

Introduction:

Endovascular aneurysm repair (EVAR) has become a widely accepted and effective minimally invasive treatment modality for abdominal aortic aneurysms (AAAs), offering lower perioperative morbidity and mortality compared to open surgical repair. After graft employment, the aortic lumen and the endograft overlap and the graft integrity is maintained in years. Thanks to the high radial force of the endograft structure, it can hardly collapse or kink except in rare situations. We present a 67 years old male who had previously endovascular repair for abdominal aortic aneurysm five years ago. Following a new onset thoracic aortic dissection, the endograft collapsed due to high pressure of the false lumen, resulting in acute limb ischemia as Rutherford Type II-a.

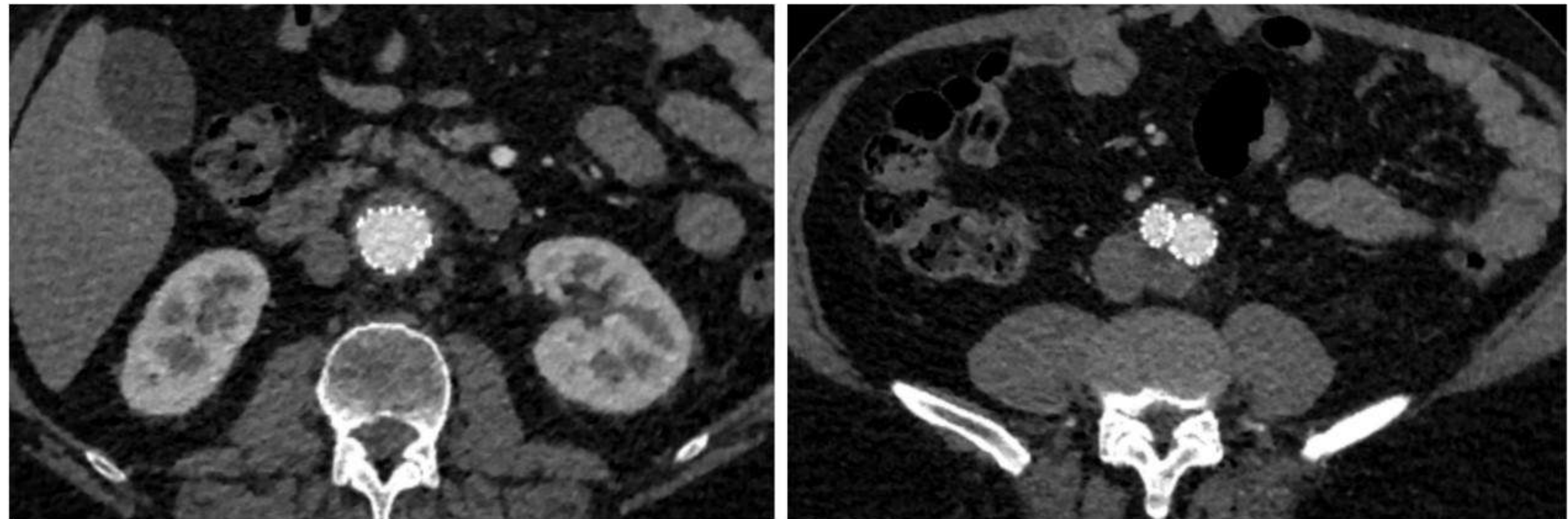


Figure-1: Five-year follow-up after EVAR showing an uneventful course with no evidence of endoleak or dissection.

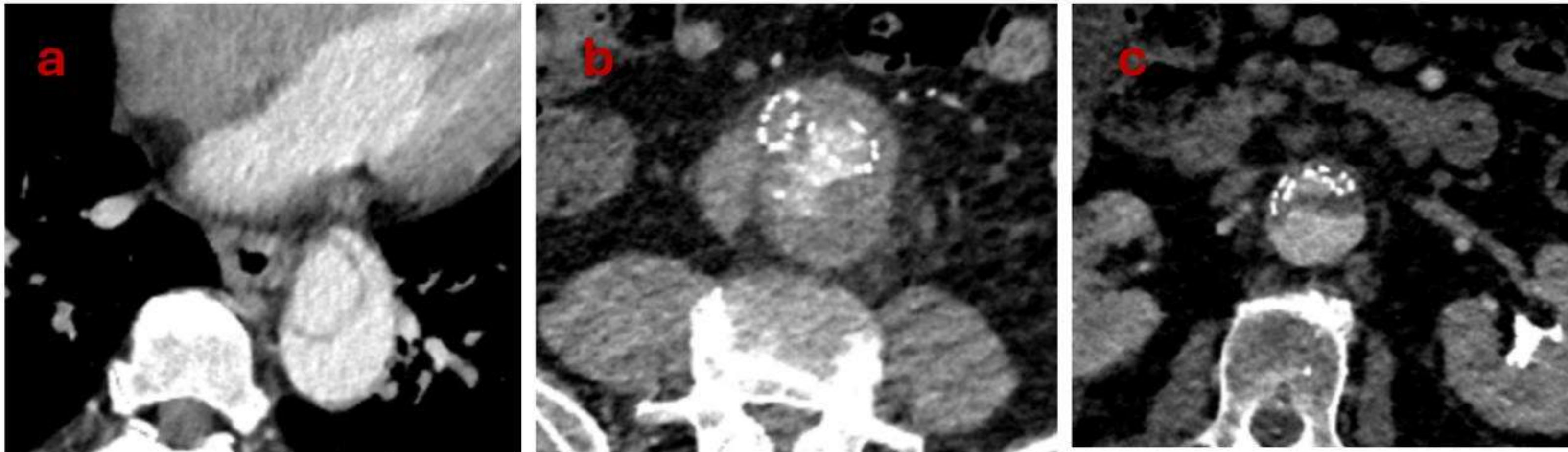


Figure-2: a) Newly developed Type-3 Aortic Dissection; b, c) Occlusion of the previous endograft at various levels due to increased false lumen pressure caused by the dissection.

Discussion:

Aortic dissection can cause acute limb ischemia by collapsing the true lumen, especially when false lumen pressure exceeds the radial force of an endograft. Although endografts are typically sufficient to re-expand the true lumen, elevated false lumen pressure—even in well-sealed grafts—can compress the stent-graft and lead to near-complete occlusion. This rare but serious complication may severely impair distal perfusion, particularly in the lower extremities, requiring urgent intervention. Endovascular repair in such scenarios is technically challenging, particularly when the dissection extends into Zone 3 of the aorta. Accessing the compressed true lumen demands advanced techniques such as the body-floss (through-and-through wire) method, intravascular ultrasound (IVUS) guidance, and precise wire navigation. Nevertheless, in experienced hands, endovascular management is feasible. Deploying a thoracic endograft (TEVAR) to seal the proximal entry tear and performing balloon angioplasty can restore true lumen patency and distal flow. This strategy avoids open surgical conversion and highlights the effectiveness of endovascular approaches in managing complex post-EVAR complications.

Case Presentation:

We present the case of a 67-year-old male with a prior history of successful endovascular aneurysm repair (EVAR) performed for an infrarenal abdominal aortic aneurysm (AAA) five years ago. Postoperative surveillance with computed tomography angiography (CTA) was conducted regularly, demonstrating satisfactory graft positioning with no evidence of endoleak or graft-related complications. The patient remained entirely asymptomatic over a five-year follow-up period, with preserved lower extremity perfusion and stable aortic morphology (Figure 1). The patient presented to the emergency department with acute-onset severe chest pain radiating to the back, both upper extremities, and bilateral lower limbs. He was hemodynamically stable but reported bilateral lower limb numbness and weakness. Given the vascular history, an emergent CTA of the thoracoabdominal aorta was performed. Imaging revealed a spontaneous type B aortic dissection (DeBakey III), originating distal to the left subclavian artery and extending caudally to involve the previously placed EVAR graft. The dissection flap created a false lumen that severely compressed the true lumen, particularly at the infrarenal segment and within the region of the stent-graft landing zone. This compression resulted in near to total collapse of the true lumen, occlusion of distal aortic flow, and evidence of peripheral ischemia in the lower extremities (Figure 2).

Intervention:

Given the emergent nature of the presentation and signs of compromised perfusion, urgent endovascular intervention was undertaken. Using a body-floss technique (also known as a through-and-through wire technique), access to the true lumen was established via the right radial artery, traversing the aorta to the left external femoral artery. Careful advancement of a guidewire confirmed intraluminal passage through the true lumen across the dissection flap and into the EVAR segment. A thoracic endovascular aortic repair (TEVAR) graft was then deployed to seal the proximal entry tear and re-expand the true lumen. Following stent deployment, balloon angioplasty was performed at the level of maximal compression to re-establish luminal patency. Post-procedure angiography demonstrated successful re-expansion of the true lumen and restoration of antegrade perfusion throughout the EVAR segment and to both lower extremities (Figure 3). The patient experienced prompt clinical improvement with resolution of limb ischemia and was monitored in the intensive care unit without further complications.

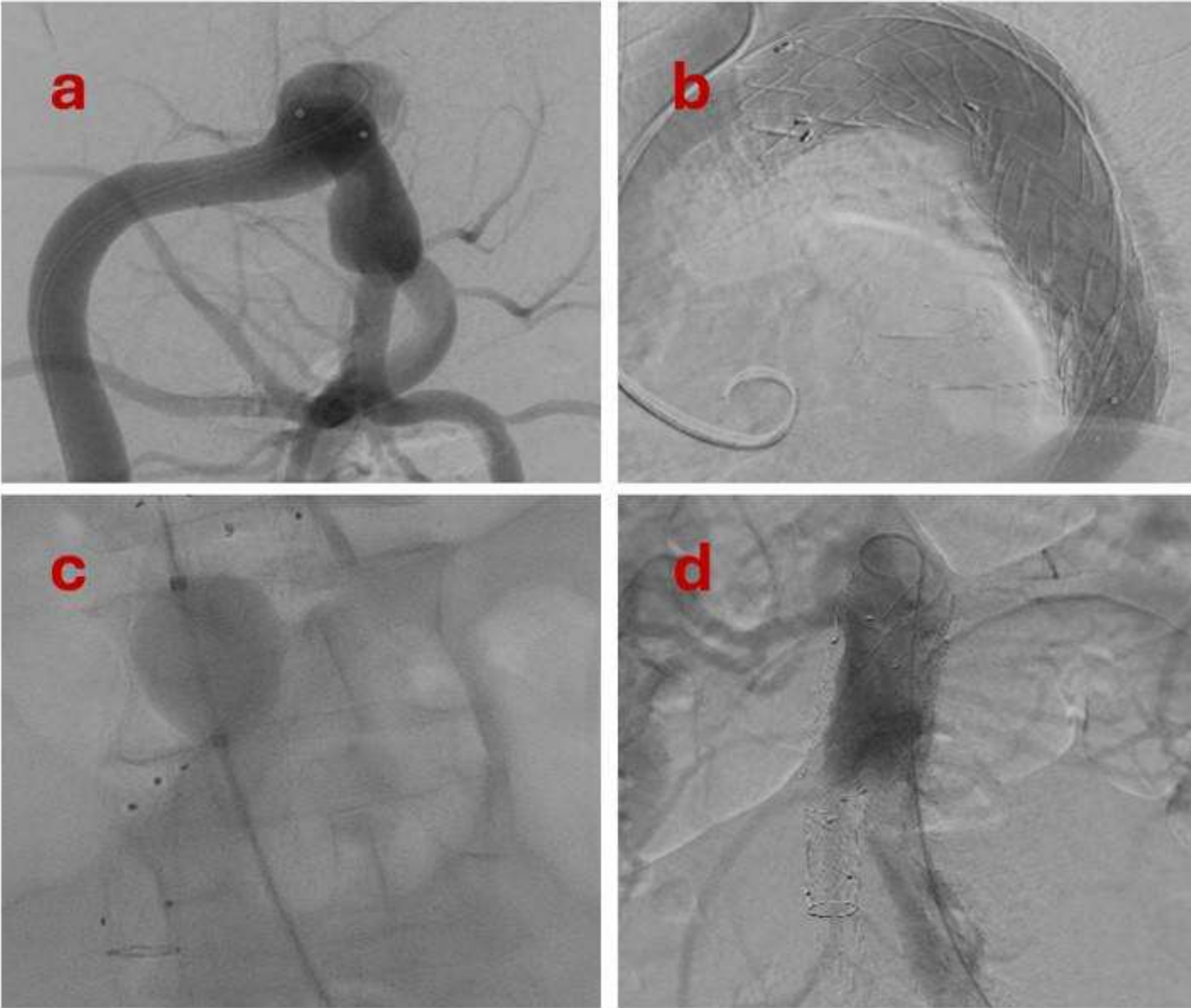


Figure-3:a) Femoral access was not feasible b) True lumen access achieved via the right radial artery and advanced to the left femoral artery, followed by TEVAR deployment c) Balloon expansion performed on the previous endograft d) Restoration of graft patency and resolution of occlusion