1. Introduction

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.

The aim of this guideline is to aid nursing and medical staff to decide when it is appropriate to request a radiological examination of an AV fistula or graft. The main purpose of such examinations is to identify treatable lesions which impair development, may lead to thrombosis or cause needling difficulties for vascular access for haemodialysis.

The treatment may be surgical or radiological (angioplasty +/- stent). If there is a significant lesion the radiologist may proceed directly to treatment.

Surgical input will often help to decide whether fistulography is appropriate and may avoid unnecessary examinations. However, where surgical help is not readily available (eg. satellite units) or there are clear cut indications as listed below a fistulogram may speed up diagnosis and treatment of the access problems.

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

3.1 Consent

Both the referring team (SpR or above) and radiologist should be able to obtain informed consent for both the fistulogram and angioplasty/stent insertion. Patients are expected to be well informed prior to the radiologist obtaining informed consent.

3.2 Indications for fistulography

- Vascular access which fails to develop over 2 months despite a palpable thrill/bruit and cannot be needled by an experienced haemodialysis nurse (to detect anastomotic stenoses or draining vein stenoses).
- Vascular access which has been successfully de-clotted (to detect stenoses pre-disposing to clot). If on-table angiography performed at time of surgery then this is not necessary.

- Previously functioning fistulae which develop problems related to poor inflow or outflow (ie. inadequate blood flow (<200ml/min), rising venous pressure, increasing difficulty of needling).
- Evidence of central venous occlusion (ie. swollen arm or head/neck).
- A decrease in flow of 25% on previous measurements of fistula/graft blood flow, or an absolute flow of less than 500ml/min.

Fistulograms should only be ordered after discussions with a member of the medical or surgical team of specialist registrar grade or above who is familiar with the patient in question or by the vascular access specialist nurse following patient review.

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	Vascular Access Specialist Nurse
Compliance with criteria for fistulogram	%	annual	Vascular Access Specialist Nurse
Number of failed fistulas	Total count	annual	Vascular Access Specialist Nurse

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, access flow, day case

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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		
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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
17Sep2018	3	RBaines/W Adair	Audit responsibilities changed
01 Nov 2021	4	R Baines/S Glover	Vascular access specialist nurse referred to by title rather than name

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