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Journal of Brain and Neurological Disorders
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Case Report

Acute Traumatic Encephalopathy in An MMA Athlete: EEG Findings and Case Study

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Received Date: 17 April 2023 | Accepted Date: 27 April 2023 | Published Date: 04 May 2023

Citation: Marco Orsini., Acary B. Oliveira., Jaqueline F.do Nascimento., Clara de A e Araújo Leite., Eduardo Jorge, et al, (2023), Acute Traumatic Encephalopathy in an MMA athlete: EEG findings and case study, *J. Brain and Neurological Disorders*. 6(3): DOI:10.31579/2642-973X/056

Abstract

Acute traumatic injuries in MMA (Multiple Martial Arts) athletes are frequent. The trauma mechanisms are caused by punches, elbows and kicks. In the acute phase, loss of consciousness, dizziness, headache, and other complaints are frequent. We present the case of an MMA athlete who, after being knocked out, lost consciousness and persisted for weeks with extreme irritability, headache, insomnia, slowed thinking, and incapacitating vertigo.

Keywords: MMA; athletes; JMA; EEG; notorious, acute traumatic encephalopathy; chronic traumatic encephalopathy

Case report:

JMA, 26 years old, male, professional MMA fighter, reports that about 1 month ago (moments after trauma by knockout) he presented with loss of consciousness for a few seconds, visuospatial dysfunction, pounding headache, and five episodes of vomiting. He was evaluated by a doctor at the event and referred to hospital for complementary exams. Laboratory: Normal. Skull CT: No changes. EEG with Brain Mapping: discrete signs of cortical and subcortical dysfunction of nonspecific character with slowing of the dominant posterior rhythm and diffuse increase of the slow theta activity (figure 1-2). About 15 days post-trauma he still presents headache, behavioral changes (emotional lability) and insomnia. During the neurological examination, the reaction time between the tasks requested by the examiner and the conclusion, such as dyscalculia, dysnomia, and even slowness in answering questions related to daily life, drew attention. A "gap" of time between questions and answers is notorious. Medications used: betaistine 24mg 3x a day; dipyrone 500mg every 12 hours, quetiapine 25mg 2x a day; zolpidem 12.5mg at bedtime. Guided not to return to activities involving MMA until full recovery. Alerted to the risks of Chronic Traumatic Encephalopathy.

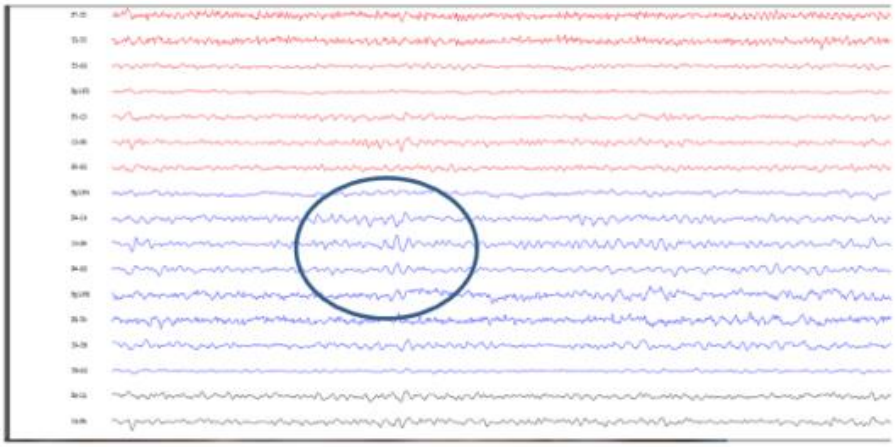

Figure 1: Ondas teta em F4-C4 e em C4-P4

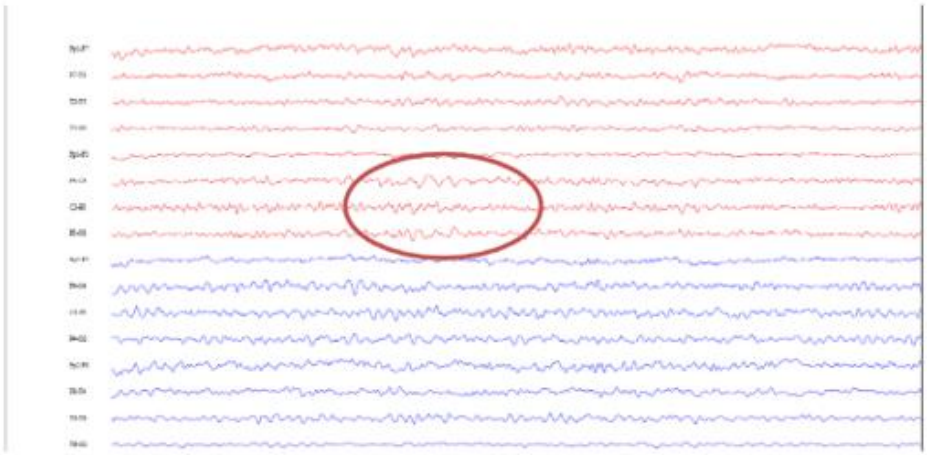

Figure 2: Ondas teta em C3-P3 e em F3-C3

Discussion:

In the detection of acute cerebral concussions, EEG may be more sensitive than neurological examination. After mild traumatic injuries, most patients with abnormal neurological examination have abnormal EEG findings (more than 80% of cases) - as in the present case.

In contrast, only 23% of abnormal EEGs were accompanied by an abnormal neurological examination. EEG changes are not uniform in all patients, probably because of differences in severity and type of trauma [1-2]. To date, EEG is considered the first clinical "neurodiagnostic" assessment that reveals abnormal brain function after traumatic brain injury. Although it has been described since the 1940s in patients the post-traumatic brain injury test is still an excellent tool for identifying the first "electrical" damage to the central nervous system [5].

One of the most common chronic problems that occur as a result of boxing is the chronic progressive encephalopathy of boxers or MMA fighters, which is also called dementia pugilistic or punch drunk syndrome. This syndrome, however, does not only affect boxers; several other sports can trigger it, such as American soccer, soccer, and rugby. Boxer dementia causes problems with attention, memory and concentration, parkinsonian symptoms, disorientation and headaches. As the disease progresses, you notice increased irritability, aggressiveness, mental confusion, poor coordination of speech muscles, and progressive dementia [6].

The patient in the present study presented some of these clinical manifestations after the acute presentation. There is a high probability that athletes who suffer cranial impacts several times and with disproportionate force will develop Chronic Traumatic Encephalopathy [7].

Conclusion:

In view of the above, we elucidate the importance of this post-trauma test, as well as orient the patient of the present case and other MMA athletes about the risks of CTE and its consequences, such as behavioral and dementia symptoms.

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DOI:10.31579/2642-973X/056