

# Acute delirium as a form of presentation of a thalamic hemorrhagic stroke

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## ABSTRACT

*Delirium is a frequent cause of decompensation in the elderly, especially with higher prevalence in highly dependent patients, in advanced ages and senile dementia. It is important to always look for the principal cause before treating only the symptom.*

*This case describes a 79-year-old woman with an episode of agitation and disorientation lasting several days, underestimated by its mild nature, but which ends up being a thalamic hemorrhagic stroke.*

*Hemorrhagic stroke is a less common pathology than ischemic stroke but with higher morbidity and mortality. Specifically focused on the thalamus produces behavioral and sensory alterations that can be confused with multiple pathologies.*

*Early identification and approach influence recovery and the sequelae that are being worked with different physiotherapeutic therapies.*

**Keywords:** cerebrovascular disorders, delirium, hemorrhagic stroke, mental disorders, thalamic diseases

## INTRODUCTION

Delirium, or acute confusional state, is defined according to the DSM-5 criteria as a deterioration in attention and consciousness that develops in a relatively short time interval that is associated with other additional cognitive deficits, such as memory impairment [1]. Incidence varies widely by age group and environment, ranging from 10% to more than 80%.

There are several types: the hyperactive characterized by restlessness, agitation, emotional lability, and often hallucinations or delusions; the hypoactive characterized by confusion, apathy, lethargy, and a tendency to sleepiness; and the mixed with characteristics of both.

Regarding stroke, different psychiatric and behavioral disorders are well described in the literature as se-

quelae during hospital admission or discharge, related to higher morbidity-mortality and cognitive impairment [2]. In addition, if there is a previous cognitive impairment it may be difficult to identify if the symptoms are not very flowery [3].

But this case focuses on delirium as the initial and main symptom of a hemorrhagic stroke, less frequent than the ischemic type (10-20%) but usually more associated with severe morbidity and high mortality [4].

## CASE PRESENTATION

The case focuses on a 79-year-old woman whose husband went to the health center because he had noticed that she was different for two or three days. She was as if out of place, somewhat disoriented and un-concentrated, as she had to repeat things to her several

times. This initially downplayed it and related it to a seasonal viral illness. “I didn’t want him to call the doctor” she said.

It was decided to go to her house. At that time, the patient was clearly upset, agitated and reported delusions of harm. Reluctant to explore, when raised she was unable to maintain the bipedal position due to instability. Faced with these symptoms, she was referred to hospital.

As a personal history he had hypertension on treatment with valsartan 160mg and hypothyroidism on treatment with levothyroxine 50mg. She had not attended any medical check-ups (tension, analytical, etc.) for 3 years. Partially dependent for basic activities of daily living (ABVC). She didn’t report toxic habits. Tendency to sedentarism, hardly left home.

According to the hospital emergency report:

Blood pressure 195/103 mm Hg, heart rate 67, temperature 36.2°C, capillary blood glucose 139 and oxygen saturation 100%.

Focusing on neurological examination, the examination of the cranial pairs was normal, the fundus of the eye without papilla edema, and the patellar ROT reflexes were difficult to obtain, the rest being normal reflexes. The cutaneous-plantar reflex was bilateral flexor. Incoherent and repetitive speech, with a tendency to verbiage. Isochoric and normoreactive pupils. Sensitivity was difficult to assess due to the confusional state. Romberg’s sign was positive and the gait and stability were no longer explored due to difficulty in maintaining the bipedal position. No apparent alterations were detected in the rest of the physical examination.

As for the complementary tests: blood tests did not reveal any changes (biochemistry, blood count, urinary sediment), electrocardiogram showed a sinus rhythm without signs of cardiac overload or ischemia, and chest X-ray showed no bronchocardial pathological findings.

However, cranial computed tomography revealed a focal area of 15 × 11 mm intraparenchymal acute bleed-

ing, located in the left thalamic region. It did not cause any significant mass effect or midline deviations (Figure 1).

She was in charge of internal medicine and neurology for the next few weeks, and was finally discharged to continue follow-up in outpatient consultations. He was labeled a thalamic hemorrhagic stroke of probable hypertensive etiology.

As a consequence, he suffered from paresthesia and pain in the lower extremities, which he continues to work with the rehabilitation and physiotherapy services. In addition, since then, she has been working on cognitive stimulation with the occupational physiotherapist of the residential center of the municipality.

## DISCUSSION

Delirium is a frequent cause of decompensation in the elderly, especially with higher prevalence in highly dependent patients, in advanced ages and senile dementia [5]. In addition, it has significant consequences such as increased morbidity and mortality, cognitive impairment, higher incidence of falls and a loss of autonomy [6].

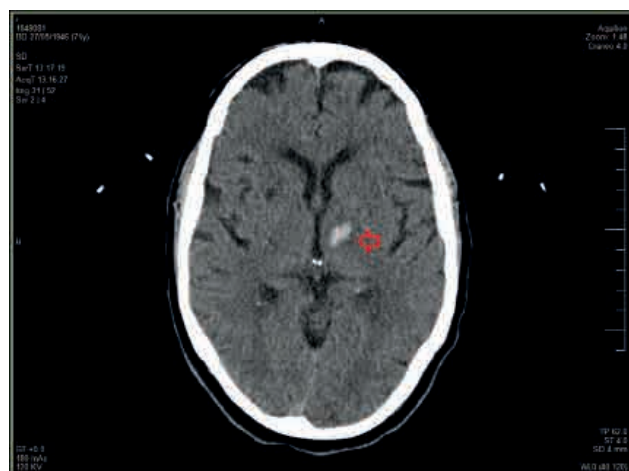
As can be seen in this case, these conditions are poorly understood, nonspecific and confusing; little recognized for both family members and health professionals and not always adequately managed due to overload, multifactoriality, concomitant pathology and the overload of caregivers [1]. It is important not to deal directly without forgetting to rule out organicity or imbalance of the internal environment that may be increasing or producing the alteration.

Although this case does not prove it, the behavioral alteration is also determined by polypharmacy, pharmacokinetics in the elderly and a greater vulnerability to adverse drug reactions [7]. The doses of the drugs in the trials do not always take into account frail elderly people and may underestimate the side effects in this population.

Focusing on hemorrhagic stroke, poorly controlled blood pressure of long evolution is the main risk factor that is producing degeneration and rupture of blood vessels [8]. Other causes are angiopathy due to amyloid deposits, chronic smoking and enolism, chronic liver diseases due to alterations in coagulation and thrombocytopenia, consumption of psychoactive substances (cocaine, heroin, amphetamines), tumors among others.

Specifically, thalamic strokes are included in the group of subcortical strokes, which affect deeper brain regions of the cerebral cortex.

The thalamus regulates memory, emotions, the wake-sleep cycle, some executive functions, the processing of sensory and sensory-motor information. Thus, it is understood that the most frequent symptoms of their dysfunction are numbness and tingling, fol-



**FIGURE 1.** CRANEAL T.C.: Focus of acute intraparenchymal bleeding

lowed by short- or long-term memory loss [9], personality disorders or changes in attention [10], balance disorders, insomnia, difficulties in language or communication, spatial heminegligence, vision problems (such as hemianopsia or diplopia) and chronic neuropathic pain [11].

Not all symptoms can be completely resolved, but early onset of rehabilitation has a significant impact on this. These are conventional physiotherapy, occupational therapy, cognitive therapy and speech recovery, mirror therapy [12] and sensory re-education among others. In this case, numbness and paresthesia were what was continued after hospital discharge, along with cognitive stimulation.

## CONCLUSIONS

Delirium is a frequent cause of consultation in the elderly, usually little understood, poorly recognized and

requiring a lot of work for both the health care provider and the caregivers.

Don't forget that when we're dealing with a delirium, the first thing is to rule out organicity, among its causes, a stroke in case of detecting signs or neurological symptoms altered.

Finally, thalamic hemorrhagic infarction is a rare entity but generally recognized by a behavioral alteration and the processing of sensory information.

## Acknowledgments

We would like to thank the emergency physicians, internists, the neurology service and all primary care physicians who care for the health of the community for their work.

*Conflict of interest:* none declared

*Financial support:* none declared

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