A Rare Case of Drop Metastasis along Lumbar Column of Glioblastoma Multiforme

Um caso raro de metástase em gota ao longo da coluna lombar de glioblastoma multiforme

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Arq Bras Neurocir 2024;43(4):e369–e371.

Abstract

Glioblastoma Multiforme (GBM) is a malignant primary brain tumor. Drop metastasis is an intradural extramedullary spinal lesion that originates from an intracranial site. It is rare to have the incidence of drop metastases in a patient diagnosed with Glioblastoma Multiforme. We present and discuss a case report on a 35-year-old patient treated for GBM who presented drop metastases after the surgical procedure.

Keywords
- Glioblastoma Multiforme
- drop metastasis
- neuroimaging

Resumo

Glioblastoma Multiforme (GBM) é um tumor cerebral primário maligno. Metástase em gota é uma lesão espinhal extramedular intradural que se origina de um sítio intracraniano. É raro ter a incidência de metástases em gota em um paciente diagnosticado com Glioblastoma Multiforme. Apresentamos e discutimos um relato de caso sobre um paciente de 35 anos tratado para GBM que apresentou metástases em gota após o procedimento cirúrgico.

Palavras-chave
- Glioblastoma Multiforme
- metástase em gota
- neuroimagem

Introduction

Glioblastoma Multiforme (GBM) is a malignant primary brain tumor and reaches from 12% to 15% of the intracranial neoplasms.[1] It usually occurs in older patients and has a median survival of 15 months.[2,3] Drop metastasis is an intradural extramedullary spinal lesion that originates from a superior site inside the central nervous system. This is a rare incident and appears in only 1-2% of patients with GBM.[1] The mechanism proposed is tumor extravasation via cerebrospinal fluid, and the likelihood increases with surgical manipulation. Herein, we present a case report on a 35-year-old patient treated for GBM who presented drop metastases along the spinal cord after a surgical procedure.

received
November 3, 2023
accepted
October 21, 2024

DOI https://doi.org/10.1055/s-0044-1795136.
ISSN 0103-5355.

Thieme Revinter Publicações Ltda., Rua do Matoso 170, Rio de Janeiro, RJ, CEP 20270-135, Brazil

Case Report

A 35-years-old man presented to our neurosurgical department presenting a 1-month behavior changes, memory impairment and heavy bilateral headache. At this moment, the patient was also experiencing nausea, vomiting, phono and photophobia. The physical examination showed presence of palmomental reflex asymmetric at the right while the stimulus was in the left hand; Hoffman's sign and grasp reflex were also present only in the left hand. There was not any other strength, sensibility or reflex alteration and Mini Mental State Examination presented 32 points with deficiency to remember the three words The patient was submitted to magnetic resonance imaging (MRI) that demonstrated a right frontal expansive cystic lesion, which measuring 7.4 cm causing mass effect. The diagnostic suspicion at the time neuroimaging was released was Glioblastoma Multiforme considering the accelerated evolution and the absence of any other malign lesion. As the patient was young, had only 1 lesion and was presenting symptoms of intracranial hypertension, we judged to precede the neurosurgical intervention. Neurosurgical treatment was realized, and the pathological exam diagnosed Glioblastoma Multiforme WHO grade IV. After the surgery, the patient presented strength alteration in the left arm, 4/5, that improved completely after 5 days of recovery; he was referred and initiated radiotherapy with Temodal.

Six months after the first medical appointment, the patient was referred to neurosurgery after falling from their own height, nausea, vomiting, confusion and headache. The physical examination had no alteration. MRI and lumbar puncture were obtained, and infectious hypothesis was excluded. Symptoms were discussed as possible radiotherapy side effects. Approximately 20 days after this episode, the patient evolved with important neck and legs pain, difficulties walking, mental confusion, disorientation, vomiting, and headache. Physical examination findings were ataxic walk, dysmetria and dysdiadochokinesia; inferior members' strength impairment 3/5 and hyperactive tendon reflexes. Further neuroimaging was required, and brain and spine MRI were performed (►**Figs. 1**–**3**). The patient continued to lower the level of consciousness. Neuroimaging identified the possibility of base disease's liquoric dissemination to cerebellar vermis, 9-11th cranial nerves bilaterally and to cervical, thoracic and lumbar spine (drop metastases).

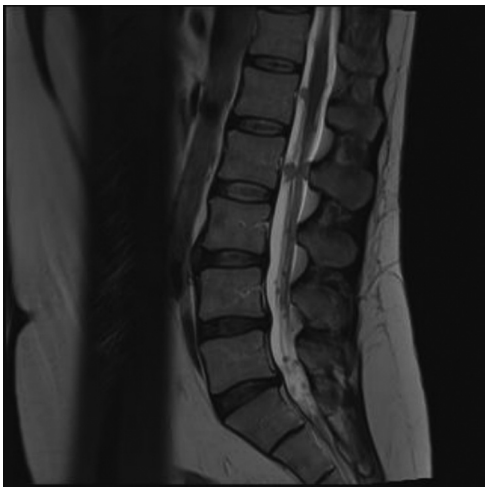

Fig. 1 Sagittal post contrast MRI T1 of the lumbar and lumbosacral spine showing dural lesion at the level of L1 until conus medullaris.

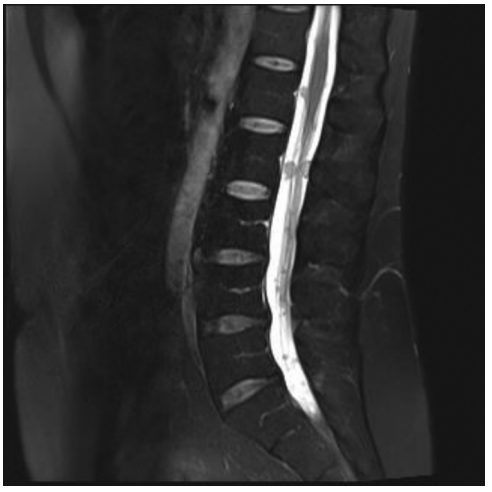

Fig. 2 Sagittal post contrast MRI T2 of the lumbar and lumbosacral spine showing dural lesion at the level of L1 until conus medullaris.

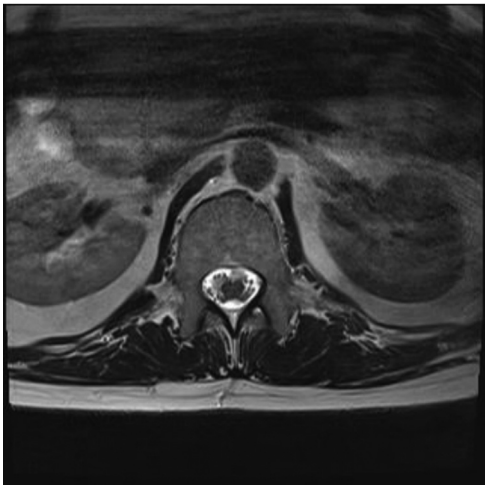

Fig. 3 Axial post contrast MRI T2 of lumbar spine showing dural lesion at level of L1.

Discussion

Glioblastoma Multiforme is the most aggressive diffuse glioma of astrocytic lineage and is classified based on World Health Organization (WHO) as grade 4. GBM is the most common brain and central nervous system (CNS) malignancy, computing 45.2% of malignant primary brain and CNS tumors. The incidence rate reaches 3.19/100,000 patients per year, the median age of diagnosis is 64 years and the survival average is 15 months.[2] Despite treatments, only 5% survive during 5 years after diagnosis.[4] Our patient was 35-years-old, the incidence of GBM in patients with 35-39 years old is

$<2\%$[2] and despite our effort and treatment survived 7 months after the diagnosis, lower than the average. Likewise, we present a rare case for its clinical findings.

It is recognized that approximately 2% of patients who undergo surgical resection of GBM later present spinal drop metastasis.[1] The mechanism proposed is the mechanical rupture of the blood-brain barrier. This affection is considered rare. Our patient was affected by Glioblastoma located in right frontal lobe, but after presented metastases in brain steam, cerebellum and cervical, thoracic and lumbar spine. The most common locations for metastases are lumbar and lumbosacral regions, even if it is rare.[4] In many cases, patients with spinal drop metastasis remain asymptomatic, with pain presented only 25% to 33% of the cases.[1] This is an example of the value of MRI when this type of complaint is seen, as our case reported.

The spinal dissemination of GBM is related with promptly deterioration and the management is primarily palliative.[1] Treatment for metastasis of cerebral GBM is not consensus, the undefined margins turn challenging the surgical resection of intramedullary GBM. Radiotherapy is the most frequently proposed treatment modality, and this treatment is only palliative for a temporary pain decreased but no neurological improvement.[4] After the diagnosis of intramedullary metastases, the survival time diminishes to 3-4 months.

In our case report, we were faced with a patient with a few important symptoms. Our decision to treat right the time when the first MRI was obtained should have increased the survival time and further quality of life for 4 months. However, advancements in detection and therapeutic approaches have resulted in increased survival time and therefore increased detection of extracranial metastases of GBM.[1] At newer manifestations, the patient was undergoing radiotherapy, and the evidence were according to possible side effects. The patient presented affected imaging together with the clinical worsening and with poor physical findings.

Conclusion

Our case reports rare aspects of a patient affected by Glioblastoma Multiforme. This case highlighted the importance of adequate conduct in front of patients who undergo malignant lesions and have minor physical findings. Even with the efforts, GBM continues to be a challenge to neurosurgeons, radiologists, and oncologists.

Conflict of Interest

The authors declare that there is no conflict of interest.

Acknowledgments

The authors received no financial support for the research, authorship and/or publication of this article.

References

1 Sibanda Z, Farahani N, Ogbonnaya E, Albanese E. Glioblastoma Multiforme: A rare case of Spinal drop metastasis. World Neurosurg 2020;144:24–27. Doi: 10.1016/j.wneu.2020.08.086
2 Thakkar JP, Dolecek TA, Horbinski C, et al. Epidemiologic and molecular prognostic review of glioblastoma. Cancer Epidemiol Biomarkers Prev 2014;23(10):1985–1996
3 Medhkour A, Chan M. Extremely rare glioblastoma multiforme of the conus medullaris with holocord and brain stem metastases, leading to cranial nerve deficit and respiratory failure: a case report and review of the literature. Surg Neurol 2005;63(06): 576–582, discussion 582–583
4 Robert T, Martinez-Mañas R, Ruíz DSM, Morard M. Cervical intramedullary metastasis from cerebral glioblastoma multiforme: case report. Clin Neurol Neurosurg 2014;123:61–63

