Multiple vascular complications after catheter ablation — successful treatment of pseudoaneurysm and segmental deep vein thrombosis: Case report

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Catheter ablation is often the most effective treatment for premature ventricular complexes [1]. It is commonly performed through femoral vein or/and artery access. The incidence of access-related vascular complications is estimated at 4%–6% [2]. Pseudoaneurysm of the femoral artery and severe subcutaneous hematoma occasionally cause compression on the femoral vein and result in deep venous thrombosis (DVT) [3].

A 59-year-old male with a history of granulomatosis with polyangiitis and 2 episodes of DVT, chronically treated with azathioprine and rivaroxaban, was admitted to the hospital presenting severe subcutaneous groin hematoma and massive edema of right lower limb (Figure 1A). Three days earlier, the patient had undergone successful catheter premature ventricular complex ablation through the right femoral artery and femoral vein. The venous and arterial access had been performed under ultrasound guidance. Venous access had been closed with a "Z" stitch and arterial with an Angio-Seal vascular closure device, compression dressing at the groin, and a six-hour bed regime. Rivaroxaban was uninterrupted in the periprocedural period. On admission, the D-dimer level was elevated to 1824 ng/ml and the hemoglobin level was reduced to 10.9 g/dl. Ultrasonography and computed tomography angiography revealed a pseudoaneurysm (27 × 17 mm) connecting to the right common femoral artery by the neck (length 8 mm, width 3 mm). The veins of the limb showed decreased compression susceptibility but no signs of thrombosis.

Due to the presence of pseudoaneurysm and severe subcutaneous hematoma, anticoagulant treatment with rivaroxaban was temporarily discontinued, and empirical, prophylactic antibiotic therapy was implemented. The patient was initially qualified for surgical treatment — thrombin injection — but the pseudoaneurysm spontaneously clotted after 14 hours of bed regime with a pressure dressing, and rivaroxaban could be re-administered. Due to an episode of high fever, hypotension, increased C-reactive protein, and procalcitonin, blood cultures, urinalysis, and chest X-ray were performed. Subsequently, broad-spectrum antibiotic therapy was introduced, suspecting hematoma infection. No other possible source of infection was identified, and blood cultures were negative in the end. Due to no edema resolution during the next three days, Doppler ultrasonography was repeated twice, eventually showing proximal, segmental DVT. Computed tomography venography confirmed the diagnosis. Rivaroxaban, as per the initial deep venous thrombosis dosage regimen (2 × 15 mg), was introduced with no improvement in the next four days. Considering the early stage of thrombosis — proximal segmental DVT resulting in a massive limb edema — the patient was qualified for an embolectomy attempt. Embolectomy and balloon venoplasty were insufficient; therefore, stenting was necessary to restore sufficient right femoral vein flow (Figure 1B–E). The right lower limb edema was significantly reduced within 24 hours (Figure 1F).

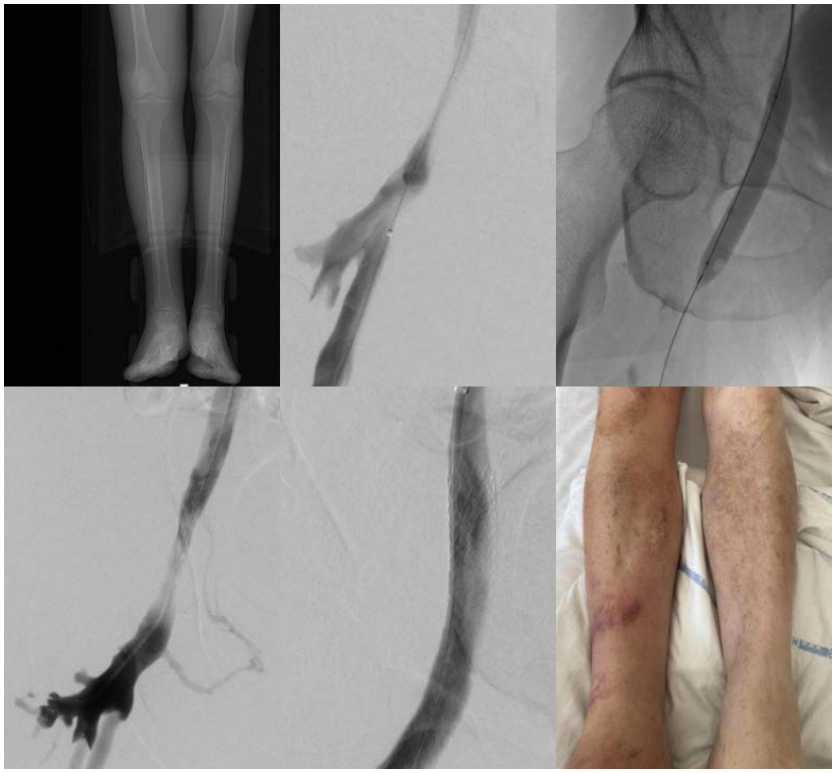

Figure 1. A. Computed tomography showed severe edema of the right lower limb. **B.** Severe segmental stenosis of the right common iliac vein. **C.** Balloon (12 mm in diameter) venoplasty of the right common iliac vein after prior thrombus aspiration (penumbra system). **D.** The flow after embolectomy and balloon venoplasty of the right common iliac vein is only partially restored. **E.** Eventually ballon predilatation (diameter 14 mm) and stenting (14 × 100 mm) of the right common iliac vein restored the flow. **F.** First day after balloon venoplasty. Significant edema resolution

In the follow-up after one month, no limb swelling was observed.

Management of pseudoaneurysm includes observation, compression, thrombin injection, or surgery. Despite a high success rate (up to 97%) of ultrasound-guided thrombin injection, the initial application of a pressure dressing sometimes results in spontaneous pseudoaneurysm clotting [4]. Our case is a unique and rare presentation of proximal deep vein thrombosis, most likely due to a sizeable femoral artery pseudoaneurysm and subcutaneous hematoma, which caused an external compression effect. Deep vein thrombosis rarely requires therapy other than pharmacological anticoagulant treatment. Percutaneous embolectomy is performed to unblock the blood vessel only if non-invasive treatment is ineffective [5]. One must remember that large hematomas may be the source of infection.

Article information

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