcinoma
Thyroid
Unknown

Notes

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References

1. Song Z, Lin B, Shao L, et al. Brain Metastases from Esophageal Cancer: Clinical Review of 26 Cases. World Neurosurg. 2013 Feb 19. doi:pii: S1878-8750(13)00344-6. 10.1016/j.wneu.2013.02.058. [Epub ahead of print] PubMed PMID: 23435161.
2. DeAngelis, Lisa M., and Teri Nguyen. "Treatment of Brain Metastases." J Support Oncol 2.5 (2004): 405-16. Print.
3. Ogawa, Kazuhiko, Takafumi Toita, Hiroo Sueyama, et al. "Brain Metastases from Esophageal Carcinoma." Cancer 94.3 (2002): 759-64.
4. Rice TW, Khuntia D, Rybicki LA, et al. Brain metastases from esophageal cancer: a phenomenon of adjuvant therapy? Ann Thorac Surg 2006; 82: 2042-2049, 2049.e1-e2
5. Quint, Leslie E., Lisa M. Hepburn, Isaac R. Francis, et al. "Incidence and Distribution of Distant Metastases from Newly Diagnosed Esophageal Carcinoma." Cancer 76.7 (1995): 1120-125. Print.
6. Spallone, and Chiara Izzo. "Esophageal cancer presenting as a brain metastasis: A case report." Oncol Lett 6.3 (2013): 722-724.