

ASPIRATION THROMBECTOMY FOR INTERMEDIATE-HIGH RISK PULMONARY EMBOLISM



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Introduction

Treatment of intermediate-high risk PE is still subject of debate. Fibrinolysis is not indicated because the hemorrhagic risk may outweigh benefits when hemodynamic collapse is not present. However, patients with RV dysfunction and elevated cardiac troponins are at increased risk of decompensation.

Percutaneous catheter-directed therapy may be an alternative to systemic thrombolysis for these intermediate-high risk patients.

Case Report

We present the case of a 30 years old woman admitted with pulmonary embolism (PE) of intermediate-high risk.

She had type I pulmonary failure with hypocapnia.

Cardiac echo showed dilated right heart chambers with right ventricle dysfunction; severe tricuspid regurgitation and pulmonary flow suggestive of pulmonary hypertension. cTnI was elevated.

CT scan revealed extensive bilateral PE, involving lobar and segmental arteries with saddle aspect at the pulmonary artery bifurcation (Fig. 1).



Fig. 1.

Although she did not present with hemodynamic compromise (systolic blood pressure around 100 mmHg), the patient was in great distress and clinical evolution was not favorable in the first hours after admission. It was the impression of attending physicians that the risk of decompensation was very high.

A multidisciplinary team of internal medicine intensivists, clinical cardiologist and interventional cardiologist decided that a percutaneous catheter-directed therapy was feasible and could provide acute improvement, prevent decompensation and late development of chronic sequelae - chronic thromboembolic pulmonary hypertension (CTEPH).

Mechanical thrombectomy with Nautilus® 10 Fr Thrombus Aspiration Catheter was performed in the left and right inferior lobar arteries. Large number of macroscopic thrombi were removed (Fig.2).



Fig. 2.

Notable improvement of perfusion and reduction in thrombus burden was immediately observed (Fig.3).



Fig. 3.

The clinical status improved rapidly. Next day echo showed normal size cardiac chambers, normal right ventricle (RV) function and only mild tricuspid regurgitation.

At six months follow-up the patient is asymptomatic.

Cardiac echo is normal with no signs of RV dysfunction or pulmonary hypertension (Fig. 4).

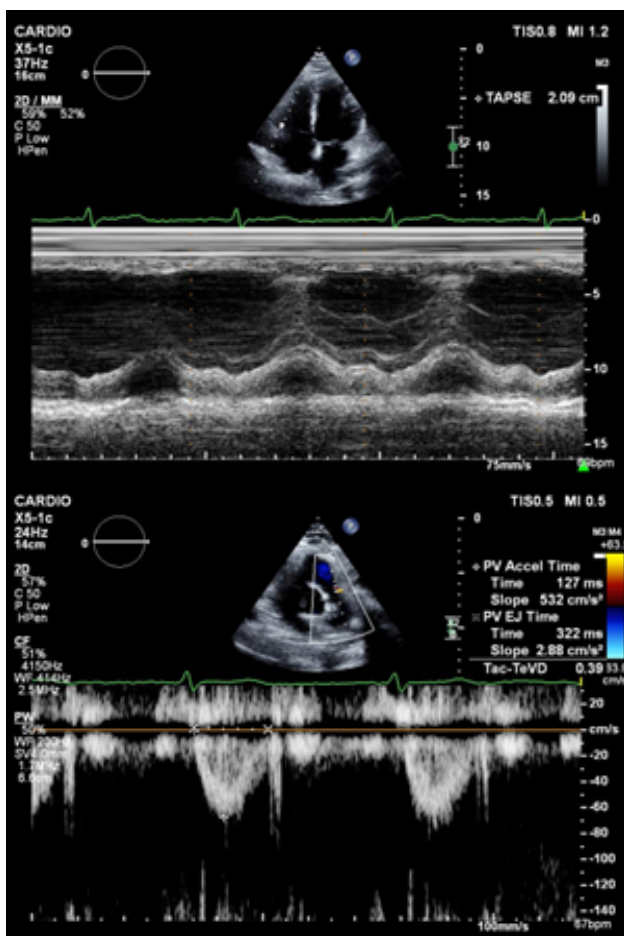


Fig. 4.

A ventilation perfusion scintigraphy shows a non-concordant small defect in the anterior segment of the superior lobe of the right lung, compatible with chronic PE.

Conclusions

In this case, the use of the Nautilus® mechanical aspiration thrombectomy device was feasible, safe and effective. It's ability to remove large quantity of thrombus provided immediate improvement in perfusion and oxygenation; prevented RV decompensation and shock. In the long term, the reduced thrombus burden is an important factor to avoid the development of CTEPH.

More experience and more studies are needed to define the place of catheter directed therapies in this patient population.



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