



Contents lists available at ScienceDirect

Indian Heart Journal

journal homepage: [www.elsevier.com/locate/ihj](http://www.elsevier.com/locate/ihj)



## Percutaneous intervention for restoration of patency of occluded lower limb arteriovenous dialysis access

A.J. Ashwal\*, R. Padmakumar, U.K. Abdul Razak, G.S. Naveen Chandra

Department of cardiology, KMC Manipal, Manipal University, India

### ARTICLE INFO

#### Article history:

Received 7 June 2017

Accepted 22 August 2017

Available online xxx

#### Keywords:

Endovascular

Hemodialysis

Angioplasty

AV fistula

Saphenofemoral fistula

### ABSTRACT

**Background:** Arteriovenous fistula thrombosis is a serious complication in patients undergoing hemodialysis, often presenting with symptoms of venous hypertension, failure to dialysis and uremic symptoms. Treatment is aimed to provide symptomatic relief and to maintain hemodialysis access site patency.

**Aim:** To describe our initial experience in the endovascular treatment of lower limb arteriovenous dialysis access (arteriovenous fistula) thrombosis and/or obstruction in patients undergoing hemodialysis.

**Settings and design:** This was a retrospective study carried out in a tertiary care center. Study duration was 24 months. Follow-up was variable.

**Materials and methods:** Two patients with chronic kidney disease with stage 5 renal failure undergoing hemodialysis presented with lower limb arteriovenous dialysis access (arteriovenous fistula) failure between July 2014 and September 2016. Both the patients underwent endovascular treatment and were analyzed retrospectively.

**Results and conclusion:** Both the patient underwent successful endovascular treatment for the failure of the lower limb arteriovenous dialysis access thrombosis and/or obstruction. One patient had minimal dye extravasation during manipulation of the guide wire which ceased spontaneously. On follow up, both patients maintained patency of the dialysis access and are undergoing successful hemodialysis. One patient had a recurrence of the thrombosis of the fistula at 9 the month of the follow-up. Endovascular treatment was tried but we could not succeed. However, we found endovascular treatment safe and effective in treating AV fistula failures.

© 2017 Published by Elsevier B.V. on behalf of Cardiological Society of India. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### 1. Introduction

As the life expectancy of patients with end stage renal disease has improved dramatically in recent years, maintenance of patency of dialysis access has become a challenging task. Lower limb AV fistula is constructed as a last resort when upper limb fistulas are obstructed, hence it very important and technically challenging to salvage this fistula once they are obstructed.

### 2. Materials and methods

This was a retrospective study approved by the departmental ethical committee. Informed written consent was obtained from both the patients. Two patients with occluded lower limb arterial-

venous fistulas underwent endovascular treatment in the department of Cardiology. Both the patients were on hemodialysis for chronic kidney disease (CKD) with stage 5 renal failure under the renal transplant surgery department of our institute. Mean duration of dialysis before the intervention was 2.5 years. Both the patients had autogenous AVF for dialysis access.

Indications for treatment were excessive swelling in the lower limb, decreasing flow during a dialysis session, and pronged bleeding after cannulation.

Both had a history of multiple AV fistula failures of both the upper limb. When patients presented to us they had symptoms of fluid overload and uremia and had skipped hemodialysis for two to three cycles. There was no bruit over the AV fistula. Their lab investigations revealed high serum creatinine and hyperkalemia. After a clinical diagnosis of access failure, patients were referred for angiography and possible intervention to our department. Immediate dialysis was undertaken through the placement of a temporary dialysis catheter and taken for intervention. Pre-

\* Corresponding author.

E-mail address: [dr.ashwal@gmail.com](mailto:dr.ashwal@gmail.com) (A.J. Ashwal).

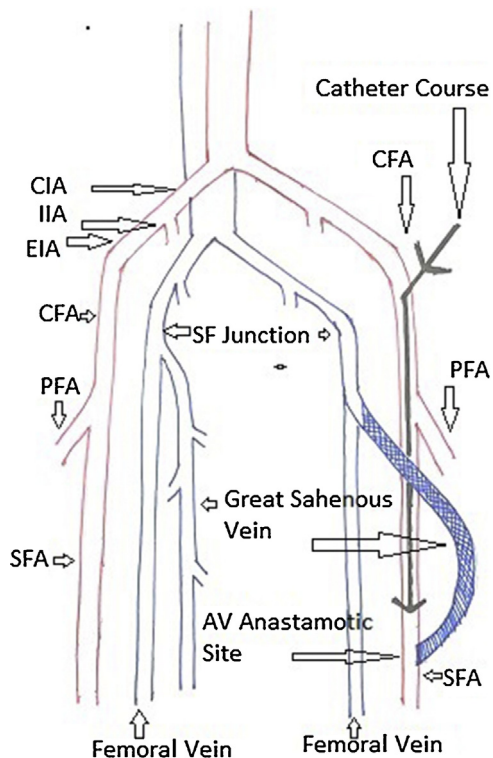
<http://dx.doi.org/10.1016/j.ihj.2017.08.015>

0019-4832/© 2017 Published by Elsevier B.V. on behalf of Cardiological Society of India. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

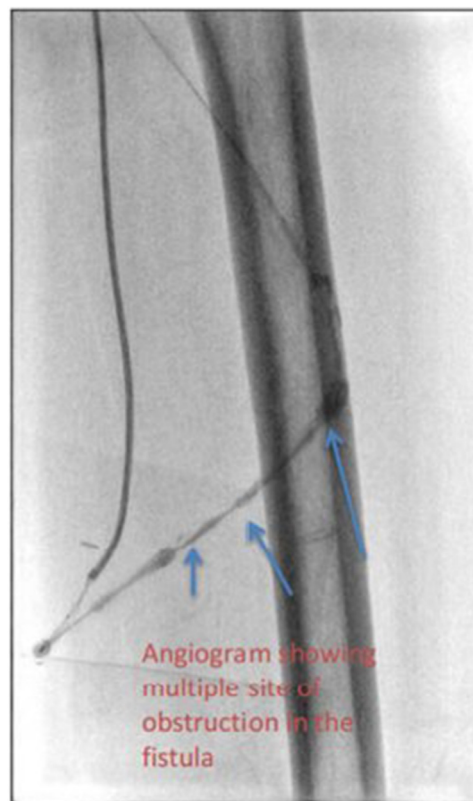
procedure Doppler study of the AV fistulas was done in both the cases to confirm the acute thrombosis in the outflow of the fistulas. A preliminary diagnostic venography was performed. Location, length, and extent of thrombosis/obstruction were assessed. Endovascular interventions were performed in the same sitting.

The first case was a 31-year-old male on once weekly maintenance dialysis who came with a history of persistent vomiting, anasarca, and breathlessness of 2 days duration and not able to undergo dialysis since 1 week. He had a saphenofemoral loop arteriovenous fistula on the left lower limb. Left femoral artery puncture was taken by an antegrade technique (Fig. 1) and 7F arterial sheath (Cordis) was inserted. Fistulography was done using a 6F Judkins right catheter (Cordis). It showed multiple stenoses in the outflow venous loop (saphenous vein) with normal arterial inflow segment (Fig. 2). A 0.014-inch floppy tip hydrophilic coronary guide wire, Sion Blue (Asahi Intecc Co. LTD) was used to cross the obstruction and wired through the entire venous loop of the fistula. The entire loop with obstruction was sequentially dilated with non-compliant balloons of size 2.5 × 10 millimeters (mm) Sprinter Legend balloon (Medtronic, Inc.), 3 × 20 mm Pantera balloon (Biotronic AG) and 4 × 12 mm Pantera Leo balloon (Biotronic AG) respectively. Finally, the obstructed segment was serially dilated with 5 × 25 mm non-compliant Prostar stent balloon (Vascular Concepts) at high pressures of 16 ATM (Fig. 3). Post procedure angiogram showed good opening of the proximal saphenous venous loop (Fig. 4) with good distal outflow. The patient was started back on hemodialysis on the same day from the left lower limb saphenofemoral fistula with the good flow during the dialysis.

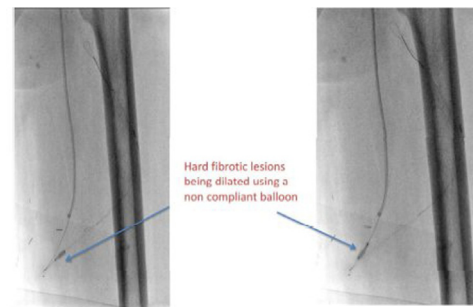
The second case was a female 31 year old with CKD on maintenance dialysis twice weekly with uremic symptoms from the past 3 days. She had a saphenofemoral loop arteriovenous



**Fig. 1.** Diagram showing the Saphenofemoral loop arteriovenous fistula of left lower limb and the catheter course in the first patient. The black arrow indicates the catheter course. CIA- common iliac artery, IIA-internal iliac artery, EIA-external iliac artery, CFA-common femoral artery, SFA-superficial femoral artery, PFA- profunda femoral artery, SF junction- saphenofemoral junction, AV- arteriovenous.



**Fig. 2.** Fistulogram with 6F Judkins right catheter showing multiple stenoses in the outflow saphenous venous loop in the first patient.



**Fig. 3.** Fistulogram showing serial dilatation of the stenotic segments with the high-pressure noncompliant balloon in the first patient.

fistula on the right lower limb. Left femoral arterial access was taken and 7 F arterial sheath (Cordis) was inserted. Fistulography was done with 6F Judkins right catheter (Cordis) after crossing over to the right superficial femoral artery (Fig. 5). It showed complete occlusion of the venous outflow with normal arterial inflow segment (Fig. 6). The fistula was hooked with 3.5 F Judkins right (Cordis) catheter and 0.35 inch Terumo J tipped wire was used to cross the obstruction (Fig. 7). It was exchanged with 0.35-inch Amplatz stiff wire (Cook International) with the help of Slipcath (Cook International). The entire venous loop with the obstruction was sequentially dilated with 5 × 20 mm Bard balloon (Bard Corp.) and 6 × 60 mm Admiral Balloon (Medtronic-Invatec) at 20 to 22 ATM. (Figs. 8). Post procedure angiogram showed good opening of the proximal saphenous venous loop with good distal outflow (Fig. 9).

Technical success was defined as a procedure without significant residual stenosis or without complications. Technical failure

Download English Version:

<https://daneshyari.com/en/article/8661263>

Download Persian Version:

<https://daneshyari.com/article/8661263>

[Daneshyari.com](https://daneshyari.com)