



Hemi-Abdominal Livedo in Shock: A Red Flag for Aortic Dissection

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An 84-year-old man with a known ascending aortic aneurysm was brought to our emergency department in an unconscious condition. Upon arrival, his vital signs were heart rate of 109 beats/min, blood pressure of 92/61 mmHg, and a Glasgow Coma Scale score of 3. Physical examination revealed livedo over the right lower limb (Figure 1a) and the right lower abdomen (Figure 1b), with the left side unaffected. Echocardiography detected a pericardial effusion, and contrast-enhanced computed tomography showed an aortic dissection extending from the ascending aorta to the right internal and external iliac arteries (EIA), with no contrast visible beyond the right common iliac artery (CIA) (Figure 1c). As the operating room was unavailable, a percutaneous pericardial drain was placed via

a subxiphoid approach in the emergency room, which stabilized hemodynamics and resolved the hemi-abdominal livedo. The patient was then transferred to another hospital for urgent cardiac surgery but died the following day.

While generalized livedo is commonly a physiological reaction to cold or may be secondary to systemic conditions, localized livedo is uncommon.¹ The only previously reported case of localized livedo linked to aortic dissection involved ischemia of both the internal thoracic and EIA due to blood flow obstruction from dissection extension.² Although aortic dissection is well recognized, its presentation with unusual symptoms can hinder prompt diagnosis.³

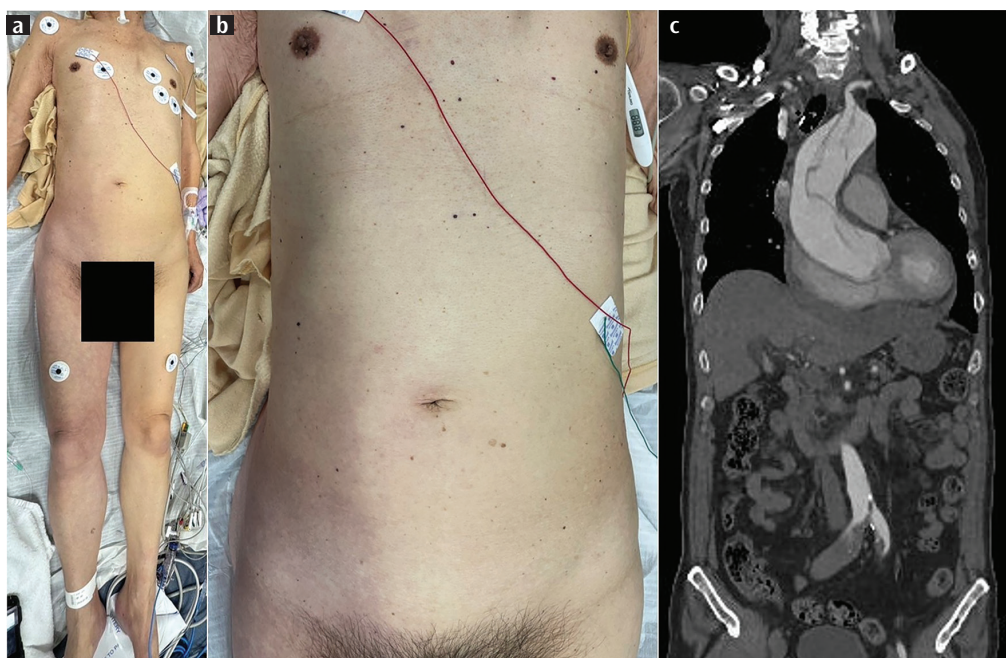


FIG. 1. Livedo is observed from the right lower abdomen to the right lower extremity. (a) Whole body. (b) Abdomen. (c) Contrast-enhanced computed tomography showing an aortic dissection extending from the ascending aorta to the right internal and external iliac arteries, with the absence of contrast enhancement beyond the right common iliac artery.



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In resource-limited scenarios, including prehospital care and initial shock evaluation, recognizing hemi-abdominal livedo may offer a valuable diagnostic hint.

The inferior epigastric artery (IEA), which supplies the front abdominal wall, branches from the EIA.^{4,5} In this patient, complete blockage of the right CIA from a thrombosed false lumen reduced flow to the IEA, which in turn lowered IEA perfusion and caused the hemi-abdominal livedo. Notably, the lower lateral region of the abdominal wall has relatively poor collateral supply from the IEA, making it more susceptible to ischemia.⁴ Normally, perfusion is supported by collateral pathways like the superior epigastric and inferior intercostal arteries; however, this backup system was likely compromised due to hemodynamic instability from obstructive shock, leading to the observed abdominal livedo. The resolution of livedo after pericardial drainage and relief of cardiac tamponade supports this proposed mechanism.

We reviewed institutional records of 214 patients diagnosed with aortic dissection between 2016 and 2024. After excluding 93 patients who were in cardiopulmonary arrest on arrival, 121 cases remained: 68 Stanford type A, 41 Stanford type B, and 12 traumatic aortic injuries. Aortic dissection extending to the CIA was found in 25 cases. Complete CIA occlusion with loss of contrast flow in the lower extremity arteries was identified in three patients. Of these, hemi-abdominal livedo occurred only in the present case. The other two cases with complete CIA occlusion were hemodynamically stable and did not develop hemi-abdominal livedo. These findings imply that both complete CIA occlusion and hemodynamic instability may contribute to the appearance of hemi-abdominal livedo.

The presence of hemi-abdominal along with unilateral lower extremity livedo may represent a clinically relevant early clue for diagnosing aortic dissection, especially when accompanied by hemodynamic instability.

Informed Consent: Written informed consent for the publication of the clinical images was obtained from the patient's family.

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