



## Fatal Massive Cerebral Infarction in a Child after Mild Brain Trauma: A Case Report and Literature Review

Willen Guillermo Calderon-Miranda<sup>1</sup>, Hernando Raphael Alvis-Miranda<sup>1</sup>, Andres M. Rubiano<sup>2</sup>, Luis Rafael Moscote-Salazar<sup>3\*</sup>

<sup>1</sup>University of Magdalena, Cartagena de Indias, Colombia, South America

<sup>2</sup>Hospital University of Neiva, Neiva, Colombia, South America

<sup>3</sup>University of Cartagena, Cartagena de Indias, Colombia, South America

\*Corresponding author: Luis Rafael Moscote-Salazar

Address: Universidad de Cartagena, Cartagena de Indias, Colombia.

e-mail: mineurocirujano@aol.com

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### ▶ ABSTRACT

Traumatic brain injury is a common entity. However cerebral infarction in infants is a rare entity while the diagnosis of this pathology in the pediatric population is usually difficult. The mild head trauma is rarely accompanied by intracranial injury and even less, with cerebral infarction. We herein report the first case of cerebral infarction after a mild brain trauma in a 2-year-old Latin-American male patient, in which brain computed tomography (CT) scan was performed on the first day of the accident, showed right hemispheric cerebral ischemia compromising the fronto-parieto-occipital region. Conservative management was established. The patient died at day 5. So Brain CT scan may be beneficial to reveal any hemispheric infarction due to a probable mass effect.

**Keywords:** Stroke; Mild head trauma; Brain injury; Neurotrauma.

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### Introduction

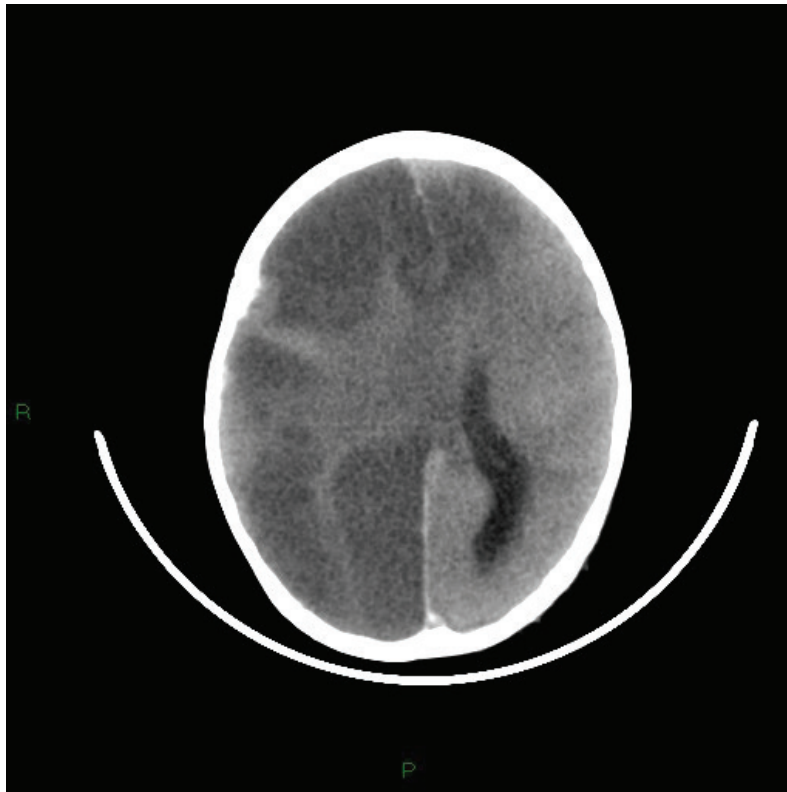
Cerebral infarction in infants is a rare entity while the diagnosis of this pathology in the pediatric population is usually difficult [1,2]. The primary lesions of the posterior traumatic encephalopathy are the contusion and intraparenchymal hemorrhage, but the development of an injury of ischemic type is uncommon [3]. Such pathologies can be associated with hematologic alterations and vascular lesions [4]. The mild head trauma is rarely accompanied by intracranial injury and even less, with cerebral infarction [5-7].

Here, we present a case of child who suffered from a massive cerebral infarction posterior to mild

traumatic brain injury.

### Case Report

A 22-month male infant presented to our emergency department due to head trauma after falling down from his mother's lap while feeding. On admission the patient was conscious with GCS of 15 without nausea and vomiting and without neurologic deficit. Brain CT-scan was performed in admission which was unremarkable (Figure 1). Thus he was observed for 24-hour. At the 2<sup>nd</sup> day of admission, he developed left sided hemiplegia. There was no history of vomiting, altered sleep pattern, seizure, or fever. Physical examination



**Fig 1.** Brain CT scan showed the presence of right hemispheric infarction with mass effect in 22-month infant with mild traumatic head injury.

revealed left symmetrical hemiparesis. Brain CT-scan was performed revealing ischemic infarction involving the entire right hemisphere. Conservative management was provided and the patient was admitted in pediatric ICU. Unfortunately the patient developed decreased level of consciousness and during the hospital course and passed away at day 5.

## Discussion

Kieslich *et al.*, [8] recently described eight cases of cerebral infarction following minor head trauma in children. Mild head trauma is classified as a head impact, associated with loss of consciousness lesser than 5 minutes and post-traumatic amnesia of promptly recovery. Upon arrival to the emergency or shortly after are conscious and orientation with a score between 13 and 15 pointed on the Glasgow Coma Scale (GCS). They may have a scalp wound or subgaleal hematoma, but no fracture at the base or cranial vault. Patient can be afflicted by headache, nausea and absence of vomiting, also fall in this low-risk group, those who refused to have loss of consciousness but did not remember what happened immediately before and shortly after impact. Most patients suffering from mild head injuries achieved good recovery and needed

little care. However, a small number of these patients underwent subsequent neurological impairment due to raised intracranial pressure (ICP) due to edema, or by the presence of an intracranial expansive mass. Therefore, the patient must stay in the hospital about 6 hours to be clinically monitored. Evaluation should be repeated every hour by recording vital signs, and if everything goes normal and the patient has no headache, vomiting or nausea for at least 4 hours, is sent home with family advice and warning signs explanation to return. The patient should be examined at least 2 times a day and to be taken to the hospital before any alteration. If any symptoms or signs are not then incorporated into their usual work and social life, after 72 hours is a general rule. The term would be greater in cases of scalp wounds. It has been suggested that there is a genetic susceptibility in children after traumatic brain trauma. Talvik *et al.*, [9] reported a case of infant who developed a stroke subsequent to a closed head injury. It has been postulated that the pathobiology mechanism involved is the obstruction of lenticulostriate branches originated in the middle cerebral artery [10-12]. So Brain CT scan may be beneficial to reveal any hemispheric infarction due to a probable mass effect.

**Conflict of Interest:** None declared.

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