



## Spontaneous Psoas Rupture Due to Anticoagulation in Mitral Valve Disease and Atrial Fibrillation

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**ABSTRACT:** Iliopsoas hematoma is a rare complication in patients on anticoagulation therapy with coumarins. This clinical case presents a patient with a history of mitral stenosis, valvular prosthesis and atrial fibrillation who presented spontaneous rupture of the psoas due to excessive anticoagulation with acenocoumarin.

**KEYWORDS:** Anticoagulation, Atrial fibrillation, Mitral prosthesis, Psoas rupture.

### I. INTRODUCTION

We describe the case of a 57-year-old female with a history of mitral valve replacement and atrial fibrillation on treatment with acenocoumarin 12mg per day, who debuted with episodes of syncope associated with extreme bradycardia documented in holter study, being evaluated by the electrophysiology service of our hospital who reported that she deserved definitive pacemaker placement. During her hospital stay, INR 6 was obtained, with no evidence of bleeding; oral anticoagulation was suspended and she continued anticoagulation with enoxaparin 60mg per day. During her hospitalization she presented with abdominal pain with apparent collection in both psoas, and the collection was drained by radio intervention, however, she presented hemodynamic deterioration and psoas tear and hemoperitoneum were found in exploratory laparotomy.

### II. PAST MEDICAL HISTORY

History of permanent atrial fibrillation diagnosed in 2008, treated prior to admission with metoprolol 50mg every 12 hours, Acenocoumarin 2 mg every 24 hrs from Monday to Saturday. EHRA functional class: I. Starts in 2014 with symptoms of heart failure, TEE: finding LVEF 54%, Double Mitral Lesion with predominance of Stenosis which is severe mitral valvular area 3D 0.6 cm<sup>2</sup>. A Wilkins Score of 11 points was calculated, Mild-Moderate Mitral insufficiency, mitral valve replacement was performed with placement of mechanical valve ST. Jude 27 and left atrial appendage ligation.

Seven days after his hospital admission, he reported sudden abdominal pain predominantly in the right iliac fossa, with the presence of data of systemic inflammatory response. Abdomino-pelvic tomography was performed showing hypodensities in both psoas (figure 1); abdominal USG showed a predominantly hypoechoic image with an anechoic central area, measuring 92x48x56mm, in the right psoas suggestive of purulent collections. The lesion was drained by interventional radiology obtaining 10 milliliters of purulent fluid; cytopathology report showed multiple mature red blood cells, also occasionally mature small lymphocytes and some neutrophils.

### III. MANAGEMENT

The patient's hospital course was complicated by hospital-acquired pneumonia and an exacerbation of congestive heart failure requiring intravenous antibiotics and diuresis. The risks and benefits of anticoagulation were discussed with the patient, and a decision was made to delay resumption of anticoagulation therapy. Patient who continued with antibiotic therapy based on carbapenemics presented with hemodynamic deterioration, non-perfusional TAM, with a drop of 5 grams of hemoglobin from 12.5 gr/dl to 7.5gr/dl data suggestive of hypovolemic shock, so anticoagulation was suspended, hemotransfusion of 4 erythrocyte concentrates was performed during his hospitalization and exploratory laparotomy was performed by the general surgery service reporting a tear of the left psoas, performing hemostasis of the lesion and placement of a Vac drainage. After surgery she evolved favorably with reversal of shock state, biochemical improvement, without continuing data of systemic inflammatory response; after



hemodynamic improvement, a definitive pacemaker was placed and anticoagulation was restarted with vitamin K inhibitor: acenocoumarin gradual dose until reaching INR 2.5 goal.

#### IV. DISCUSSION

Spontaneous psoas hematoma is a rare but potentially life-threatening complication associated with high morbidity and mortality rates. The incidence of retroperitoneal hematoma as a complication of anticoagulation ranges from 1.3% to 6.0%. Specifically, the incidence of iliopsoas muscle hematoma is reported to range from 0.1% to 0.6%. Risk factors for retroperitoneal hematomas include anticoagulation, old age, and hemodialysis. The exact mechanism is unknown, but hypotheses include blunt muscle strain, diffuse small-vessel arteriosclerosis, and heparin-induced immune microangiopathy.<sup>1</sup>

Warfarin is a commonly prescribed anticoagulant with a narrow therapeutic window and a high potential for serious complications. Spontaneous psoas hematoma is a rare complication of warfarin that can result in significant neurological deficits.<sup>2</sup>

Occasionally the extent of rupture can lead to significant bleeding, causing repercussion on the patient's hemodynamic status. Diagnosis is based on both physical examination and complementary tests, the gold standard is tomography to identify retroperitoneal lesions. In addition, a complete blood analysis is essential, including hemostasis parameters that allow us to check the patient's coagulation status.<sup>3</sup>

The diagnosis of a psoas hematoma is difficult, especially in elderly patients.<sup>3</sup> The symptoms of a psoas hematoma are often nonspecific and can also be explained by other comorbid diseases, such as pain due to vertebral compression fractures or osteoarthritis and anemia due to renal failure. In addition, the elderly patient regularly has an unusual presentation of the disease. Finally, the presence of cognitive impairment poses a challenge in obtaining a reliable patient history.<sup>4</sup>

CT imaging is also useful in establishing the rapid diagnosis of hematoma. When prolonged prothrombin time and international normalized ratio and decreased platelet count are noted, psoas muscle hematomas should be considered, if there was no injury to the spinal canal. Most hematomas resolve spontaneously without clinical complications if the hematoma is not large or is not compressing surrounding important structures, regardless of the cause.<sup>5</sup>

Surgical intervention is reserved for patients with failed angiographic procedures, concurrent surgical conditions, or significant compressive symptoms in nervous system structures due to hematoma formation.<sup>6</sup>

Early diagnosis of spontaneous psoas hematoma is crucial to avoid its potentially fatal sequelae. It should be considered in patients on anticoagulant therapy who present sudden onset back pain with no other plausible etiology. For patients on warfarin therapy with life-threatening bleeding with elevated, the ASH guideline suggests cessation of warfarin and administration of intravenous vitamin K and 4-factor prothrombin complex concentrates prothrombin complex concentrates.<sup>7</sup> For patients who survive a major bleeding episode and require long-term or indefinite anticoagulation because of moderate or high risk of venous thromboembolism, they may resume anticoagulation therapy within 90 days if they are not at high risk of recurrent bleeding.<sup>8</sup>

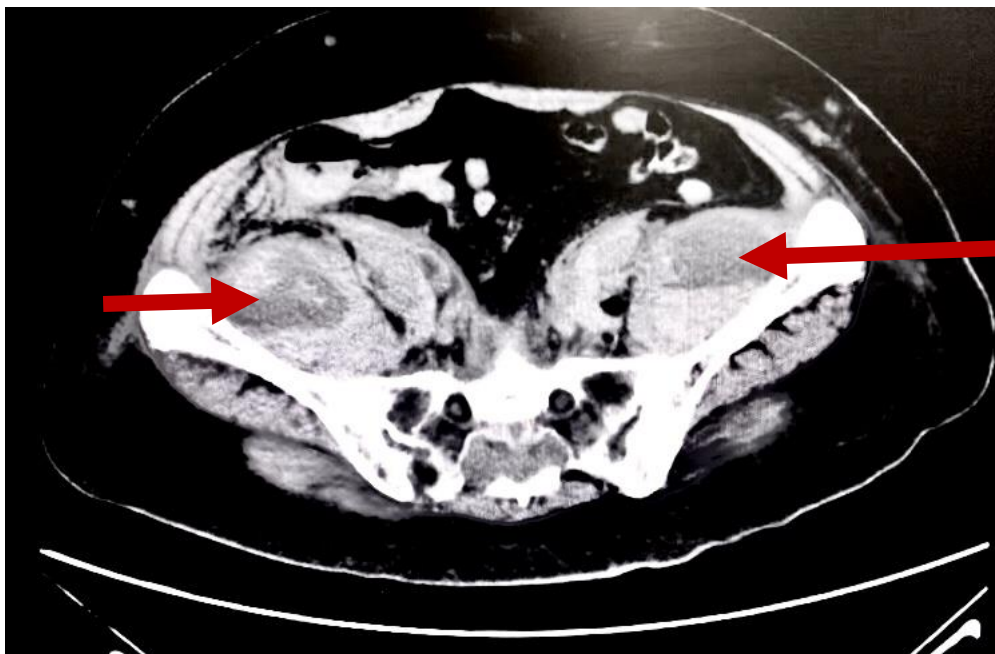
#### V. FOLLOW-UP

The patient continues to be followed up in the anticoagulation clinic without bleeding episodes, without syncope events, hemodynamically stable, with adequate pacemaker functioning in heart rates between 60-70 bpm under surveillance by the clinical cardiology, electrophysiology and general surgery services.

#### VI. CONCLUSIONS

Iliopsoas hematoma is a rare complication in patients on anticoagulation therapy with warfarin and usually presents as pain in the lower abdomen, groin or thigh, even in patients with therapeutic INR.

This clinical case highlights the need to take into account this complication in patients with prosthetic valves or mitral stenosis and atrial fibrillation in whom anticoagulation with vitamin K inhibitors is the first line of therapy. The age of presentation in our case is not in elderly patients as described in the literature, which is of clinical relevance in the treatment of anticoagulation.



**Figure 1:** Abdominal pelvic computed tomography (CT)

Abdominal pelvic computed tomography (CT), showing heterogeneous hematic collection with some areas of increased hyperdensity in the right and left psoas muscle fusing with the iliacus muscle Ipsilateral.

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