

Protocol for Carotid Artery Duplex Scanning

It is assumed that every operator has sufficient background knowledge and training as outlined by the Society for Vascular Technology of Great Britain and Ireland (SVT) accreditation process before performing the test.

It is assumed that every operator has sufficient background knowledge and experience to fully optimize their images via patient positioning and full use of machine controls.

The operator should also follow guidelines in accordance with Trust Policies on Infection Control and Health and Safety.

The patient's dignity must be respected at all times and in accordance with Trust Policies.

Carotid artery Duplex scans are performed to assess for carotid artery disease in patients having had stroke or TIA symptoms. The paper '*Joint Recommendations for Reporting Carotid Ultrasound Investigations in the UK*' was published in 2008 and outlines the interpretation and reporting of carotid duplex scanning.

The Carotid Duplex protocol should be used as a general guide but can be adjusted and tailored depending on the patients' symptoms and/or pathology found during the course of the investigation and on the operator's discretion.

Equipment

- An appropriate colour Duplex ultrasound machine
- A 9/3MHz linear array transducer and a 5/2 MHz curvilinear array transducer
- A height adjustable couch
- A high viscosity ultrasound gel

Protocol

<u>Action</u>	<u>Rationale</u>
1. Ensure the correct identification of the patient.	To ensure you have the correct patient.
2. An explanation of the test is given to the patient and the patient is questioned regarding any symptoms. Verbal consent is obtained.	To ensure the patient understands why they are having the test and what is expected of them. The symptoms may give the operator an indication of disease location.
3. The patient is asked to remove any clothing restricting access to the neck and then to lie on the couch. Immobile patients may be scanned in the wheelchair.	To ensure optimal position for scanning the course of the carotid arteries.
4. The clinical notes and any previous Duplex scan results are read if available.	To give the operator insight into any current disease.
5. Select the 9/3 MHz linear probe and recall the carotid artery pre-set application.	The machine has different presets for the different vessels under investigation.
6. Starting with the right side from the base of the neck. An initial longitudinal assessment is made of the common carotid, internal and external arteries.	This is helpful by giving the operator an insight into the vessel layout and potential disease.
7. The vessels are then re-assessed in the same way using colour Doppler.	This gives an initial assessment of the blood flow patterns.

8. A recording is made of the CCA Doppler waveform 1-2cm proximal to the bifurcation with a measurement of the peak systolic and end diastolic velocities.	This waveform is used as a reference for calculating stenosis in the ICA and CCA using the NASCET criteria.
9. The ICA and ECA are identified by size, shape, and presence of branches, spectral Doppler waveform and possibly temporal tapping.	It is imperative to distinguish between the ICA and ECA. Temporal tapping should not cause waveform fluctuations on spectral Doppler in the ICA.
10. Using colour Doppler as a guide, the ICA is assessed as necessary using pulsed Doppler.	To detect any increase in velocity and waveform abnormalities suggesting disease and/or stenosis.
11. A recording is made of the ICA waveform at the point of maximum velocity, including a measurement of PSV and EDV velocities either in an area of disease/stenosis or, in a normal vessel, distal to the carotid bulb.	This is used in conjunction with the CCA signals to calculate the degree of stenosis in the ICA.
12. The remainder of the ICA is assessed using both colour and spectral Doppler as far as possible.	To assess for any distal disease, tortuosity, dissections, etc.
13. The ECA is then assessed for direction of flow and disease. A recording of the waveform is made including a measurement of the PSV.	It is important that the ECA is clearly identified and a note made of any disease or retrograde flow.

<p>14. A cross-sectional scan using B mode and then colour Doppler from the CCA origin to the distal ICA and ECA is used to further assess for pathology.</p>	<p>This is a final check to confirm to the operator satisfaction that the above results are correct.</p>
<p>15. The vertebral artery is located using B mode and colour Doppler imaging. An assessment is made of patency and direction of flow. A recording is made of the spectral Doppler waveform.</p>	<p>The vertebral artery may be occluded or absent. It may also show signs of disease. Reverse flow in the vessel will indicate a subclavian steal.</p>
<p>16. Repeat step 16 followed by steps 6-14 on the left side of the neck.</p>	<p>A carotid Duplex scan involves a full assessment of both carotid and vertebral arteries.</p>

Interpretation

A diagrammatic report is used to demonstrate the condition of the vessels including corresponding peak systolic velocity measurements and a short summary where appropriate. The report should state whether the scan was sub-optimal for any reason.

Carotid artery studies are considered normal when there is:

- No anatomical abnormalities detected on B mode.
- Uniform colour throughout the CCA, ICA and ECA with no significant colour flow changes.
- Spectral Doppler waveforms are within normal limits.

Carotid artery studies are considered abnormal when there is:

- Plaque present with B mode imaging
- Significant spectral Doppler waveform changes
- Increases in velocities, ICA stenosis values are calculated the NASCET criteria using table 1
- No flow demonstrated on colour and spectral Doppler
- Abnormal flow in the vertebral arteries
- Aneurysmal, tortuous or dissected vessels

Table 1 shows the velocity criterion for grading >50% ICA stenoses. Taken from C.P.Oates *et al* (2008) *Joint Recommendations for Reporting Carotid Ultrasound Investigations in the United Kingdom*, European Society for Vascular Surgery.

Table 1 Diagnostic criteria to be applied

Percentage stenosis (NASCET)	Internal carotid peak systolic velocity cm/sec	Peak systolic velocity ratio ICA _{PSV} /CCA _{PSV}	St Mary's ratio ^c ICA _{PSV} /CCA _{EDV}
<50	<125 ^a	<2 ^a	<8
50–59	>125 ^a	2–4 ^a	8–10
60–69			11–13
70–79	>230 ^a	>4 ^a	14–21
80–89			22–29
>90 but less than near occlusion	>400 ^b	>5 ^b	>30
Near occlusion	High, low – string flow	Variable	Variable
Occlusion	No flow	Not applicable	Not applicable

^a NACC¹⁷.

^b Filis *et al.*³⁷.

^c Nicolaides *et al.*³³.

CRIS:

Surname:

Forename:

Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 08 January 2019

Referring Doctor Dr Cox

NAME

ADDRESS

DoB

HOSP. NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	90	0
ICA	383	47
ECA	354	0
Vertebral	Forward flow	

R ICA: 70-79% stenosis

Plaque type IV/V

acoustic shadowing

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Technically difficult scan due to movement from respiration and acoustic shadowing.

Echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing an approximate 70-79% ICA stenosis. The ICA is patent distally and the bifurcation level is normal.

There is a severe ECA stenosis.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	88	0
ICA	421	42
ECA	142	0
Vertebral	Forward flow	

L ICA: 70-79% stenosis

Plaque type IV/V

acoustic shadowing

Summary Left

Technically difficult scan due to movement from respiration and acoustic shadowing.

Echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing an approximate 70-79% ICA stenosis. The ICA is patent distally and the bifurcation level is slightly high.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

dB

CRIS:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 04 January 2019

Referring Doctor Dr Vincent

NAME

ADDRESS

DoB

HOSP NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	60	21
ICA	58	26
ECA	66	17
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type III / IV



CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Mixed echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Mild intimal wall thickening also noted in the carotid bifurcation.

Disease graded by the NASCET criteria

Left Carotid

(cm/s)	PSV	EDV
CCA	49	21
ICA	58	26
ECA	46	12
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV



Summary Left

Uniformly echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Mild intimal wall thickening also noted in the CCA.

Disease graded by the NASCET criteria

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

dB

CRIS:

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Forename:

Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 04 January 2019

Referring Doctor Dr Loharuka

NAME

ADDRESS

DoB

HOSP. NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	60	18
ICA	57	24
ECA	91	17
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type IV

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Uniformly echogenic plaque is present in the CCA, the carotid bifurcation, the ECA and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening also noted in the CCA.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	67	21
ICA	57	19
ECA	51	9
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV

Summary Left

Uniformly echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening also noted in the CCA.

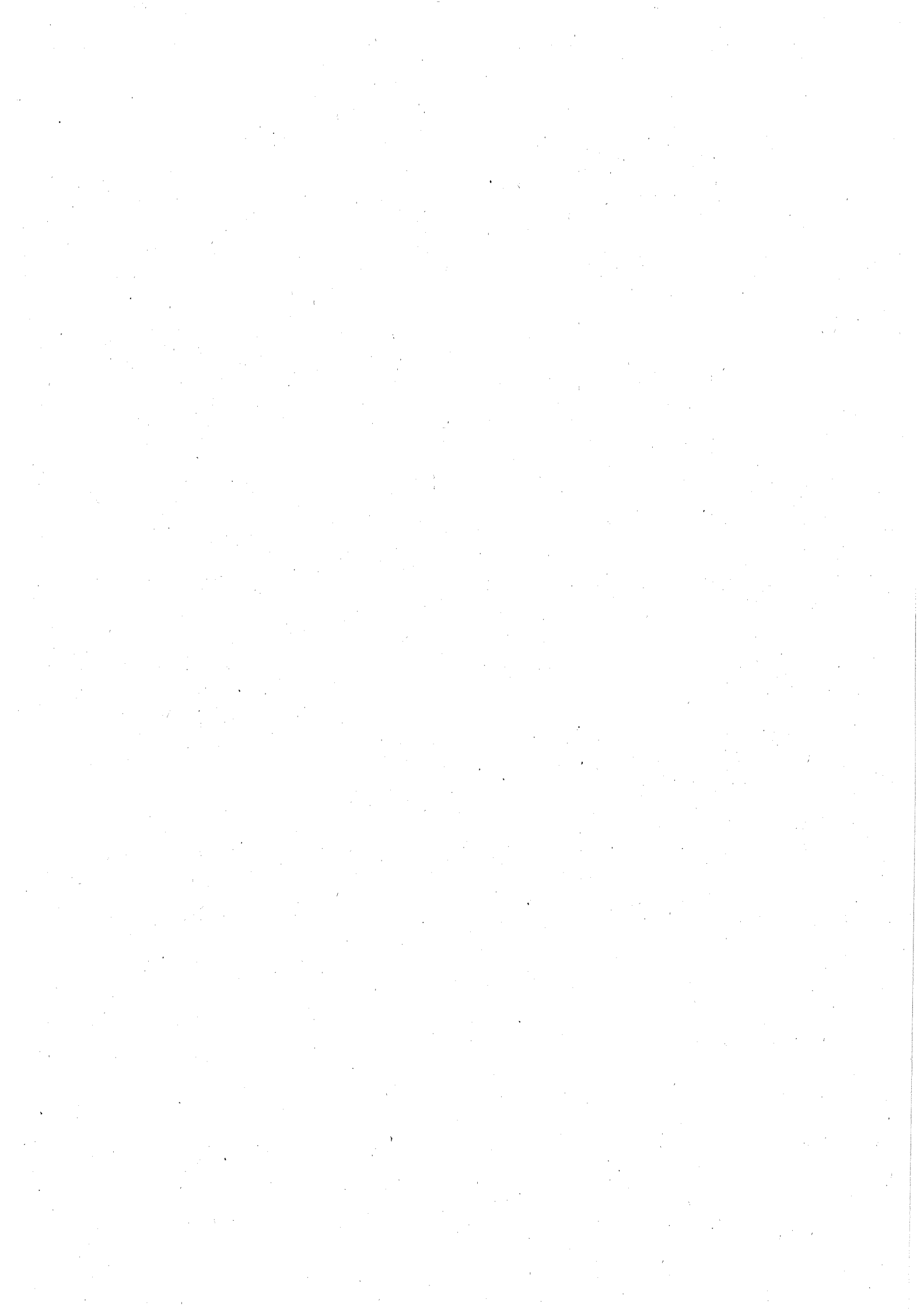
Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

dB



CRIS:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 03 January 2019

Referring Doctor Dr Loharuka

NAME

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DoB

HOSP. NUM

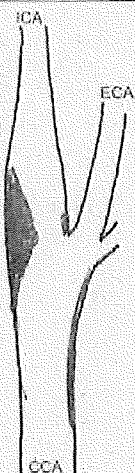
Right Carotid

(cm/s)	PSV	EDV
CCA	86	14
ICA	176	35
ECA	118	0
Vertebral	Forward flow	

R ICA: 60-69% stenosis

Plaque type IV

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery



Summary Right

Uniformly echogenic plaque is present in the carotid bifurcation and ICA causing an approximate 60-69% ICA stenosis

The ICA is patent distally and the bifurcation level is normal.

High resistance Doppler signals noted in the vertebral artery.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	108	19
ICA	85	16
ECA	126	0
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV



Summary Left

Uniformly echogenic plaque is present in the CCA, the carotid bifurcation, the ECA and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is also noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

☐ Verbal Consent

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CRIS:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 03 January 2019

Referring Doctor Dr Vincent

Right Carotid

(cm/s)	PSV	EDV
CCA	73	14
ICA	70	19
ECA	84	0
Vertebral	Forward flow	

R ICA: Normal

Plaque type _____

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Imaging difficult due to deep vessels.

Mild intimal wall thickening noted in the carotid bifurcation and ECA causing no significant haemodynamic effects.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	76	15
ICA	68	17
ECA	95	0
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV

Summary Left

Uniformly echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening also noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

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CRIS:
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Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 31 December 2018

Referring Doctor Dr Moqisth

NAME

ADDRESS

DoB

HOSP. NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	82	19
ICA	102	43
ECA	81	18
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type IV

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Uniformly echogenic plaque is present in the CCA, the carotid bifurcation, the ECA and the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is also noted in the CCA.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	64	23
ICA	72	34
ECA	89	26
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV

Summary Left

Uniformly echogenic plaque is present in the CCA, the carotid bifurcation, the ECA and the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is also noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

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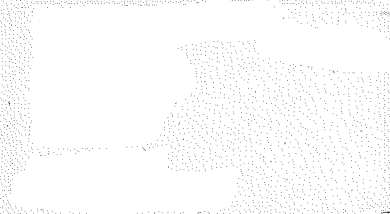
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Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 31 December 2018

Referring Doctor Dr Vincent

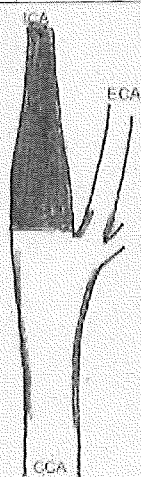


Right Carotid

(cm/s)	PSV	EDV
CCA	34	6
ICA		
ECA	155	14
Vertebral	Forward flow	

R ICA: Occluded

Plaque type _____



CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

The ICA is occluded.

The CCA and ECA are patent with mixed echogenic plaque present.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria

Left Carotid

(cm/s)	PSV	EDV
CCA	76	26
ICA	67	28
ECA	145	20
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type ||||



Summary Left

Mixed echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

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Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 28 December 2018

Referring Doctor Dr Binns

NAME

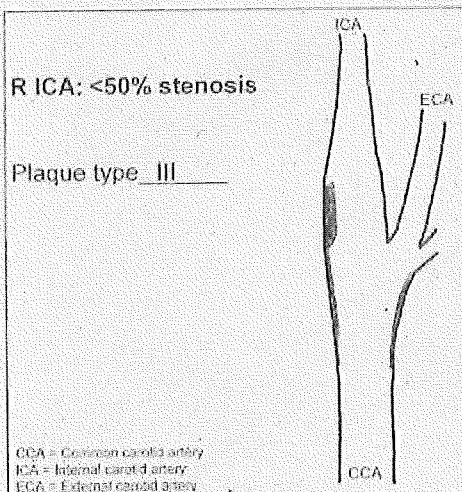
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Right Carotid

(cm/s)	PSV	EDV
CCA	104	18
ICA	98	33
ECA	142	0
Vertebral	Forward flow	



Summary Right

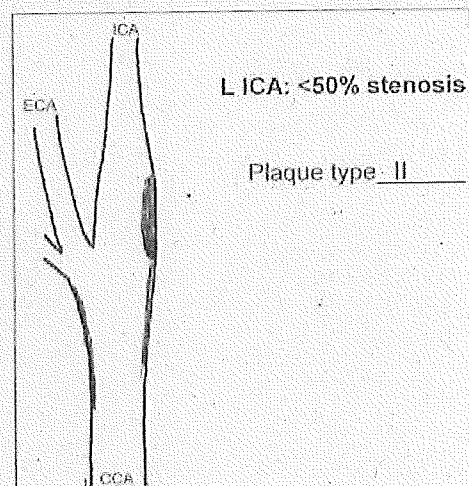
Predominantly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

Mild intimal wall thickening noted in the CCA.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	115	26
ICA	99	29
ECA	112	0
Vertebral	Forward flow	



Summary Left

Predominantly echolucent plaque is present in the ICA causing a less than 50% ICA stenosis.

Mild intimal wall thickening noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

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Vascular Studies Unit

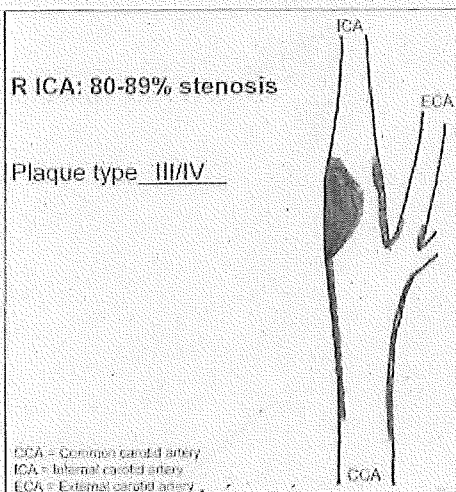
Carotid Artery Duplex Scan Report

Date 28 December 2018

Referring Doctor Dr Moqsith

Right Carotid

(cm/s)	PSV	EDV
CCA	35	14
ICA	416	100
ECA	169	29
Vertebral	Forward flow	



Summary Right

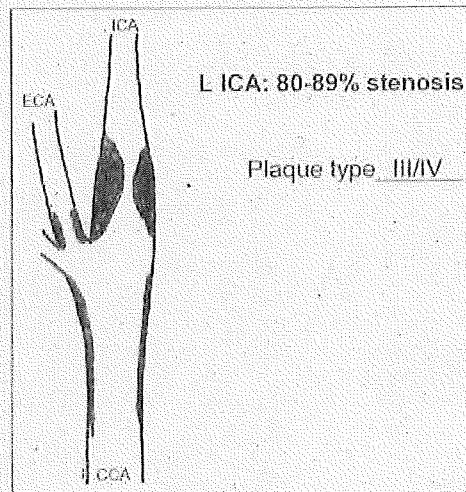
Mixed echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing an approximate 80-89% ICA stenosis. The plaque extends approximately 2cm from the bifurcation. The ICA is patent distally and the bifurcation level is slightly high.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	58	18
ICA	452	149
ECA	230	40
Vertebral	Forward flow	



Summary Left

Mixed echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing an approximate 80-89% ICA stenosis. The plaque extends approximately 2.6cm from the bifurcation. The ICA is patent distally and the bifurcation level is normal.

There is a moderate ECA stenosis.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

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CRIS:
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Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 28 December 2018

Referring Doctor Dr Moqsith

NAME

ADDRESS

DoB

HOSP NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	67	22
ICA	72	27
ECA	97	16
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type IV

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Uniformly echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	72	24
ICA	73	30
ECA	122	17
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type III/IV

Summary Left

Mixed echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening also noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

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Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 19 December 2018

Referring Doctor Mr Hicks

NAME

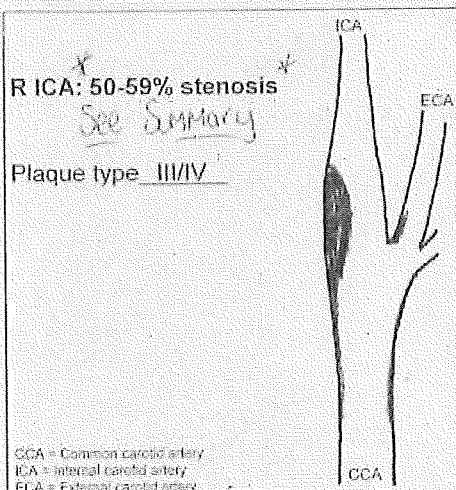
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Right Carotid

(cm/s)	PSV	EDV
CCA	102	22
ICA	125	27
ECA	159	17
Vertebral	Forward flow	



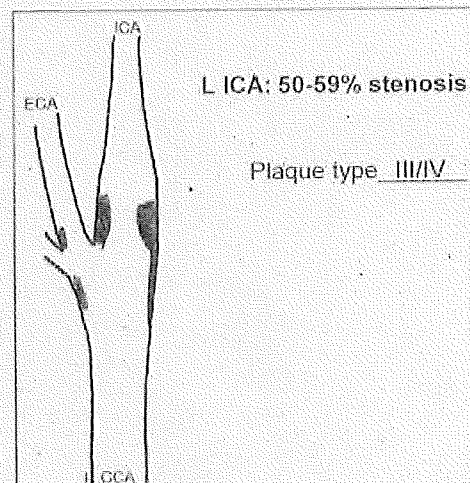
Summary Right

Mixed plaque is present in the carotid bifurcation, the ECA and the ICA. No significant increase in velocities in the ICA but plaque in B-mode imaging is suggestive of an 50-59% ICA stenosis. The ICA is patent distally and the bifurcation level is normal. The plaque extends approx 1cm from the bifurcation.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	87	19
ICA	164	28
ECA	170	15
Vertebral	Partial reverse flow	



Summary Left

Mixed plaque is present in the carotid bifurcation, the ECA and the ICA causing an approximate 50-59% ICA stenosis. The ICA is patent distally and the bifurcation level is normal.

The plaque extends approx 0.5cm from the bifurcation.

Partial reverse flow demonstrated in the vertebral artery with increased velocities demonstrated in the subclavian origin suggestive of a significant stenosis.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

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CRIS:
Surname:

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Forename:

Dob:

Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 11 December 2018

Referring Doctor Dr Blake

NAME

ADDRESS

DOB

HOSP. NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	62	21
ICA	63	33
ECA	74	14
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type IV



CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Uniformly echogenic plaque is present in the ICA and ECA causing a less than 50% ICA stenosis.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	96	17
ICA	65	26
ECA	122	24
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV



Summary Left

Uniformly echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is also present in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

/ Verbal Consent

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CRIS:

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Dob:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 10 December 2018

Referring Doctor Dr Vincent

NAME

ADDRESS

DoB

HOSP NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	85	30
ICA	82	28
ECA	81	19
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type III

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Predominantly echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

The ICA is tortuous distally.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	64	20
ICA	80	34
ECA	56	0
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV

Summary Left

Uniformly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

The ICA is tortuous distally.

Intimal wall thickening also noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

/ Verbal Consent

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CRIS: (

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 10 December 2018

Referring Doctor Dr Srinivasan

NAME

ADDRESS

DoB

HOSP. NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	49	13
ICA	534	306
ECA	151	30
Vertebral	Forward flow	

R ICA: >90% stenosis

Plaque type II/III



CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Mixed plaque is present in the carotid bifurcation and ICA causing a greater than 90% ICA stenosis. The plaque extends approximately 2.8cm from the bifurcation. The ICA is patent distally and the bifurcation level is normal.

Intimal wall thickening is also present in the CCA.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	86	29
ICA	78	41
ECA	140	30
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type III/IV



Summary Left

Mixed echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is also present in the CCA.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

/ Verbal Consent

JB

CRIS:
Surname:

Dob:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 06 December 2018

Referring Doctor Dr Loharuka

NAME

ADDRESS

DoB

HOSP: NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	109	14
ICA	79	19
ECA	93	0
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type IV



CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Uniformly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening noted in the CCA.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	61	10
ICA	75	20
ECA	92	0
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type III



Summary Left

Predominantly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

/ Verbal Consent

dB

CRIS:

Surname:

Forename

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 05 December 2018

Referring Doctor Dr Blake

Right Carotid

(cm/s)	PSV	EDV
CCA	101	30
ICA	71	28
ECA	81	24
Vertebral	Forward flow	

R ICA: Normal

Plaque type _____

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Mild intimal wall thickening noted in the carotid bifurcation causing no significant haemodynamic effects.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	74	29
ICA	66	26
ECA	77	17
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV

Summary Left

Uniformly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is also present in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

CRIS:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 05 December 2018

Referring Doctor Mr Hicks

NAME

ADDRESS

DoB

HOSP. NUM.

Right Carotid

(cm/s)	PSV	EDV
CCA		
ICA		
ECA	77	32
Vertebral	Forward flow	

R ICA: See Summary

Plaque type III



CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Previous carotid endarterectomy.

The CCA is occluded. The ICA is filling via retrograde flow from an ECA collateral. The ICA is patent distally with low damped Doppler signals. There is a normal carotid bifurcation level. No significant change since previous scan on 22/05/2018.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	92	31
ICA	728	352
ECA	226	63
Vertebral	Augmented forward flow	

L ICA: 80-89% stenosis

Plaque type II/IV



Summary Left

Mixed plaque is present in the carotid bifurcation, ECA and ICA. The ICA velocities are suggestive of a greater than 90% ICA stenosis but B-mode imaging is more suggestive of an 80-89% ICA stenosis. The ICA stenosis is approx 1.1cm from the carotid bifurcation. The ICA is patent distally and the bifurcation level is normal. There is mild to severe ECA stenosis. No significant change since previous scan on 22/05/2018.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

all

CRIS:

Dob:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 04 December 2018

Referring Doctor Dr Srinivasan

NAME

ADDRESS

DOB

HOSP NUM.

Right Carotid

(cm/s)	PSV	EDV
CCA	76	16
ICA	66	22
ECA	109	10
Vertebral	Not clearly demonstrated	

R ICA: Normal

Plaque type _____

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

There is no evidence of significant carotid artery disease (>50% stenosis or occlusion) present.

The vertebral artery could not be clearly imaged.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	81	23
ICA	73	28
ECA	93	0
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type III

Summary Left

Predominantly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

AB

CRIS:
Surname:

Dob:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 30 November 2018

Referring Doctor Dr Blake

NAME

ADDRESS

DoB

HOSP. NUM.

Right Carotid

(cm/s)	PSV	EDV
CCA	73	21
ICA	94	27
ECA	73	0
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type IV

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Uniformly echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	78	20
ICA	81	29
ECA	70	0
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV

Summary Left

Uniformly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

dB

CRIS:

Dob

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 29 November 2018

Referring Doctor Dr Boovalingham

NAME: _____

ADDRESS _____

DoB _____

HOSP. NUM. _____

Right Carotid

(cm/s)	PSV	EDV
CCA	74	23
ICA	81	30
ECA	98	18
Vertebral	Not clearly demonstrated	

R ICA: <50% stenosis

Plaque type II/IV

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

**Summary Right**

Mixed plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

The vertebral artery could not be clearly imaged.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	69	17
ICA	63	25
ECA	90	19
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV**Summary Left**

Uniformly echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

dp

CRIS:
Surname:

E-906543119 Dob:
Forename:

Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 29 November 2018

Referring Doctor Dr Blake

NAME

ADDRESS

DoB

HOSP. NUM.

Right Carotid

(cm/s)	PSV	EDV
CCA	96	28
ICA	67	31
ECA	125	26
Vertebral	Forward flow	

R ICA: Normal

Plaque type _____

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery



Summary Right

Intimal wall thickening noted in the CCA causing no significant haemodynamic effects.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	70	20
ICA	21	6
ECA	221	39
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type III/IV



Summary Left

Mixed echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

db

CRIS

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 27 November 2018

Referring Doctor Dr Vincent

NAME

ADDRESS

DoB

HOSP NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	74	15
ICA	61	27
ECA	98	22
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type III

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery



Summary Right

Predominantly echogenic plaque is present in the carotid bifurcation extending into the ECA and ICA causing a less than 50% ICA stenosis.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	74	28
ICA	154	67
ECA	121	34
Vertebral	Forward flow	

L ICA: 50-59% stenosis

Plaque type II



Summary Left

Predominantly echolucent plaque is present in the carotid bifurcation and ICA causing an approximate 50-59% ICA stenosis.

The ICA is patent distally.

The plaque extends approximately 2.9cm max from the bifurcation and the bifurcation level is normal.

Intimal wall thickening is noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

dB

1904-2030

CRIS: E- Dob:
Surname: Forename:

Vascular Studies Unit
Carotid Artery Duplex Scan Report

Date 26 November 2018

Referring Doctor Dr Blake

Right Carotid

(cm/s)	PSV	EDV
CCA	92	24
ICA	89	33
ECA	125	31
Vertebral	Forward flow	

R ICA: Normal

Plaque type _____

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery



Summary Right

Mild intimal wall thickening is present in the CCA and ICA causing no significant haemodynamic effects.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	82	24
ICA	86	40
ECA	107	26
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type III/IV



Summary Left

Mixed echogenic plaque is present in the carotid bifurcation and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening also noted in the CCA.

Disease graded by the NASCET criteria.

Scanned by Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

/ Verbal Consent

JB



CRIS:

Dob:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 23 November 2018

Referring Doctor Dr Vincent

Right Carotid

(cm/s)	PSV	EDV
CCA	52	0
ICA	40	10
ECA	89	0
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type IV

CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery



Summary Right

Predominantly echogenic plaque is present in the ICA origin causing a less than 50% ICA stenosis.

Disease graded by the NASCET criteria.

Left Carotid

(cm/s)	PSV	EDV
CCA	60	0
ICA	59	16
ECA	107	0
Vertebral	Forward flow	

L ICA: <50% stenosis

Plaque type IV



Summary Left

Uniformly echogenic plaque is present in the ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is also present in the CCA.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

/ Verbal Consent

dB

CRIS:

Surname:

Forename:

Vascular Studies Unit

Carotid Artery Duplex Scan Report

Date 08 November 2018

Referring Doctor Mr Hamish

NAME

ADDRESS

DoB

HOSP. NUM

Right Carotid

(cm/s)	PSV	EDV
CCA	78	18
ICA	97	25
ECA	124	0
Vertebral	Forward flow	

Left Carotid

(cm/s)	PSV	EDV
CCA	70	19
ICA	188	44
ECA	325	36
Vertebral	Forward flow	

R ICA: <50% stenosis

Plaque type III/IV



CCA = Common carotid artery
ICA = Internal carotid artery
ECA = External carotid artery

Summary Right

Mixed echogenic plaque is present in the carotid bifurcation, the ECA and ICA causing a less than 50% ICA stenosis.

Intimal wall thickening is present in the CCA.

Disease graded by the NASCET criteria.

L ICA: 50-59% stenosis

Plaque type III



Summary Left

Predominantly echogenic plaque is present in the carotid bifurcation extending into the ICA causing an approximate 50-59% ICA stenosis.

The bifurcation level is normal.

There is also a moderate to severe ECA stenosis.

Disease graded by the NASCET criteria.

Scanned by: Leah Sayers
Trainee Clinical Vascular Scientist

>50% ICA stenosis should be referred for a vascular opinion as clinically appropriate
Northamptonshire Vascular Service

Verbal Consent

dB

