LOWER LIMB ARTERIAL DUPLEX

PROTOCOL

Drafted by: Ms. Emma Quilty

Authorised by: Dr Cleona Gray

Signature: _____ **Date: 25.03.2020**

1.0 Purpose

Evaluation of the abdominal and lower limb arteries to determine the presence, location and severity of vascular disease (occlusive and aneurysmal).

2.0 Revision History

Date	Revision No.	Change	Reference Section(s)
01/01/2017	1	General update	All sections
23/03/2020	2	General update	All sections

3.0 Persons Affected

Vascular Laboratory Physiologists, Consultants, NCHD's, Vascular Administration Staff and Patients of the Vascular Laboratory.

4.0 Policy

The policy of the Mater Private Network is to ensure that all vascular staff are aware of the protocol in place for the performace, interprutation and follow up of the right/left lower limb arterial Duplex.

5.0 Definitions

Vascular Laboratory Physiologists (VP), Vascular Laboratory (VL), Patient Centre (PC), Vascular Consultant (VC), vascular surgical outpatient Appointment (SOPD), Vascular Surgical Registrar (VSPR), Mater Private Network(MPN).

6.0 Responsibilities

Vascular Physiologists, Vascular Consultants, Vascular Surgical Team and Vascular Administrating staff.

7.0 Procedures

Duplex of Right/Left Lower limb Arteries

Common Indications

Common indications for the performance of this examination include:

- Intermittent claudication
- Ischaemic rest pain
- Critical limb ischaemia
- Gangrene/ ulceration/ tissue loss
- Post-surgical intervention follow-up e.g. angioplasty
- Query aneurysm/pseudo aneurysm

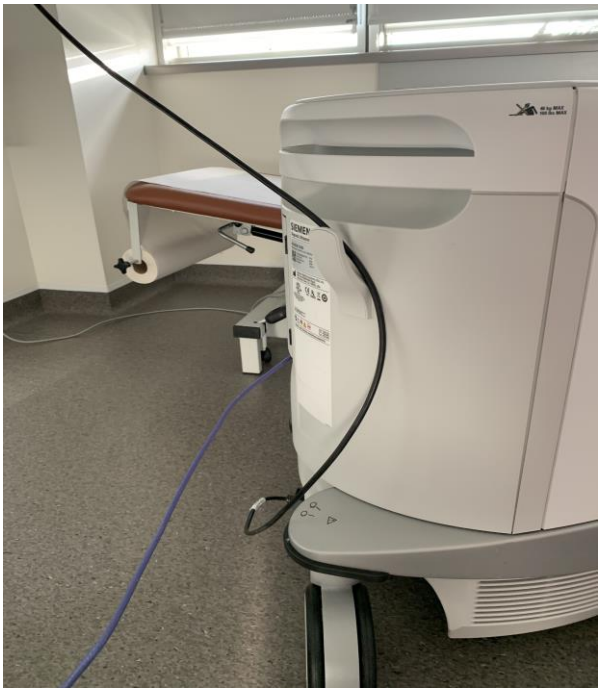
Contraindications and Limitations

Contraindications for lower limb arterial duplex ultrasound assessment are unlikely; however, some limitations exist and may include the following:

- Patients who have had recent surgery, ultrasound visualisation may be limited due to oedema, haematoma, surgical staples, dressings etc.
- Patients who are unable to lie with their limbs flat or still due to extreme pain or pre-existing co-morbidities e.g. chronic obstructive pulmonary disease (COPD) and arthritis – although these patients may be able to tolerate being examined seated with the limb dependent or with the head of the bed raised where practical
- Calcified plaque may cause acoustic shadowing limiting Doppler and B-mode image assessment
- Patients who are unable to cooperate due to reduced cognitive function or excessive movement
- Examinations undertaken portably at the patient's bedside maybe limited due to equipment and room dimensions
- Patients with high body mass index
- The presence of ulcers, wounds, bandaging or casts.

Equipment:

- Duplex Doppler ultrasound machine with imaging frequencies of 5.0MHz or greater; Doppler frequencies of at least 3.0MHz and linear array transducer/s with colour Doppler capability.
- Compliance with the Medical Devices Directive is necessary. Electrical safety testing is required annually and is performed as part of all routine servicing of equipment carried out by the manufacturer.
- Review of in-service equipment should typically be undertaken four to six years after installation.
- Examination couch should be height adjustable preferably electrical. The vascular physiologists chair should provide good lumbar support, be height adjustable and allow for them to move close to the examination couch.
- All ultrasound cables must be hooked up off the floor onto the back of the ultrasound system (Picture 1 Below). It is the VP's responsibility to ensure that the surrounding environment is safe for both themselves and the patient.
- The examination room should be temperature controlled with adjustable lighting levels suitable for examination.
- Suitable cleaning materials should be available in line with local and manufactures guidelines.



Picture 1.0 Machine Hook for Cables

Explanation of examination and patient history:

The VP undertaking the examination should:

- Introduce themselves
- Confirm the patient's identity e.g. full name and date of birth
- Explain why the examination is being performed
- Give an explanation of the procedure and its duration – consideration should be made to the age and mental status of the patient
- Obtain verbal consent for the examination
- Obtain a pertinent relevant medical history and presence of risk factors from the patient and/or notes
- Verify that the requested procedure correlates with the patient's clinical presentation.

Examination:

Ankle brachial pressure index (ABI) and/or toe brachial index (TBI) should be recorded as a baseline.

The duplex examination may be unilateral or bilateral dependent upon clinical symptoms, results of ABI/TBI and or what is deemed appropriate by the VP performing the examination. The patient is asked to remove their clothing to expose the lower limb from groin to ankle. The patient is examined supine. The patient's dignity and privacy should be maintained at all times. Due to intimate nature of the examination it may be considered necessary to offer a chaperone. During the examination the patient's mental and physical status should be monitored and modifications made to the examination accordingly.

The following appropriate techniques should be used to evaluate the lower limb arterial system:

- B-mode should be used to image the artery and assess for, aneurysmal dilation and vessel contents e.g. athermanous plaque
- Spectral Doppler should be used to determine direction of flow, stenotic flow and absence of flow.
- Colour Doppler should be used to assess for the presence/absence of flow and aid the position of spectral Doppler when quantifying stenoses.

Any areas where the colour flow Doppler appears disturbed or plaque is present should always be interrogated with pulsed Doppler. The highest peak systolic velocity should be measured at the site of the disturbance or narrowing (Vs). Care should be taken to ensure that the Doppler angle is 60º or less when recording velocity measurements.

The main criterion used to grade the degree of narrowing in the artery is the PSV of Vs, as outlined below:

PSV in an artery (cm/s)	% Stenosis
200-299	>50%
300-399	>75%
>/= 400	>95%
No colour / Doppler flow	Occluded

Changes in the shape of Doppler waveforms are important criteria in determining the presence of disease. Multiphasic waveforms are representative of normal flow, whereas monophasic/damped waveforms usually represent diseased flow.

Evaluation of the following arteries should be included:

- Aorta
- Common iliac artery (CIA)
- External iliac artery (EIA)
- Common femoral artery (CFA)
- Proximal profunda femoris artery (PFA)
- Superficial femoral artery (SFA)
- Popliteal artery
- Tibio-peroneal trunk (TPT)
- Posterior tibial artery (PTA)
- Peroneal artery (where visable)
- Anterior tibial artery (ATA)

Reporting:

The report is a recording and interpretation of observations made during the lower limb arterial duplex ultrasound examination; it should be written by the VP undertaking the examination and viewed as an integral part of the whole examination.

The report should include correct patient demographics; date of examination; examination type and the name of the VP performing the examination.

The reporting should include:

- Which arteries have been assessed commenting on the presence/absence of flow and the percentage degree of stenosis as appropriate
- The anatomical position and length of any occlusions or stenoses e.g. *x* cm in length in the SFA in the upper thigh.
- The anatomical position and size of any aneurysms
- Qualitatively note the nature of the plaque e.g. calcified, echolucent, irregular surfaced, smooth surfaced etc., and the length and anatomical position of the stenosis

- Comments on the shape of the Doppler waveform at different locations e.g. monophasic waveform.
- Any limitations encountered
- An appropriate number of annotated images that represent the entire ultrasound examination - in accordance with local protocols and SVT Image Storage Guidelines
- Referral of critical ultrasound results should be made to the referring consultant or appropriate medical/surgical team (as per local protocol) prior to the patient being discharged so that treatment plans can be developed, enforced or expedited accordingly

Follow up

- All reports are sent to the ordering consultant by vascular administration staff
- In the case where a finding deemed significant is found, the VP performing the exam is required to ensure that the patient has an appointment for review with the ordering Dr or a VC

LOWER LIMB ARTERIAL DUPLEX

REPORTS

Vascular Laboratory Report

Mater Private Network
Phone: +353(0)1800 200 550 Fax: +353(0)1885 8486
Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Arterial Duplex Right Lower Limb			
Study Date:	10/05/2023	**Report Authorised:**	12/05/2023 09:54:34

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Arterial Duplex Right Lower Limb 10/05/2023 16:14

Clinical Indication: 2 days post Right iliac stent, iliofemoral endarterectomy and profundaplasty

Findings:

Unable to image the abdominal aorta and common iliac artery due to overlying bowel gas.
Limited imaging of the external iliac artery due to overlying bowel gas, however the portions of the mid-distal external iliac artery imaged appear patent with velocities noted throughout in keeping with a greater than 50% stenosis (PSV=228c/sec).

The common femoral artery is patent with no significant stenosis detected.

The superficial femoral artery demonstrates a short segment (1.2cm) of echogenic plaque in the upper thigh causing a greater than 75% stenosis (PSV=329cm/sec). The SFA demonstrates echogenic plaque in the lower thigh causing no significant stenosis.
The popliteal artery demonstrates echogenic plaque causing no significant stenosis.

Follow up: 6 weeks

Mater Private Network

Vascular Laboratory Report

Phone: +353(0)1800 200 550 Fax: +353(0)1885 8486
Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: EVAR Surveillance			
Study Date:	12/05/2023	**Report Authorised:**	16/05/2023 12:39:11

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: EVAR Surveillance 12/05/2023 13:51

Clinical Indication: 1 year follow up

Findings:
The EVAR stent and iliac limbs are patent with no obvious evidence of endoleak detected.

Previously (05/2022) the residual aneurysm measured 3.7cm x 3.4cm, Volume = 35cm3

Today the residual aneurysm measures:
Maximum anterior to posterior wall diameter = 3.7cm
Maximum transverse wall diameter = 3.4cm
Volume = 31cm3

The common and external iliac arteries are patent and within normal limits where imaged.

Follow up: 1 year

Mater Private Network

Vascular Laboratory Report

Phone: +353(0)1800 200 550 Fax: +353(0)1885 8486
Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Abdominal Aortic Aneurysm Screening			
Study Date:	19/05/2023	**Report Authorised:**	19/05/2023 11:33:21

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Aneurysm Screening 19/05/2023 10:22

Clinical Indication: CT abdomen showed plaque in aorta and query chronic dissection

Findings:
An infra renal abdominal aortic aneurysm imaged. No previous study available for comparison.
Echogenic plaque imaged extending ~9.5cm in the infra renal aorta causing no significant increase in velocities. This plaque is causing a double lumen effect with flow in both lumen noted to be antegrade. Query chronic dissection.

Today the AAA measures:
Maximum anterior to posterior wall diameter = 3.6cm
Maximum transverse wall diameter = 3.6cm

The iliac arteries are within normal limits where imaged bilaterally.
The right common and external iliac arteries demonstrate mild atheroma causing no significant stenosis.
The left common iliac artery demonstrates mild atheroma causing no significant stenosis. The left external iliac artery demonstrates increased velocities in keeping with a 50-75% stenosis in the proximal-mid vessel however no significant plaque formation imaged. Query due to tortuosity of vessel at this level.

Follow up: For review in Rooms today 19/05/2023, for follow up in 1 year

Vascular Laboratory Report

Mater Private Network
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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Fem - Fem Crossover Duplex			
Study Date:	19/05/2023	**Report Authorised:**	19/05/2023 13:11:17

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Fem - Fem Crossover Duplex 19/05/2023 11:32

Clinical Indication: 6 month follow up

Findings:
Difficult study due to patient body habitus

The fem-fem crossover graft is widely patent throughout its length with no significant plaque formation or blood flow abnormalities detected within the body of the graft or at the Left anastomosis site.

The Right anastomosis demonstrates an increase in velocities in keeping with a greater than 75% stenosis (351cm/s), however no significant plaque formation imaged. Impression: due to angle, as before. Previous velocities in keeping with a greater than 95% stenosis (PSV=416cm/s) were not detected today.

The Right common femoral artery is patent. The right superficial femoral artery demonstrates calcific plaque at its origin causing a 50-75% stenosis (PSV=231cm/s).

The Left common femoral artery and origin of the superficial femoral artery are patent.

Follow up: 6 months

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Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Graft Duplex Right Lower Limb			
Study Date:	22/05/2023	**Report Authorised:**	23/05/2023 12:15:01

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Graft Duplex Right Lower Limb 22/05/2023 10:08

Clinical Indication: Right fem-pop vein bypass graft

Findings:
The common femoral artery is patent where imaged.

The proximal anastomosis site is widely patent.
The graft is patent in the upper thigh. In the mid-thigh just proximal to the patch site there is a short segment of mixed echogenic material causing a greater than 95% stenosis (PSV = 415cm/s), as before. Impression: fibro-intimal hyperplasia.
The remainder of the graft and the distal anastamosis site are patent with no significant plaque formation or flow abnormalities detected.

Patent runoff vessel.

Follow up: 3 months

Mater Private Network

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Fem - Fem Crossover Duplex			
Study Date:	02/06/2023	Report Authorised:	06/06/2023 10:53:56

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Right Lower Limb Arterial Duplex 02/06/2023 14:34

Clinical Indication: Right leg pain, previous left above knee amputation

Findings:
The portions of the abdominal aorta, common and external iliac arteries imaged are patent with no significant stenosis detected.

The common femoral artery demonstrates mixed echogenic plaque causing no significant stenosis.

The origin of the profunda femoral artery is patent with no significant stenosis detected.

The superficial femoral artery demonstrates irregular echogenic plaque throughout its length causing a greater than 95% stenosis in the upper thigh, a greater than 75% stenosis in the mid thigh.

The popliteal artery demonstrates mild atheroma causing no significant stenosis and monophasic waveforms noted.

The anterior tibial artery is patent in the upper and mid calf with monophasic waveforms noted. Multiple collaterals noted arising from the anterior tibial artery in the mid calf. Unable to identify the anterior tibial artery in the lower calf. Query calcified, query occluded.

The posterior tibial artery is patent in the upper and mid calf where imaged, with monophasic waveforms noted. Multiple collaterals noted arising from the posterior tibial artery in the upper calf. Unable to identify the posterior tibial artery in the lower calf. Query calcified, query occluded.

The peroneal artery is patent where imaged in the mid and lower calf with no significant stenosis detected and monophasic waveforms noted.

Follow up: No vascular lab follow up arranged

Vascular Laboratory Report

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Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: EVAR Surveillance			
Study Date:	07/06/2023	**Report Authorised:**	09/06/2023 10:44:55

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: EVAR Surveillance 07/06/2023 08:03

Clinical Indication: 6 month follow up

Findings:
Limited imaging due to overlying bowel gas

The EVAR stent and iliac limbs appear patent with no obvious evidence of endoleak detected in the portions imaged.
Previously (12/2022) the residual aneurysm measured 4.9cm x 5.2cm, Volume = 79cm3.

Today the residual aneurysm measures:
Maximum anterior to posterior wall diameter = 4.9cm
Maximum transverse wall diameter = 5.2cm
Volume = 79cm3

The right common iliac artery is aneurysmal distal to the limb measuring 1.9cm, previously measured 1.8cm.

The left common iliac artery is ectatic distal to the limb measuring 1.8cm, previously measured 1.7cm.

The external iliac arteries are patent and within normal limits where imaged.

Follow up: 6 months

Mater Private Network

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Abdominal Aortic Surveillance			
Study Date:	09/06/2023	**Report Authorised:**	09/06/2023 10:53:32

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Surveillance 09/06/2023 09:03

Clinical Indication: 3 months follow up

Findings:
An infra renal abdominal aortic aneurysm imaged with mild core thrombus imaged within. Previously (03/2023) the AAA measured 5.1cm x 5.1cm.

Today the AAA measures:
Maximum anterior to posterior wall diameter = 5.2cm
Maximum transverse wall diameter =5.2m

The right common iliac artery is within normal limits and demonstrates echogenic plaque causing velocities in keeping with a 50-75% stenosis (PSV=237cm/s), as previously documented.
The right external iliac artery is patent and within normal limits.

The left common iliac artery is within normal limits and demonstrates echogenic plaque causing no significant stenosis.
The left external iliac artery is within normal limits and demonstrates echogenic plaque proximally causing a 50-75% stenosis (PSV = 242cm/s).

Follow up: 3 months

Mater Private Network

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Graft Duplex Left Lower Limb			
Study Date:	09/06/2023	**Report Authorised:**	12/06/2023 12:21:13

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Graft Duplex Left Lower Limb 09/06/2023 12:02

Clinical Indication: Distal SFA-below knee vein bypass graft

Findings:
The common femoral and superficial femoral arteries demonstrate minimal mixed echogenic plaque causing no significant stenosis.
A branch noted arising from the distal SFA at the level of the proximal anastamosis site.

A greater than 50% stenosis detected at the proximal anastamosis site, however no significant plaque formation imaged. Query due to calibre change.
The distal SFA-below knee vein bypass graft is widely patent throughout its length with no evidence of abnormality detected within the body of the graft or at the distal anastamosis site.

Patent runoff vessel.

Follow up: 6 weeks

Vascular Laboratory Report

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Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: ,,,,

Examination: Abdominal Aortic Surveillance			
Study Date:	12/06/2023	**Report Authorised:**	12/06/2023 12:20:21

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Surveillance 12/06/2023 11:33

Clinical Indication: 6 month follow up

Findings:
An infra renal abdominal aortic aneurysm imaged. The AAA is tortuous in nature with a mild core of thrombus noted within.
Previously (11/2022) the AAA measured 4.4cm x 4.2cm.

Today the AAA measures:
Maximum anterior to posterior wall diameter = 4.4cm
Maximum transverse wall diameter = 4.4cm

Limited imaging of the common and external iliac arteries due to overlying bowel gas, however are within normal limits in the portions imaged.

Follow up: 6 months

Mater Private Network

Vascular Laboratory Report

Phone: +353(0)1800 200 550 Fax: +353(0)1885 8486
Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Aorta and Iliac Artery Duplex			
Study Date:	14/06/2023	**Report Authorised:**	15/06/2023 11:48:40

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Aorta and Iliac Artery Duplex 14/06/2023 16:03

Clinical Indication: Bilateral iliac stents. Reduced Left ABI.

Findings:
The abdominal aorta is patent with no significant stenosis detected in the portions imaged.

The Right common iliac artery stent is patent with velocities throughout in keeping with a 50-75% stenosis (PSV=275cm/s) detected, however no obvious plaque formation imaged. The origin of the internal iliac artery and the external iliac artery are patent with no significant stenosis detected.

The Left common iliac artery stent is patent with velocities throughout in keeping with a 50-75% stenosis (PSV=214cm/s) detected, however no obvious plaque formation imaged. The external iliac artery is patent with no significant stenosis detected.

<u>On the Left:</u>
The common femoral artery demonstrates irregular echogenic plaque extending ~ 3.4cm proximally causing a greater than 75% stenosis.

The origin of the profunda femoral artery demonstrates a greater than 50% stenosis.

The superficial femoral artery demonstrates minimal mixed echogenic plaque causing no significant stenosis.

The popliteal artery demonstrates echogenic plaque proximally causing no significant stenosis

Where imaged the anterior tibial, posterior tibial and peroneal arteries are patent with no significant stenosis detected.

Follow up: 6 months

Mater Private Network

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Graft Duplex Left Lower Limb			
Study Date:	16/06/2023	**Report Authorised:**	20/06/2023 07:55:26

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Graft Duplex Left Lower Limb 16/06/2023 15:02

Clinical Indication: Left fem-TPT vein bypass graft

Findings:
The common femoral artery is patent with no significant stenosis detected..

The vein graft is widely patent throughout its length with no significant plaque formation detected within the body of the graft or at either anastomosis site.
The graft is tortuous at the knee with associated increases in velocities noted, however no significant plaque formation imaged.

Patent runoff vessel.

Follow up: 6 months

Mater Private Network

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Fem - Fem Crossover Duplex			
Study Date:	19/06/2023	**Report Authorised:**	20/06/2023 07:46:00

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Fem - Fem Crossover Duplex 19/06/2023 09:14

Clinical Indication:

Findings:
The abdominal aorta is patent and ectatic proximal to the aorta graft measuring 2.8cm maximally, previously 2.6cm maximally.

The aorto graft is patent with no significant stenosis detected within the body of the graft or at the proximal anastomosis site and the left distal anastamosis site.

The right limb is occluded, as before. The left limb demonstrates increased velocities throughout in keeping with greater than 75% stenosis (PSV=340cm/s), however, no significant plaque formation imaged, query due calibre and angle of graft.

The Left external iliac artery is patent and ectatic measuring 1.7cm maximally, as previously documented (12/2022). The Left internal iliac artery is patent and ectatic measuring 1.7cm maximally.

The Right internal iliac artery is aneurysmal measuring 7.4cm maximally, previously 3.3cm maximally. No colour flow or Doppler signal detected within in keeping with an occlusion.

The fem-fem graft us widely patent with no significant plaque formation or flow abnormalities detected within the body of the graft or at the right anastomosis site. An increase in velocities is noted at the left anastomosis site in keeping with an ~75% stenosis (PSV=304cm/s) however no significant plaque formation imaged at this level, query due to angle. Previous velocities detected in keeping with a 50-75% stenosis (PSV=294cm/s).

Patent runoff vessels bilaterally.

Follow up: 3 months

Mater Private Network

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Arterial Duplex Left Lower Limb			
Study Date:	19/06/2023	**Report Authorised:**	20/06/2023 07:49:40

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Arterial Duplex Left Lower Limb 19/06/2023 11:50

Clinical Indication: 4 days post Left CFA endarterectomy

Findings:
The common femoral artery is widely patent 4 days post endarterectomy with no evidence of abnormality detected.
The origin of the superficial femoral and profunda femoral arteries are patient with no significant stenosis detected.

Follow up: 6 weeks

Vascular Laboratory Report

Mater Private Network
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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Duplex Other			
Study Date:	19/06/2023	**Report Authorised:**	20/06/2023 07:43:35

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Duplex Right Groin 19/06/2023 17:03

Clinical Indication: Bleeding 2 days post PVI

Findings:
The Right common femoral artery and origins of the superficial femoral and profunda femoral arteries are widely patent with no evidence of abnormality detected.

The Right common femoral vein is patent with no evidence of abnormality detected.

Comment: No evidence of haematoma or pseudoaneurysm noted.

Follow up: No vascular lab follow up arranged

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Abdominal Aortic Surveillance			
Study Date:	21/06/2023	**Report Authorised:**	22/06/2023 13:17:08

Reported by Vascular Physiologist:	Jayne Sheldreck
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Surveillance 21/06/2023 09:51

Clinical Indication: 3 month surveillance.

Findings:

A juxta renal abdominal aortic aneurysm imaged with moderate core thrombus noted within.

Previously (02/2023) the AAA measured: 4.9cm x 5.1cm.

Today the AAA measures:

Maximum anterior to posterior wall diameter = 5.1cm

Maximum transverse wall diameter = 5.3cm

The right common iliac artery is within normal limits where imaged. The left common iliac artery is ectatic where imaged measuring 1.7cm maximally, as before.

The external iliac arteries are within normal limits where imaged bilaterally.

Follow up: 3 months.

Mater Private Network

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Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: ,,,,

Examination: Abdominal Aortic Surveillance			
Study Date:	05/07/2023	**Report Authorised:**	06/07/2023 13:41:09

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Surveillance 05/07/2023 12:00

Clinical Indication: 1 year follow up

Findings:
Limited imaging due to overlying bowel gas and body habitus

An infra renal abdominal aortic aneurysm imaged. Previously (07/2022) the AAA measured: 3.5cm x 3.8cm

Today the AAA measures:
Maximum anterior to posterior wall diameter = 3.9cm
Maximum transverse wall diameter = 3.9cm

The common iliac arteries are ectatic where imaged bilaterally.
Right CIA = 1.8cm, previously 1.7cm, Left CIA = 1.7cm, previously 1.6cm.

The external iliac arteries are within normal limits where imaged.

Follow up: 1 year

Mater Private Network

Vascular Laboratory Report

Phone: +353(0)1800 200 550 Fax: +353(0)1885 8486
Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Abdominal Aortic Aneurysm Screening			
Study Date:	10/07/2023	**Report Authorised:**	18/07/2023 12:05:04

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Aneurysm Screening 10/07/2023 08:36

Clinical Indication: AAA screen

Findings:
No aneurysmal dilatation is noted of the abdominal aorta or the iliac arteries in the portions imaged.

The abdominal aorta demonstrates echogenic plaque causing no significant stenosis.

The Right common iliac artery demonstrates echogenic plaque causing a greater than 50% stenosis (PSV = 240cm/s). The Right external iliac artery demonstrates echogenic plaque causing a greater than 50% stenosis (PSV = 279cm/s)

The Left common iliac artery demonstrates echogenic plaque causing a greater than 50% stenosis (PSV = 203cm/s). The Left external iliac artery demonstrates echogenic plaque causing no significant stenosis.

Follow up: For review in rooms today 10/07/2023, no vascular lab follow up arranged

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Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Abdominal Aortic Aneurysm Screening			
Study Date:	10/07/2023	**Report Authorised:**	18/07/2023 12:05:16

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Aneurysm Screening 10/07/2023 09:47

Clinical Indication: AAA Screen

Findings:
No aneurysmal dilatation is noted of the abdominal aorta or the iliac arteries in the portions imaged.

The abdominal aorta demonstrates echogenic plaque causing no significant stenosis.

The Right common iliac artery demonstrates echogenic plaque causing no significant stenosis. The Left external iliac artery and origin of the internal iliac artery are patent with no significant stenosis detected.

The Left common iliac artery demonstrates echogenic plaque causing no significant stenosis.
The Left external iliac artery is widely patent with no significant stenosis detected. The Left internal iliac artery demonstrates a greater than 75% stenosis at the origin.

Follow up: For review in Rooms today 10/07/2023, no vascular lab follow up arranged

Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Graft Duplex Left Lower Limb			
Study Date:	10/07/2023	**Report Authorised:**	18/07/2023 17:40:22

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Graft Duplex Left Lower Limb 10/07/2023 14:08

Clinical Indication: Left fem-pop synthetic graft

Findings:
The proximal common femoral artery demonstrates mixed echogenic plaque extending ~1.1cm causing velocities in keeping with a 50-75% stenosis (PSV = 299cm/s), as before

The synthetic graft is widely patent with no significant plaque formation or blood flow abnormalities detected within the body of the graft in the upper and mid thigh. The distal graft in the lower thigh demonstrates a short segment (~0.46cm) of echogenic plaque however unable to obtain the previously documented increased velocities today.

The proximal and distal anastamosis sites are patent with no significant stenosis detected.

The run-off vessel is patent with no significant stenosis detected.

Note: The synthetic graft demonstrates a mixed echogenic region surrounding the graft throughout its length, as per previous studies.

Follow up: 3 months

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Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: ,,,,

Examination: Abdominal Aortic Surveillance			
Study Date:	14/07/2023	**Report Authorised:**	18/07/2023 12:02:44

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Surveillance 14/07/2023 11:33

Clinical Indication: 6 month follow up

Findings:
Note: the abdominal aorta and iliac arteries are extremely tortuous in nature

Today the abdominal aorta measures 2.7cm x 2.9cm maximally, previously (01/2023) measured 2.7cm x 2.9cm.

The Right common iliac artery is aneurysmal and tortuous in nature measuring 2.0cm maximally, previously 2.0cm.

The left common iliac artery is aneurysmal and tortuous in nature measuring 3.0cm x 3.3cm maximally, previously 3.1cm x 3.3cm.

The external iliac arteries and origins of the internal iliac arteries are within normal limits where imaged bilaterally.

Follow up: 6 months

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Vascular Laboratory Report

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To:

Examination: Abdominal Aortic Surveillance			
Study Date:	17/07/2023	**Report Authorised:**	18/07/2023 12:02:13

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Abdominal Aortic Surveillance 17/07/2023 07:50

Clinical Indication: 6 month follow up

Findings:
An Infra renal abdominal aortic aneurysm imaged. Previously (12/2022) the AAA measured 3.5cm x 3.8cm

Today:
Maximum anterior to posterior wall diameter = 3.6cm
Maximum transverse wall diameter = 3.75cm

The common and external iliac arteries measure within normal limits bilaterally.

Note : The left kidney was imaged adjacent to the distal common iliac artery. No history of transplant - known anatomical variant.

Follow up: 1 year

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Fem - Fem Crossover Duplex			
Study Date:	17/07/2023	Report Authorised:	18/07/2023 18:06:13

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Fem - Fem Crossover Duplex 17/07/2023 14:29

Clinical Indication: 3 month AUI and fem-fem graft follow up

Findings:
The EVAR and right iliac limb are patent. A region of low volume bidirectional flow noted in the proximal residual aneurysm in keeping with a type 2 endoleak, as before. A large region of flow noted in the distal residual aneurysm which appears to arise from the multiple collateral vessels noted surrounding the aneurysm at this level. Impression: Type 2 endoleak.

Previously (04/2023) the residual aneurysm measured 5.7cm x 6.5cm .

Today the residual aneurysm measures:
Maximum Anterior to Posterior Wall diameter = 6.0cm
Maximum Transverse Wall Diameter = 7.0cm
Volume = 167cm3

The right iliac arteries are patent and measure within normal limits .

The fem-fem crossover graft is widely patent throughout its length.

The Right anastamosis site demonstrates increased flow velocities (PSV=233cm/s), as before, however no significant plaque formation imaged at this level. Impression: due to angle.

The Left anastamosis site demonstrates increased flow velocities (PSV=234cm/s), as before, however no significant plaque formation imaged at this level. Impression: due to angle.

The right run off vessel demonstrates calcific plaque proximally, however is patent where imaged.

The left run off vessel demonstrates minimal mixed echogenic plaque causing no significant stenosis.

Follow up: 3 months

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Referring Clinician:	Patient Name Patient ID: Date of Birth: Address: Ward: Copy To: , , , ,

Examination: Arterial Duplex Right Lower Limb			
Study Date:	28/07/2023	**Report Authorised:**	28/07/2023 11:41:33

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Arterial Duplex Right Lower Limb 28/07/2023 10:51

Clinical Indication: Reduced Right ABI post exercise

Findings:
The abdominal aorta, right common and external iliac arteries are widely patent with no significant stenosis detected.

The common femoral artery demonstrates irregular echogenic plaque causing no significant stenosis.

The origin of the profunda femoral artery is widely patent with no significant stenosis detected.

The superficial femoral artery is widely patent in the upper and mid thigh with no significant stenosis detected. Echogenic plaque imaged in the lower thigh causing regions of acoustic shadowing (<0.6cm) however no significant stenosis detected. A large collateral noted arising from the SFA in the lower thigh.

The popliteal artery demonstrates irregular echogenic plaque in the proximal and mid portions causing an increase in velocities in keeping with a greater than 95% stenosis (PSV=355cm/s) proximally. The distal popliteal artery demonstrates smooth echogenic plaque causing no significant stenosis.

Follow up: For review in Rooms today 28/07/2023, no vascular lab follow up arranged

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Email: vascular@materprivate.ie Web: www.heartcentre.ie

Referring Clinician:	Patient Name: Patient ID: Date of Birth: Address: Ward: Copy To: ,,,,

Examination: Fem - Fem Crossover Duplex			
Study Date:	04/08/2023	**Report Authorised:**	04/08/2023 10:41:59

Reported by Vascular Physiologist:	Murray Nina
Approved by Vascular Surgeon:	Prof Martin O Donohoe MCN 00290

Test Name: Fem - Fem Crossover Duplex 04/08/2023 08:25

Clinical Indication: EVAR + Fem-Fem

Findings:
The left to right fem-fem graft is patent with no significant plaque formation detected throughout the body of the graft.

As before, an increase in blood flow velocities noted at both anastomosis sites with velocities in keeping with a 50-75% stenosis noted at the right anastomosis site (PSV = 273cm/s) and velocities in keeping with a 50-75% stenosis detected at the left anastomosis site (PSV = 270cm/s). No significant plaque formation imaged at either anastomosis site. Impression: due to angle.

The run-off vessels demonstrate echogenic plaque causing no significant stenosis in the portions imaged.

Follow up: 6 months