

Rare Site of Colorectal Cancer Metastasis in Sella Turcica Missed on Initial Brain Imaging: The Importance of using Multiple High Quality Scans with Low-Slice Thickness

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Abstract

Around 20% of all colorectal cancer (CRC) patients initially present with metastatic disease, most commonly in liver, lymph nodes and lungs. CRC brain metastases occur in less than 3% of patients, usually in late-stage of the disease. CRC metastases in sella turcica, to the best of our knowledge, have only been described in handful of cases.

We present 53-year old patient with colon cancer and metastases in liver and lymph nodes, who developed solitary metastasis in sella turcica with perineural invasion of the orbit 6 months after initial diagnosis of CRC. The patient initially presented with cavernous sinus syndrome. However, despite using high-sensitive imaging methods (brain CT on 8th and 11th day and brain MRI on the 14th day of the eye symptoms), we failed to demonstrate the cause of the symptoms. As the patient's condition was worsening, additional MRI was conducted on the 25th day of the symptoms and finally revealed typical sellar metastasis, an irregular expansive formation that spreads from sella turcica to left cavernous sinus and perineurally invades left orbit.

This case showed that negative results of brain imaging do not exclude the possibility of brain metastasis in patients with distinctive clinical presentation and highlight the need of using high-quality, low-slice thickness brain imaging whenever possible.

Keywords

brain imaging; cavernous sinus syndrome; colorectal cancer; radiotherapy; sella turcica metastasis

Introduction

Around 20% of all colorectal cancer (CRC) patients initially present with metastatic disease [1]. CRC brain metastases are registered in less than 3% of the patients and almost always in late-stage disease [2], with the most common sites of metastasis being temporal, parietal and occipital lobe (62%) [3]. CRC sellar metastases have only been described in a handful of cases, as this region is mostly invaded by breast and lung cancers which are responsible for over 2/3 of all cases [4].

Majority of sellar metastasis are silent. When symptomatic, patients present with new onset of diabetes insipidus or oculomotor, trochlear or abducens nerve palsy [5]. There are no clear therapy

guidelines for sellar metastasis, but transsphenoidal surgery with adjuvant radiotherapy is often performed. Radiotherapy alone is also a viable option for patients in poor condition [4]. Results are modest, with the longest described survival of 17,5 months [6].

Case Presentation

A 53-year old male was diagnosed with sigmoid colon adenocarcinoma with liver and abdominal lymph node metastases in March 2015. Mayo Clinic regimen chemotherapy was started and by July 2015. patient successfully finished 3 full courses.

In mid-August 2015. patient complained of double visions and intermittent headaches. Neurological exam confirmed left oculomotor nerve palsy with left eye ptosis. An emergency CT brain scan was performed on August 20th, but no morphological cause of symptoms was identified (figure 1). Two days later patient reported progressive headache and occasional drowsiness with newly registered left abducens nerve palsy. New brain CT was conducted on August 23rd but again, no lesion was found (figure 2).

The patient's state deteriorated further, and on August 24th, abnormal left pupillary response to light was registered as well. Brain MRI was performed on August 26th (figure 3) but even after additional analysis with radiology team, no morphologic cause that could explain symptoms was found.

Patient's condition worsened so an orbital MRI was performed on 7th September (figure 4), finally revealing the cause of symptoms - an irregular expansive formation, isointense to the brain, spreading from sellar region to lateral part of cavernous sinus and perineurally spreading to the orbit alongside with left optical nerve, which is pushed medially. As the formation grew into to orbit, rather than destroying the pituitary gland, laboratory results showed no signs of systemic hormonal disorders such as diabetes insipidus.

We applied palliative radiotherapy on tumor bed with TD 30 Gy in 10 fractions which alleviated patient's headaches. Unfortunately, patient progressed and died 2 months after initial symptoms of brain metastasis.

Discussion

As our patient symptoms rapidly progressed towards cavernous sinus syndrome and with already present metastatic disease, brain metastases were always the most likely culprit [7]. However, CT scans on 8th and 11th day of the symptoms, and MRI on the 14th day were all negative. Only the orbital MRI on 25th day, on a more powerful machine, identified typical sellar metastasis, with expansive perineural growth and dumbbell shape [8,9].

This is the first case which described sellar metastasis with negative initial brain imaging. The principal importance of this case is showing that negative results of brain imaging and the lack of hormonal disorders do not exclude the possibility of brain metastasis in patients with distinctive clinical presentation.

Figures



Figure 1



Figure 2

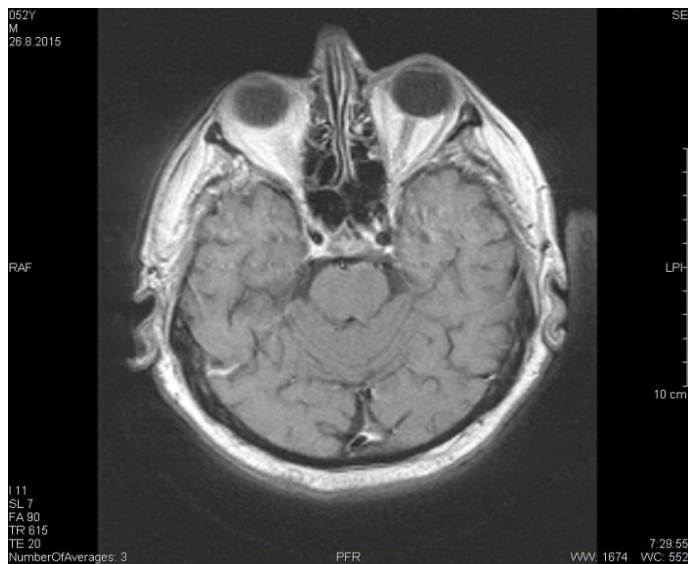


Figure 3



Figure 4

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Manuscript Information: Received: August 12, 2016; Accepted: October 13, 2016; Published: October 15, 2016

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Citation: Golcic M, Bukovica AM, Dobrila-Dintinjana R, Čubranić, Belac-Lovasić. Rare site of colorectal cancer metastasis in sella turcica missed on initial brain imaging: the importance of using multiple high quality scans with low-slice thickness. *Open J Clin Med Case Rep.* 2016; 1173

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