The Wonders Of Collateral Circulation: Complete Upper Abdominal Aortic Occlusion Masquerading As Simple Aortoiliac Disease

Justin A. Smith, BA1, Rocco G. Ciocca, MD2.
1Case Western Reserve University School of Medicine, Cleveland, OH, USA, 2Metrohealth Medical Center, Cleveland, OH, USA.

Purpose: A case demonstrating the capacity of body wall collateral circulation to reconstitute the arterial supply of the abdominal viscera and the lower extremities despite an extensively occluded abdominal aorta. Case Report: A 62-year-old female with a history of hypertension and long-term tobacco use presented with short-distance claudication. ABIs demonstrated critical leg ischemia bilaterally (0.2-0.3), consistent with severe aortoiliac disease. However, history and physical exam were negative for corresponding signs/symptoms (e.g. rest pain, dependent rubor, tissue loss). CT-angiography revealed extensive atherosclerotic disease of the aorta and iliacs with complete occlusion of the abdominal aorta by a thrombus extending from the level of the renal arteries to the iliac arteries bilaterally. Despite occlusion of the celiac, superior and inferior mesenteric artery axes, all viscera remain supplied via extensive recruitment of body wall collaterals. Arterial supply to the lower extremities was reconstituted at the common femoral arteries via retrograde supply from a prominent inferior epigastric-internal mammary system. This patient was not a candidate for open repair due to frailty and a suspected hostile abdomen due to an extensive abdominal surgical history, and thus opted for extra-anatomical bypass. The patient subsequently underwent left axillary-femoral femoral-femoral bypass with bilateral common femoral endarterectomies. Post-operatively, the patient recovered well, with complete resolution of claudication and noninvasive studies showing dramatically-improved lower extremity flow (ABIs 0.7-0.8). Conclusion: Body wall collateral circulation has a large capacity to compensate for lost arterial flow from severe abdominal aortic occlusion, resulting in a relatively mild symptomatic presentation. Additionally, in the face of a lack of evidence of compromised visceral blood supply, extra-anatomical bypass procedures can help patients avoid morbid open operations to achieve significant symptomatic improvement.