# Diagnostic imaging and angioplasty as day case procedure for haemodialysis vascular access

University Hospitals of Leicester NHS
NHS Trust

**Nephrology and Transplant Service**
**Renal, Respiratory, Cardiac and Vascular CMG**

## 1. Introduction

The aim of this guideline is to identify patients with failing or problematic arteriovenous fistula (AVF) or grafts (AVG) which may be suitable for a one-stop procedure in radiology for diagnosis and percutaneous intervention (angioplasty) and to guide staff through the pathway.

Maintenance of vascular access is very important for patients receiving chronic haemodialysis. There is good evidence that the use of haemodialysis catheters for haemodialysis is associated with significantly increased morbidity and mortality. An integral part of a comprehensive vascular access service is monitoring vascular access for failing devices and, where possible, acting quickly to diagnose and treat these by either percutaneous angioplasty or surgical intervention.

This document describes the pathway for those patients who may have a diagnostic study followed immediately by intervention where indicated. There is good evidence that these can be done as day procedure unless a central vein angioplasty is performed.

## 2. Scope

This guideline is for medical and nursing staff responsible for the care of vascular access in haemodialysis patients and for staff in the vascular interventional department of radiology.

Clinical guidelines are ‘guidelines’ only. The interpretation and application of clinical guidelines will remain the responsibility of the individual practitioner. If in doubt consult a senior colleague or expert.

## 3. Recommendations, Standards and Procedural Statements

### Identification of suitable patients

The intention is to identity patients who have a high likelihood of a stenosis which might be amenable to angioplasty. These patients will be booked for a longer radiology slot than for diagnostic imaging alone. Case selection is important as any cases where intervention is not required or not possible percutaneously will lead to loss of radiology time. The following patient groups should be considered as candidates for one-stop day case intervention:-

- Patients who have previously had successful angioplasty where there is evidence of recurrence(as suspected from reduction in access flow, increasing venous pressure, decreasing dialysis adequacy or clinical assessment)
- Patients with arteriovenous graft where likelihood of outflow narrowing is high(increasing venous pressure, reduction in flow, clots aspirated during needling of graft)
- Patients identified with vascular access which is in imminent danger of thrombosis (clinical examination, access blood flow <300ml/min or any measurable recirculation using flow monitoring)
- Patients who have had surgical thrombectomy of AVF/graft – these patients should be referred urgently by contacting the vascular radiographer or on call vascular radiologist and have investigation +/- intervention within days

**Care pathway**

Where patients fulfil these criteria the following pathway should be. This pathway may also be used for patients who have had a diagnostic procedure and who have been deemed suitable for subsequent angioplasty.

Explain procedure to patient and supply copy of patient information sheet (see radiology information leaflet 'Information for patients having a vascular fistulogram or fistuloplasty')

Complete radiology request form electronically or on paper requesting 'fistulogram +/- fistuloplasty' and send to radiology.

If severity of clinical findings deem intervention should be undertaken on the next available list (i.e. soon but not on call), then direct discussion with the interventional radiology coordinator (Angiography ext. 8219) or the vascular access co-ordinator is advised to facilitate this.

A suitable date and pre-assessment with be arranged for daycase.

If patient on dialysis, ask haemodialysis nurses to screen for MRSA and to check FBC, INR pre-dialysis on session immediately preceding data for radiology appointment. If patient may require intra-thoracic angioplasty also arrange group and save. Patients on warfarin must be dosed to allow INR to decrease to 1.8 or less

Instruct patient to attend day case 2hours before appointment time

The nominated daycase facility will notify the patient of the appointment time in radiology.

**Post procedure care**

If patient has had intervention the AVF/AVG and puncture site should be checked every 30mins for 2hours prior to discharge

If there is evidence of bleeding or swelling or any concern over patency of the AVF/AVG, then the nephrology or transplant SpR must review patient prior to discharge

If a purse-string suture has been inserted to aid haemostasis, the relevant dialysis unit should be contacted to ensure this is removed at next dialysis session

**Special considerations**

Anticoagulants. Patients who are taking warfarin should have dose adjusted to allow INR to drift down to ~1.5. Anti-platelets agents including clopidogrel can be continued

Infection control issues. The radiology team must be informed of any patients who are isolated for dialysis or have other infections control issues (e.g. blood borne viruses, diarrhoea, MRSA, VRE, CRO).

## 4. Education and Training

This procedure is now embedded in the departments and there are no specific training requirements

## 5. Monitoring and Audit Criteria

| Key Performance Indicator | Method of Assessment | Frequency | Lead |
|---|---|---|---|
| Number of cases performed per year | Total count | annual | Neghal Kandiyil, Consultant Radiologist |
| Complications of angioplasty | % | annual | Neghal Kandiyil, Consultant Radiologist l |
| Patency of access device at 6months | % | annual | Neghal Kandiyil, Consultant Radiologist |

## 6. Legal Liability Guideline Statement

Guidelines or procedures issued and approved by the Trust are considered to represent best practice. Staff may only exceptionally depart from any relevant Trust guidelines or procedures and always only providing that such departure is confined to the specific needs of individual circumstances. In healthcare delivery such departure shall only be undertaken where, in the judgement of the responsible healthcare professional, it is fully appropriate and justifiable - such decision to be fully recorded in the patient's notes.

## 7. Key Words

vascular access, haemodialysis, arteriovenous fistula, angioplasty, day case

This line signifies the end of the document

This table is used to track the development and approval and dissemination of the document and any changes made on revised / reviewed versions

| DEVELOPMENT AND APPROVAL RECORD FOR THIS DOCUMENT | | |
|---|---|---|
| **Author / Lead Officer:** | Graham Warwick | **Job Title:** Consultant Nephrologist |
| **Reviewed by:** | Will Adair<br>Consultant Radiologist | |
| **Approved by:** | Nephrology Consultants' Meeting | **Date Approved:** |

| REVIEW RECORD | | | |
|---|---|---|---|
| **Date** | **Issue Number** | **Reviewed By** | **Description Of Changes (If Any)** |
| 22Nov2015 | 2 | G Warwick/W Adair | Updated and fitted to standard UHL guideline template |
| 1st April 2021 | 3 | W Adair/R Baines | Updated details of vascular access and IR coordinator in care pathway |
| | | | |

| DISTRIBUTION RECORD: | | | |
|---|---|---|---|
| **Date** | **Name** | **Dept** | **Received** |
| | | | |
| | | | |
| | | | |