

# Bilateral Traumatic Thalamic Hemorrhage: A Rare Clinical Presentation

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## Abstract

Bilateral traumatic thalamic hemorrhage is a very rare occurrence, especially after head trauma, and is limited to case reports. The authors present a 27-year-old man, admitted for head trauma causing bilateral thalamic bleeding. Posttraumatic intracerebral bleeding is caused by focal or diffuse axonal injury. Bilateral traumatic thalamic hemorrhage is a rare clinical and radiologic presentation.

## Keywords

- ▶ thalamic
- ▶ hemorrhage
- ▶ bilateral
- ▶ head trauma

## Introduction

The thalamus is one of the areas site most affected by intracerebral hemorrhage.<sup>1–3</sup> Hypertension and diabetes mellitus, as well as antiaggregant and anticoagulant usage, are some of the risk factors for thalamic bleeding.<sup>4</sup> However, bilateral thalamic hematoma after trauma is extremely rare. The authors present a case of symmetrical and bilateral thalamic hemorrhage with a literature review.

## Case Report

A 27-year-old man was admitted to the hospital following a head trauma. Initial neurologic evaluation revealed a comatose patient with a score of Glasgow 3/15, bilateral mydriasis unresponsive, and absence of brainstem reflexes. His computed tomography (CT) of the brain (▶Figs. 1, 2) showed a bilateral thalamic hemorrhage, intraventricular hemorrhage, and cerebral edema without hydrocephalus. The patient died 48 hours after admission.

## Discussion

The prevalence of thalamic hemorrhage in different series of primary intracerebral hemorrhage vary widely from 6%

in the series of Juvela<sup>5</sup> to 15.7% in the series of Tatu et al.<sup>6</sup> However, the general incidence of traumatic basal ganglia hemorrhage is reported between 2.4 and 3% of closed head injury.<sup>7</sup> The incidence is higher in postmortem studies (9.8%).<sup>7</sup>

Bilateral thalamic bleeding occurs mainly due to methanol intoxication, coagulopathies, vasculitis, and infection. Primary hypertensive thalamic hemorrhage is usually unilateral.<sup>8</sup>

Traumatic intracerebral hemorrhage occurs usually at the tip of frontal and temporal poles because of closeness to bony parts, but the thalamic seat is an uncommon clinical and radiologic presentation.<sup>9</sup>

The mechanism is unclear though it is proposed to arise from shear strain of the lenticulostriate or anterior choroidal vessels caused by acceleration/deceleration forces at the time of injury.<sup>9</sup> Both coup and counter coup injuries can cause this and this may cause bilateral lesions.<sup>9</sup>

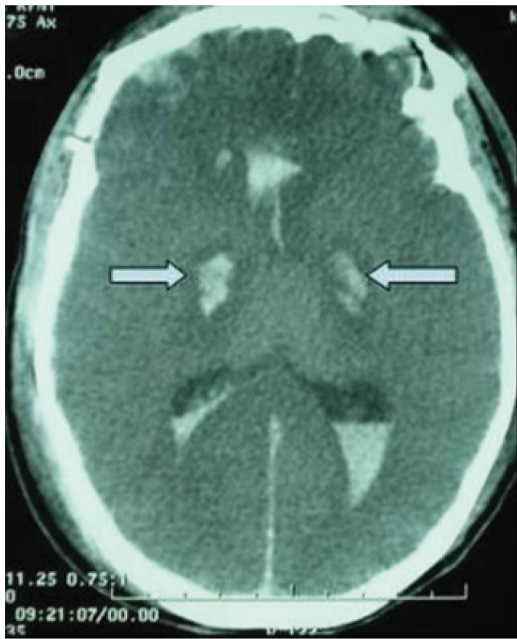
Thalamic hemorrhage can occur by different clinical profiles (sensorimotor disturbances, speech disorders, lacunar syndrome). Diagnosis is easy to install on a CT of the brain, and in this case, we found a bilateral thalamic hematoma producing a mirror image.

Thalamic hemorrhage is a severe clinical condition. The initial level of consciousness was always found to be a predictor of mortality in the different series.<sup>10</sup>

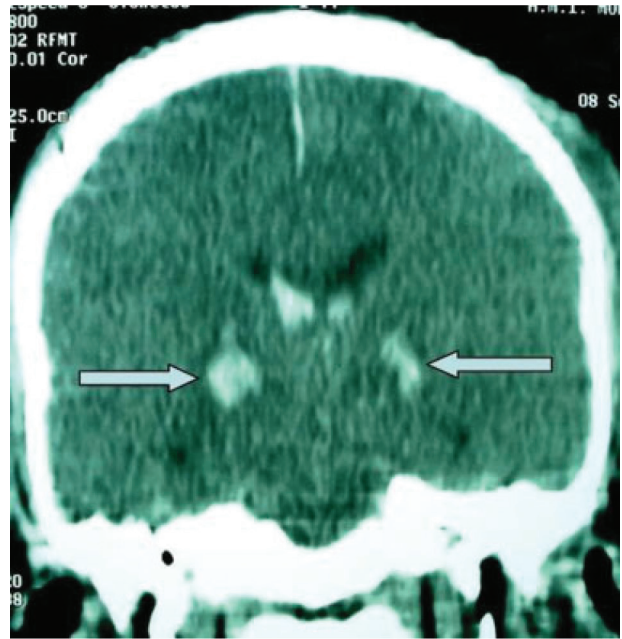
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**Fig. 1** Axial section of a brain scan showing bilateral thalamic hematoma.



**Fig. 2** Coronal section of a brain scan showing bilateral thalamic hematoma, producing a mirror image.

## Conclusion

Thalamus may be the seat of posttraumatic bleeding with even a bilateral and symmetrical location.

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