

Fig. 2. **A.** Right oblique projection showing new contrast leakage. **B.** MGuard stent implantation. **C.** Right oblique projection of control angiography evidencing absence of contrast leakage

III perforation is associated with a greater incidence of complications and high mortality, ranging between 25% and 40% according to different series. (1)

The first treatment consists in sealing the perforation using an inflated balloon in the rupture site, previous reversion of anticoagulation with protamine. If the artery occlusion is well tolerated, more prolonged balloon dilatations may be done, which might control the perforation. However, it is usually necessary to continue with other measures, such as embolization using coils, uncovered or covered stents with an impermeable coat of polytetrafluoroethylene and use of covered stents coated with a porous polymeric mesh (MGuard), available in multiple diameters and lengths and which enable better navigation than stent grafts. However, it is important to mention that their use in perforations is associated to the development of intrastent restenosis at 9-12 months, so a strict follow-up should be established in this regard.

Concerning CT, both early diagnosis as CP resolution are the fundamental elements to reestablish hemodynamic stability.

In our patient, pericardiocentesis was used to solve CT without need of resorting to revascularization surgery after sealing the perforation.

Coronary perforation with blood flow towards the pericardium may lead to hemodynamic collapse due to CT, an infrequent but potentially lethal complication of PTCA with stent implantation. We assume that given the patient's history, the complication was influenced by the implantation of a stent on a lesion with high fibrous content. It was successfully resolved by implanting micro-mesh stents, sealing the perforation, and performing percutaneous pericardial drainage. We emphasize the importance of strict echocardiographic control after this complication.

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/Supplementary material).

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Incidental Finding of Thrombus-in-Transit in the Right Ventricle

The detection of free-floating thrombi in the right ventricle (RV) is a very rare event, especially if no thromboembolic events have been documented. This finding is a medical emergency requiring immediate treatment due to its high mortality.

We present the case of a free-floating thrombus detected in a 27-year-old female patient undergoing preoperative risk assessment for plastic surgery.

The patient referred no symptoms; however, in the directed interrogation, she mentioned fatigue and intolerance to moderate exertion for the past 3 months, after undergoing sclerotherapy of lower extremity varices. The patient was a current smoker of 10 cigarettes per day, and her usual medication was oral contraceptives (ethinyl estradiol associated with drospirenone). At the physical examination her heart rate was 80 beats per minute, blood pressure was 120/80 mmHg and oxygen saturation 98%, with no relevant findings per system except for mild bilateral ankle edema. The electrocardiogram evidenced sinus rhythm with negative T waves from V3 to V6. She was referred to the Doppler echocardiography laboratory, where a transthoracic study (Figure 1) revealed a 8 × 1.5 cm, mobile, meandering, thrombus-like mass, anchored at the tricuspid subvalvular apparatus. The RV showed dilation and impaired systolic function, and the Doppler analysis revealed severe tricuspid regurgitation, with an estimated systolic pulmonary pressure of 34 mmHg. Venous Doppler echography of the inferior extremities showed signs of subacute venous thrombosis of the right popliteal and tibio-fibular trunk territories. A subsequent computed tomography of the thorax with intravenous contrast (Figure 2) demonstrated central emboli in both pulmonary arteries. Laboratory tests on

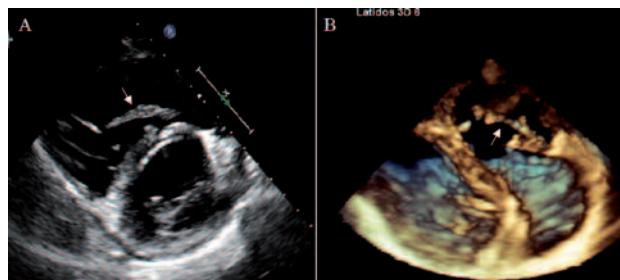


Fig. 2. **A.** Short-axis parasternal view of transthoracic echocardiogram, showing a floating thrombus in a dilated right ventricle. **B.** In vivo 3D image of the right ventricular outflow tract, showing the thrombus attached to the tricuspid subvalvular apparatus. (arrow).

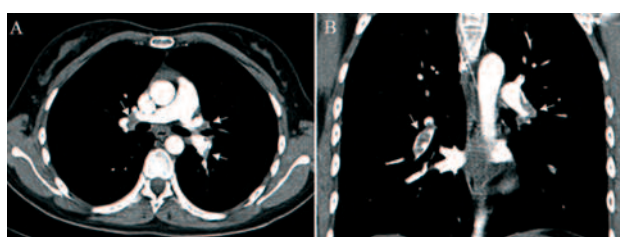


Fig. 2. Axial (**A**) and coronal (**B**) sections showing thrombi in both pulmonary arteries (arrows).

admission revealed normal ultrasensitive troponin T and elevated N-terminal brain natriuretic propeptide (NT-proBNP: 793 pg/mL). A hemophilia study was negative in all the tests performed. The patient was hospitalized, initially treated with intravenous unfractionated heparin at a dose of 18 IU/kg and then with oral acenocoumarol to achieve an international normalized ratio between 2 and 3. Seven days after, she was discharged with good clinical outcome. Anticoagulation was maintained for 6 months and interrupted since, with no new episodes up to the present.

The incidence of free-floating thrombi in the right cavities reported in the literatures varies from 4% to 18%. (1) They are often associated with pulmonary thromboembolism (PTE) and are mainly located in the right atrium (80%). In addition, in the absence of catheters, atrial fibrillation or structural heart disease, they invariably represent clots that travel from the lower extremities, with an elevated risk of death due to their possible fragmentation and massive pulmonary embolism. (2)

Thrombus morphology described in this case corresponds to thrombi-in-transit from the lower extremities, since rounded or laminar ones, attached to the heart wall with a broad implantation basis and stationary, are usually due to dilatation of the cavities, blood stasis or endothelial damage, and have the best prognosis with anticoagulation therapy. (3)

Treatment recommendations include anticoagulation, administration of thrombolytic agents or thrombus mechanical removal by percutaneous or surgical embolectomy. (4) However, despite the presence of thrombus in the right cavities with hemodynamic sta-

bility is considered a medical emergency due to the risk of shock, there is no consensus on the adequate treatment of these patients.

In a 2002 analysis, Rose et al. found that in patients with thromboembolism of the right cavities who received no treatment mortality rate was 100%, in those subjected to anticoagulation with heparin it was 28.6%, in those treated surgically 23.8% and in the ones receiving thrombolytic therapy 11.3%, a significant difference compared with the other conducts. (5) Similarly, Athappan et al. reported that in 328 patients with thrombi in the right cavities and PTE, mortality rate was 23.2%. Nevertheless, patients receiving no treatment had a mortality rate of 90.9%, while in those receiving anticoagulation, surgical embolectomy or thrombolytics these rates were 37.1%, 18.3% and 13.9%, respectively. (6)

Our case involves a young woman, in whom the presence of a floating thrombus in the right cavities associated with PTE was an incidental finding, with no knowledge of thrombus evolution time and degree of organization. In addition, the patient was hemodynamically stable, without hypercoagulability or underlying comorbidities. It was therefore decided to administer anticoagulation therapy with unfractionated heparin and intensive monitoring, achieving, as described, a satisfactory outcome.

Conflicts of interest

None declared.

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