# Massive Pulmonary Embolism in Acromegaly: A Perfect Storm of Thrombotic Risk

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## Background:

Acromegaly is a rare disorder caused by excess growth hormone (GH), most often due to a pituitary adenoma, resulting in elevated insulin-like growth factor-1. While its cardiovascular complications are well recognized, the condition's role in promoting venous thromboembolism remains underappreciated. Proposed mechanisms include:

1. Endothelial dysfunction
2. Increased fibrinogen levels
3. Platelet activation
4. Impaired fibrinolysis

Data linking acromegaly to VTE are limited, but growing evidence supports a prothrombotic risk, especially when anticoagulation is interrupted perioperatively.[123]

## Purpose:

To describe a case of massive pulmonary embolism in a patient with acromegaly and multiple prior VTE events who was perioperative, emphasizing the hypercoagulable risk and management challenges in high-risk surgical patients.

## Uniqueness:

- **Rare clinical intersection** of acromegaly and massive PE
- **PE occurred within 24 hours** of rivaroxaban interruption
- **Strong family history** of VTE without known thrombophilia
- Demonstrates **underrecognized prothrombotic risk** in acromegaly
- Highlights the need for **individualized perioperative anticoagulation planning**

## Case Description:

A 64-year-old male with a history of acromegaly (secondary to a pituitary microadenoma, treated with gamma knife radiation), morbid obesity, atrial fibrillation, and multiple prior VTE events presented for elective substernal thyroidectomy and parotidectomy. His prior thrombotic history included a provoked DVT/PE following hernia repair, a spontaneous DVT in 2010, and a PE in 2023 that occurred within 48 hours of holding rivaroxaban for a planned surgery. For this procedure, rivaroxaban was held for 24 hours preoperatively per hematology guidance. On postoperative day one, while ambulating in the ICU, the patient suffered a PEA cardiac arrest. ROSC was achieved after one round of cardiopulmonary resuscitation. CTA revealed bilateral pulmonary emboli with severe right ventricular dysfunction. Due to the recent surgical intervention, systemic thrombolysis was deferred.

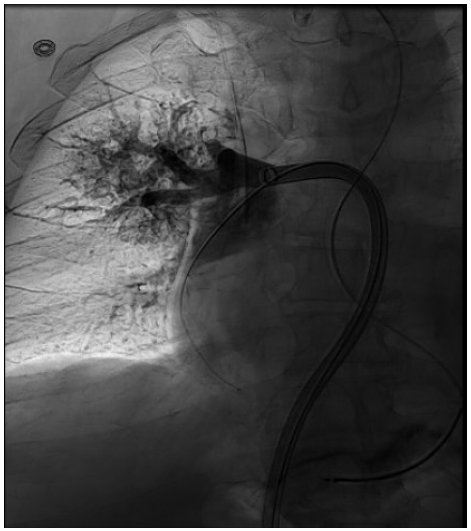

***Figure 1:*** *Angiogram showing clot burden in right pulmonary artery.*

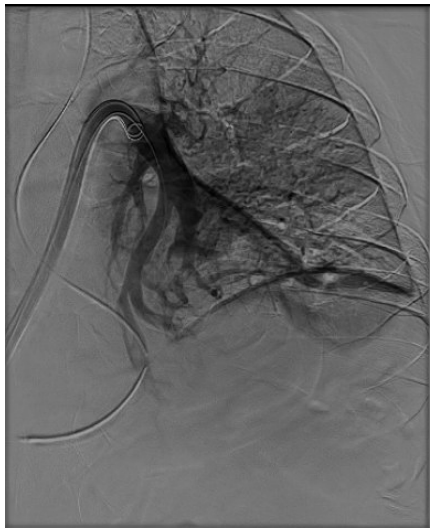

***Figure 2:*** *Angiogram showing clot burden in left pulmonary artery.*

## Outcome:

He underwent urgent catheter-directed thrombectomy with partial improvement in clot burden but remained in RV failure, requiring vasopressors, inhaled nitric oxide, and milrinone. The patient was transferred to a tertiary care center for evaluation for extracorporeal membrane oxygenation (ECMO) support but ultimately improved with medical management alone. He was extubated on hospital day five and discharged home on lifelong warfarin therapy with home health services. Hematology recommended indefinite anticoagulation and advised that an inferior vena cava filter should be considered if anticoagulation needs to be interrupted in the future.

## Discussion:

This case illustrates the precarious balance of thrombosis and bleeding risk in patients with overlapping endocrine and vascular pathology. While acromegaly is not routinely classified as a hypercoagulable condition, elevated fibrinogen and hormonal dysregulation may contribute to a prothrombotic phenotype.[12] Patients with untreated acromegaly have been shown to exhibit significantly elevated fibrinogen levels, which improve with disease control.[3] Despite minimal interruption of anticoagulation, this patient experienced a life-threatening PE. His clinical course underscores the limitations of current perioperative guidelines in complex patients. In extreme-risk cases, bridging anticoagulation or preoperative IVC filter placement should be considered.[4] This case also highlights ongoing debate regarding DOAC use in morbid obesity, though recent studies support efficacy without dose adjustment.[5] A multidisciplinary approach is essential for individualized VTE prevention in these patients.

## Conclusion:

Acromegaly may confer an underrecognized thrombotic risk, especially in patients with a history of recurrent VTE. This case highlights the need for heightened clinical vigilance and proactive perioperative planning. Even brief interruptions in anticoagulation can result in catastrophic events. Multidisciplinary evaluation and personalized strategies—such as bridging, mechanical prophylaxis, or IVC filter placement—should be considered in high-risk patients undergoing surgery.

**References**

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