Vascular Studies Unit Protocol: Carotid Artery Ultrasound Scan RRCV	University Hospitals of Leicester NHS NHS Trust VSU Reference Number: 016

Approved By:	**Matt Bown, Head of Vascular Service Jo Walker, Chief Clinical Vascular Scientist**
Date Implemented:	**June 2021**
Version:	**V6**
Supersedes:	**V5 2019**
Author / Originator(s):	**Tim Hartshorne**
Reviewed by:	**VSU Clinical Scientist Working Group, June 2021**
Next Review Date:	**June 2023**

Abbreviations	
TIA	Transient ischemic attacks
CVA	Cerebrovascular Accident
CCA	common carotid artery
ECA	external carotid artery
ICA	internal carotid artery
COPD	obstructive pulmonary disease
PSV	Peak systolic velocity
EDV	End diastolic velocity
CEA	Carotid Endarterectomy
NASCET	North American Symptomatic Carotid Endarterectomy Trial
ECST	European Carotid Surgery Trial

Changes Made	By	Date
Review, removed generic equipment & safety section, now separate doc	JW	April 2016
Page 5: added more detail (shown in bold) to the pre-op recordings, as per audit discussion July '16 VSU meeting. A diagram showing extent and composition of	JW	July 2016

atheroma(including plaque length measurement and distance extending into the ICA from bifurcation), vessel geometry, tortuosity, distal lumen diameter, is drawn into the appropriate scan box of the clerking form (pink) available within the patients' notes.		
Planned review. Updated indications/contraindications list, aligned with SVT protocol	All / JW	Sept 2019

Purpose

The scan is performed to assess the presence of pathology and the haemodynamic status of the common carotid artery (CCA), the internal carotid artery (ICA), external carotid artery (ECA) and vertebral artery.
Common indications

Common indications for the performance of this examination include:

- Transient ischemic attacks (TIA)
- Amaurosis fugax
- Carotid bruit
- Cerebrovascular Accident (CVA)
- Trauma in the area of the carotid arteries (suspected dissections, pseudoaneurysm, AV fistula)
- Pulsatile neck masses
- Evaluation of suspected subclavian steal syndrome
- Pre-operative assessment for high risk patients
- Follow up of know carotid stenosis
- Post intervention follow up (carotid endarterectomy, stent or bypass)

Contraindications and Limitations

Contraindications for extracranial cerebrovascular duplex ultrasound are few; however, some limitations exist and may include the following:

- Patients with short, thick muscular necks
- Patients who have had recent surgery, ultrasound visualisation may be limited due to oedema, haematoma, surgical staples, dressings etc
- Calcified plaque may cause acoustic shadowing limiting Doppler and B-mode image assessment.
- Patients who are unable to lie flat due to pre-existing co-morbidities e.g. chronic
- obstructive pulmonary disease (COPD) and arthritis – although these patients may be able to tolerate being examined seated in a chair or with the head of the bed raised
- Patients who are unable to cooperate due to reduced cognitive functions e.g.
- Alzheimer's or dementia and through involuntary movements
- Examinations undertaken portably at the patient's bedside maybe limited due to
- equipment and room dimensions.

Communication with patients

The patient must be capable of lying still during the scan. It is explained that the test is carried out to look at the blood vessels in the neck, to identify a potential cause of previous TIAs or stroke or as routine screening prior to cardiac surgery. The patient is reassured that the test is painless.
The patient's dignity and privacy should be maintained at all times. During the examination the patient's mental and physical status should be monitored and modifications made to the examination accordingly.

Equipment

Duplex Doppler ultrasound machine with a high, mid-range and a low-range frequency probe.

Test Procedure

The patient is positioned supine with the neck extended and slightly rotated. If the patient is unable to transfer from a wheelchair or is bed-bound, the scan may still be performed and the patient positioning is noted on the report.

Select an appropriate frequency transducer, considering vessel depth and body habitus.
For carotid assessments, bilateral evaluation of the following arteries should be included, as Appropriate, unless otherwise indicated:

- CCA
- ECA
- ICA
- Vertebral Artery
- Subclavian Artery (where required)

Bmode: The extent and composition of atheroma is noted which can be described as smooth or irregular in surface characteristics, homogeneous, heterogeneous, calcified, moderately echoic or anechoic in composition. Changes in diameter or cross-sectional area may be assessed and measured.

Colour Doppler: Filling defects may be observed during colour flow assessment. Colour PRF must be optimised for the flow velocities in each vessel, and areas of aliasing used to highlight flow velocity increases. Areas of plaque ulceration can also be noted using colour, power Doppler or B-Flow (depending on machine options).

Spectral Doppler: A Doppler angle of ≤60 must be used for recordings, aligned with the direction of flow. Record the highest PSV's & EDV's in the CCA and ICA. The ECA waveform can be recorded for vessel identification, but is excluded from calculations. The vertebral artery is located and the Doppler signal is examined. If flow appears significantly damped the origin of the vertebral artery may be examined (where possible) to locate a possible stenosis. Partially or fully reversed flow in the vertebral artery is indicative of a subclavian steal syndrome. If the degree of reverse flow is inconclusive the vessel may be rescanned following one minute of rigorous arm exercises. The ipsilateral subclavian artery should then be investigated to identify an occlusion or stenosis.

Interpretation and grading of disease

The following table of velocities and velocity ratios should be used as a guide to assess degree of narrowing. Appendix one summarises other criteria for consideration.

Tortuous vessels, localised aneurysms or dilated vessels should also be reported. Any unusual findings such as Carotid Body Tumor, False Aneurysms, and Carotid Artery Dissections should be viewed and verified by a second observer and appropriate images recorded where possible.

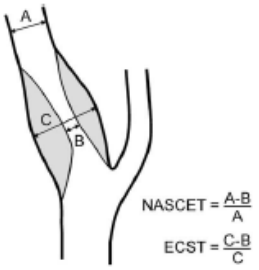
Very high grade stenoses may lead to a reduction in velocities just distal to the narrowing. It is very important to distinguish between 'a normal (disease free) but under-perfused vessel' distal to the narrowing and 'a sub-occlusion' where there is no end point to the disease.

VSU Grading Consensus Table:

(collated from Oates et al 2008, Grant et al 2003, Sidhu & Allen 1997)

% Stenosis (NASCET)	ICA PSV cm/s	ICA EDV cm/c	Ratio ICA PSV / CCA PSV	St Mary's Ratio ICA PSV / CCA EDV*	Plaque est. % dia. Redn.
Normal	<125	<40	<2	<8	0
30-49	110-130	<40	<2	<8	<50
>50**	125-230	<40	2-4	8-10	>50
>60	>130	40-110	3.2-4	11-13	
>70	>230	110-140	>4	14-21	
>80		>140		22-29	
>90	>400		>5	>30	
Near Occln.	High/ low/ String flow				
Occluded	No flow				

**Exclude St.Marys Ratio if any EDV<10cm/s*



****Grading for 50% Stenosis**

The percentage stenosis cut-off for consideration for CEA is now 50% NASCET (for symptomatic disease). The grading for a 50% stenosis is difficult and can be more subjective.

It is recommended to use at least 2 concurring grading velocity values, including PSV and a ratio calculation, as well as (where possible) measuring either a diameter reduction or area reduction.

Parameters for 50% Stenosis Grading						
ICA PSV	ICA/CCA PSV Ratio	ICA PSV /CCA EDV ratio	ICA EDV	B-Mode (+/- colour) % Diameter Reduction (NASCET)	B-Mode (+/- colour) % Diameter Reduction at Bulb (ECST)	B-Mode (+/- colour) % Area Reduction
>125 cm/s	>2	>8	>=40 cm/s	>=50%	>=75%	>=75%

For plaques that do not appear to cause raised velocities through the remaining lumen, despite a large burden of atheroma (in a large carotid bulb for example) then it is vital to take either diameter or area reduction measurements, and quote the ECST stenosis grading alongside the NASCET stenosis grading.

N.B. in the single visit clinic setting limited investigations may be carried out as per instruction from the requesting clinician.

Reporting of Results

The report is a recording and interpretation of observations made during the duplex ultrasound examination; it should be written by the CVS undertaking the examination and viewed as an integral part of the whole examination. The report should include correct patient demographics; date and time of examination; examination type and the name and status of the CVS.

Outpatients & Single Visit Clinic Scans:

A schematic diagram is completed (see attached report sheet).

Pre-Operative Scan:

The pre-op scan will be undertaken by a different vascular scientist than whoever performed the latest diagnostic scan, as per NICE Guidelines.

A diagram showing extent and composition of atheroma (including plaque length measurement and distance extending into the ICA from bifurcation), vessel geometry, tortuosity, distal lumen diameter, is drawn into the appropriate scan box of the clerking form (pink) available within the patients' notes, and this is scanned onto CRIS.

TIA Clinic Scans:

A schematic diagram is completed (see attached report sheet)

The yellow copy is attached in the TIA Clinic notes, and also scanned onto CRIS. The findings are recorded on the TIA Clinic 'Plexias System' located on the intranet.

PACS:

If PACS is available, then appropriate images may be recorded.

Red Flags:

The on-call vascular registrar must be contacted for any outpatient attending VSU with a significant finding (≥50% **and presenting with TIA symptoms**) before the patient is sent home.

Supporting References

Oates c. *et al* (2008) Joint Recommendations for Reporting Carotid Ultrasound Investigations in the United Kingdom, Eur J Vasc Endovasc Surg.

Grant E.G. *et al* (2003) Carotid Artery Stenosis: Grey-scale and Doppler US Diagnosis – Society of Radiologists in Ultrasound Consensus Conference, Radiology. 229:340-346

Sidhu. P. and Allan. P. (1997), Ultrasound Assessment of Internal Carotid Artery Stenosis, Clinical Radiology. 52: 654-658.

Thrush. A. and Hartshorne. T. (1999). Peripheral Vascular Ultrasound: How,Why and When, London, Churchill Livingstone.

Implementing the National Stroke Strategy – An Imaging Guide' May 2008 http://www.bnms.org.uk/other-guidelines/doh-publication/department-of-healthpublications.html

National clinical guidelines for stroke fifth edition prepared by the intercollegiate stroke working party 2016 https://www.rcplondon.ac.uk/guidelines-policy/stroke-guidelines

Society for Vascular Technology GB& I, Vascular Technology Professional Performance Guidelines Extracranial Cerebrovascular Duplex Ultrasound Examination, 2019

Appendix 1

A selection of reporting criteria for grading carotid artery lesions:

Oates, et al (2008)

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] NACC 17.
[b] Filis et al. 37.
[c] Nicolaides et al. 33.

Grant, et al (2003)

Consensus Panel Gray-Scale and Doppler US Criteria for Diagnosis of ICA Stenosis

	Primary Parameters		Additional Parameters	
Degree of Stenosis (%)	ICA PSV (cm/sec)	Plaque Estimate (%)*	ICA/CCA PSV Ratio	ICA EDV (cm/sec)
Normal	<125	None	<2.0	<40
<50	<125	<50	<2.0	<40
50–69	125–230	≥50	2.0–4.0	40–100
≥70 but less than near occlusion	>230	≥50	>4.0	>100
Near occlusion	High, low, or undetectable	Visible	Variable	Variable
Total occlusion	Undetectable	Visible, no detectable lumen	Not applicable	Not applicable

* Plaque estimate (diameter reduction) with gray-scale and color Doppler US.

Sidhu & Allen (1997)

% stenosis	PSV	EDV	PSV_{ICA}/PSV_{CCA}
0 - 29	<100	<40	<3.2
30 – 49	110 - 130	<40	<3.2
50 – 59	>130	<40	<3.2
60 – 69	>130	40 - 110	3.2 – 4.0
70 – 79	>230	110 - 140	>4.0
80 – 89	>230	>140	>4.0
90 – 99	'String' flow		
100	No flow		

Example Report

VASCULAR STUDIES UNIT

University Hospitals of Leicester NHS
NHS Trust

Level 6, Balmoral Building
Leicester Royal Infirmary
Tel: 0116 258 5440
Fax: 0116 258 6821

CAROTID DUPLEX SCAN REPORT

Surname: _____

Forename: _____

DOB: _____

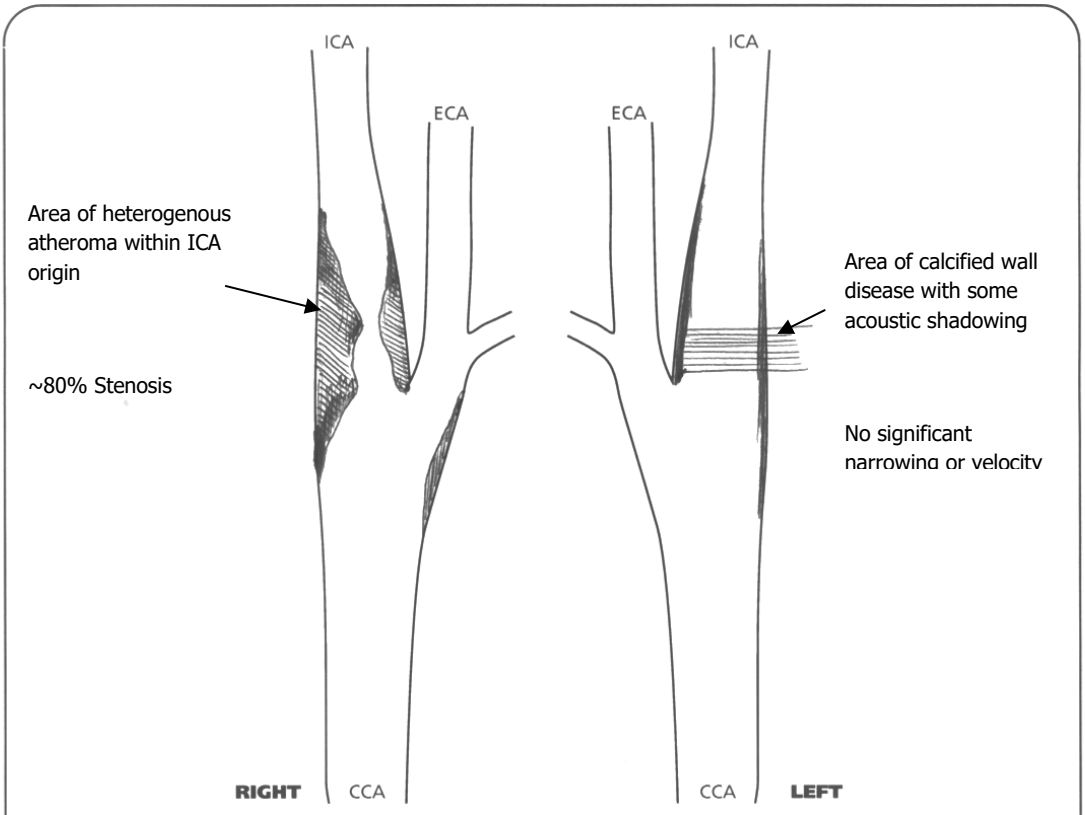
Unit Number: _____

(or use patient label)

CONSULTANT: DEPT:

CLINICAL HISTORY: HOSPITAL:

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	80	380	130	forward
LEFT	0	60	—	forward



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PRINT NAME: _____ DATE: _____

Image Quality:

GOOD ○ ☑ ○ POOR

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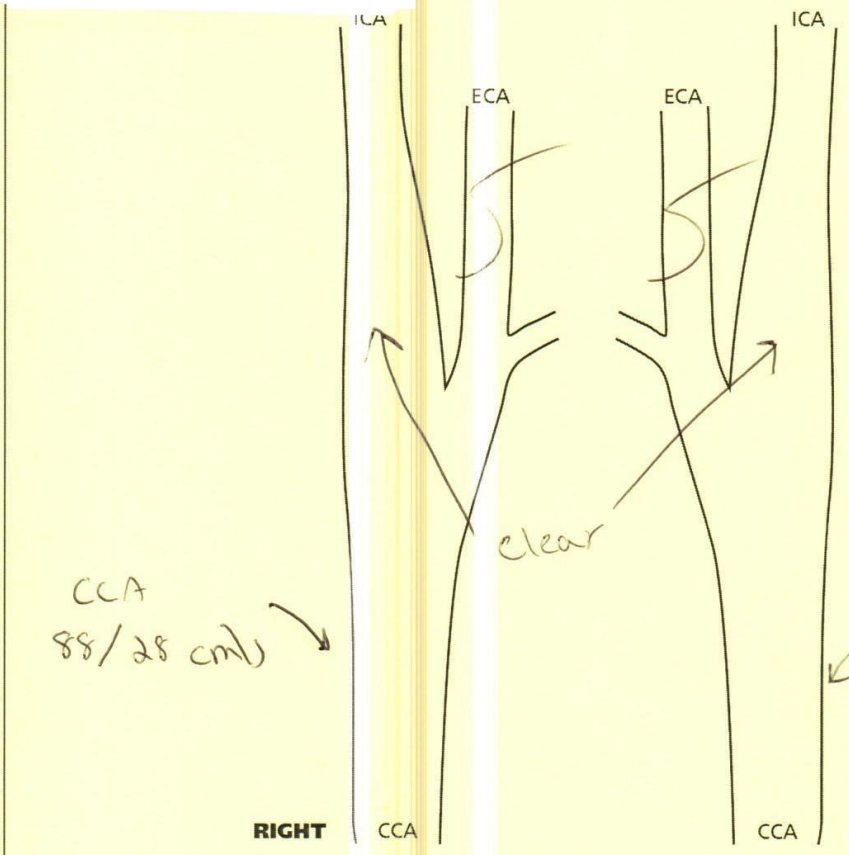
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: R side face weakness, drop HOSPITAL: R1

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	77	29	Fwd
LEFT	0	92	40	Fwd



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CAROTID DUPLEX SCAN REPORT

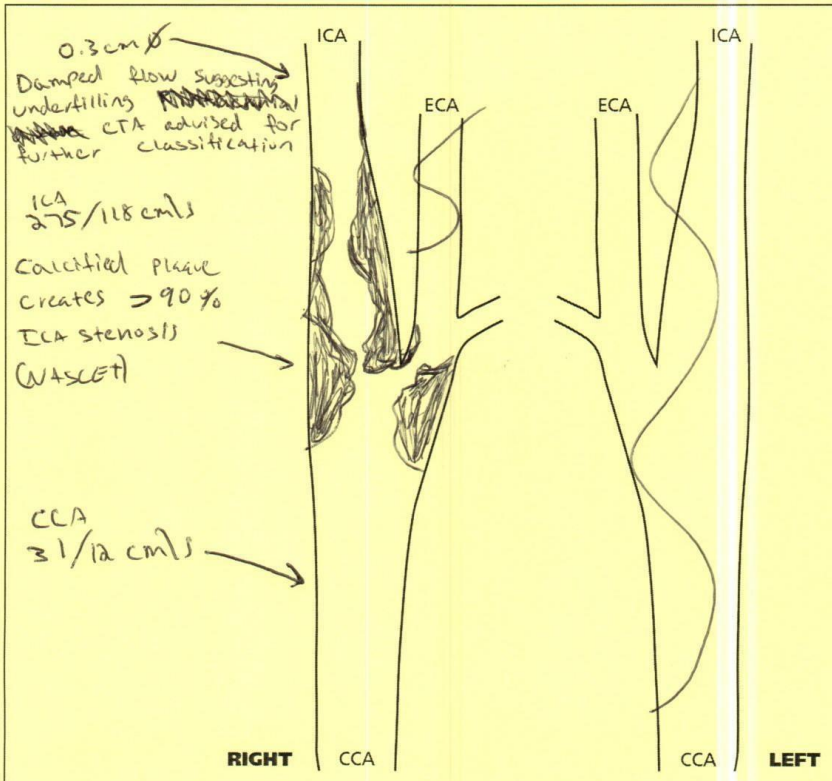
CONSULTANT:

DEPT: [illegible]

CLINICAL HISTORY: ? Patent right ICA

HOSPITAL: [illegible]

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	>90	275	118	Fwd
LEFT	X	X	X	X



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CAROTID DUPLEX SCAN REPORT

(or use patient label)

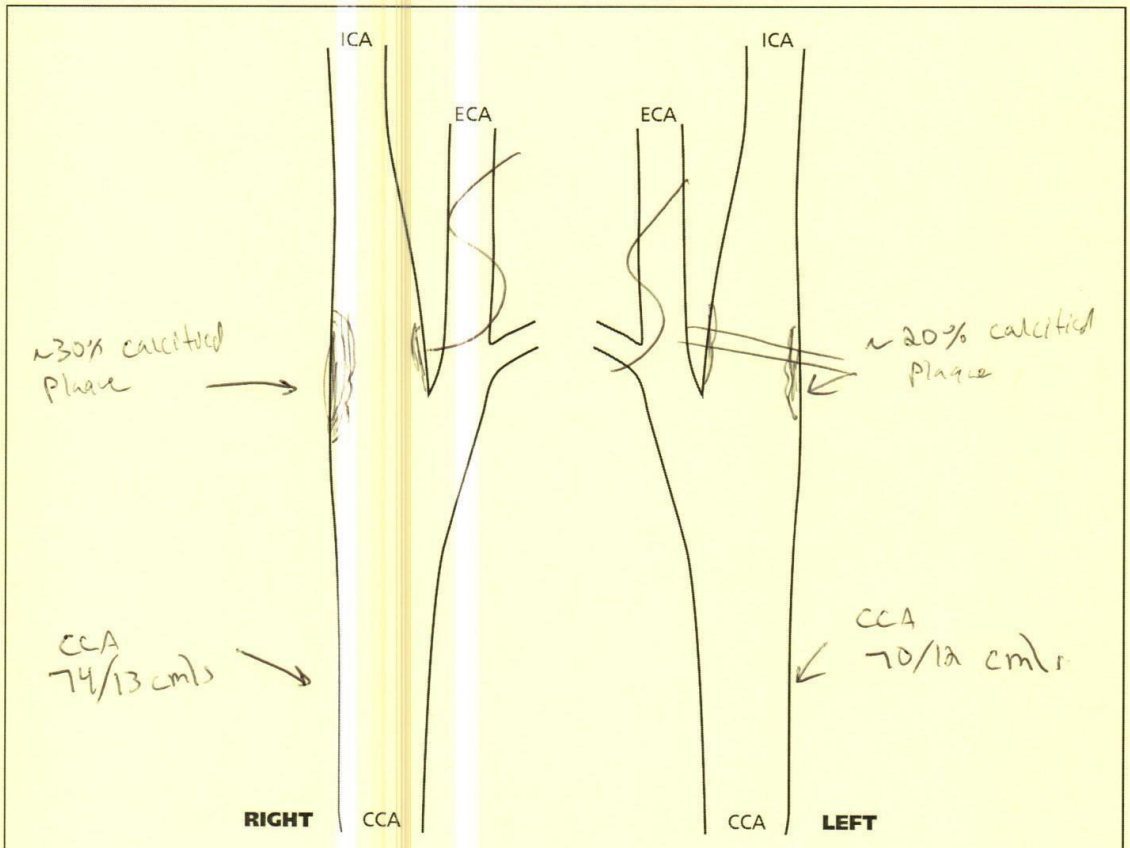
CONSULTANT

DEPT: R 25

CLINICAL HISTORY: L stroke

HOSPITAL: R1

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	30	74	13	Fwd
LEFT	20	61	18	Fwd



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CAROTID DUPLEX SCAN REPORT

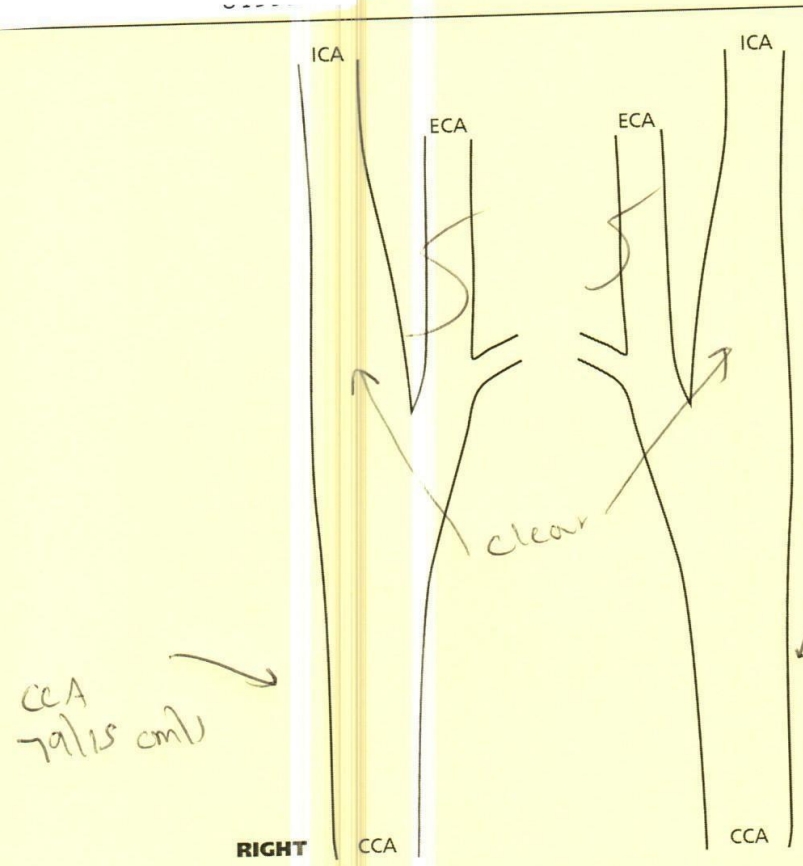
CONSULTANT:

DEPT: ~~TVA~~ R26

CLINICAL HISTORY: Stroke

HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	43	17	Fwd
LEFT	0	31	6	Fwd



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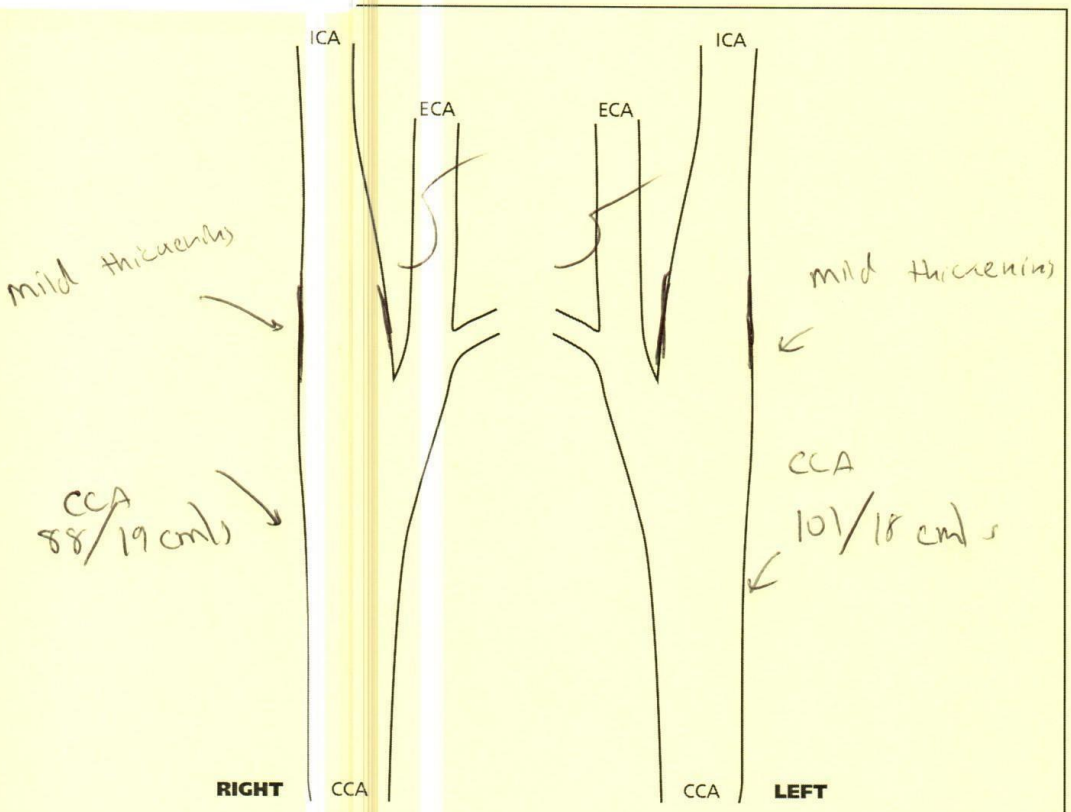
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: loss of sight, blurred vision HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	85	24	Fwd
LEFT	0	81	21	Fwd



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CAROTID DUPLEX SCAN REPORT

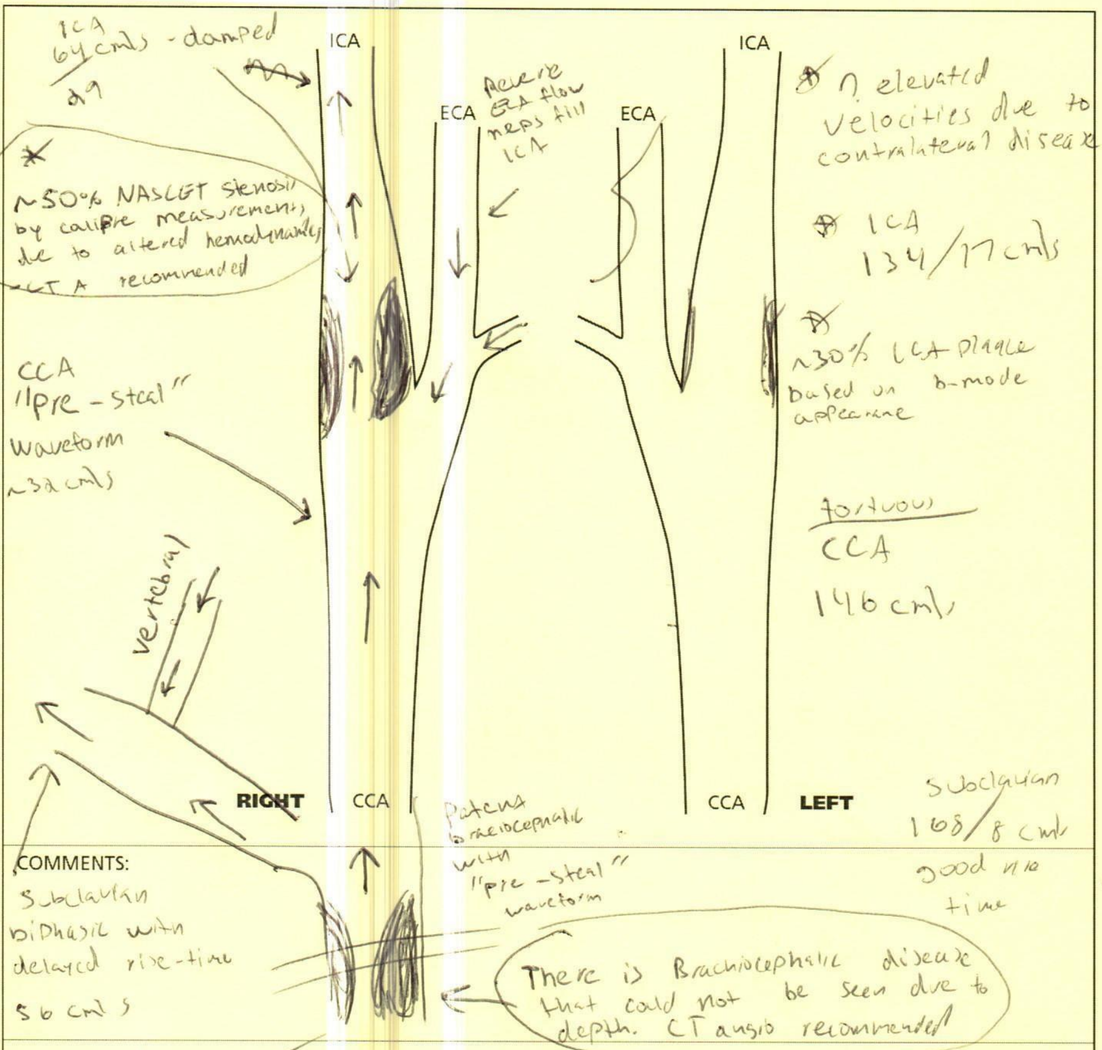
CONSULTANT:

DEPT: TIA

CLINICAL HISTORY: – R side infarct. Likely Right ICA and brachiocephalic stenosis, CTA recommended

HOSPITAL: R

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	* ~50	64	29	Reverse
LEFT	* 30	134	17	Forward



COMMENTS:

Subclavian biphasic with delayed rise-time 56 cm/s

There is Brachiocephalic disease that could not be seen due to depth. CT angio recommended

SIGNED: ______ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pa[illegible]

DATE: 27-3-23

IMAGE QUALITY: GOOD ○ ⊗ ○ POOR

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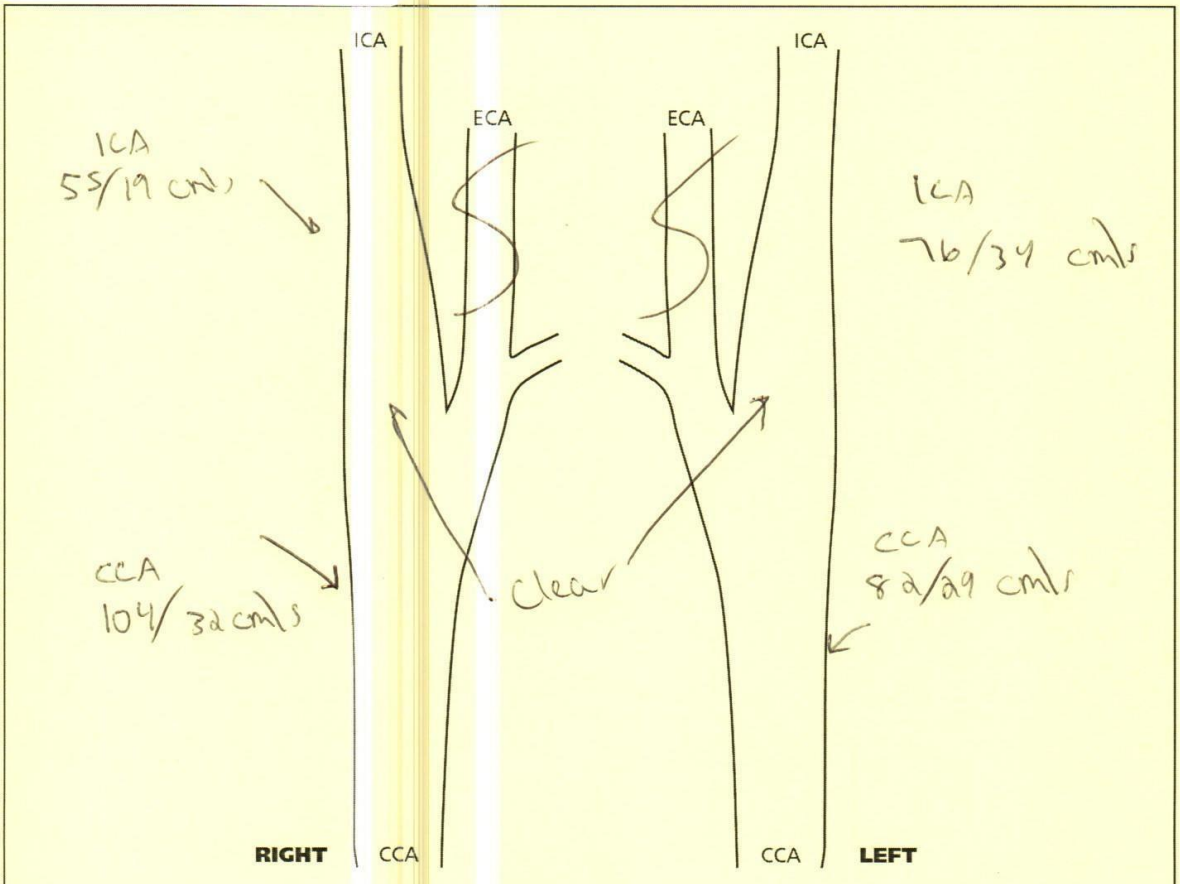
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: Post Circ Stroke HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	55	19	Fwd
LEFT	0	76	34	Fwd



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CAROTID DUPLEX SCAN REPORT

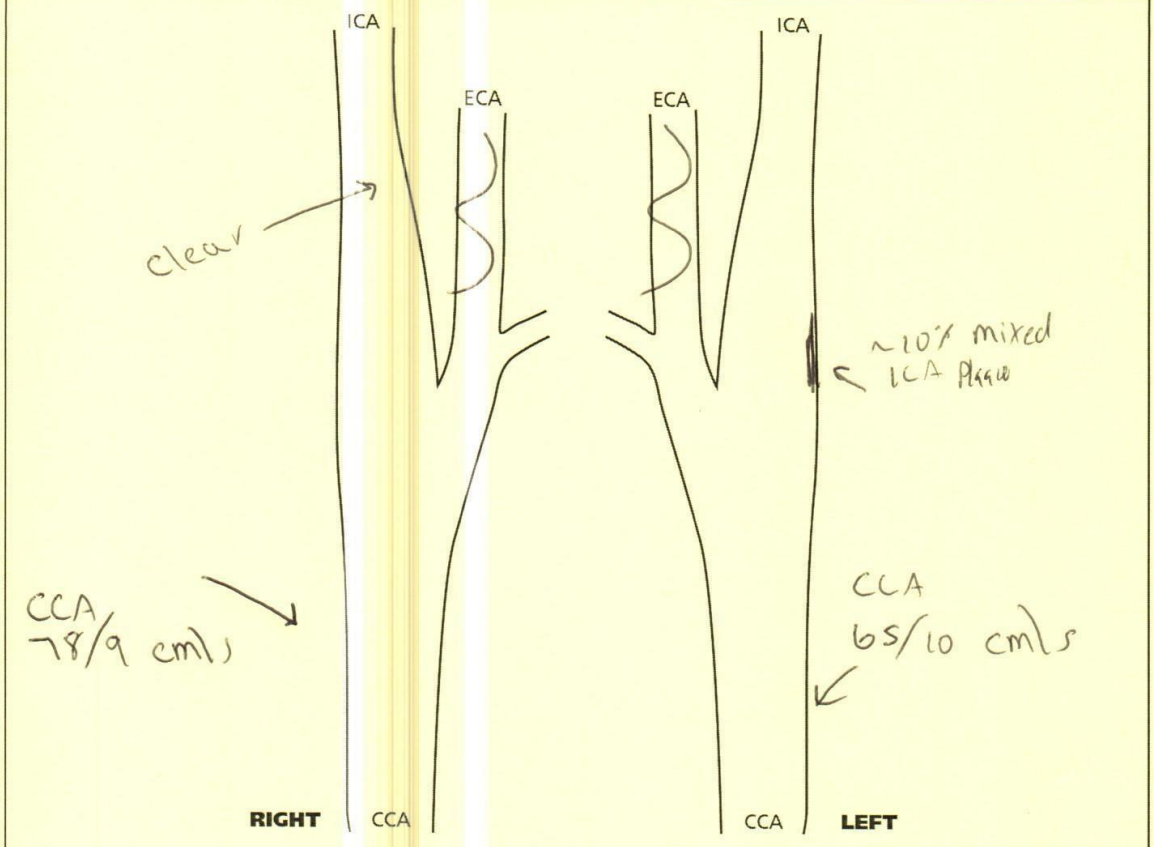
CONSULTANT:

DEPT: TIA

CLINICAL HISTORY: Unable to Scan 20 min

HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	66	11	Fwd
LEFT	10	64	14	Fwd



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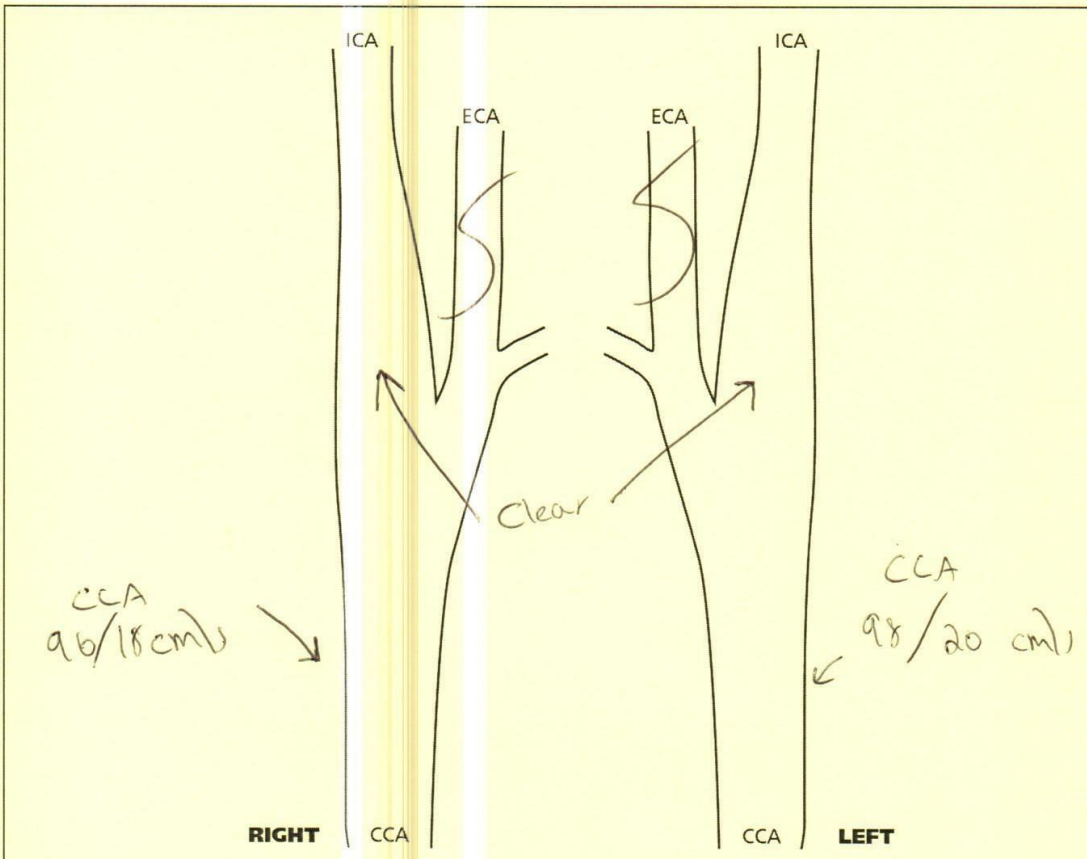
CAROTID DUPLEX SCAN REPORT

CONSULTANT DEPT: TIA

CLINICAL HISTORY: (R) leg weakness HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	93	31	Fwd
LEFT	0	75	26	Fwd



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CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: HOSPITAL: R1

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	61	26	Fwd
LEFT	0	69	31	Fwd

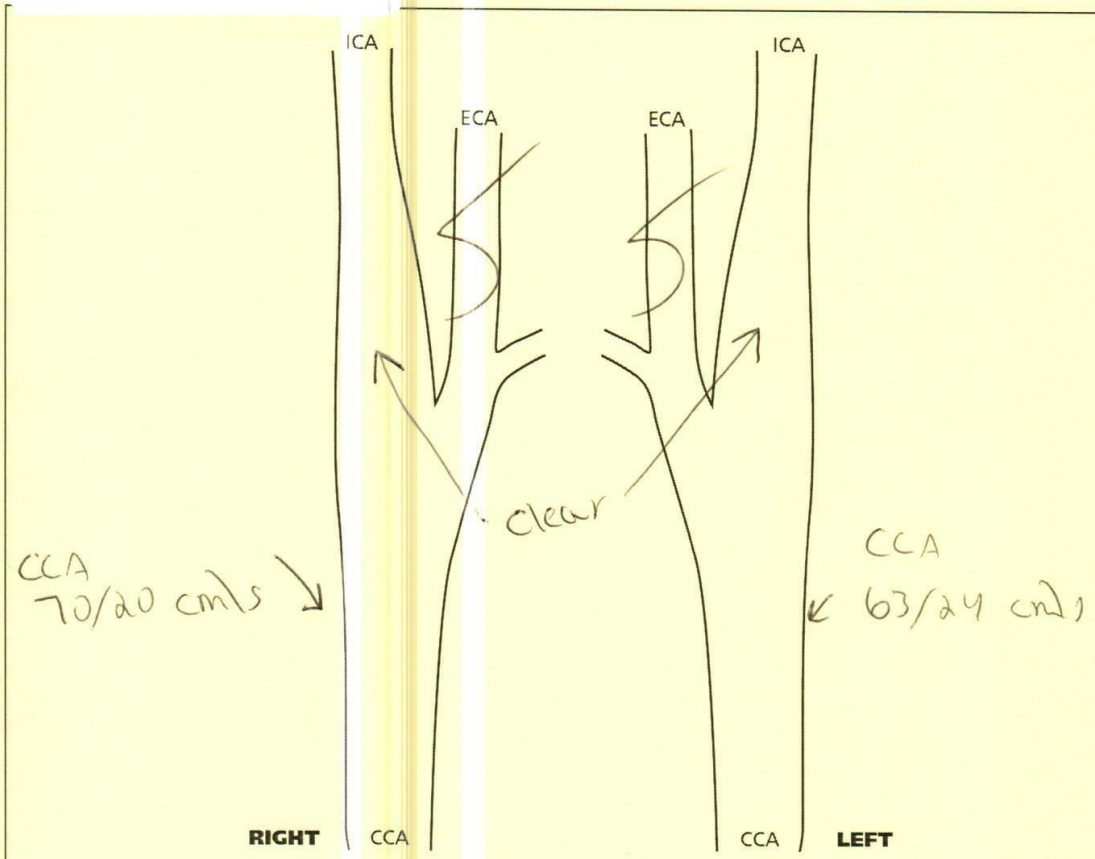

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IMAGE QUALITY: GOOD (X) ( ) ( ) POOR

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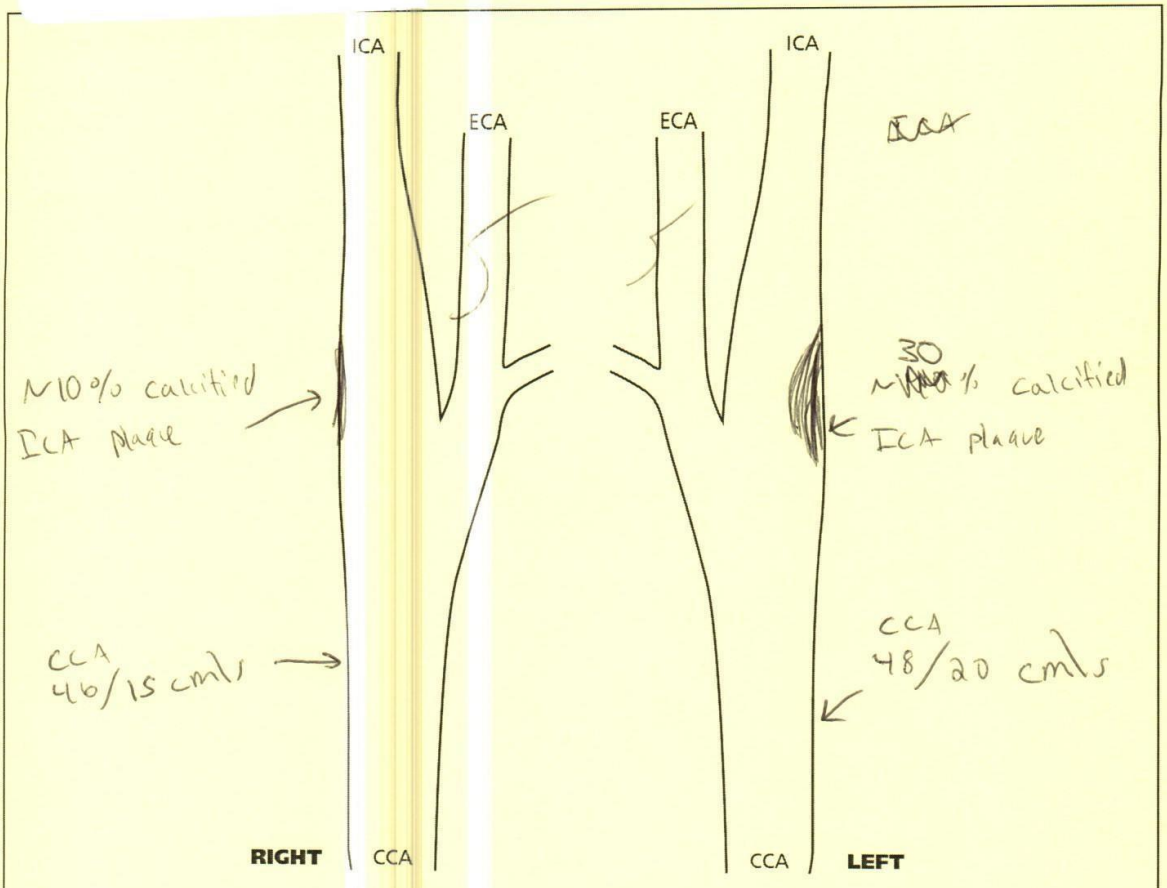
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: L arm weakness HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	10	42	17	Fwd
LEFT	30	84	33	Fwd



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CAROTID DUPLEX SCAN REPORT

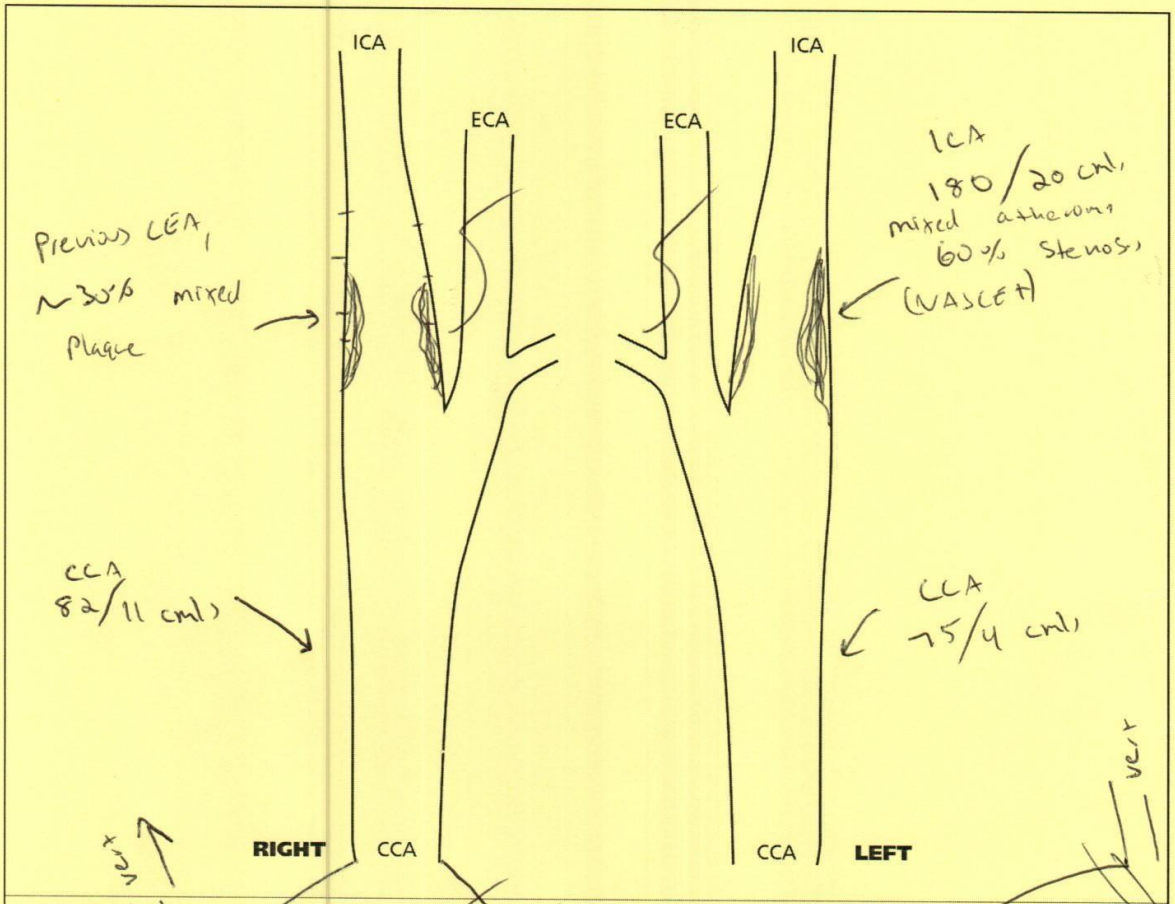
CONSULTANT:

DEPT: OP

CLINICAL HISTORY: Surveillance

HOSPITAL: GH

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	30	124	15	FLW
LEFT	60	180	20	FLW



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PRINT NAME: Alex Park DATE: 3-4-23

IMAGE QUALITY: GOOD (X) ( ) ( ) POOR

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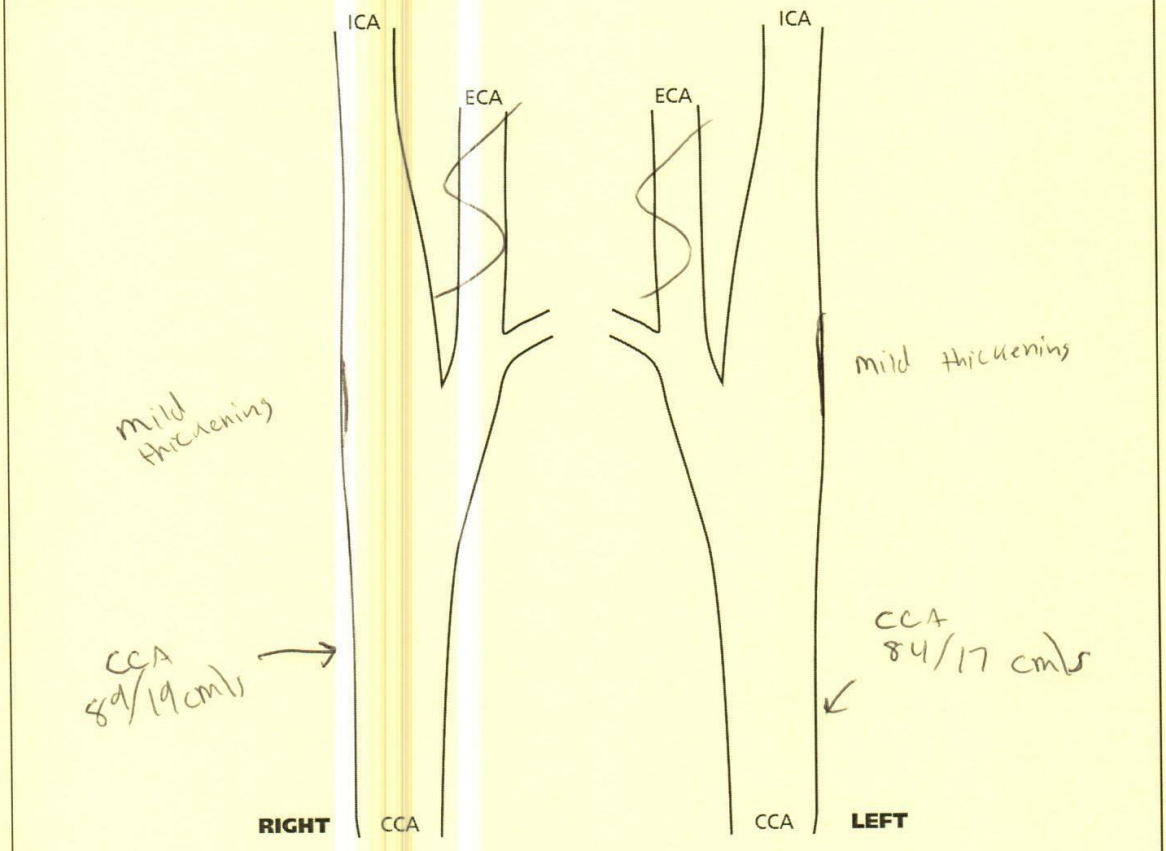
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: L eye blurry vision HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	50	13	Fwd
LEFT	0	56	17	Fwd



COMMENTS:

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pa[illegible] DATE: 27-3-23

IMAGE QUALITY: GOOD (7) ○ ○ POOR

(Walker)5171144KR

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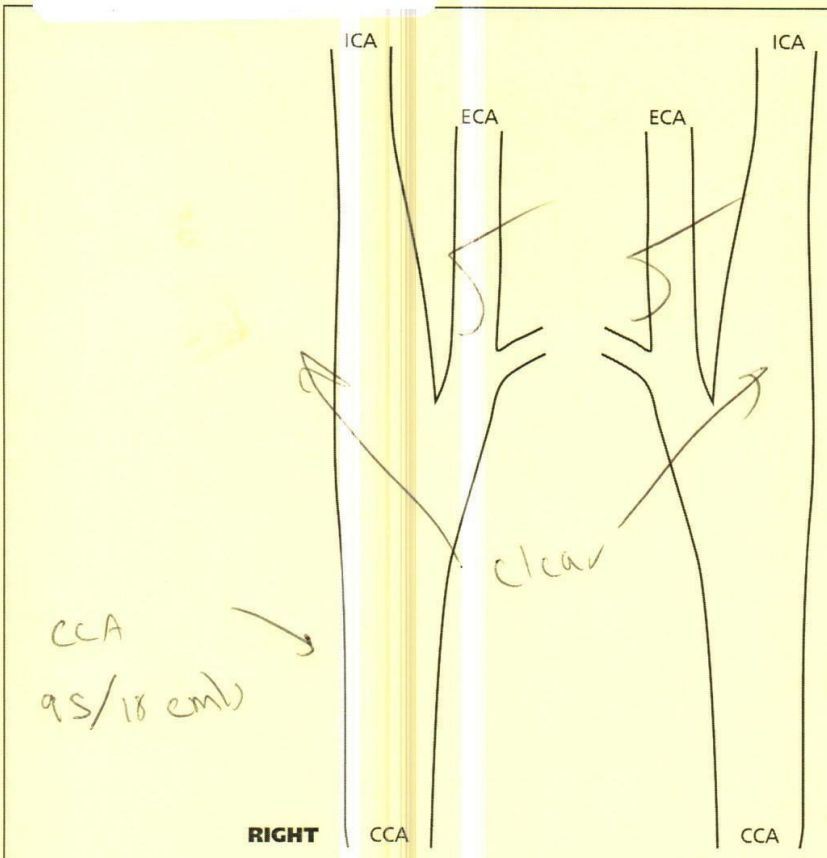
CAROTID DUPLEX SCAN REPORT

S
F
D
U

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: unsteady walking HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	55	19	Fwd
LEFT	0	53	21	Fwd



COMMENTS:

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pass DATE: 5/4/23

IMAGE QUALITY:
GOOD (X) ( ) ( ) POOR

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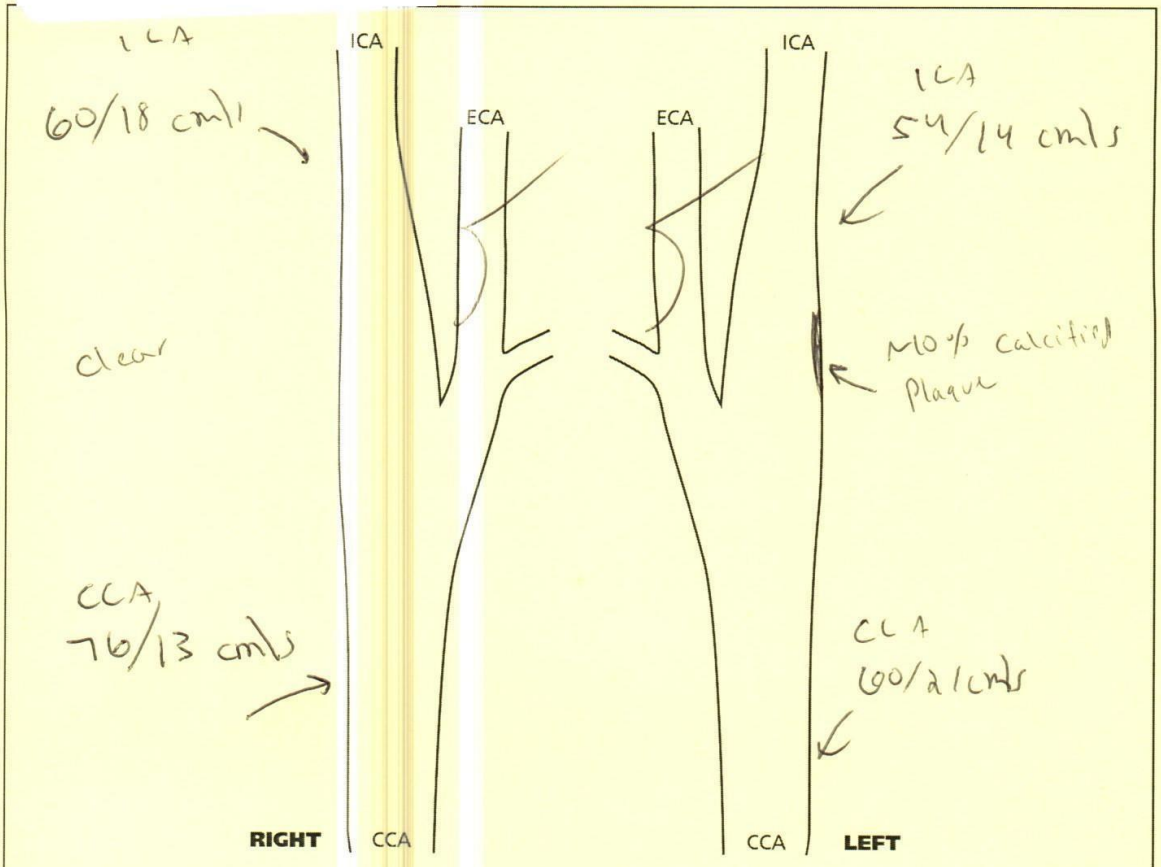
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: L hand face numbness HOSPITAL: A.

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	60	18	Fwd
LEFT	10	54	14	Fwd



COMMENTS:

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pason DATE: 27-3-23

IMAGE QUALITY: GOOD (X) ( ) ( ) POOR

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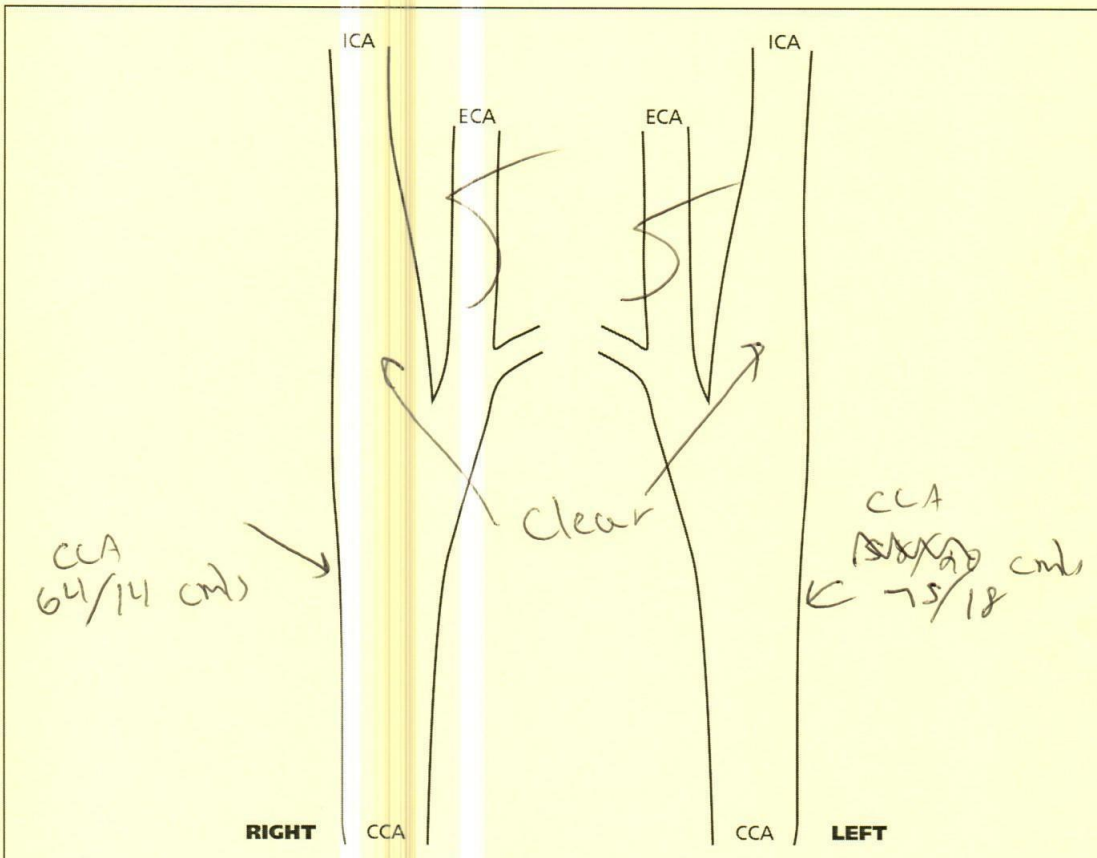
CAROTID DUPLEX SCAN REPORT

CONSULTANT DEPT: TIA

CLINICAL HISTORY: LSW HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	58	20	Fwd
LEFT	0	62	27	Fwd



COMMENTS:

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pain DATE: 27-3-23

IMAGE QUALITY: GOOD ⊗ ○ ○ POOR

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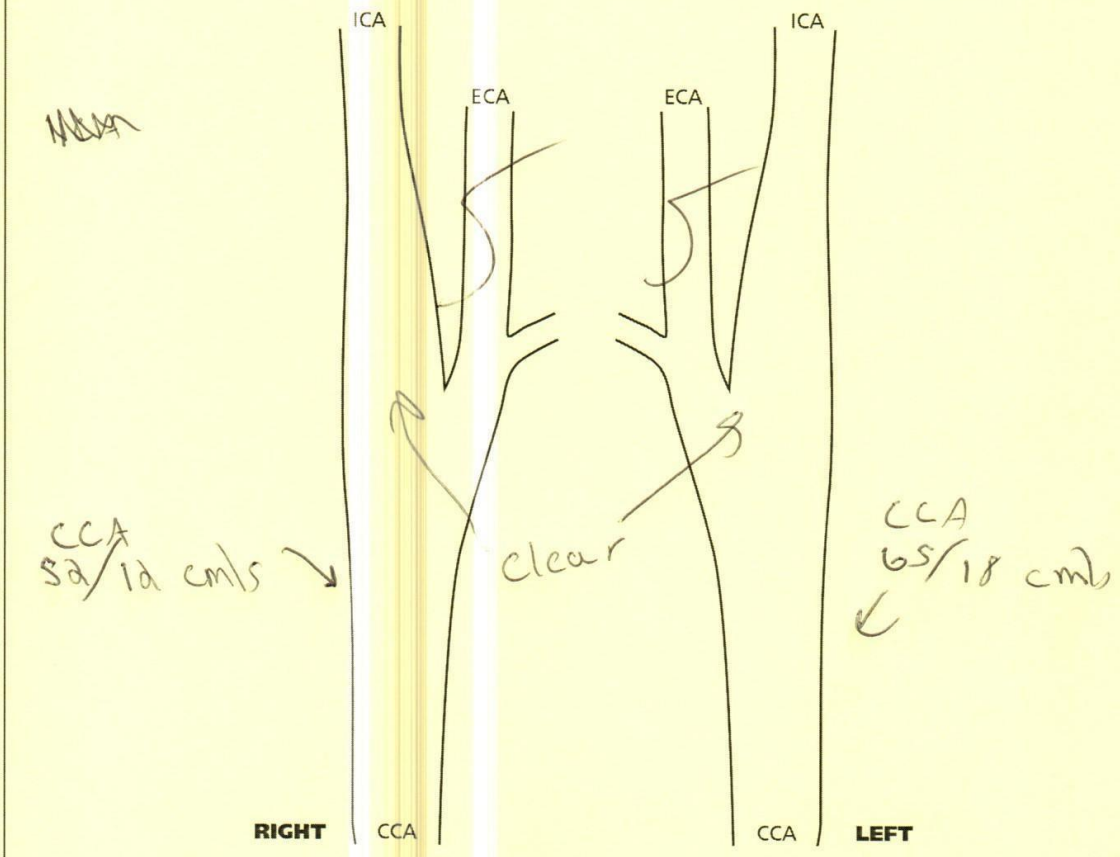
CAROTID DUPLEX SCAN REPORT

S
F
D
U

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: TIA HOSPITAL: RLI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	72	24	Fwd
LEFT	0	62	20	Fwd



COMMENTS:

SIGNED: CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Parsons DATE: 27-2-23

IMAGE QUALITY: GOOD ⊗ ○ ○ POOR

(Walker)5171114KR

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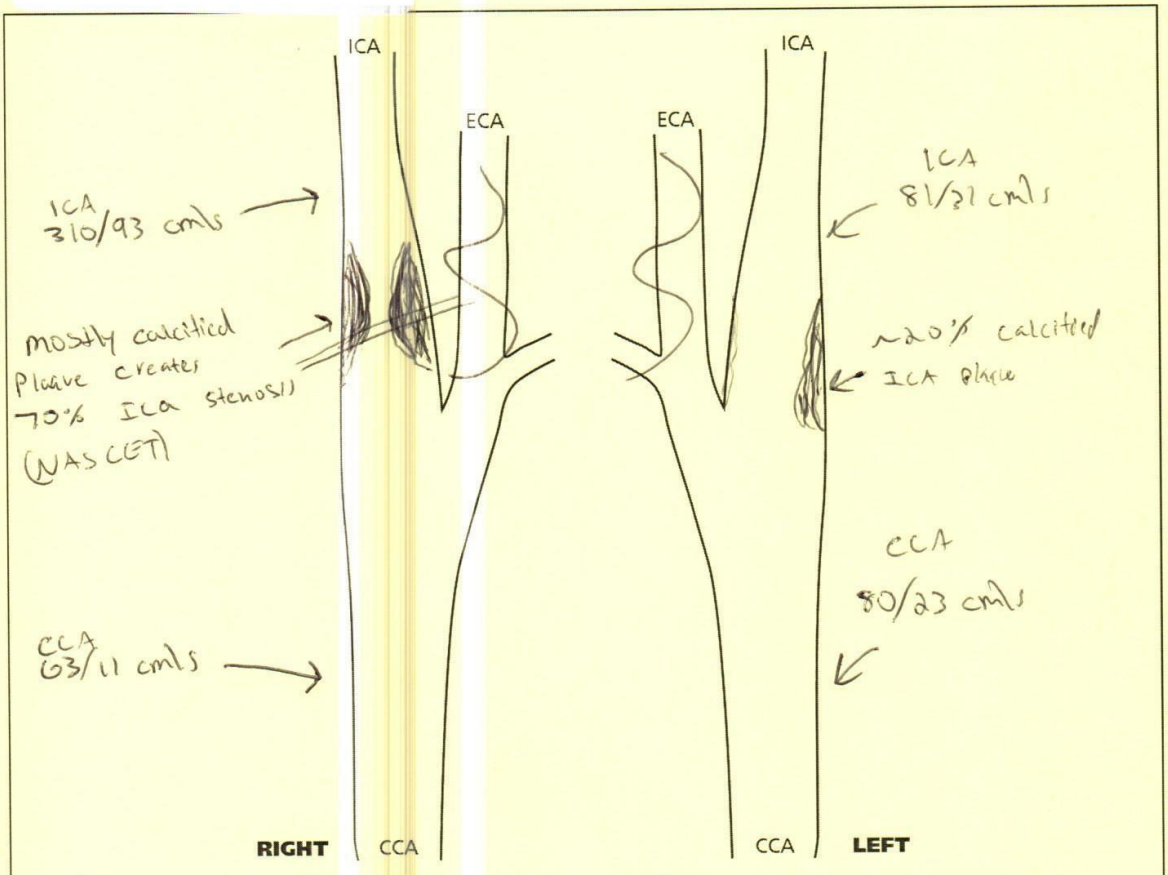
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: R 25

CLINICAL HISTORY: Stroke HOSPITAL: R1
R side infarct on CT, acute

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	70	310	93	Fwd
LEFT	20	81	31	Fwd



COMMENTS:

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pason DATE: 27-3-23

IMAGE QUALITY: GOOD ◯ (X) ◯ POOR

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CAROTID DUPLEX SCAN REPORT

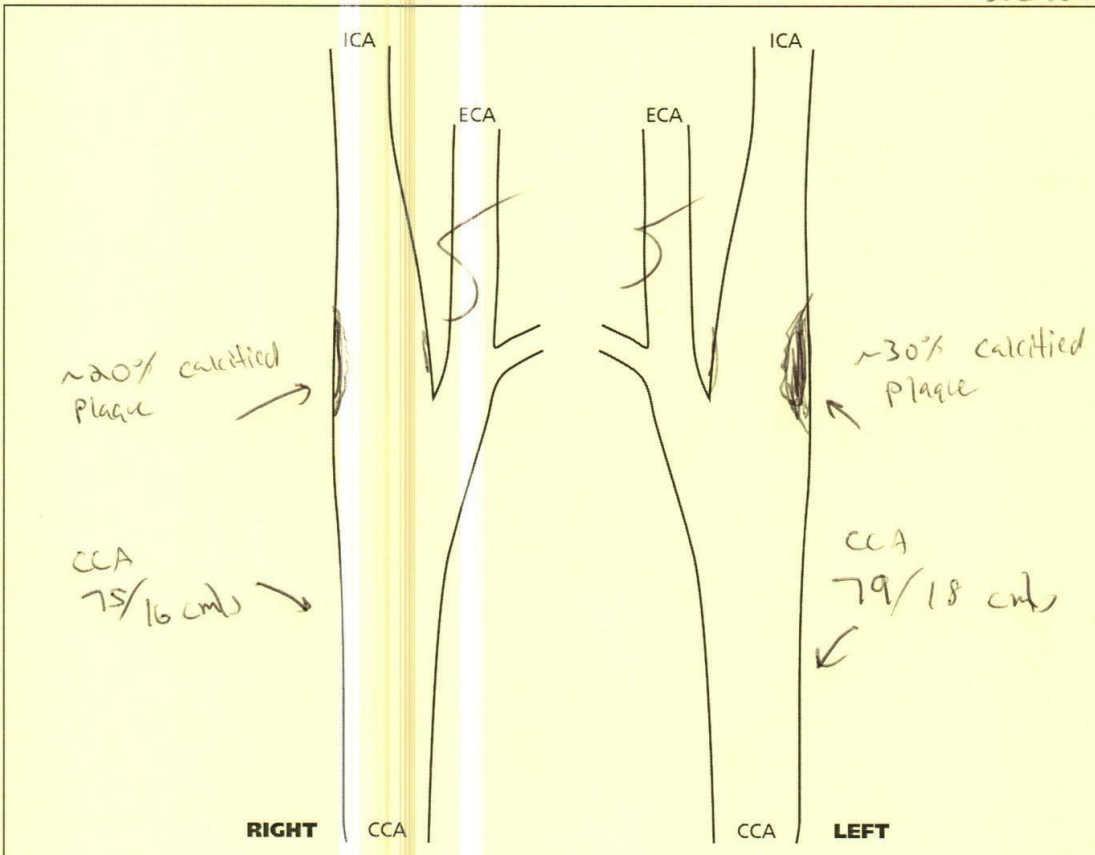
[redacted]

CONSULTANT: [redacted] DEPT: TIA

CLINICAL HISTORY: L occipital lobe infarct HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	20	61	16	Fwd
LEFT	30	75	21	* Fwd

see comment



COMMENTS:

(L) * Significant ~~calcified~~ mixed echogenicity plaque within vertebral artery. Flow is only seen with spectral Doppler, can't fully exclude an occluded vertebral artery with flow from a nearby collateral detected on ultrasound. Alternate imaging recommended if needed

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pason DATE: 5/4/23

IMAGE QUALITY: GOOD ◯ (X) ◯ POOR

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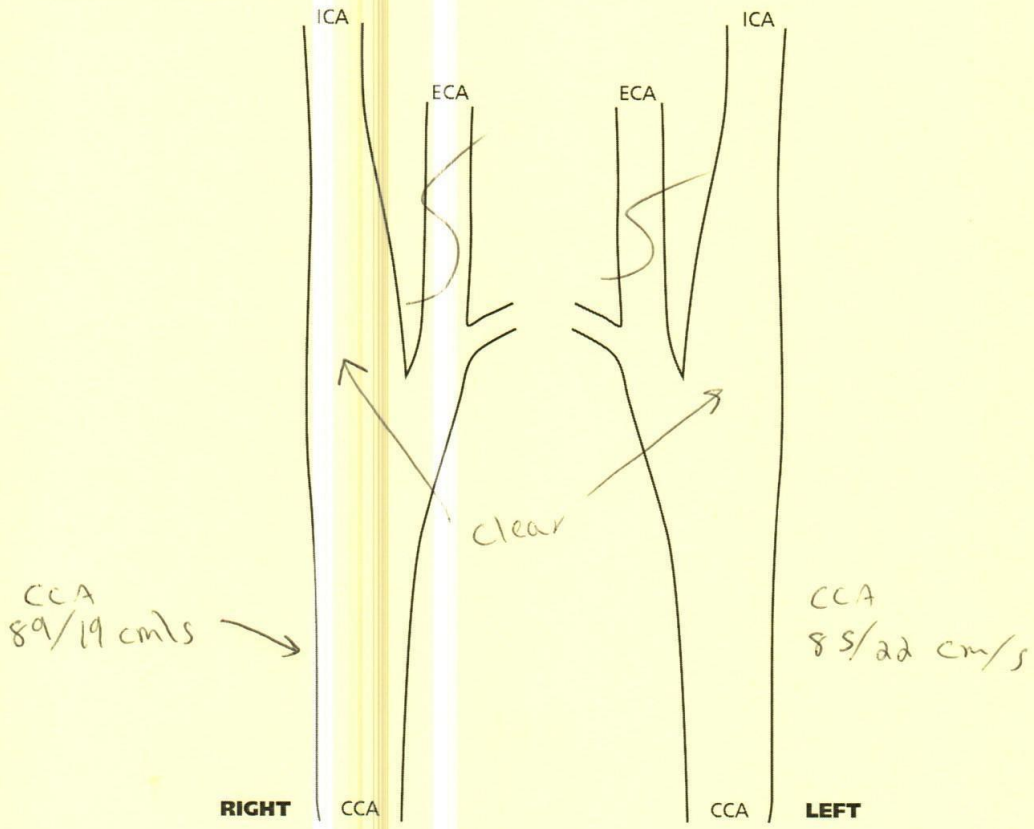
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: L hand weakness HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	41	18	Fwd
LEFT	0	50	24	Fwd



COMMENTS:

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pa[illegible]son DATE: 5/4/23

IMAGE QUALITY: GOOD (X) ( ) ( ) POOR

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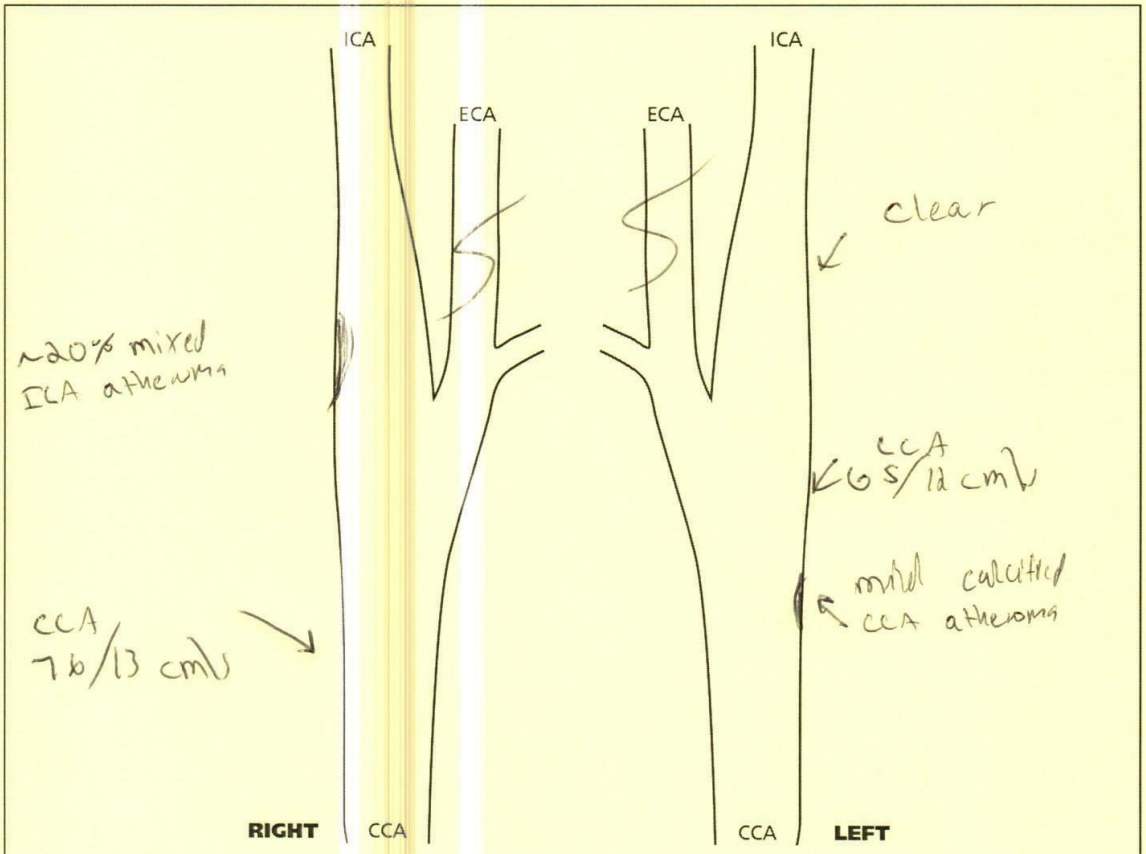
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: loss of speech HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	20	74	12	Fwd
LEFT	0	57	15	Fwd



COMMENTS:

SIGNED: CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pa DATE: 07-3-21

IMAGE QUALITY: GOOD ✓ ○ ○ POOR

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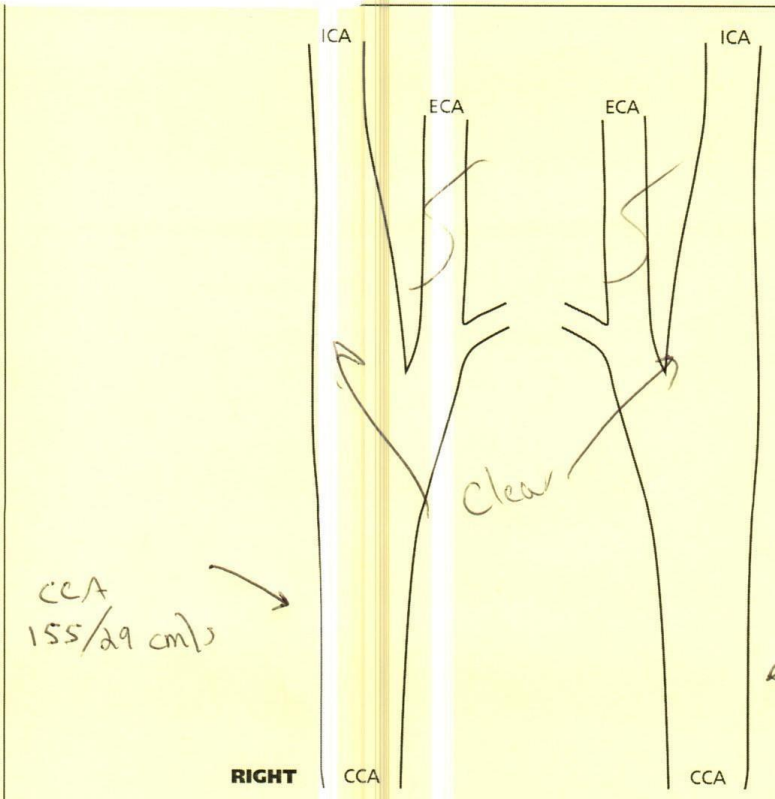
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: loss of power (R) arm HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	69	24	Fwd
LEFT	0	100	27	Fwd



COMMENTS:

SIGNED: _____ *CLINICAL VASCULAR SCIENTIST*

PRINT NAME: Alex Pass DATE: 5/4/21

IMAGE QUALITY: GOOD (X) ( ) ( ) POOR

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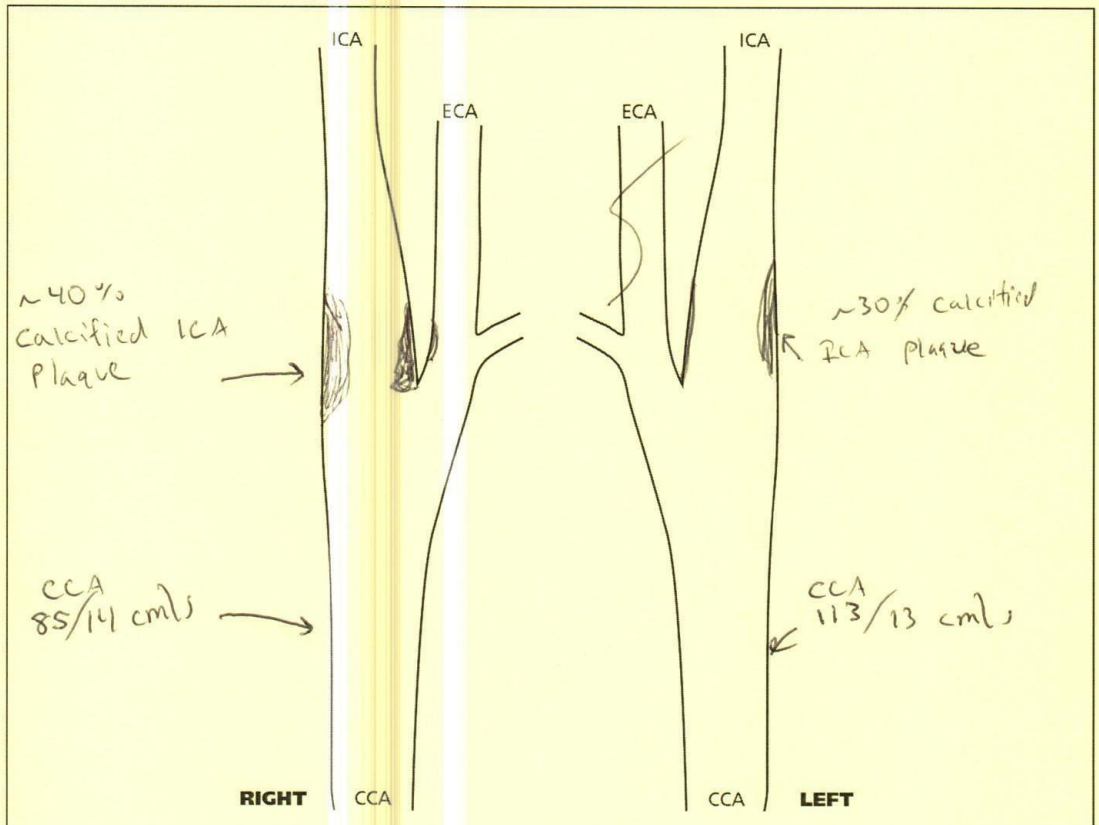
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: TIA

CLINICAL HISTORY: Speech, disoriented HOSPITAL: RI

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	40	115	11	Fwd
LEFT	30	79	18	Fwd



COMMENTS:

SIGNED: CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pass DATE: 27-3-23

IMAGE QUALITY: GOOD (X) POOR

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CAROTID DUPLEX SCAN REPORT

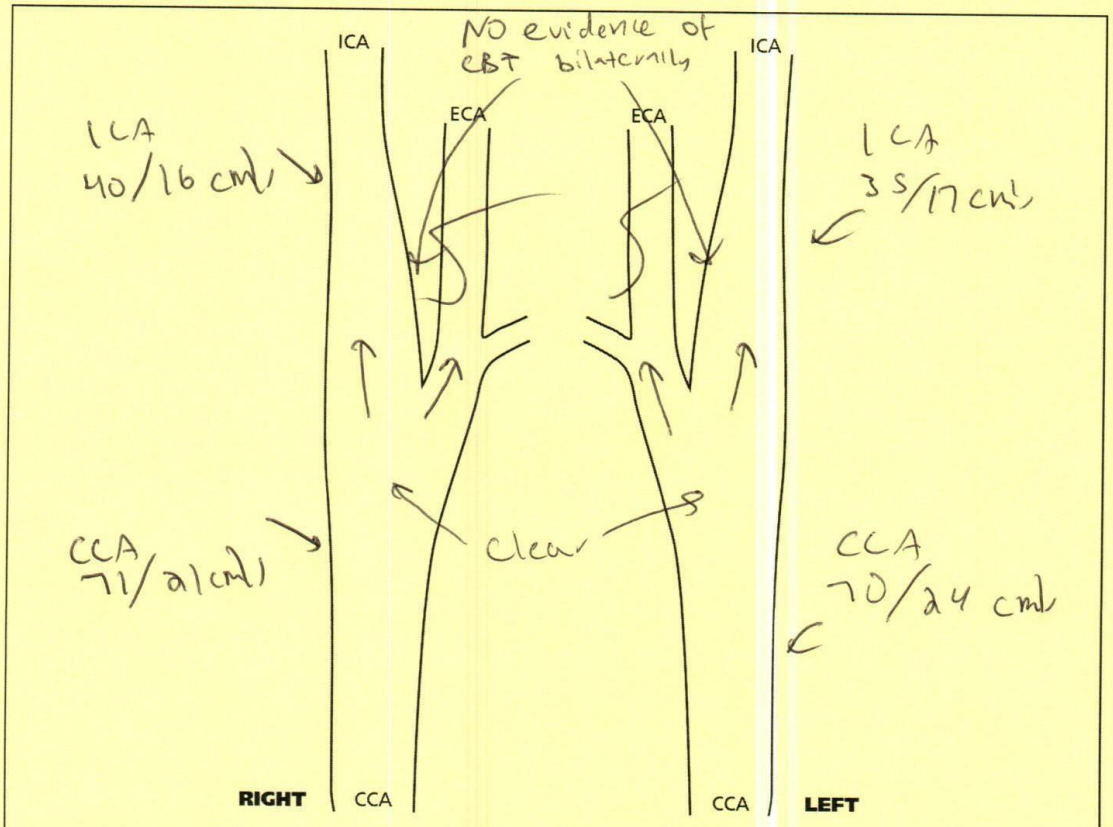
CONSULTANT:

DEPT: GH

CLINICAL HISTORY: R CBT removal 2020

HOSPITAL: USV

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	0	40	16	Fwd
LEFT	0	35	17	Fwd



COMMENTS: 1d MO follow up booked for March 15, 2024 at 2:30

Patient continues to report discomfort at scar site on right side of neck

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pash DATE: 24-2-23

IMAGE QUALITY: GOOD (X) ( ) ( ) POOR

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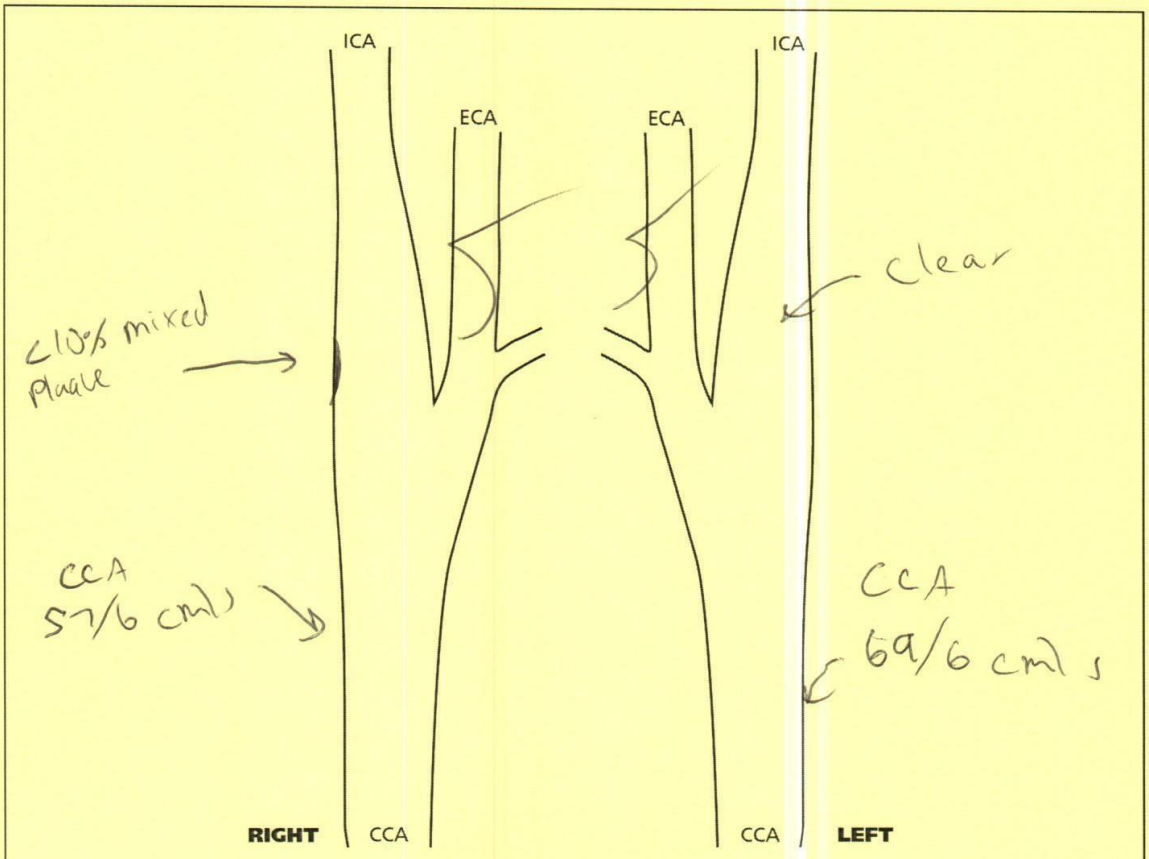
CAROTID DUPLEX SCAN REPORT

CONSULTANT: DEPT: 33

CLINICAL HISTORY: pre-CABG HOSPITAL: GH

SUMMARY	%STENOSIS	ICA PSV cm/s	ICA EDV cm/s	VERTEBRAL FLOW
RIGHT	<10	48	11	Fwd
LEFT	0	65	15	Fwd



COMMENTS:

SIGNED: _____ CLINICAL VASCULAR SCIENTIST

PRINT NAME: Alex Pason DATE: 21-3-23

IMAGE QUALITY: GOOD (X) ( ) ( ) POOR

(Walker)5171144KR