Groin lymphorrhea after catheter ablation of atrial fibrillation: A case report

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Introduction

Catheter ablation is a well-established therapeutic option for the treatment of atrial fibrillation (AF).[1,2] Although nowadays performed on a routine basis, catheter ablation of atrial fibrillation (AFCA) is associated with a non-negligible complication rate of up to 16% with significant discrepancies in incidence and type, with vascular access site complications being the most common (groin hematoma, femoral arterial pseudoaneurysms, and femoral arteriovenous fistula).[1–4] We report a case of a 75-year-old White male patient with right groin lymphorrhea as an access site–related complication after second catheter ablation of recurrent atrial fibrillation. Inguinal lymphatic complications are described after cardiac (structural) interventions using large-caliber vascular access.[5] However, to the authors' best knowledge this is the first report of lymphorrhea following AFCA as a procedure using 8F introducer sheaths.

KEY TEACHING POINTS

- Catheter ablation of atrial fibrillation (AFCA) is associated with a non-negligible complication rate with access site complications being the most common.
- Inguinal lymphatic complications are described after cardiac interventions using large-caliber vascular access.
- To the authors' best knowledge, this is the first report of lymphorrhea following AFCA and, generally, procedures using 8.5F introducer sheaths.
- Operators have to be aware of this potential complication during periprocedural AFCA management, with emphasis on prolonged compression in its therapy.

Case report

A 75-year-old White male patient with a history of paroxysmal AF was referred for a second catheter ablation procedure owing to recurrence of paroxysmal AF refractory to antiarrhythmic drug therapy. Thrombus in the left atrial appendage was excluded by transesophageal echocardiography and the procedure was done under uninterrupted anticoagulation therapy with rivaroxaban.[6] The procedure was done under conscious sedation using a focal irrigated-tip radiofrequency catheter in combination with a 3D electroanatomical mapping system, as described in detail previously.[7,8] Venous access was achieved using Seldinger technique via right inguinal area with 4 punctures: 2 10-cm 8Fr sheaths (Terumo Radifocus® Introducer II; Terumo Europe N.V., Leuven, Belgium) and 2 8.5F SL1 sheaths (FastCath™; Abbott Cardiovascular, Plymouth, MN). Throughout the entire procedure, unfractionated heparin bolus administration to maintain the activated clotting time >300 seconds was used. Since left pulmonary veins and right superior vein were proved to be persistently isolated, the right inferior pulmonary vein was re-isolated and thus superior vena cava isolation was done according to the center's protocol. At the end of the procedure, sheaths were removed and a Z stitch was placed at the puncture site in the right groin.[9]

The next day, transthoracic echocardiography ruled out pericardial effusion and the puncture site was healing normally, without local signs of inflammation or hematoma. Three days after the procedure, moderate secretion of approximately 2 deciliters of serous secretion (lymph) was observed at the right groin with a small hematoma in resorption and consequently patient was hospitalized. Laboratory findings were within normal range, including normal serum albumin values. Doppler-duplex of the right lower extremity ruled out arteriovenous fistula, arterial pseudoaneurysm, and

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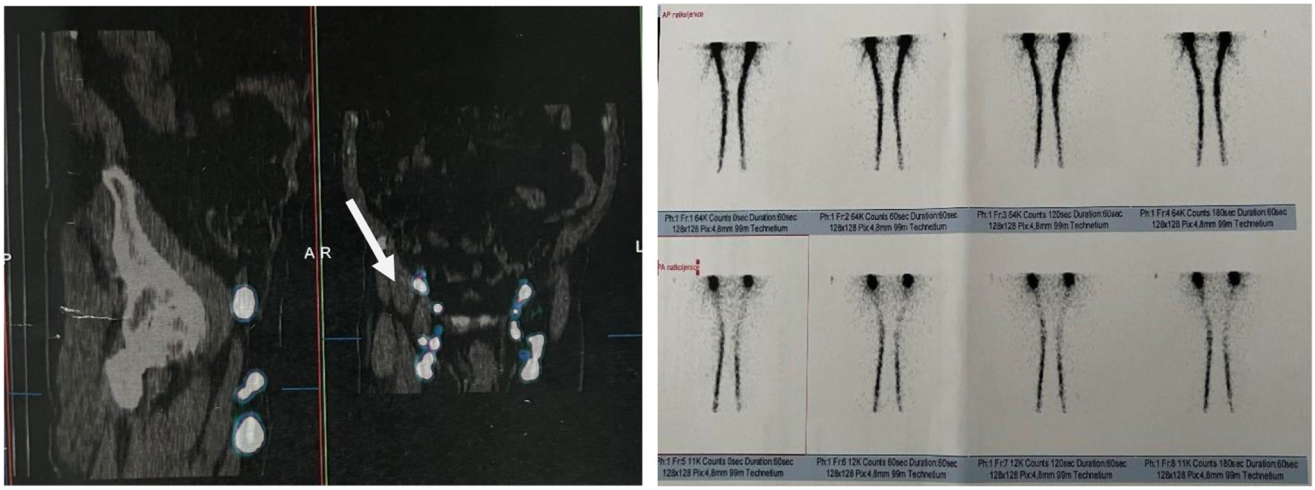

Figure 1 **A,B**: Lymphoscintigraphy of the lower extremities, pelvis, and abdomen. The arrow points to normal bilateral lymph drainage with developed collaterals in the area of the right leg, without signs of tissue congestion or lymph extravasation.

hematoma. Diagnosis of lymphorrhea was established clinically by the color and consistency of the drained fluid, as well as by its laboratory analysis, which confirmed that it was a lymph. After the diagnosis of lymphorrhea was established, prolonged manual compression of the right inguinal area followed by a local bag compression for 24 hours, after which the cessation of lymphorrhea was established. Subsequently, lymphoscintigraphy of the lower extremities, pelvis, and abdomen was performed, showing no asymmetry in the visualization of pelvic lymph nodes and normal bilateral lymph drainage with developed collaterals in the area of the right leg, without signs of tissue congestion or lymph extravasations (Figure 1). The second day after lymphorrhea cessation and fourth day of hospital admission, the patient was discharged home without mobility limitations.

Discussion

We presented a case of a patient with lymphorrhea, an access site–related complication after second catheter ablation of recurrent atrial fibrillation. To the authors' best knowledge, this is the first report of lymphorrhea following AFCA and, generally, procedures using 8.5F introducer sheaths. Lymphorrhea was described in cases with extracorporeal membrane oxygenation usage and after transcatheter aortic valve implantation, as well as after thoracic and abdominal endovascular aorta reconstruction.[5,10] Usually, it manifests as lymphocele or lymph fistula in 1%–4% of cases.[10] However, the mentioned procedures are done using 2-3 times larger-caliber vascular access sheaths: extracorporeal membrane oxygenation 19–25F, transcatheter aortic valve implantation 14–16F for balloon-expandable and 18F for self-expanding devices.[10–12] In addition, lymphatic complications in the inguinal region are also described after vascular operations (revascularization, varicose vein operation) and lymphadenectomy subsequent to abdominal and/or pelvic operations owing to malignant disease.[13,14] The fact that the patient had 4 sheaths in 1 groin could explain why the lymphatic drainage occurred. However, using fewer sheaths raises concerns for procedural safety during transseptal puncture, and using both groins increases the possibility of vascular complications in both groins.[3] Lymphorrhea is a condition in which lymph drains externally from disrupted lymphatic vessels or it is retained within a wound. In our case, the drainage was external and moderate, neither causing hypoproteinemia nor interfering with wound healing or causing infection, which are complications caused by lymphorrhea.[15] In addition, lymphoscintigraphy showed no disrupted lymphatic vessels, probably since it was done after the prolonged compression, which proved to be very effective in our case, and consequently more invasive therapy was not indicated.

Conclusion

The authors believe that although lymphorrhea is very rare after catheter ablation of atrial fibrillation and procedures using small-caliber introducer sheaths, it should not be neglected and the operators have to be aware of this complication during periprocedural AFCA management, with emphasis on prolonged compression in its therapy.

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