Glioblastoma case reports

2023

A 51-year-old male presented after a fall with progressive dizziness, ataxia, and worsening headaches with a small, frontal ring-enhancing lesion. After clinical and radiographic progression, the patient underwent a stereotactic needle biopsy, confirming an IDH-WT World Health Organization Grade IV Glioblastoma, followed by LITT. The patient was subsequently started on adjuvant temozolomide, and 60 Gy fractionated radiotherapy to the post-LITT tumor volume. After 3 months, surgical debulking was conducted due to perilesional vasogenic edema and cognitive decline, with H&E staining demonstrating perivascular lymphocytic infiltration. Postoperative serial imaging over 3 years showed no evidence of tumor recurrence. The patient is currently alive 9 years after diagnosis. Multiplex immunofluorescence imaging of pre-LITT and post-LITT biopsies showed increased CD8 and activated macrophage infiltration and programmed death ligand 1 expression. This is the first depiction of the in-situ immune response to LITT and the first human clinical presentation of increased CD8 infiltration and programmed death ligand 1 expression in post-LITT tissue. Our findings point to LITT as a treatment approach with the potential for long-term delay of recurrence and improving response to immunotherapy [1)].

An elderly man with advanced glioblastoma developed neuro-cognitive deficits that were reversed by methylphenidate. After tumor resection from the right frontal lobe, he received cranial irradiation, temozolomide, and Tumor Treating Fields (TTFields). MRI afterward showed enhancements near the resection cavity and the contralateral frontal lobe. The patient experienced mild executive dysfunction that was not limiting his activities. Adjuvant temozolomide was started along with TTFields. After 2 cycles, his brain MRI showed stable disease, but he exhibited significant executive dysfunction. Methylphenidate improved his neuro-cognitive slowing in cycles 3 and 4. His disease eventually progressed during the 5th cycle, and he experienced a marked decline in activities. A repeat head MRI revealed tumor progression and cerebral edema. Treatments were discontinued while dexamethasone improved his neurological functions and bevacizumab biosimilar was later added. This case demonstrates the activity of methylphenidate for managing executive dysfunction in patients with glioblastoma while minimizing the use of dexamethasone [2)]

2022

A 69-years-old previously healthy male was admitted to the emergency room due to signs of increasing cognitive impairment, weight loss, changes in behavior, difficulty in walking, and prolonged episodes of nausea over the past month. A magnetic resonance imaging (MRI) brain scan revealed hyperintense changes in the periventricular area surrounding brain ventricles in T2 and FLAIR, and post-contrast leptomeningeal enhancement and thickening of meninges involving cerebellar sulci. An additional MRI scan of the cervical spine showed an in-core contrast-enhancing lesion on the C7-Th1 level as well as leptomeningeal thickening and post-contrast-enhancement around the spinal cord. Various laboratory tests and two stereotactic biopsies were performed with no essential to diagnosis clinical findings. A couple of months after the first hospital admission, the patient died. Post-mortem examination of the brain revealed numerous foci of abnormal tissue inside the subarachnoid space,

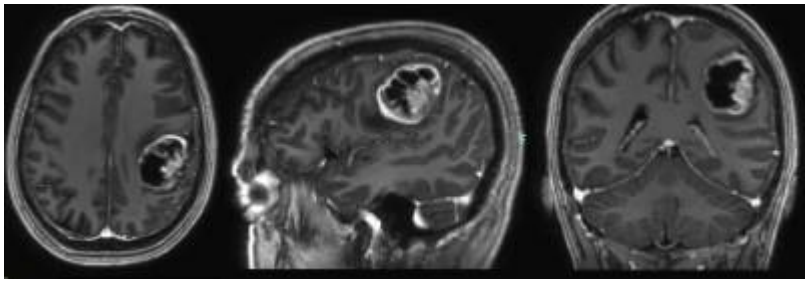
lateral ventricles, and cerebral aqueduct. Histological examination showed diffuse malignant astroglial neoplasm, and a diagnosis of glioblastoma NOS WHO G IV was established. Even though the appearance of the usual Glioblastoma is widely recognizable, one must bear in mind the possibility of unusual presentation. The presented case highlights the diagnostic difficulties of diffuse glioblastoma with atypical clinical presentation [3].

A 57-year-old man presented with seizures. Until the seizure onset, he had been treated for thyroid cancer and its metastases to the thoracic vertebral body with the multi-receptor tyrosine kinase inhibitor (RTK) lenvatinib for 4 years. MRI revealed a slightly high intensity lesion in the left frontal base area on T2-weighted or fluid-attenuated inversion recovery (FLAIR) images, and the lesion showed only faint enhancement on T1-weighted images after gadolinium administration. Total resection was performed and the histopathological diagnosis was glioblastoma. However, grade IV histology was observed in only a limited area, and the majority of the specimen showed lower grade histology with moderate vascularization that lacked microvascular proliferation.

Lenvatinib, which is anti-angiogenic, might have affected the radiological characteristics, as well as the pathology of the tumor. Brain tumors arising during treatment with RTKs for other cancers could show atypical imaging findings [4].

59-year-old female patient with previous history of Type 2 diabetes mellitus.Dyslipidemia. Obesity, active smoking, 1 pack / day. Proteinuria> 300 mg / gr with preserved renal function . Chronic anemia. Shoulder capsulitis. Glaucoma,

Admitted from the emergency room due to the finding of a frontoparietal lesion during the study of paresthesias. Self-limited episodes of 1-2 min duration of paresthesia in the right side of the face located in the mouth corner and right nasolabial fold to the eye with a sensation of “tic”. He also presents paresthesias and numbness in the 1st-2nd and 3rd right hands.



Left frontoparietal LOE that appears to be a primary neoplasm, probably of a high-grade glial type, as a first diagostic trait without being able to completely rule out a single mtx. Incidental finding of a well-defined intraconal LOE of the left orbit, which on the image shows a cavernous hemangioma

Postoperative complication: Wound dehiscence.

1)
Chandar JS, Bhatia S, Ingle S, Mendez Valdez MJ, Maric D, Seetharam D, Desgraves JF, Govindarajan V, Daggubati L, Merenzon M, Morell A, Luther E, Saad AG, Komotar RJ, Ivan ME, Shah AH. Laser Interstitial Thermal Therapy Induces Robust Local Immune Response for Newly Diagnosed Glioblastoma with Long-term Survival and Disease Control. J Immunother. 2023 Sep 19. doi: 10.1097/CJI.0000000000000485. Epub ahead of print. PMID: 37727953.

2)
McGillion-Moore J, Sampath P, Wong ET. Methylphenidate Reversal of Executive Dysfunction in a Patient with Bi-Frontal Lobe Glioblastoma. R I Med J (2013). 2023 Feb 1;106(1):7-10. PMID: 36706198.
3)
Stapińska-Syniec A, Rydzewski M, Acewicz A, Kurkowska-Jastrzębska I, Błażejewska-Hyżorek B, Sobstyl M, Wierzba-Bobrowicz T, Grajkowska W. Atypical clinical presentation of glioblastoma mimicking autoimmune meningitis in an adult. Folia Neuropathol. 2022;60(2):250-256. doi: 10.5114/fn.2022.117267. PMID: 35950477.
4)
Arai N, Sasaki H, Tamura R, Obara K, Yoshida K. Unusual magnetic resonance imaging findings of a glioblastoma arising during treatment with lenvatinib for thyroid cancer. World Neurosurg. 2017 Aug 10. pii: S1878-8750(17)31314-1. doi: 10.1016/j.wneu.2017.08.017. [Epub ahead of print] PubMed PMID: 28804045.