



Clinical Case

Pulmonary Embolism with Free Floating Right Heart Thrombus at the Yaounde General Hospital

Embolie pulmonaire avec thrombus flottant dans le ventricule droit à l'Hôpital Général de Yaoundé

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RÉSUMÉ

High-risk pulmonary embolism is a serious condition, with an even higher mortality rate when combined with right intra-cavitary thrombus and unstable hemodynamic parameters. In a context of limited resources, treatment only by anticoagulant is an option to consider for carefully selected patients.

ABSTRACT

L'embolie pulmonaire à haut risque est une pathologie grave, ayant un taux de mortalité encore plus élevé lorsqu'il s'y associe un thrombus intra cavitaire droit et des paramètres hémodynamiques instables. Dans un contexte de ressources limitées, le traitement uniquement par anticoagulant est une option à envisager pour des patients sélectionnés avec précaution.

INTRODUCTION

Massive pulmonary embolism is a severe pathology, with mortality rates reaching up to 50% in complicated forms (1-3). The prognosis is even worse when it is associated with a right intra-cavitary thrombus, whose prevalence varies from 4 to 31% during acute pulmonary embolism depending on the case series (1, 2, 4-6). This was frequently found in patients with unstable hemodynamic parameters (7, 8). Thrombolytic therapy has been shown to have a higher efficacy than anticoagulation therapy in improving the vital prognosis and reducing the mortality rate to less than 30% (4, 9-13). In this case report, we describe this rare association and we demonstrate that, in our context where access to thrombolysis is limited, a treatment by anticoagulant alone under strict monitoring can enable us to save lives.

CLINICAL CASE PRESENTATION

It's a 50 years old male patient, married, who came to consult for dyspnea on exertion stage II to III (NYHA) then at rest, of 5 days duration, associated with a painful unilateral swelling of the left leg, without chest pain. His past history is significant for arterial hypertension

diagnosed 6 months ago and treated with Tenoretic®(atenolol/chlortalidone) 50/12.5 and HIV diagnosed 5 years ago treated with antiretroviral therapy with a good therapeutic observance.

On clinical examination, vital parameters were as follows: temperature at 37.2°C, blood pressure at 90/55 mmHg, heart rate of 108 beats/minutes, respiratory rate of 40 cycles per minutes, oxygen desaturation with SaO_2 of 85% at room air. He had signs of right ventricular failure (jugular venous distention, hepatojugular reflux), the left calf was warm and tender, with positive Homans sign, decrease calf motion, fine crackles on the superior half of the right lung field.

Findings from paraclinical tests revealed, on ECG, sinus tachycardia at 106 beats/minutes, left axis deviation, incomplete right bundle branch block and inverted T waves on the right precordial leads (Fig 1). Chest X ray showed cardiomegaly and hilar congestion (Fig 2). Echocardiography revealed aspects in favour of an intra-auricular floating thrombus in transit (coming from the inferior vena cava, with a filiform attachment), signs of pulmonary hypertension (acute cor pulmonale) and a

good ejection fraction of the left ventricle which also had normal filling pressure (Fig 3 and 4). Thoracic CT angiography showed bilateral truncular pulmonary emboli (Fig 5) and a large right intra auricular thrombus (Fig 6). Venous doppler ultrasound of the lower limbs showed thrombosis in the left superficial femoral, popliteal, sural and small saphenous veins. Biological tests searching for acquired causes of thrombophilia were all negative.

The patient was immediately placed on injectable anticoagulant therapy with low molecular weight heparin (enoxaparin 100UI/kg BID), associated with

oral anticoagulant treatment from the 3rd day of hospitalisation with acenocoumarol, oxygen therapy and elastic compression stocking.

There was improvement of hemodynamic parameters, oxygen saturation and decrease severity of signs of right ventricular failure and deep venous thrombosis. An echocardiography was done weekly. Two weeks later, there was a complete resolution of the right intra-auricular thrombus as well as signs of pulmonary hypertension (Fig 7). The patient was discharged on oral anticoagulant treatment and was followed up as outpatient with a favourable evolution.

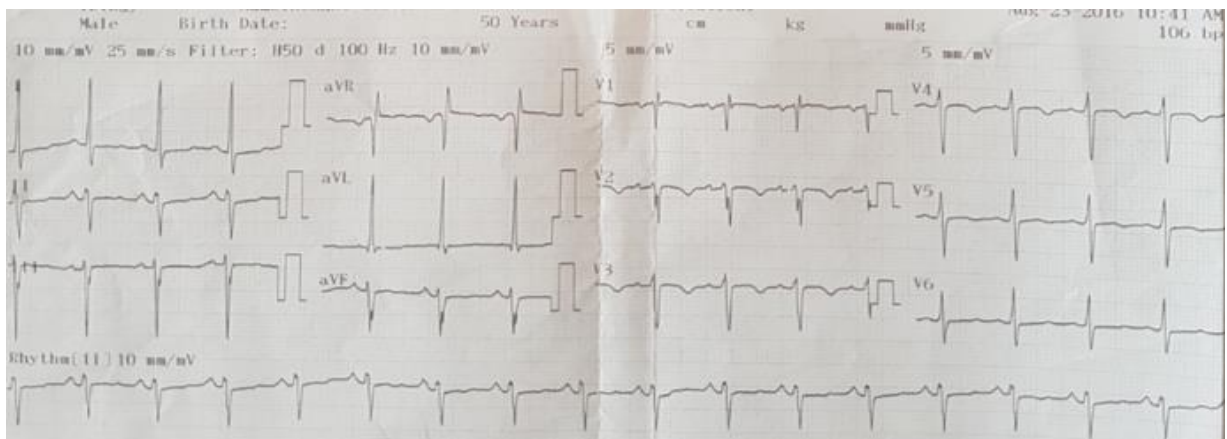


Figure 1: ECG at rest



Figure 2: chest X ray, antero-posterior view

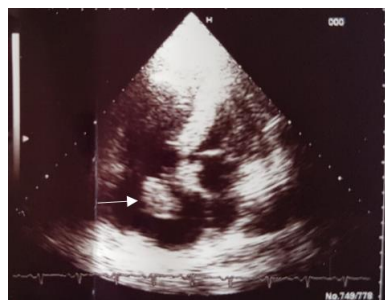


Figure 3 and Figure 4: Transthoracic two-dimensional echocardiography showing a voluminous right intra-auricular mobile thrombus and dilatation of right cavities

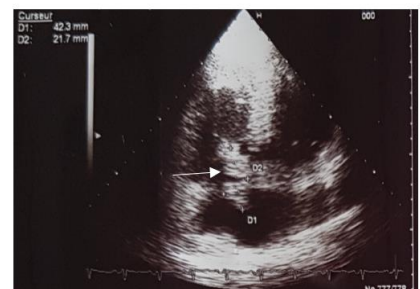


Figure 7: Follow up two-dimensional transthoracic echocardiography at the second week with no findings of intra-cavitary thrombus

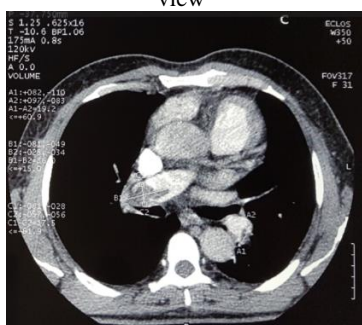


Figure 5: Thoracic CT angiogram showing truncular pulmonary embolus

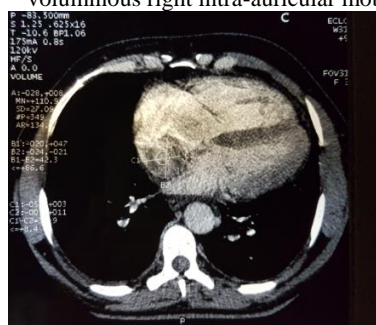


Figure 6: Thoracic pulmonary angiogram showing a voluminous round thrombus in the right auricle

DISCUSSION

This patient was affected by a venous thrombo-embolic disease at many sites: deep venous thrombosis of the left lower limb, bilateral truncular pulmonary emboli, and right intra-auricular thrombus. All these show the severity of the disease and the reserved prognosis of this patient with the possibility of recurrence of pulmonary embolism which can be fatal (1, 4, 7, 9)

The clinical presentation of the patient was similar to that found in other studies, involving dyspnea at stage IV NYHA and oxygen desaturation, which are present in more than half of the cases (7, 9, 12); chest pain and syncope being less frequent (7, 12)

We evaluated pulmonary embolism Wells score and revised Geneva score which were respectively 4.5 and 12, hence an intermediate and a high probability. According to the simplified PESI score (Pulmonary Embolism Severity Index), the first 30 days mortality risk was elevated to 10.9%. All these accounted for the reserved prognosis of our patient.

T wave inversion in the precordial leads on the ECG is found in 75% of cases (1).

The availability of transthoracic echocardiography enabled us to quickly diagnose acute cor pulmonale and to detect a right intra-cavitary thrombus (1, 6, 10, 14).

As described in similar studies, our patient had acute cor pulmonale with right ventricular dysfunction and pulmonary hypertension, highlighting the stress on the heart (1, 3, 9, 12). The intra-auricular localisation of the thrombus is more frequent; it is described in 79% of cases against 16% which are intra-ventricular (13). The thrombus was long, filiform (like a worm or snake) and mobile, which corresponds to type A described in the study published by the European working group on echocardiography; this is frequently found in patients with deep venous thrombosis like in our patient (15). The thrombus was in transit in the right auricle and came from the inferior vena cava. There was no patent foramen ovale.

The thoracic CT angiogram could only be done few days later, so echocardiography remains a good alternative in the diagnosis of pulmonary embolism and in the detection of complicated forms by finding in intra cardiac thrombus (6,14).

Thrombolytic therapy was indicated in this patient since he had no contraindications. However with the poor economic context and limited availability of this therapy, we decided to initiate a treatment by anticoagulants only (with Low molecular weight heparin then an oral relay with vitamin K antagonist) with strict monitoring. This approach enabled us to have good results and a favourable evolution. In the literature,

mortality remains high no matter the treatment method used, 44.7% according to Chartier et al. Nonetheless, anticoagulant therapy alone remains till date, inferior to thrombolytic therapy and to surgical therapy in terms of reduction of mortality and morbidity. PS Rose et al found a mortality rate of 11.3% by thrombolysis, 23.8% by surgery and 28% by anticoagulant (12). Furthermore, Chartier et al found an intrahospital mortality rate of 22%, 47% and up to 62.5% respectively (3). On the other hand, post-hospital evolution is favourable with a survival rate of 85.7% after hospital discharge on a follow up period of about 4 years according to Chartier et al (3).

The delay for complete disappearance of the thrombus is faster with thrombolysis, ranging from few hours to a maximum of 24 hours according to Ferrari et al (4). We had to wait for 2 weeks before having a complete disappearance of the thrombus in our patient.

Thrombolysis is a rapid, simple and effective therapeutic option when it's available (9). It can be used no matter the localisation of the clot.

The occurrence of complications like the worsening of hemodynamic state by embolisation after lysis and cardiac arrest remain of great concern to the medical personnel (3, 16, 17).

Only thrombolysis could have been done in our case, because the technical facilities for surgical embolectomy is not available. Embolectomy is an option recommended in patients having contra-indication to thrombolysis, after failure of thrombolytic therapy or in hemodynamic unstable patients (2). It enables the exploration of cardiac cavities and of blood vessels.

CONCLUSION

The presence of an intracardiac thrombus during acute pulmonary embolism is a poor prognostic factor. Echocardiography is a good alternative for the diagnosis. Thrombolytic therapy seems to be the best option in unstable patients, nonetheless, anticoagulation therapy alone with close monitoring can be a good therapeutic alternative in a context with limited resources, at the cost of a longer hospital stay.

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