



Emergency Medicine

ATYPICAL PRESENTATION OF ACUTE LIMB ISCHEMIA IN A HYPERTENSIVE EMERGENCY WITH NSTEMI AND PULMONARY EDEMA

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ABSTRACT A 36-year-old man with known type 2 diabetes mellitus and a history of chronic smoking was seen in the Emergency Department with symptoms of giddiness, diaphoresis, headache, numbness in the right lower limb, and acute dyspnoea. The initial presentation was that of hypertensive emergency and pulmonary oedema. ECG abnormalities and cardiac enzyme levels were suggestive of non-ST-elevation myocardial infarction (NSTEMI). Interestingly, clinical assessment showed absent distal pulses and sensory loss in the right lower limb. Although neurological deficits were suggestive of a cerebrovascular accident (CVA), peripheral angiography established acute limb ischemia (ALI) by virtue of extensive thrombotic occlusion of the right lower limb arterial system. Echocardiography was positive for regional wall motion abnormalities but no intracardiac thrombus. The patient was taken for emergent right transfemoral embolectomy and fasciotomy, and later was started on anticoagulation and dual antiplatelet therapy. Postoperatively, the distal pulses were restored, and the patient had an uneventful recovery. This case emphasizes the need for elevated clinical suspicion in patients with unusual limb symptoms and cardiovascular instability. Early vascular imaging and surgical repair were important in limb salvage and stabilization.

KEYWORDS : Acute limb ischemia, Hypertensive emergency, Rutherford classification, Non-ST Elevation Myocardial infarction

INTRODUCTION

Acute limb ischemia (ALI) is a vascular crisis characterized by a precipitous reduction in arterial perfusion to a limb, endangering its viability if not addressed immediately. Embolism or in-situ thrombosis are the most frequent causes of ALI and can present subtly and inconsistently in patients with other systemic pathologies myocardial infarction or hypertensive emergencies. Failure or delay in diagnosis can lead to disastrous consequences like loss of the limb or even death. This case demonstrates a rare presentation of ALI in the setting of hypertensive emergency and NSTEMI, wherein presenting neurological symptoms may direct diagnosis towards stroke. The case reemphasizes the importance of complete vascular assessment and prompt imaging to direct intervention.

Case Presentation

A 36-year-old male with a history of known type 2 diabetes mellitus on oral hypoglycemic medication and chronic smoking came to the Emergency Department with complaints of:

- Giddiness, excessive sweating, and headache for one day
- Right lower limb numbness for two days
- Sudden shortness of breath

He was treated elsewhere with IV labetalol and furosemide for a hypertensive emergency and referred for evaluation.

On Examination

- **GCS:** 15/15
- **Vitals:** HR 112/min, BP 130/90 mmHg, RR 28/min, SpO₂ 98% on 6L O₂
- **CBG:** 435 mg/dL
- **Cardiorespiratory Exam:** Bilateral basal crepitations
- **CNS:** Reduced sensation over the right lower limb, with power 4/5
- **Peripheral vascular examination:** No pulses from right femoral to dorsalis pedis arteries; left side pulses are normal

Investigations

- **VBG:** Raised lactate and glucose
- **ECG:** Normal sinus rhythm, features of LVH, left axis deviation
- **Cardiac Enzymes:** CKMB – 2.3 ng/ml, Troponin I – 0.18 ng/ml, BNP – 200 pg/ml
- **ECHO:** EF 38%, RWMA of basal and mid inferoseptum, apical septum, whole inferior wall, basal anterior, and inferolateral segments; no thrombus
- **CT Peripheral Angiogram:**
- unusual filling defect in the distal right external iliac artery
- Total occlusion of right common femoral, superficial femoral, popliteal, anterior and posterior tibial, peroneal, and dorsalis pedis arteries

Provisional Diagnosis

- Arterial thrombosis secondary to acute limb ischemia
- NSTEMI
- Hypertension emergency
- Pulmonary edema

- Exclude CVA (initially considered because of limb numbness) Management

Pharmacological:

- Aspirin 325 mg + Clopidogrel 300 mg stat
- Atorvastatin 80 mg
- IV Heparin 5000 units bolus
- IV Furosemide 1 mg/hr
- SC Insulin (Human Actrapid) 10 units

Surgical:

- Right transfemoral embolectomy with fasciotomy
- Thrombotic occlusion retrieval intraoperatively

Outcome And Follow-Up

Postoperatively, distal pulses were palpable. The patient was observed in the ICU for cardiac stability and subsequently transferred to the ward. Anticoagulation and dual antiplatelet therapy were maintained. Serial monitoring indicated clinical improvement, and viability of the limb was restored.

DISCUSSION

This case presents a subtle but clinically informative picture of acute limb ischemia (ALI), presenting first as a neurological event in the setting of hypertensive emergency and non-ST-elevation myocardial infarction (NSTEMI). The association of these arterial pathologies with a generally young patient in the absence of a prior history of cardiovascular disease underscores the importance of incorporating multisystem assessments in the emergency department.

Although ALI is usually exemplified by the 'six Ps'—pain, pallor, pulselessness, paresthesia, paralysis, and poikilothermia—its presentation in this patient was subtle and unusual. The right lower limb numbness as a presenting symptom in the context of hypertension and dizziness led to the consideration of cerebrovascular accident (CVA), a reasonable differential diagnosis with the neurological findings and the patient's elevated blood pressure. But a scrupulous physical exam uncovered missing peripheral pulses—a fundamental diagnostic clue that redirected the suspicion toward vascular etiology. This diagnostic turning point is important. Failure to recognize ALI can result in permanent ischemic damage, loss of a limb, and complications elsewhere in the body, such as rhabdomyolysis, renal failure, and even death. The patient's smoking history and diabetes mellitus—both established accelerants of vascular endothelial injury—also put him at risk for thrombotic arterial events. Smoking and hyperglycemia are each independently linked with enhanced platelet aggregation, dysfunctional nitric oxide-mediated vasodilation, and endothelial dysfunction, which results in a prothrombotic environment.

Notably, echocardiogram indicated regional wall motion defects but not intracardiac thrombus. This would suggest that the thrombus causing ALI was in situ thrombosis, possibly compounded by

endothelial erosion above an underlying atherosclerotic plaque rather than an event of cardioembolism. Such thrombosis can happen even with non-detectable atherosclerosis on imaging, especially in diabetic and smoking patients, where vascular integrity is impaired at a microvascular level.

In addition, the findings of high cardiac enzymes and left ventricular dysfunction indicate myocardial involvement and indicate a type 2 myocardial infarction due to demand ischemia. The coexistence of coronary and peripheral vascular disease creates a complex interrelated condition that should be treated holistically.

From the therapeutic perspective, anticoagulation with intravenous heparin was the right thing to do immediately, and life- and limb-saving. The patient was subjected to a right transfemoral embolectomy with fasciotomy—the traditional surgical strategy for reestablishing perfusion and preventing compartment syndrome after reperfusion. Insertion of fasciotomy indicates compliance with best practices in the management of ischemia-reperfusion injury and emphasizes the need for preemption of downstream metabolic and myologic complications.

Postoperative management included monitoring in the ICU, anticoagulation, and antiplatelet continuation, consistent with secondary prevention of recurrent vascular events. This case highlights the importance of active risk factor reduction post-recovery: smoking cessation, control of glycemia, and chronic statin use.

Significantly, This Case Reaffirms Several Clinical Teaching Points:

Symptoms of neurological origin in hypertensive emergencies need to be evaluated in the context of associated vascular signs, like pulse examination, to prevent confusion with mimic syndromes.

Limb ischemia can be the isolated or first presentation of an underlying systemic thrombotic condition, particularly in diabetics.

The combination of cardiac and peripheral imaging is crucial to the exclusion of embolic sources and to direct appropriate intervention. Besides the implications for clinical practice, the case also contributes to the literature on unusual presentations of ALI in young patients. As lifestyle diseases become more prevalent at earlier ages, emergency physicians should remain alert and eschew cognitive errors like premature closure or anchoring on early symptoms.

CONCLUSION

This case points to an unusual but essential presentation of acute limb ischemia in a young man with pulmonary edema, NSTEMI, and hypertensive emergency. Initially presenting neurologically, the clinical picture was elucidated by careful peripheral vascular workup and imaging. This points to the important role of a systematic and open-minded approach to emergency diagnosis, especially where several organ systems are implicated. The patient was salvaged by prompt anticoagulation and surgical embolectomy with fasciotomy, resulting in restoration of limb perfusion and stabilization of the heart. Lack of any identifiable embolic source points towards in-situ thrombosis as the etiology, probably secondary to a combination of diabetes, smoking, and vascular endothelial damage. This case is a poignant reminder that vascular emergencies will be unconventional in some cases, especially when in the context of severe comorbidities. Precipitous detection, rapid imaging, and immediate surgery were the cornerstones of best management in this case. Thus, clinicians have to be instructed to think "outside the box," not just by conventional textbook presentation but by clinical sagacity and perceptive examination. The newly emerging epidemic of non-communicable diseases like diabetes and hypertension among younger age groups makes this case more significant. It requires more attention, department coordination, and robust emergency response centers to prevent unnecessary complications and save limbs and lives.

REFERENCES

1. Blaisdell, F. W. (2002). The pathophysiology of skeletal muscle ischemia and the reperfusion syndrome: A review. *Cardiovascular Surgery*, 10(6), 620–630.
2. Beckman, J. A., Creager, M. A., & Libby, P. (2002). Diabetes and atherosclerosis: Epidemiology, pathophysiology, and management. *JAMA*, 287(19), 2570–2581.
3. Dormandy, J. A., & Rutherford, R. B. (2000). Management of peripheral arterial disease (PAD). *Journal of Vascular Surgery*, 31(1), S1–S296.
4. Eliason, J. L., Wainess, R. M., Proctor, M. C., Dimick, J. B., Cowan, J. A., Upchurch, G. R. Jr. (2009). A national and single institutional experience in the contemporary treatment of acute lower extremity ischemia. *Annals of Surgery*, 241(4), 573–580.
5. Hirsch, A. T., Haskal, Z. J., Hertzner, N. R., et al. (2006). ACC/AHA guidelines for the management of patients with peripheral arterial disease. *Circulation*, 113(11), e463–e654.

6. Lichtenberg, M., Stahlhoff, W. F., & Hailer, B. (2019). Contemporary management of acute limb ischemia: Results from a multicenter registry. *Clinical Research in Cardiology*, 108(3), 345–352.
7. Norgren, L., Hiatt, W. R., Dormandy, J. A., Nehler, M. R., Harris, K. A., & Fowkes, F. G. (2007). Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II). *European Journal of Vascular and Endovascular Surgery*, 33(Suppl 1), S1–S75.
8. Shammass, N. W. (2007). Epidemiology, classification, and modifiable risk factors of peripheral arterial disease. *Vascular Health and Risk Management*, 3(2), 229–234.
9. Howard, D. P. J., Banerjee, A., Fairhead, J. F., Perkins, J., Silver, L. E., & Rothwell, P. M. (2021). Population-based study of incidence, risk factors, outcome, and prognosis of acute limb ischemia. *Circulation*, 124(1), 142–148.
10. Eikelboom, J. W., et al. (2012). Antiplatelet therapy in vascular disease. *Circulation*, 126(4), 482–488.
11. Barshes, N. R., et al. (2014). The impact of smoking on outcomes after lower extremity revascularization. *Journal of Vascular Surgery*, 60(2), 403–409.
12. Weitz, J. I., et al. (2015). Diagnosis and treatment of peripheral arterial diseases. *Circulation*, 126(4), 456–475.
13. Collins, R., et al. (2003). MRC/BHF Heart Protection Study of cholesterol-lowering with simvastatin in high-risk individuals. *Lancet*, 361(9374), 2005–2016.
14. Teraa, M., et al. (2016). Contemporary management of ALI. *Nature Reviews Cardiology*, 13(7), 443–451.
15. Olinic, D. M., et al. (2019). Compartment syndrome: Diagnosis, management, and outcomes. *Journal of Cardiovascular Surgery*, 60(3), 360–368.