LOWER LIMB ARTERIAL ASSESSMENT

Arterial SCANNER SETTING:

5-8MHz PROBES:

PATIENT POSITION

Supine with support for head and neck.

DISEASE GRADING

ultrasound, colour flow and spectral Doppler waveform analysis Three factors are used to grade atheroma when scanning, appearance or

Normal: - Walls of vessels should be smooth with intima seen but may have first signs of atheroma with fatty streaks or calcification within the wall. Colour flow should be uniform to the walls of the vessel. The Doppler waveform should be tri-phasic with clear definition of frequencies

Peak Systolic Velocity (PSV). broadening and may still be bi-phasic but giving less than 2 times increase in Doppler waveform may exhibit some flow disturbance with spectral than 30% diameter reduction, with some colour flow disturbance. Minor/mild: -Irregular walls to the vessel due to atheroma causing less

but mono-phasic. to the area of significant disease the Doppler waveform may still be pulsatile more damped and mono-phasic the Doppler waveform post stenosis. Distal causing at least 2 times increase in PSV. The more severe the stenosis the stenoses may still have bi-phasic Doppler waveforms post stenosis, but Significant: - Atheroma clearly evident causing significant reduction in diameter. Significant colour flow disturbance with aliasing. Localised mild

Colour flow Doppler will help to distinguish this. Distal to the area of severe atheroma the Doppler waveform will be very damped and mono-phasic. be multiple tight stenoses or a long stenosis with just a residual lumen. appear occluded without the use of colour flow Doppler. Severe disease may Heavily congested with atheroma to the extent that it may

to age of disease. No colour flow Doppler or Doppler waveforms detected. Atheroma throughout and may appear small in calibre due

3 times increase is a mild stenosis and >3 times increase in PSV significant. area of minimal disease. A PSV is then measured in the jet of the stenosis. The stenosis PSV is then divided by the proximal PSV to obtain a ratio. 2 to the PSV just proximal to the stenosis in a preferably disease free area or Stenosis grading: - Calculating increase in PSV's is performed by measuring

MAGES AND REPORTING:

and when assessing stenoses. Assess level of calcification as whether in of atheroma measure the lumen diameter (unless there is stenoses of =>3x SFA into proximal, mid and distal thirds. For each segment from the CFA to plaque. Measure the length of any occlusions and if short (<10cm) location in walls only or heavily calcified plaque. When possible assess the type of PSV). Obtain images as necessary with descriptive text of what was seen the popliteal artery measure the diameter of the vessel and in the presence When obtaining images ensure that the correct side and site is recorded. Note any abnormalities or incidental findings. For reporting purposes split the

SCANNING TECHNIQUE

Al segment

- the level of the umbilicus. Identify the Abdominal aorta and IVC. To help identify the Abdominal aorta look for the SMA origin and also the bifurcation. Start in a transverse view in B-mode, along the midline just above
- and noting the orientation of the CIAs. abdominal aorta. Identify the bifurcation, assessing for aneurysmal disease Assess for aneurysmal disease by scanning the length of the
- and CIA's in longitudinal view ensuring the walls of the vessels are clearly Obtain measurements of the AP diameters of the Abdominal aorta
- present assess with the pulsed Doppler, grading any disease present flow disturbance or aliasing along the lengths of the aorta, CIAs and EIAs. If Switch on the colour Doppler and repeat the scan looking for any

IC April 2012

Femoral - Populated segment

- 1. At the level of the inguinal ligament place the probe in a transverse plane. Identify the common-femoral artery and vein and the bifurcation into the superficial-femoral and profunda arteries. Assess the common-femoral artery throughout its length in transverse plane. If no stenotic atheroma obtain a Doppler waveform from the middle of the vessel.
- If necessary return to a transverse view to identify the profunda artery. Assess the ressel as far as possible in the thigh and obtain a Doppler waveform.
- 3. Return to the bifurcation and identify the origin of the superficial-femoral artery. Assess the vessel throughout its length, flexing the knee and externally totating it as necessary. Obtain Doppler waveforms from the proximal and distal segments.
- 4. With the probe in a transverse view, identify the popliteal artery from behind the knee in the popliteal iossa. Assess the vessel throughout it's length in a tongitudinal view by scanning proximally ensuring overlap with the distal SFA fact ductor scan and then scan distally to identify the tibio-peroneal trunk. Obtain a Doppler waveform from the distal popliteal artery.

Tibial segment

- Identify the origins of each of the tibial vessels and assess with the pulsed Doppler obtaining images from each.
- 2. Whilst in longitudinal view follow the posterior tibial artery from the tibio-peroneal trunk, distally to the level of the malleoli along the medial aspect of the tibia. Assess with pulsed Doppler as necessary and obtaining images. To add in the identification ensure the posterior tibial runs to the medial malleolus, if necessary start scan of PT from malleolus.
- 3. Return to the tibio-peroneal trunk and assess the peroneal artery throughout it's length to the ankle. The peroneal artery lies deep to the posterior tibial artery in medial view and also deep to the anterior tibial in lateral view.
- 4. Assess the anterior-tibial artery on the anterio-lateral aspect of the lower leg throughout its tength and that it feeds the dorsalis pedis directly.

IC April 2012

5. If there is severe disease demonstrated proximally take AP diameter measurements of the patent tibial arteries proximally and distally.

Arterial Duplex

12/11/2018	405070111	
MARKET AND AND A SECTION OF	106372114	LLLA
14/11/2018	409702110	LLLA (Fem -pop and calf)
15/11/2018	604502230	BLLA
21/11/2018	1411452313	LLLA
21/11/2018	804442053	LLLA
21/11/2018	191031111	BLLA
27/11/2018	202322084	LLLA
13/12/2018	1905402015	LLLA
10/01/2018	1409262138	BLLA
13/12/2018	1401482058	LLLA
18/12/2018	801525233	RLLA
18/12/2018	308325257	BLLA
18/12/2018	211442003	LLLA
19/12/2018	1012402134	CFA/SFA
31/12/2018	2112502190	LLLA
08/01/2019	1212442121	LLLA
17/01/2019	1301442151	BLLA
22/01/2019	1906412146	LLLA
23/01/2019	1302392034	BLLA
23/01/2019	3103712510	LLLA fem - (pop ATA and PTA)
29/01/2019	3108322125	LLLA (Fem -pop and calf)

Consultant: Mr By



Ward 215

Episode date 12/11/2018 Ward Outpatient

Patient:

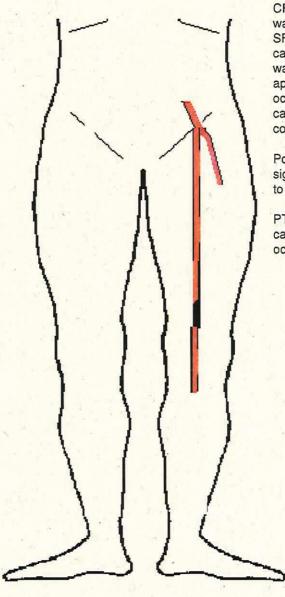
Unit Number 0364435

CHI

0106372114

Tests performed: Left Leg Arterial Duplex

Results:



CFA - triphasic dopller waveform with mild disease, SFA prox - 2/3 the veseel is calcified with a biphasic waveform, the distal SFA appears to have a 3cm occlusion the vessel is calcified making it difficult to confirm.

Popliteal proximally have a significant stenosis (x5) distally to this the vessel is calcified.

PTA appears patent bu calcified. ATA appears occluded at the foot.

Scanned By:- Heather Lynn Trainee Clinical Scientist

12/11/2018

101681

Consultant:

Mr B.Renwick
Vascular Surgeon
Ward 215

Episode date 14/11/2018

Ward Outpatient

Patient:

Mr. Grandm/Ballintyne

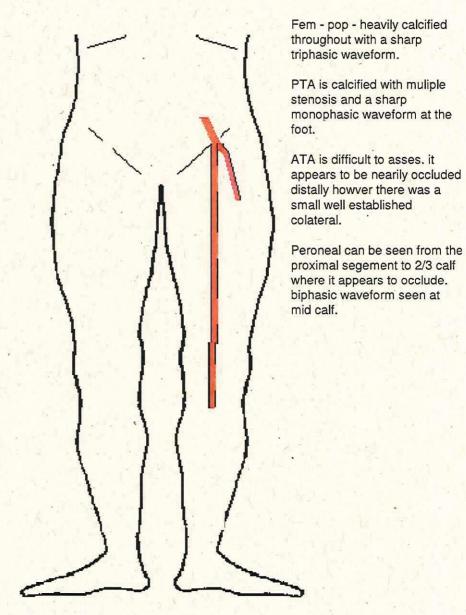
Unit Number 0609278

CHI

0409702110

Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynn Trainee Clinical Scientist

14/11/2018

101701

Consultant:

Episode date 15/11/2018 Ward Outpatient

Patient:
Mr. Mishisa Taylun

Unit Number 060450

CHI 0604502230

Tests performed: Bilateral Arterial Legs Duplex

Results:

Aorta - size appears within normal limits moderate disease at the CIA/EIA and ICA bifurcation.

CFA - mild/moderate disease with a biphasic doppler waveform.

Profunda - moderate diffused disease however well established.

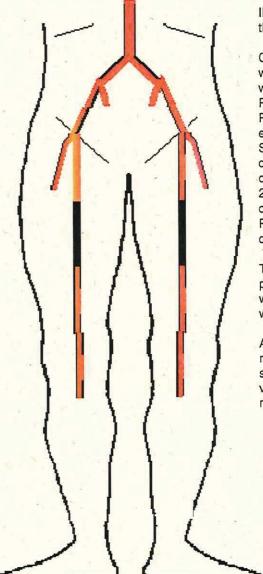
SFA - proximally moderate disease at 1/4 thigh the vessel occluded and reconstitutes at 2/3 thigh. there was moderate disease distally.

Popliteal calcified moderate disease.

PTA - calcified and small in calibre, flkow was seen from the origin to 2/3rds calf, distally no flow detected.

peroneal not imaged ?occlusion/calcified.

ATA - Mild calcified with a



Iliac moderate disease throughout.

CFA - mild/moderate disease with a biphasic doppler waveform.

Profunda - proximal stenosis PSV's 310cm/sec and is well established.

SFA - proximally moderate disease at 1/4 thigh the vessel occluded and reconstitutes at 2/3 thigh, there was moderate disease distally.
Popliteal calcified moderate

Popliteal calcified moderate disease.

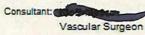
The PTA and peroneal are patent and calcified throughout with a damped monophasic waveform at the foot.

ATA - open proixmally, could not be imaged in the mid segment however distally the vessel is patent damped monophaisc.

Scanned By:- Heather Lynn Trainee Clinical Scientist

15/11/2018

101713



Ward 215 ARI

Episode date 21/11/2018 Ward Outpatient

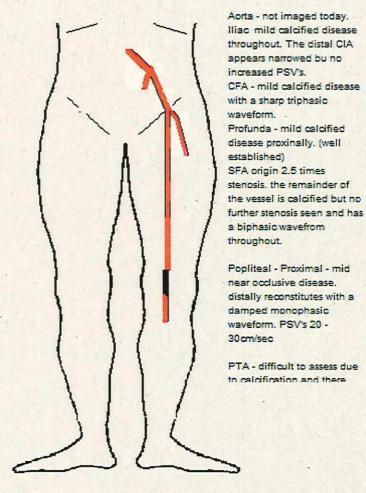
Patient: Mr.

Return

Unit Number 2155604 CHI 1411452313

Tests performed: Left Leg Arterial Duplex

Results:



Heather Lynn Trainee Clinical Scientist

07/12/2018

101772

Return

Consultant: Vascular Surgeon

Ward 215 ARI

Episode date 21/11/2018 Ward Outpatient

Unit Number 0968456

CHI 0804442053

Tests performed: Left Leg Arterial Duplex

Results:

with this in mind -

Calcified vessel throughout

Aorta - 19mm with mild disease throughout. Iliac mild/moderate disease throughout with a sharp biphaisc waveform that extends into the CFA. Profunda reduced diameter at the origin ~50%. SFA -Origin stenosis ~2 times and there is a further 2 - 3 times stenosis in the mid segment. poplical - calcified walls with a sharp biphaisic waveform.

PTA and peroneal have moderate disease proximally and a small channel of flow ~1 mm in diameter.

ATA - moderate disease proximally with a good calibre ~ 3mm throughout and is patent to the foot with a good sharp monophasic

Heather Lynn Trainee Clinical Scientist

27/11/2018

101773

Consultant:

Episode date 21/11/2018

Ward Outpatient

Patient:

Mr. Ronald Sangajar

Unit Number 0203360

CHI

1910311111

Tests performed: Bilateral Arterial Legs Duplex

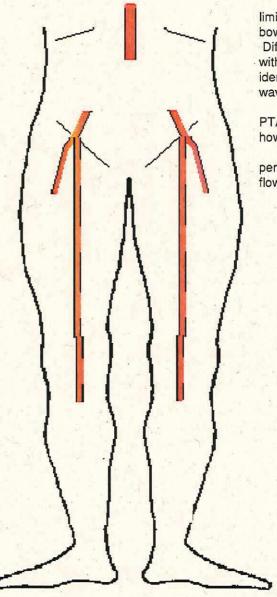
Results:

aorta - 19mm. limited view of iliac due to bowel gas.

Diffused disease throughout with no significant stenosis identified with a tri/biphasic waveform.

PTA - calcified and unable to show flow.

ATA - calcfied with a 4 times stenosis proximally.



limited view of iliac due to bowel gas.

Diffused disease throughout with no significant stenosis identified with a tri/biphasic waveform.

PTA and ATA are calcified however patent.

peroneal - calcified with no flow detected.

Scanned By:- Heather Lynn Trainee Clinical Scientist

21/11/2018

101767

Consultant:

Vascular Surgeon Ward 215 ARI

Episode date 27/11/2018 Ward Outpatient

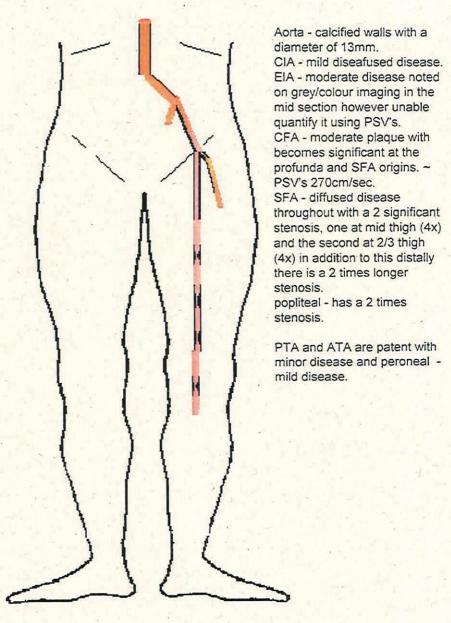
Patient:

Unit Number 0309901

CHI 0202322084

Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynn Trainee Clinical Scientist

27/11/2018

101823

Consultant:

Mr Haider

Episode date 13/12/2018

Ward
Outpatient

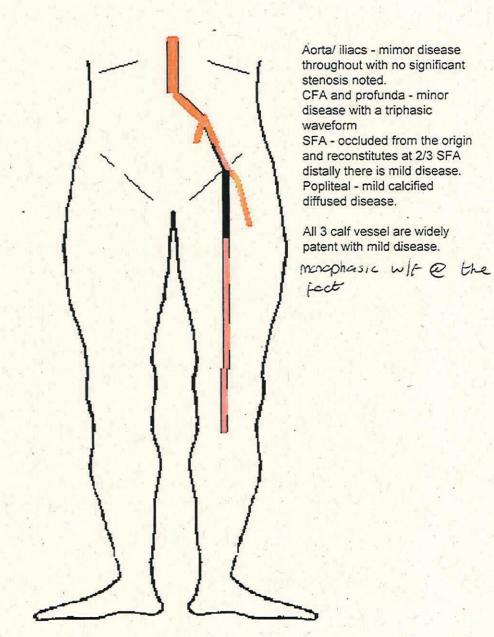
Patient:

Unit Number 0492128

СНІ 1905402015

Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynn tynnhe 13/12/2018 Trainee Clinical Scientist

Consultant:

Episode date 10/01/2019

Ward

Patient:

Tests performed:

Unit Number 0220113

CHI

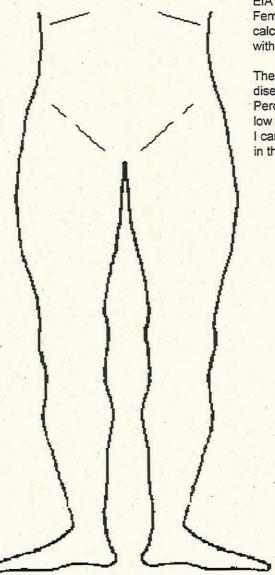
1409262138

Results:

Aorta - mild calcified disease and within normal size, CIA not imaged due to bowel gas. EIA - mild calcified disease. CFA - mild calcified disease with moderate disease at the bifurcation.

SFA and popliteal - mild calcified disease throughout with a biphasic wavefrom.

There is significant calcified disease in all 3 calf vessel however the ATA and peroneal appear widely patent.



EIA - mild calcified disease. Fem - pop segment has mild calcified disease throughout with a biphasic wavefrom.

There is significant calcified disease in the calf vessel Peroneal appears patent with low PSV's 20cm/sec however I can not show continuous flow in the PTA and ATA.

Scanned By:- Heather Lynn Trainee Clinical Scientist

102279

Consultant:

Episode date 13/12/2018

Ward Outpatient

Patient:

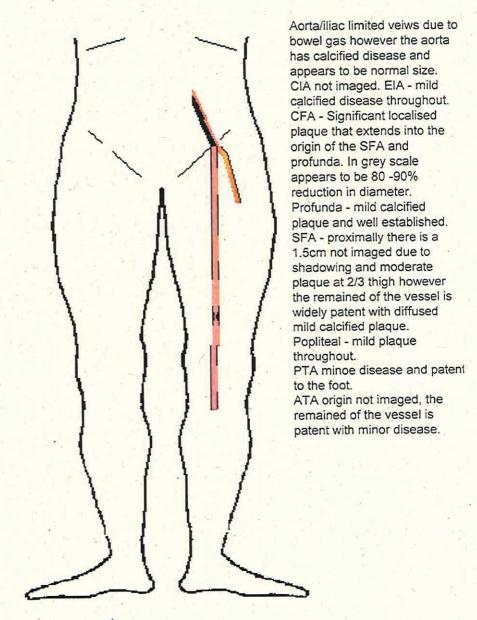
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Unit Number 0387718

CHI 1401482058

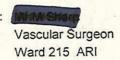
Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynnlynnhe 13/12/2016 Trainee Clinical Scientist

Consultant:



Episode date 18/12/2018

Ward Outpatient



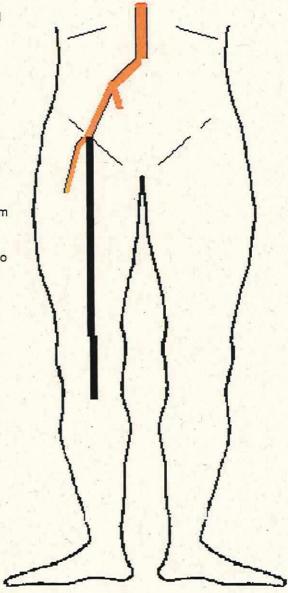
Unit Number 2216029

CHI 0801525233

Tests performed: Right Leg Arterial Duplex

Results:

Aorta - appears within normal size (20mm). The aorta was difficult to image. iliac section has diffused plaque throughout and could not detect significant disease. CFA - moderate calcified plaque with a sharp triphaisc waveform throughout. Prfunda well established with mild dpalque, SFA proximal appears aneurysmal measuring 1.3mm compared to 0.9mm. the remained of the SFA is occluded. The popliteal is also occluded. PTA/ATA origin not seen however both vessel are widely patent. PTA at 1/3 ~ 3mm.



Scanned By:- Heather Lynn Trainee Clinical Scientist

18/12/2018

102053

Return

Consultant: Vascular Surgeon Ward 215

Episode date 18/12/2018 Outpatient



Unit Number 1236252

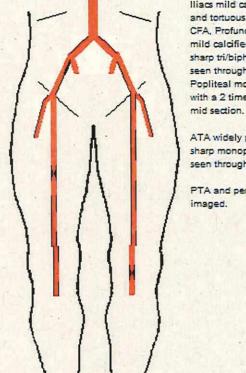
CHI 0308325257

Tests performed: Bilateral Arterial Legs Duplex

Results:

Aorta - 46mm, Iliac calcified and tortuous with a right angle bend in the CIA. CFA - mild disease throughout Profunda well established mild disease. SFA - mild diffused disease with a localised 2 times stenosis at mid thigh. Popliteal moderate calcified with a biphasic wavefrom seen throughout.

calf vessel difficult to image due to swelling and calcification with this in mind the ATA is not in continuity. PTA could not be imaged fully however sharp monophasic wavefrom was seen at the foot. Peroneal narrowed but appears patent.



Iliacs mild calcified disease and tortuous. CFA. Profunds and SFA mild calcified disease with a sharp tri/biphaisic waveform seen throughout Popliteal moderate disease with a 2 times stenosis in the

ATA widely patent with a sharp monophasic wavefrom seen throughout.

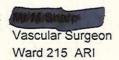
PTA and peroneal not

Heather Lynn/Is Trainee Clinical Scientist

18/12/2018

102084

Consultant:



Episode date 18/12/2018 Ward Outpatient

Patient:

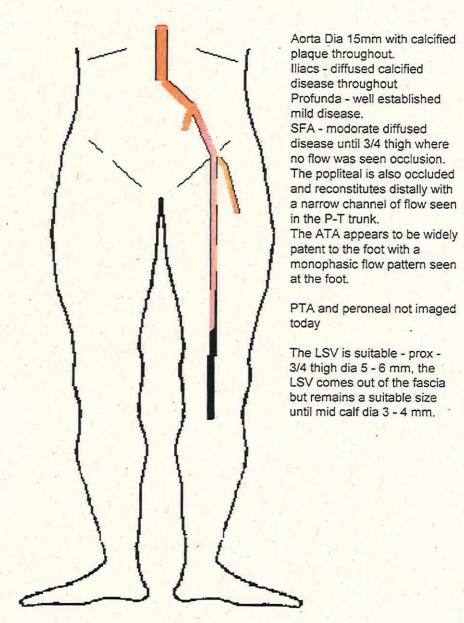
Unit Number 0101023

CHI

0211442003

Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynn Trainee Clinical Scientist

18/12/2018

102054

Consultant:

Vascular Surgeon Ward 215 ARI

Episode date 19/12/2018 Ward Outpatient

Patient:

Unit Number 0663228

CHI

1012402134

Tests performed: Ankle Brachial Indices Left Leg Arterial Duplex

Results:

Brachial

Right 115

Left

There was no false aneurysm seen in the left goin. CFA has moderate calcified disease. The SFA stent is patent throughout with a sharp monophaisc waveform throughout, both ends of the graft imaged and no stenosis noted. PT 86 (0.75) 90 (0.78) PT DP 80 (0.70) DP mmHg

Scanned By:- Heather Lynn Trainee Clinical Scientist

Artefactually high

19/12/2018

102076

Consultant:

Episode date 31/12/2018

Ward Outpatient

Patient:

Mr. Ganestalline-

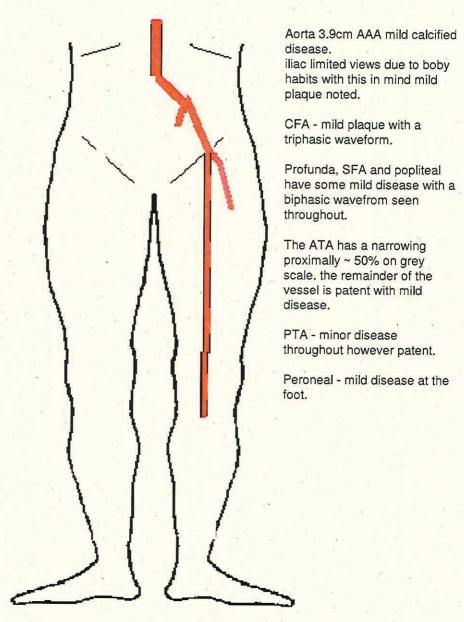
Unit Number 0480398

CHI

2112502190

Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynn Trainee Clinical Scientist

31/12/2018

102160

Return

Consultant:



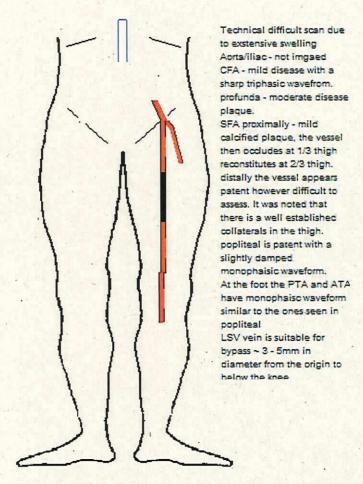
Episode date 08/01/2019 Ward Outpatient

Patient:

Unit Number 0240547 CHI 1212442121

Tests performed: Left Leg Arterial Duplex

Results:



Heather Lynn Trainee Clinical Scientist

08/01/2019

102220

Consultant:

Episode date 17/01/2019 Ward Outpatient

Patient:

Jakru Stather Court

Unit Number 2025910

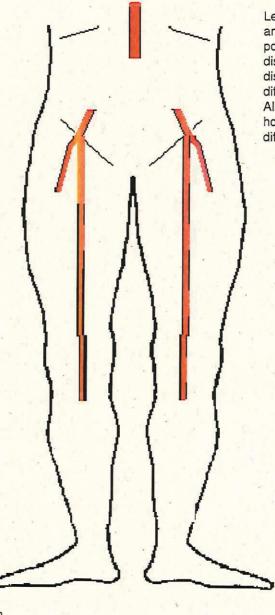
CHI.

1301442151

Tests performed: Bilateral Arterial Legs Duplex

Results:

Right - There was no aneurysms detected in the aorta or popliteal. Iliac mild calcified disease throughout. The Fem - pop segment had mild diffused calcified disease with a sharp biphasic waveform seen throughout. PTA - patent to the foot with mild calcified disease. ATA - prox - 3/4 calf the vessel is patent with mild calcified disease. At 3/4 there is a short occlusion and distally there is a monophasic waveform with PSV's 20cm/sec



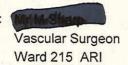
Left - There was no aneurysms detected in the popliteal. Iliacs only seen distally with mild calcified disease. Fem - pop minor diffused disease throughout. All 3 calf vessel are patent however appear narrowed with diffused disease throughout

Scanned By:- Heather Lynn Trainee Clinical Scientist

17/01/2019

102352

Consultant:



Episode date 22/01/2019

Ward Outpatient

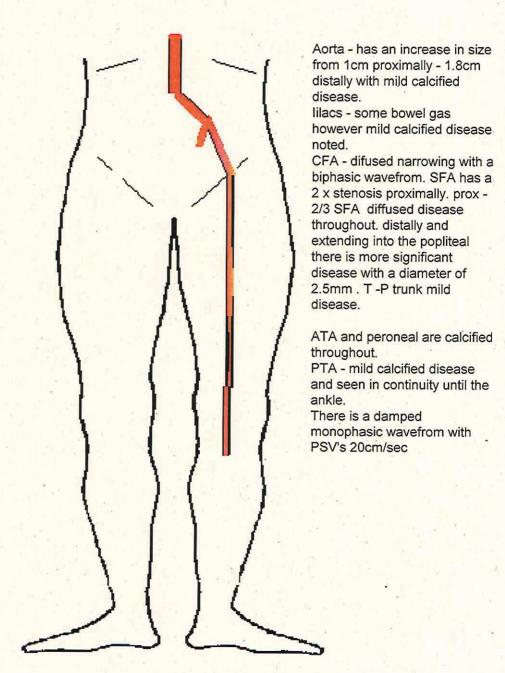
Patient:

Unit Number 0130707

1906 412146

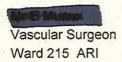
Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynn Trainee Clinical Scientist

Consultant:



Episode date 23/01/2019

Ward Outpatient

Patient:



Unit Number 0380070 CHI

1302392034

Tests performed: Bilateral Arterial Legs Duplex

Results:

Enlarged lymph nodes
Aorta - dia 1.5 cm and mild calcified walls.
Iliac - mild calcified disease throughout.
CFA shape biphasic waveform with moderate calcified disease which includes a 50% reduction in diameter caused by localised plaque proximally.

Profunda - mild palque

SFA - Prox - mild diffused mild calcified plaque with becomes more significanytt distally howeevr maintains a sharp biphaisic wavefrom throughout. popliteal moderate disease. P - T trunk Mild plaque Peroneal appears patent however very narrow ~dia 1mm. PTA - patent with calcified disease with a biphasic doppler waveform seen throughout. ATA - could not show in continuity possible occlusion at mid calf and distally.

Iliac - mild calcified disease throughout. CFA shape biphasic waveform with moderate calcified disease.

SFA moderate calcified disease throughout with a 50% reduction in diameter at 1/3 thigh and at 2/3 thigh there is signifiacnt disease with a distally near occlusion which extents into the proximal popliteal. Popliteal significant plaque with flow detected in the mid segment and distally. Calf vessel heavily calcified the PTA with flow detected in teh prox, mid and distal segment PSV's 20cm/sec. ATA - distal occlusion. peroneal not imaged

Scanned By:- Heather Lynn Trainee Clinical Scientist

23/01/2019

102430

Consultant:

Episode date 23/01/2019

Ward Outpatient

Patient:

Unit Number 1052243

CHI

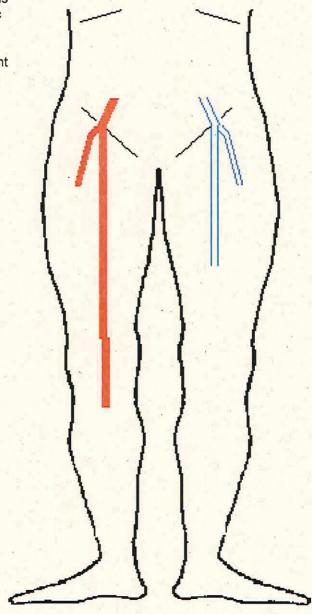
3103712510

Tests performed: Right Leg Arterial Duplex

Results:

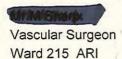
Right - Fem - pop segment is patent with a sharp triphaisc wavefrom seen throughout.

The PTA and ATA are patent with a sharp triphaisc wavefrom seen throughout



Scanned By:- Heather Lynn Trainee Clinical Scientist

Consultant:



Episode date 29/01/2019

Ward Outpatient

Patient:

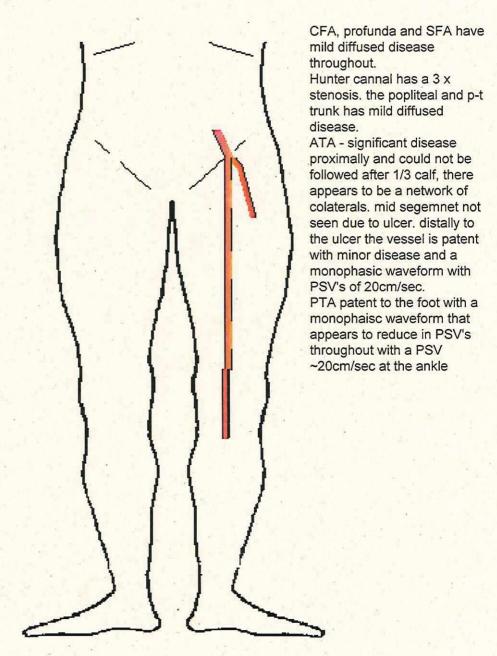
Unit Number 0156471

CHI

3108322125

Tests performed: Left Leg Arterial Duplex

Results:



Scanned By:- Heather Lynn Trainee Clinical Scientist