

CAROTID ASSESSMENT

SCANNER SETTING:

Carotid

PROBES:

5-8MHz

PATIENT POSITION

Supine with support for head and neck with head just above the pillow rotated to the contra-lateral side and neck slightly stretched.

DISEASE GRADING

Intimal wall thickening - Noticeable thickening of intimal-medial layer. Obtain measurement.

Minor plaque - Localised areas of plaque, not causing flow disturbance.

Mild plaque - Flow disturbance evident and causing <50% diameter reduction.

Significant - >50% diameter reduction with PSVs and/or stenosis grading criteria being quoted.

Plaque Morphology:- Plaque can be characterised into how echogenic the plaque is i.e. low, medium or high, or if it is a smooth or irregular plaque and whether it is homogenous (one type of plaque) or heterogeneous (different types of plaques).

Stenosis grading:- Stenoses are graded using the criteria recommended by the joint working group (attached). When a stenosis is present note its position in the vessel and estimate the distance from the angle of the mandible. Also note how far the disease extends up the vessel.

IMAGES:

When obtaining images ensure that the correct side and site is recorded. Note any abnormalities and specific structures related to the investigation. Obtain images as necessary with descriptive text of what was seen and also specifically at key points of proximal CCA, ECA and distal ICA.

IC Sept 12

Prior to Scanning:

Ensure the patient is comfortable and there is clear access to the base of the neck.

SCANNING TECHNIQUE

1. Start in a transverse view in B-mode, at the base of the neck. On the right scan down to identify the origin of the CCA and the innominate artery. On the left this is not generally possible due to the anatomy, but still scan down as far as possible.
2. Scan up the neck to identify the bifurcation and determine the orientation of the ICA and ECA, noting any plaque or other anomalies that may be present.
3. Switch on the colour Doppler and repeat the scan looking for any flow disturbance or aliasing.
4. Turn the probe into a longitudinal view and obtain a Doppler waveform from the CCA at the base of the neck. If the patient's breathing is affecting the position of the Doppler sample, ask the patient to stop breathing for a few seconds if possible.
5. Scan up the CCA and using the Doppler assess the flow as necessary and grade any plaque present. Record the peak systolic and end diastolic velocities within 2cm of the bifurcation at a point where the vessel still has a uniform diameter.
6. Using the transverse scan from memory and also the colour Doppler, identify the ECA noting any plaque and obtaining a Doppler waveform.
7. Identify and assess the ICA obtaining a Doppler waveform as distal as possible. When there is significant plaque assess and grade it with the Doppler at the level where the highest PSV is seen, obtaining images and recording the peak systolic and end diastolic velocities and the level of the stenosis from the angle of the mandible.
8. Whilst in longitudinal view scan down to just below the level of the bifurcation. Slowly move the probe laterally until the transverse processes of the spine can be seen. Identify the vertebral artery between the processes or as it dives into the processes at the level of the 6th vertebra. Using the Doppler assess the flow noting the direction. If flow is reversed or suggestive of proximal disease assess the vertebral proximally and the flow in the subclavian artery.

Carotid

Date	CHI	Scan
07/11/2018	1308472056	Carotid
12/11/2018	806592028	Carotid
27/11/2018	2411332122	Carotid
28/11/2018	106342053	Carotid
11/12/2018	2305375255	Carotid
13/12/2018	2005522317	Carotid
13/12/2018	2205692062	Carotid
17/12/2018	607442050	Carotid
17/12/2018	2601812087	Carotid
18/12/2018	1404322094	Carotid
19/12/2018	3103592132	Carotid
19/12/2018	1801621219	Carotid
31/12/2018	3101352118	Carotid
31/12/2018	2212452187	Carotid
03/01/2019	1504472446	Carotid
07/01/2019	802562140	Carotid
15/01/2019	1512312053	Carotid
15/01/2019	910462119	Carotid
15/01/2019	607442115	Carotid
15/01/2019	2509502522	Carotid
15/01/2019	2612532250	Carotid
17/01/2019	2305492065	Carotid
17/01/2019	2702505406	Carotid
22/01/2019	2012592309	Carotid
23/01/2019	2507422076	Carotid

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 403

Episode date
07/11/2018

Ward
Outpatient

Patient: [REDACTED]

Unit Number
0188409

CHI
1308472056

Tests performed: **Carotid Duplex**

Results:

Difficult scan due to shadowing, only proximal ICA and ECA seen clearly on both the right and left.

Right

Common Carotid - Within normal limits

Internal Carotid - Mild disease proximally (it was noted that there was a enlarged area in the proximal segment of the vessel ~10mm)

External Carotid - Proximal seen only with mild disease

Vertebral - Patent with antigrade flow

Left

Common Carotid - Within normal limits

Internal Carotid - Mild disease in the bulb

External Carotid - Proximal seen only with mild disease

Vertebral - Patent with antigrade flow

Scanned By:- Heather Lynn
Trainee Clinical Scientist

07/11/2018

101632

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Neurologist
Ward 40 ARI

Episode date
12/11/2018

Ward
Outpatient

Patient: [REDACTED]

Unit Number
0857556

CHI
0806592028

Tests performed: Carotid Duplex

Results:
discussed with consultant - send for CTA

Right

Common Carotid - Appears within normal limits

Internal Carotid - Mild disease proximally

External Carotid - Mild disease proximally

Vertebral - Patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Occlusion from origin, Unable to detect flow in vessel however walls are calcified therefore difficult to confirm

External Carotid - Mild disease proximally

Vertebral - Patent with antigrade flow

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Trainee Clinical Scientist

12/11/2018

101683

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**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Neurologist
Ward 40 ARI

Episode date
27/11/2018

Ward
Outpatient

Patient: [REDACTED]

Unit Number
0468957

CHI
2411332122

Tests performed: **Carotid Duplex**

Results:
difficult scan due to patient having difficulty breathing.

Right

Common Carotid - Minor disease throughout

Internal Carotid - Moderate disease at bifurcation

External Carotid - Moderate disease at bifurcation

Vertebral - Not imaged

Left

Common Carotid - Minor disease throughout

Internal Carotid - Appears occluded however difficult to image

External Carotid - moderate disease throughout

Vertebral - Not imaged

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27/11/2018

101827

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
28/11/2018

Ward
Outpatient

Patient:

Unit Number
0468060

CHI
0106342053

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Mild calcified disease throughout

Internal Carotid - There is calcified plaque proximally that using a carotid stenosis criteria works out to be 50 - 59% however in grey scale it appears great ~ 70%

External Carotid - Moderate calcified disease prox - mid segment

Vertebral - Patent with antigrade and calcified disease

Left

Common Carotid - Mild calcified disease throughout

Internal Carotid - There is calcified plaque proximally that using carotid stenosis criteria works out to be a 50 - 59% stenosis.

External Carotid - Moderate calcified disease prox - mid segment

Vertebral - Patent with antigrade and calcified disease

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Trainee Clinical Scientist

28/11/2018

101833

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**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
11/12/2018

Ward
Outpatient

Patient:

Mr. [REDACTED]

Unit Number
2110729

CHI
2305375255

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Mild disease throughout

Internal Carotid - Significant localised plaque in the bulb in grey scale appears over 90% stenosis however using carotid criteria calculation it works out to be 80% stenosis. distally the vessel is patent with minimal disease.

External Carotid - Mild disease throughout

Vertebral - Not imaged

Left

Common Carotid - Mild disease throughout

Internal Carotid - moderate disease in the bulb

External Carotid - Mild disease throughout

Vertebral - Not imaged

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11/12/2018

101975

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**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
13/12/2018

Ward
Outpatient

Patient:

Unit Number
0929317

CHI
2005522317

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Mild calcified disease throughout

Internal Carotid - Mild calcified disease throughout

External Carotid - Mild calcified disease throughout

Vertebral - Not imaged

Left

Common Carotid - Mild calcified disease throughout

Internal Carotid - Mild calcified disease throughout

External Carotid - Mild calcified disease throughout

Vertebral - Patent with antigrade flow

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13/12/2018

102018

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
13/12/2018

Ward
Outpatient

Patient:

Unit Number
0510478

CHI
2205692062

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Appears within normal limits

External Carotid - Appears within normal limits

Vertebral - patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Appears within normal limits. There was a right angle kink in the vessel in the mid section which increase the PSV's however ever using calculation it worked out to be less than 50% and no significant plaque was noted.

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

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Trainee Clinical Scientist

13/12/2018

102030

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
17/12/2018

Ward
Outpatient

Patient:

Unit Number
0416400

CHI
0607442050

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Mild plaque in bulb

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Mild plaque in bulb

External Carotid - Mild disease throughout

Vertebral - Not imaged

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Trainee Clinical Scientist

17/12/2018

102046

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 204 ARI

Episode date
17/12/2018

Ward
Outpatient

Patient: [REDACTED]

Unit Number
0701826

CHI
2601812087

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Appears within normal limits

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Appears within normal limits

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

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17/12/2018

102048

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
18/12/2018

Ward
Outpatient

Patient:

Unit Number
0102755

CHI
1404322094

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Minor disease throughout

Internal Carotid - Mild disease throughout

External Carotid - Significant elevated proximal (max PSV's 300cm/sec

Vertebral - Patent with antigrade flow

Left

Common Carotid - Minor disease throughout

Internal Carotid - Mild disease throughout

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

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18/12/2018

102060

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**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 403

Episode date
19/12/2018

Ward
Outpatient

Patient: [REDACTED]

Unit Number
2192281

CHI
3103592132

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Mild disease in bulb

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Appears within normal limits

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

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19/12/2018

102080

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
19/12/2018

Ward
Outpatient

Patient:

Unit Number
2173456

CHI
1801621219

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Moderate disease in bulb ~40% reduction in diameter

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Moderate disease in bulb ~40% reduction in diameter

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

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19/12/2018

102079

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 204 ARI

Episode date
31/12/2018

Ward
Outpatient

Patient: [REDACTED]

Unit Number
020925

CHI
3101352118

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Minor disease throughout

Internal Carotid - Mild disease throughout

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

Left

Common Carotid - Minor disease throughout

Internal Carotid - Moderate disease proximally,

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

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Trainee Clinical Scientist

31/12/2018

102166

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: ~~Dr. [redacted]~~
Stroke Care
Ward 204 ARI

Episode date
31/12/2018

Ward
Outpatient

Patient:
Ms. [redacted]

Unit Number
0326234

CHI
2212452187

Tests performed: **Carotid Duplex**

Results:

technically difficult due to patient unable to respond to instructions and in bed

Right

Common Carotid - Appears within normal limits

Internal Carotid - Minor disease in bulb

External Carotid - Minor disease throughout

Vertebral - Not imaged

Left

Common Carotid - Appears within normal limits

Internal Carotid - Minor disease in bulb

External Carotid - Minor disease throughout

Vertebral - Not imaged

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Trainee Clinical Scientist

31/12/2018

102167

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
03/01/2019

Ward
Outpatient

Patient:

Unit Number
0450318

CHI
1504472446

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Minor disease throughout

Internal Carotid - Tortuous vessel no significant disease

External Carotid - Minor disease throughout

Vertebral - Patent with antigrade flow

Left

Common Carotid - Minor disease throughout

Internal Carotid - Tortuous vessel no significant disease

External Carotid - Minor disease throughout

Vertebral - Patent with antigrade flow

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Trainee Clinical Scientist

03/01/2019

102181

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
07/01/2019

Ward
Outpatient

Patient:

Unit Number
0452474

CHI
0802562140

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Minor wall thickening throughout

Internal Carotid - mild/moderate disease proximally

External Carotid - Mild disease proximally

Vertebral - not imaged

Left

Common Carotid - Minor wall thickening throughout

Internal Carotid - mild/moderate disease proximally

External Carotid - Mild disease proximally

Vertebral - Patent with antigrade flow

Scanned By:- Heather Lynn
Trainee Clinical Scientist

07/01/2019

102209

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 403

Episode date
15/01/2019

Ward
Outpatient

Patient: [REDACTED]

Unit Number
0101742

CHI
1512312053

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - minor disease throughout

Internal Carotid - Mild disease in bulb

External Carotid - Minor disease throughout

Vertebral - Not imaged

Left

Common Carotid - minor disease throughout

Internal Carotid - Mild disease in bulb

External Carotid - Minor disease throughout

Vertebral - Not imaged

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Trainee Clinical Scientist

15/01/2019

102322

Page 1 of 1

The Vascular Laboratory Aberdeen Royal Infirmary

Consultant: [REDACTED]
Vascular Surgeon
Ward 215 ARI

Episode date
15/01/2019

Ward
Outpatient

Patient:

Unit Number
0172762

CHI
0910462119

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid -

Internal Carotid -

External Carotid -

Vertebral -

Left

Common Carotid - Tortuous vessel with mild disease.

Internal Carotid - Using carotid criteria there is a 70 -79% stenosis in the proximal ICA. 4 cm below the mandible, distally the vessel is patent. It was noted the stenosis appear like a shelf which the blood is vortexing around

External Carotid - Mild disease throughout

Vertebral -

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Trainee Clinical Scientist

15/01/2019

102318

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Stroke Care
Ward 204 ARI

Episode date
15/01/2019

Ward
Outpatient

Patient:

Mr.

Unit Number
0458270

CHI
0607442115

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Minor disease throughout

Internal Carotid - Mild disease in bulb

External Carotid - Mild disease throughout

Vertebral - Not imaged

Left

Common Carotid - Minor disease throughout

Internal Carotid - Mild disease in bulb

External Carotid - Mild disease throughout

Vertebral - patent with retrograde flow

Scanned By:- Heather Lynn
Trainee Clinical Scientist

15/01/2019

102329

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 403

Episode date
15/01/2019

Ward
Outpatient

Patient:
Ms [REDACTED]

Unit Number
0836875

CHI
2509502522

Tests performed: Carotid Duplex

Results:

Right

Common Carotid - Minor disease throughout

Internal Carotid - Minor disease throughout

External Carotid - Minor disease throughout

Vertebral - Patent with antigrade flow

Left

Common Carotid - Minor disease throughout

Internal Carotid - Minor disease throughout

External Carotid - Minor disease throughout

Vertebral - Patent with antigrade flow

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Trainee Clinical Scientist

15/01/2019

102330

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 204 ARI

Episode date
15/01/2019

Ward
Outpatient

Patient:
Mr. [REDACTED]

Unit Number
0812749

CHI
2612532250

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Moderate disease proximally

Internal Carotid - Mild disease throughout

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

Left

Common Carotid - Mild disease throughout

Internal Carotid - Mild disease throughout

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

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Trainee Clinical Scientist

15/01/2019

102331

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
17/01/2019

Ward
Outpatient

Patient:

Mrs. [REDACTED]

Unit Number
0377732

CHI
2305492065

Tests performed: **Carotid Duplex**

Results:

Hibifurcation

Right

Common Carotid - Mild calcified disease throughout

Internal Carotid - Mild disease in bulb

External Carotid - Unable to image due to high bifurcation and vein

Vertebral - Patent with antigrade flow

Left

Common Carotid - Minor/Mild calcified disease throughout

Internal Carotid - Minor/ Mild disease in bulb

External Carotid - Mild disease with PSV's 150cm/sec

Vertebral - Patent with antigrade flow

Scanned By:- Heather Lynn
Trainee Clinical Scientist

17/01/2019

102368

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: Dr R Clarke
Stroke Care
Ward 403

Episode date
17/01/2019

Ward
Outpatient

Patient:

Mrs [REDACTED]

Unit Number
2058349

CHI
2702505406

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Mild disease throughout

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Mild disease throughout

External Carotid - Mild disease throughout

Vertebral - Patent with antigrade flow

Scanned By:- Heather Lynn
Trainee Clinical Scientist

17/01/2019

102353

Page 1 of 1

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant:

Episode date
22/01/2019

Ward

Patient:

Ms. [REDACTED]

Unit Number
0252244

CHI
2012592309

Tests performed:

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Appears within normal limits

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

Left

Common Carotid - Appears within normal limits

Internal Carotid - Appears within normal limits

External Carotid - Appears within normal limits

Vertebral - Patent with antigrade flow

Scanned By:- Heather Lynn
Trainee Clinical Scientist

**The Vascular Laboratory
Aberdeen Royal Infirmary**

Consultant: [REDACTED]
Stroke Care
Ward 403

Episode date
23/01/2019

Ward
Outpatient

Patient:
Mr. [REDACTED]

Unit Number
0329977

CHI
2507422076

Tests performed: **Carotid Duplex**

Results:

Right

Common Carotid - Appears within normal limits

Internal Carotid - Moderate disease in bulb

External Carotid - Mild disease throughout

Vertebral - Not imaged

Left

Common Carotid - Appears within normal limits

Internal Carotid - Moderate disease in bulb

External Carotid - Mild disease throughout.

Vertebral - Patent with antigrade flow

Scanned By:- Heather Lynn
Trainee Clinical Scientist

23/01/2019

102416

Page 1 of 1