



## PALPITATIONS AND SYNCOPES: AND IF IT WAS A PULMONARY EMBOLISM

Bodian Malick, Sangaré Zoumana, Dr. Mingou Joseph Salvador\*, Yékini Carole Fadila, Aw Fatou, Sarr SA, Jeilany Abdallah, Ndiaye Mouhamadou Bamba, Kane Adama, Diao Maboury, Ba Serigne Abdou

Cardiology Department Aristide Le Dantec.

\*Corresponding Author: Dr. Mingou Joseph Salvador

Cardiology Department Aristide Le Dantec.

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### ABSTRACT

Pulmonary embolism is a common condition whose diagnosis can be difficult because of the highly variable clinical picture. Doppler echocardiography, beyond the evaluation of haemodynamic repercussions on the right ventricle, may reveal intracavitary thrombi. If the adverse prognosis of these situations is well established, their management is far from consensual. . We report the case of a 53-year-old patient who was referred to us for a brief, repetitive, self-limiting loss of consciousness, spontaneously resolving, without biting of the tongue or loss of urine. He reported intense palpitations. The attending physician offered a tilt test. Physical examination noted a B2 brust at the pulmonary focus. An episode of unconsciousness occurred before the installation on the tilt test table and allowed to note a blood pressure impregnable per-critical. Trans thoracic Doppler echocardiography showed dilatation of the right cavities with moderate impairment of systolic function of the right ventricle. There were numerous mobile thrombus in the prolapsing right atrium in the right ventricle in diastole. There was also a thrombus adhering to the apex of the right ventricle. Fibrinolysis was undertaken with streptokinase and this treatment was relayed by anticoagulation. The immediate evolution was favorable with a disappearance of syncope. Doppler ultrasound of the lower limbs revealed left popliteal thrombosis. Control Doppler echocardiography performed on the third day showed no more thrombus; the right ventricle was of normal size and its systolic function was correct.

**KEYWORDS:** *Pulmonary embolism, syncope, thrombus, fibrinolysis, echocardiography, right cavities, Dakar.*

### INTRODUCTION

Pulmonary embolism is a common condition whose diagnosis can be difficult because of the highly variable clinical picture. Doppler echocardiography is an important examination that evaluates its impact on the right cavities: right ventricular overload, free wall hypokinesia, right ventricular systolic dysfunction. It is thus crucial for short-term prognostic evaluation.<sup>[1]</sup> Beyond this, it can reveal intracavitary thrombi, which is the case in 4 to 18% of patients with an increasing proportion due to the accessibility and performance of ultrasonographic examinations.<sup>[1,2]</sup>

If the adverse prognosis of these situations is well established, their care is far from consensual. Between heparin treatment, fibrinolysis and embolectomy, reported case data and meta-analyzes seem disparate. In the absence of large studies, the case-by-case therapeutic approach seems appropriate.

We report the case of a 53-year-old patient, whose clinical picture was not typical and in whom Doppler echocardiography revealed intracavitary thrombi.

### CASE REPORT

This is a 53-year-old patient with risk factor for venous thromboembolic disease obesity, deep vein thrombosis of the left lower limb in 2014. He had a brief loss of consciousness for about 2 minutes, repeated, with the punch, spontaneously resolving, without bite of the tongue nor loss of urine. The patient also described intense palpitations. The attending physician offered a tilt test.

At admission, the general condition was good. The blood pressure was 110/70 mmHg. There was a tachycardia with a heart rate of 101 beats per minute, respiratory rate at 32 cycles / minute, SaO<sub>2</sub> at 92%, BMI at 31. Physical examination noted a burst of B2 at the pulmonary focus. The electrocardiogram recorded a regular sinus tachycardia at 101 cycles / minute, an S1Q3T3 appearance, negative T waves from V1 to V3 (Figure 1).

An episode of unconsciousness occurred before installation on the tilt test table. Peri critical blood pressure was impregnable. Wells Score at 6 and Simplified PESI at 3.

Trans thoracic Doppler echocardiography showed dilatation of the right cavities with moderate impairment of systolic function of the right ventricle (TAPSE = 11 mm, Sat = 9 cm / s). There were numerous mobile thrombi in the prolapsing right atrium in the right ventricle in diastole. There was also a thrombus adhering to the apex of the right ventricle (Figure 2).

There was a mean tricuspid insufficiency with significant pulmonary arterial hypertension (PAPS at 65 mm Hg). The left ventricle was normal.

Doppler ultrasound of the lower limbs revealed left popliteal thrombosis.

Before the echocardiographic data, fibrinolysis was undertaken with streptokinase (1.5 million international units for 2 hours). There was no accident. Heparin therapy (enoxaparin) followed by vitamin K treatment was initiated.

The immediate evolution was favorable with a stable hemodynamic state without recurrence of syncope. Moreover, the patient was very dyspnoeic at the least effort, lethargic and had a hematemesis of less abundance on the third day of admission. Fibroscopy revealed a large ulcer (antral and fundal) that required stopping anticoagulant therapy for 72 hours.

Control Doppler echocardiography performed at the 24th hour revealed persistence of thrombi in the right ventricle; however, their size was smaller.

Control on the third day showed no thrombus; the right ventricle was of normal size and its systolic function was correct (Figure 3).

In addition, vesico-prostatic examination was normal, abdominopelvic CT was unremarkable.

Follow-up at one month was favorable.

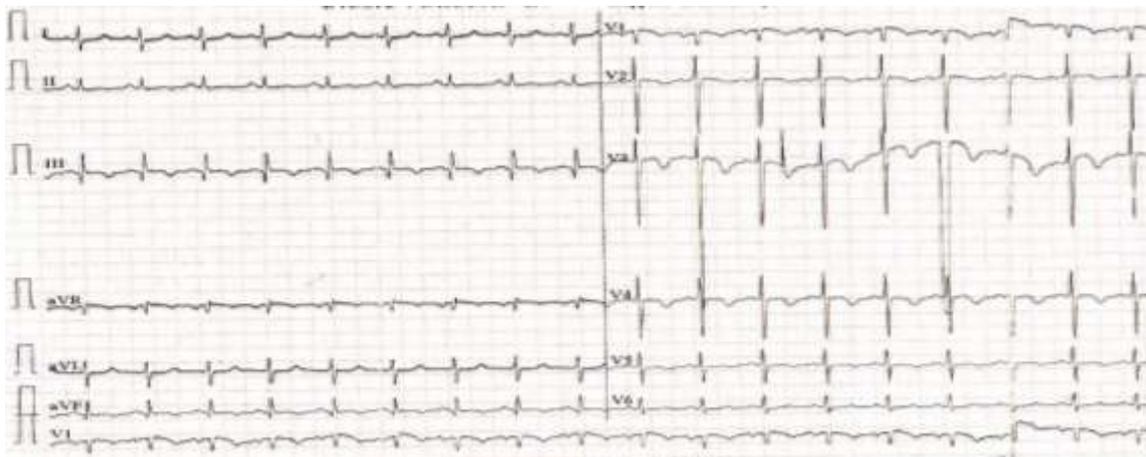


Figure 1: Electrocardiogram recorded a regular sinus tachycardia at 101 cycles / minute, an S1Q3T3 appearance, negative T waves from V1 to V3.

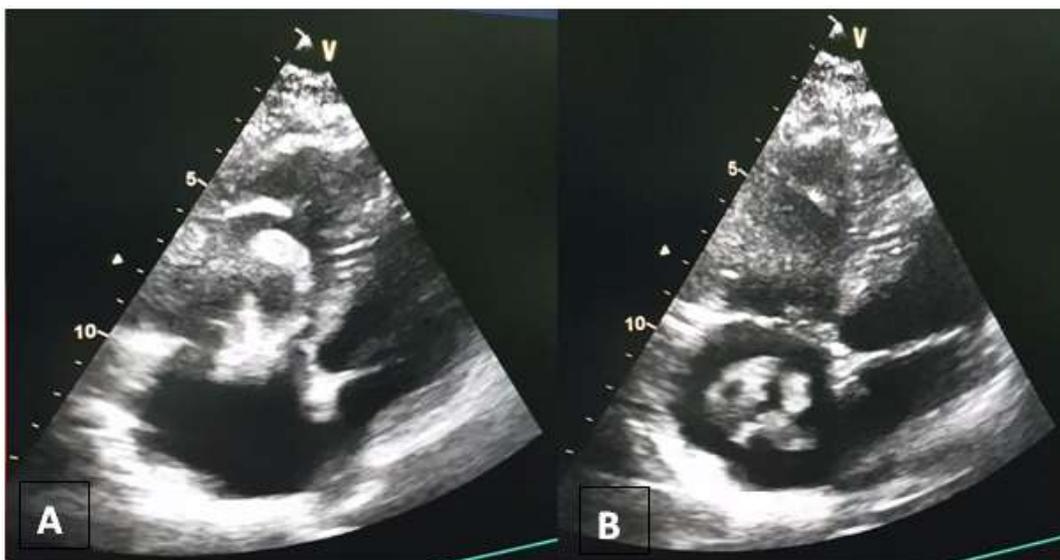


Figure 2: A transthoracic echocardiographic image; apical four- chamber view showing numerous mobile thrombi in the prolapsing right atrium in the right ventricle in diastole (A), a dilatation of right chambers and a voluminous heterogeneous, polylobulated horseshoe-shaped mass, in the right atrium in systolic (B).



**Figure 3: A control transthoracic echocardiographic image on the third day; apical four- chamber view showing small thrombus adhering in the right ventricle, no thrombi in the right atrium.**

## DISCUSSION

Pulmonary embolism is responsible for sometimes confusing clinical pictures. In our case, syncope related to orthostatic hypotension was the first advanced diagnostic hypothesis of the normalization of other explorations. It was rather a syncope which, undoubtedly, is part of the episodic obstruction of the tricuspid valve by the floating part of the clot during pulmonary embolism as described in the literature.<sup>[1]</sup>

Echocardiography has an important diagnostic role when there is suspicion of pulmonary embolism in a context of hemodynamic instability. It must also be considered for the search for thrombi at the level of the right cavities under precise conditions. Trans-esophageal ultrasound can be used for this purpose.<sup>[3,4]</sup>

It is estimated that 4% of patients received echocardiography laboratory for pulmonary embolism and who have thrombi in the right cavities. However, this rate rises to 18% among those in intensive care.<sup>[5,6]</sup>

This presence of thrombus is associated with high mortality with a death rate above 44%.<sup>[7]</sup> Athappan *et al.*, In more recent work, reported a mortality of 23.2%.<sup>[8]</sup>

The short-term prognosis seems to be related rather to the clinical and hemodynamic repercussions and not to the thrombi characteristics (size, morphology, mobility).<sup>[9]</sup>

Doppler echocardiography has evoked the mechanism of syncope, which is usually related to hemodynamic failure resulting from systolic dysfunction of the right ventricle. In our case, the episodic obstruction of the tricuspid valve by the floating part of the clot seems to be the most probable hypothesis.

The management of pulmonary embolism with right intra cavitory thrombi is not consensual because of the absence of randomized studies.

Several therapeutic modalities exist indeed. These include heparin treatment alone, fibrinolysis, catheterization and surgical embolectomy. In our case, fibrinolysis led to an immediate improvement of symptoms with stable hemodynamics and the disappearance of syncope. Fibrinolysis dissolves clots located in the pulmonary arterial bed, in the veins but also those intracardiac. It is a simple treatment, accessible but also of rapid initiation.<sup>[10]</sup> Some series have reported good fibrinolysis results in this case.<sup>[11,12]</sup> On the other hand, the fatal evolution of a case in the absence of fibrinolysis has been reported by Bodian M *et al.* in the same department in 2013.<sup>[13]</sup>

Surgical embolectomy with exploration of the right cavities and the pulmonary artery is a therapeutic possibility.<sup>[1]</sup> However, it is a heavy treatment and is not available in our centers.

The instrumental methods use several techniques: in situ fibrinolysis, fragmentation or aspiration.<sup>[14,15]</sup> These are effective techniques but require equipment and especially some expertise.<sup>[16]</sup>

In a work involving 177 cases described in the literature, Rose *et al.* showed a significant improvement in survival with fibrinolysis compared with anticoagulation and surgery.<sup>[17]</sup>

In another work analyzing 328 reported cases, Athappan *et al.* showed a superiority of fibrinolysis and surgery. The prognostic difference was greater in the subgroup of hemodynamically unstable patients. The mortality outside treatment was 90.9%. Fibrinolysis did not present

more complications.<sup>[8]</sup> Other works, on the other hand, do not show any difference notably in mortality.<sup>[2,5]</sup>

## CONCLUSION

Pulmonary embolism may be misleading. Doppler echocardiography is an important diagnostic tool. Although the treatment of thrombi intra cavitory pulmonary embolism is not consensual, fibrinolysis appears to be an effective therapeutic method that improves the prognosis of patients.

## CONFLICT OF INTEREST

Authors acknowledge no conflict of interest in the submission.

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