Author’s response to reviews

Title: Diagnostic Value of Whole-Body MRI in Opsoclonus-Myoclonus Syndrome: a Clinical Case Series

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Response to Reviewers Comments, Ms. No.BMIM-D-19-00083

Diagnostic Value of Whole-Body MRI in Opsoclonus-Myoclonus Syndrome: a Clinical Case Series (3 Case Reports)

BMC Medical Imaging

General Response: We thank the editor and reviewers for their thoughtful comments and have addressed all concerns in the revised version of the manuscript. A point-by-point response is provided below.

Technical Comments

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Editor Comments

Reviewer reports:

# Amanda Isaac (Reviewer 1)
1.1. The case report is well written and provides a valuable message. More images would be useful including higher resolution MRI axial images would be preferred.

Response: We thank this reviewer for her assessment. We improved the quality of the MRI images and included additional images to the figures of case 1 and 3. We adapted the figure legends as follows:

Figure Legends: “Figure 1. Case 1: 17 months old girl presenting with opsoclonus-myoclonus syndrome.

Whole-body I-123-mIBG scintigraphy with 60 mBq I-123-mIBG did not reveal any pathological tracer uptake (A). WB-MRI revealed a solid left-sided paravertebral mass extending to the correlated neuroforamina (white arrow) at the level of thoracic vertebrae T 9/10 with signal hyperintensity in T2 weighted Turbo-Inversion Recovery-Magnitude (TIRM) sequences (B). In diffusion weighted imaging, correlated restricted diffusion could be detected with low ADC (C and D) and strong enhancement with hyperintensity could be detected in the T1 weighted sequence after the administration of 2 ml gadolinium compound (E and F). L=liver, S=spleen.”

Figure Legends: “Figure 3. Case 3: 13 year old boy presenting with steroidresponsible opsoclonus-myoclonus syndrome.

No I-123 MIBG tracer uptake could be detected in scintigraphy after the administration of 108 mBq I-123-mIBG (A). WB-MRI revealed a paravertebral right-sided retroperitoneal mass (white arrow) at the level of T11 to L1 with hyperintensity in T2 weighted sequences (B, axial T2w and C, coronal) and contrast enhancement in the post-contrast T1 weighted sequence after intravenous injection of 7 ml gadolinium compound (D, native T1 weighted sequence and E, post-contrast T1 weighted sequence). L=liver, S=spleen.”

# Ahmed Abdel Khalek Abdel Razek (Reviewer 2)

2.1. Add more on the basic of this disease in the introduction.

Response: We thank the reviewer for this comment and added the following information to the Background section:

Background section, page 4, 1st paragraph: “Previous studies presumed, that there might be an immune-mediated encephalopathy caused by a cross-reactive autoimmune reaction between neuroblastoma cells and the central nervous system and a variety of antibodies have been described, for example IgM and IgG antibodies to neural tissues and antigens such as components of Purkinje cells, however, the detailed pathogenesis and epidemiology remains unclear (1, 2).”

Background section, page 4, 2nd paragraph: “Interestingly, patients with coincident OMS and neuroblastoma have a favorable survival and non-metastatic disease (3-5). However, there is also research indicating that a delayed diagnosis of OMS may result in late neurological and
neuropsychological sequelae. Especially children with young age at disease onset and children with severe initial symptoms are postulated to be at significant risk of developing long-term neurological sequelae such as cognitive deficits (6, 7). Furthermore, a delayed diagnosis of OMS was found to be associated with neurological and neuropsychological sequelae, thus, the role of early diagnosis of OMS and possibly underlying neuroblastic tumors is of critical importance (6).

2.2. Discuss role of DWI in assessment of neurogenic tumors using these ref


Response: We thank the Reviewer for raising this important point and added the pertaining information to the discussion section:

Discussion, page 9, 3rd paragraph: “Furthermore, diffusion-weighted MRI provides further information about tumor characterization at a cellular level and was found to be a beneficial tool in the differentiation of paraspinal benign versus malignant neurogenic tumors (8). Moreover, due to the high cellular density, neuroblastoma frequently demonstrates diffusion restriction, hence, diffusion-weighted imaging is a critical part of the MRI protocol in the imaging work-up of patients with suspected neuroblastoma (9).”

2.3. English language correction through the manuscript

Response: Language proofreading has been accomplished.

2.4. Discuss role of whole body imaging using this ref


Response: We thank the Reviewer for this comment and added the following important information to the discussion section:

Discussion, page 9, 2nd paragraph: “CT, as a widely available modality, allows for fast acquisition and reduces sedation time. Razek et al. showed, that whole-body CT provides a high detection rate for cortical and medullary bone lesions, spinal fracture and extraosseous spinal lesions (10). However, whole-body CT is associated with significant radiation exposure, which is of particular concern in the pediatric patient population.”
References


