

Magnetic resonance imaging findings in Guillain-Barré syndrome caused by Zika virus infection

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Received: 21 March 2016 / Accepted: 4 April 2016 / Published online: 11 April 2016
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Dear Sir,

The recent Zika virus infection (Zika) epidemic in Brazil has been associated with neurological anomalies, including an increase in the number of cases of microcephaly and, more recently, Guillain-Barré syndrome (GBS) [1, 2]. The correlation between Zika and GBS was first reported in 2013 in French Polynesia [3]. Committees and research groups are being created internationally to study this arbovirus. Since May of 2015, authorities have been issuing warnings about Zika transmission in Brazil, describing its epidemic potential as being similar to that of dengue fever and chikungunya [1, 2].

We would like to present the magnetic resonance imaging (MRI) neural axis findings in a 51-year-old female patient who developed neurological symptoms compatible with acute demyelinating polyneuropathy, characteristic of GBS [4]. She presented in our emergency department with symptoms suggestive of Zika including difficulty walking, non-purulent conjunctivitis, rash, myalgia, and arthralgia for 12 days.

Her neurological examination showed bilateral peripheral facial diplegia and paresis of the lower limbs that was sufficiently severe to necessitate assistance with walking. The patient's serum was tested for a panel of viruses at a reference laboratory and found to be positive for the Zika virus (also confirmed in a urine test), but negative for chikungunya, dengue, herpes, cytomegalo-, syphilis (i.e., venereal disease research laboratory test), human immunodeficiency, human T-lymphotropic, and hepatitis viruses. A cerebrospinal fluid test demonstrated albumin-cytological dissociation compatible with GBS [2, 3], acute inflammatory demyelinating polyradiculoneuropathy subtype [3]. Electromyography of the lower limbs showed a pattern of demyelinating disease. Based on these findings, the patient was given a 5-day immunoglobulin treatment, during which clinical improvements were observed.

Brain MRI (Fig. 1a, b) demonstrated contrast enhancement of the facial nerves, bilaterally in all segments, and also of the right trigeminal nerve. MRI of the lumbar spine (Fig. 1c, d) showed enhancement in the medullary cone, in the roots of cauda equina in dorsal, and in ventral nerve roots; T2 images revealed increased signal intensity in the spinal ganglia bilaterally at all levels of the lumbar spine with intense contrast enhancement. These features have been described in prior cases of GBS [5] and attributed to demyelination, ischemia, inflammation, and breakdown of the blood-nerve barrier, as occurs in autoimmune polyneuropathy [4, 5]. In conclusion, imaging studies can assist in the differential diagnosis of complications in patients with Zika.

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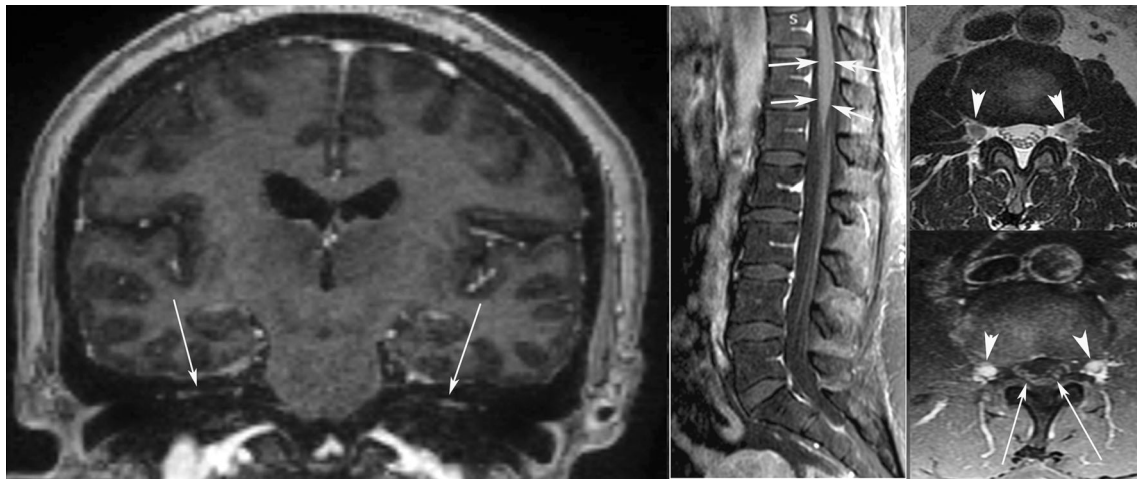


Fig. 1 Diagnostic MRI. **a** Coronal brain T1 MRI with gadolinium contrast (Gd) images showing bilateral facial nerve enhancement (arrows). **b** Sagittal lumbar spine T1 MRI with Gd showing enhancement in the medullary cone (arrow). **c** Axial lumbar-spine T2

MRI showing increased signal intensity in the spinal ganglia bilaterally (arrowheads). **d** Axial lumbar-spine T1 MRI (fast scanning) with Gd showing enhancement of the spinal ganglia (arrowheads) and cauda equina roots (long arrows)

Compliance with ethical standards We declare that all human and animal studies have been approved by the Federal Fluminense University Ethics Committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. We declare that the patient gave informed consent prior to inclusion in this study.

Conflict of interest We declare that we have no conflict of interest.

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