

18-F-FDG PET/CT Finding of Intramedullary Spinal Cord Metastases from Cerebellar Medulloblastoma – Case report

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1. Case Presentation

A 20- years old female patient, diagnosed case of right cerebellum medulloblastoma, post excision, adjuvant chemotherapy, and radiotherapy in 2018. Presented with right eye swelling in 2021. Brain MRI revealed a right frontal parasagittal mass lesion and left lateral cerebellar mass, highly suggestive of disease recurrence. Total spine MRI showed interval development of new intra-axial lesion at the level of the cervical medullary junction, highly suggestive of Intramedullary spinal cord metastasis (Figure 1). The

patient received palliative radiotherapy for the brain lesions. Post-therapy 18-F-FDG PET/CT scan was done and revealed multiple hypermetabolic lesions seen in the supra and infratentorial regions, representing the known metastatic lesions (Figure 2). In addition, there is interval development of multiple hypermetabolic spinal cord lesions in keeping with Intramedullary spinal cord metastasis (Figure 3). The patient developed lower back pain with neurological deficits. She was referred to palliative team follow-up and palliative radiotherapy to the sacral area.

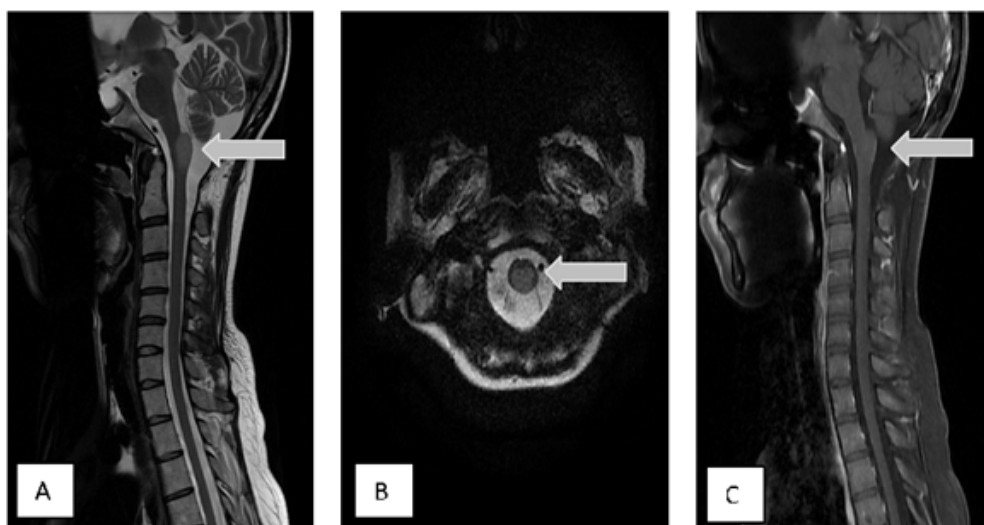


Figure 1: A. Sagittal-T2WI, B. Axial T2WI and C. Sagittal T1WI post contrast MRI images showed intra-axial lesion at the level of medullary cervical junction (arrow). It is high signal intensity on T2WI (A & B) and showed faint enhancement (C) in keeping with a metastatic lesion.

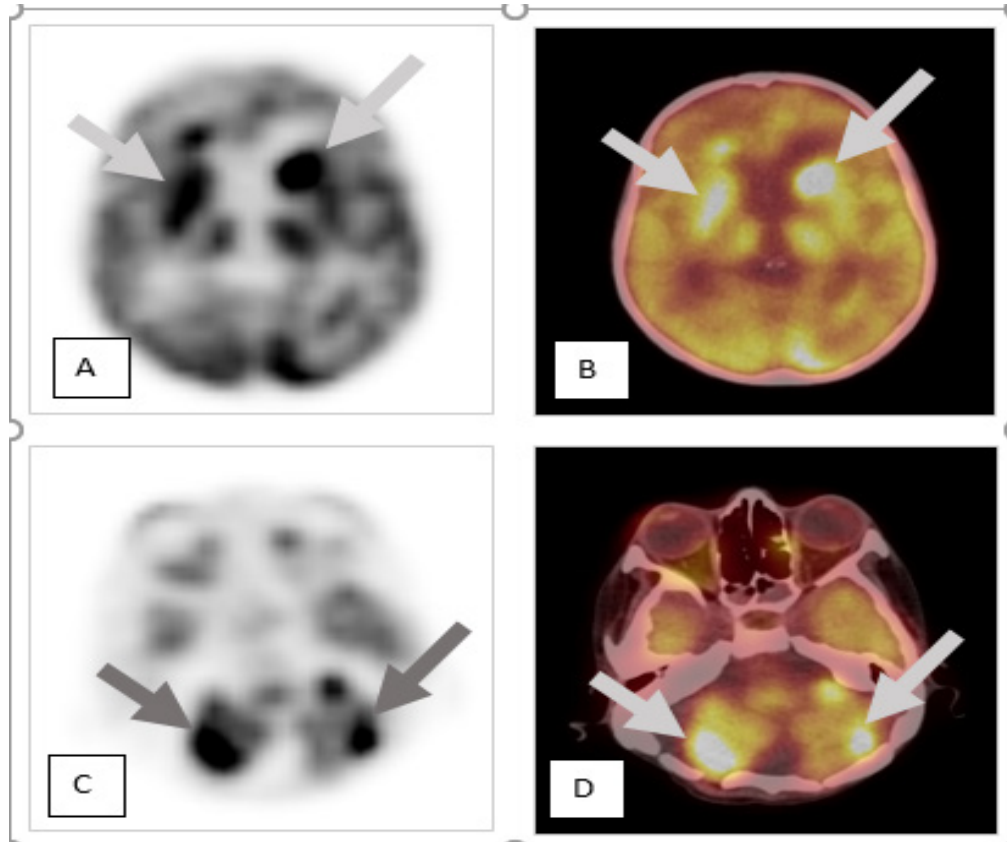


Figure 2: 18-F FDG PET/CT axial brain showed multiple intensely 18-F-FDG avid hypermetabolic lesions in the supra-tentorial periventricular area (A&B) and infra-tentorial bilateral cerebellar (C&D) in keeping with known metastatic lesions.

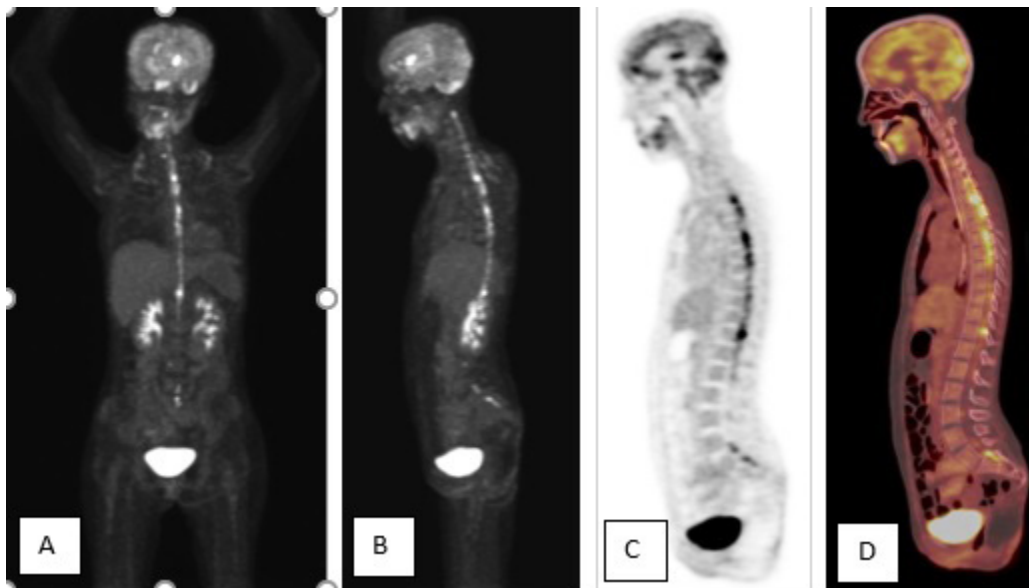


Figure 3: Maximum intensity projection images MIP(A&B), PET sagittal (C), and fused PET/CT sagittal (D) of 18F FDG PET/CT scan showing multiple heterogeneous and intense FDG uptake noted along the cervical-thoracic-lumbar-sacral spinal cord in keeping with ISCM.

2. Discussion

Intramedullary spinal cord metastasis (ISCM) or what used to be called "Drop metastasis" is rare, constituting only about 8–9% of all CNS metastases [1,2]. Those can be seen in association with extracranial as well as primary intracranial tumors. ISCM from primary intracranial and is very rare [3]. Some CNS primary

neoplasms can metastasize and seed inferiorly to the spinal cord spaces, most commonly glioblastoma (GBM), anaplastic astrocytoma, medulloblastoma, ependymoma, and choroid plexus carcinoma. The ISCM from the extracranial tumors most originates from lung cancer (50%), with the remaining from breast cancer (11%), colorectal cancer (3%), kidney cancer (10%), melanomas

(8%), and lymphomas (4%) [1,4]. Early suspicion of spinal drop metastasis and early start of treatment is required to improve the neurologic deficit, quality of life, and survival of these patients [5]. In our case, the 18-F FDG PET/CT scan showed good diagnostic value in detecting spinal cord metastases in a patient with relapsed medulloblastoma. 18-F FDG PET/CT is useful in the diagnosis and characterization of central nervous system tumors and the uptake intensity correlates with the type of tumor, histological grade, and survival outcomes [6]. Although High-quality spinal MR imaging with contrast is considered the method of choice to detect spinal cord metastasis, there is growing evidence with cases published in the literature demonstrating 18F-FDG PET/CT imaging in detecting ISCM. Whole-body 18F-FDG PET-CT can serve as an essential adjunct to MRI in identifying FDG avid metastatic spinal cord lesions and directing an enhanced MRI study for precise localization and confirmation of such tumors [7]. Hence, it is worth studying the future potential clinical utility and diagnostic value of 18 F FDG PET/CT versus MRI in the diagnosis and detection of ISCM.

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