Acute Ischaemic Stroke

CT or MR SCAN READING FORM

SCAN ID:

DATE OF READING:

SCAN QUALITY: Good ☐ Moderate ☐ Poor ☐

Comment:

READER ID:

TYPE OF SCAN: **CT:** **Without contrast:** ☐ **With contrast:** ☐

MR: **Diffusion:** ☐ **Perfusion** ☐

Note – examples and definitions will be on a separate sheet or in drop down boxes if electronic. Please tick Yes or No. Please do not leave blanks. Thank you.

1. Is the scan completely normal? **Y** ☐ **N** ☐ ***If YES stop here***

ISCHAEMIC CHANGES

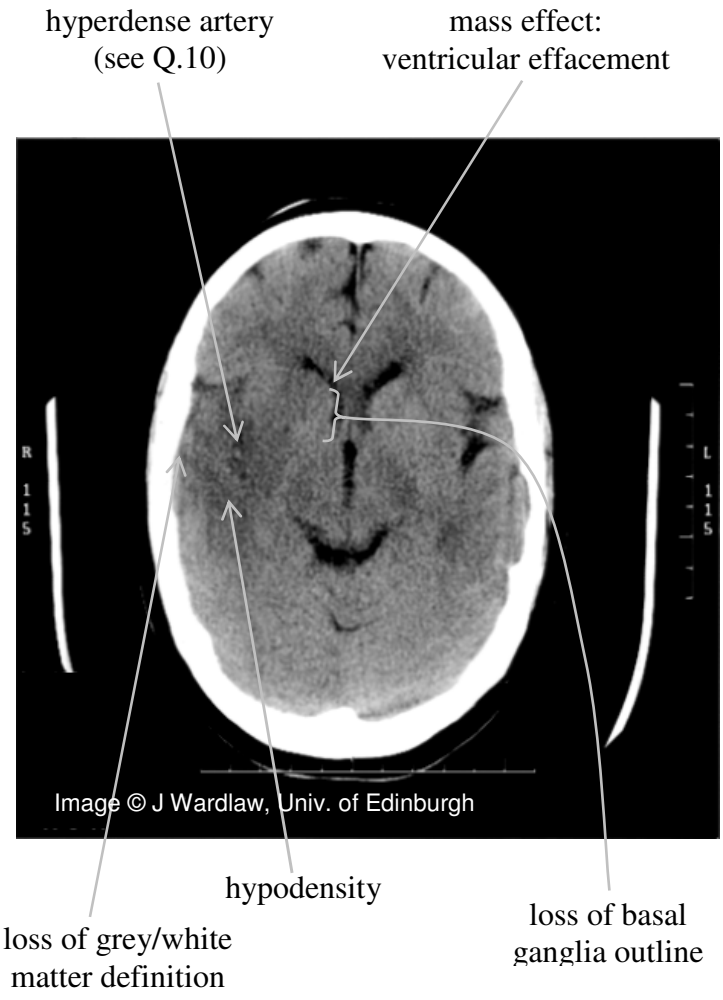
2. Is there any sign of acute ischaemic change? If in doubt as to whether acute or old, code as acute. **Y** ☐ **N** ☐ ***If No go to Q.10***

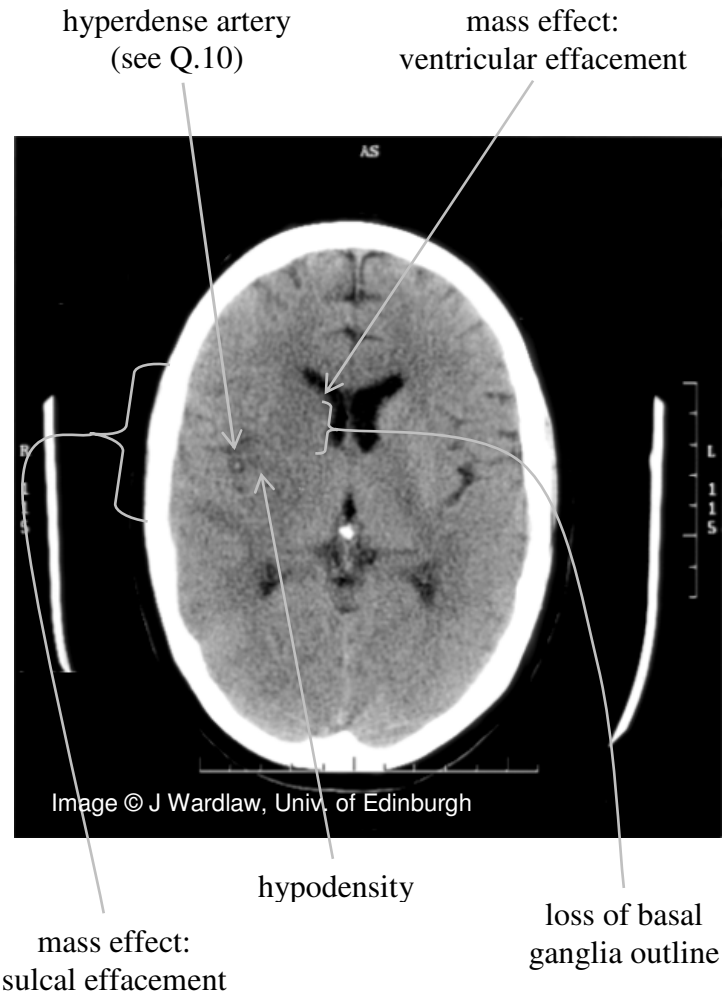
3. Which side of the brain shows ischaemic change? **R** ☐ **L** ☐ ***Tick R and L if both***

4. Classify signs of ischaemic change in the main lesion (if more than one recent lesion). **(see examples)**

	Y	**N**	**N/A**
a) loss of grey/white matter cortex definition	☐	☐	
b) loss of basal ganglia outline	☐	☐	☐
c) hypodensity present (i.e. more than in a or b so that the lesion appears less dense than white matter)	☐	☐	

	Y	N	N/A
d) mass effect (swelling) present	☐	☐	
If yes –			
sulcal effacement	☐	☐	
ventricular effacement	☐	☐	
midline shift	☐	☐	
uncal herniation	☐	☐	☐





5. Classify site and size of ischaemic lesion
(see examples)

a) site

M =MCA*
AS =Infarct of up to half of ACA territory
AL =Infarct of more than half of ACA territory
PS =Infarct of up to half of PCA territory
PL =Infarct of more than half of PCA territory
MAS=M+AS*
MAL=M+AL*
MPS=M+PS*
MPL=M+PL*
MAP=Infarct of whole MCA, ACA and PCA territories
L =Lacune*
B =Borderzone*
C =Cerebellum*
S =Brainstem*
CS =Cerebellum and brainstem

* code sub-territory sites in b

b) sub-territory sites

MCA sub-territory codes
1=small cortical infarct
2=basal ganglia infarct (>2x2x2cm)
3=infarct of white matter lateral to the lateral ventricle (>2x2x2cm)
4=infarct of anterior half of peripheral MCA territory
5=infarct of the posterior half of peripheral MCA territory
6=infarct of the whole of peripheral MCA territory
7=6+infarct of lateral part of basal ganglia
8=infarct of whole of MCA territory

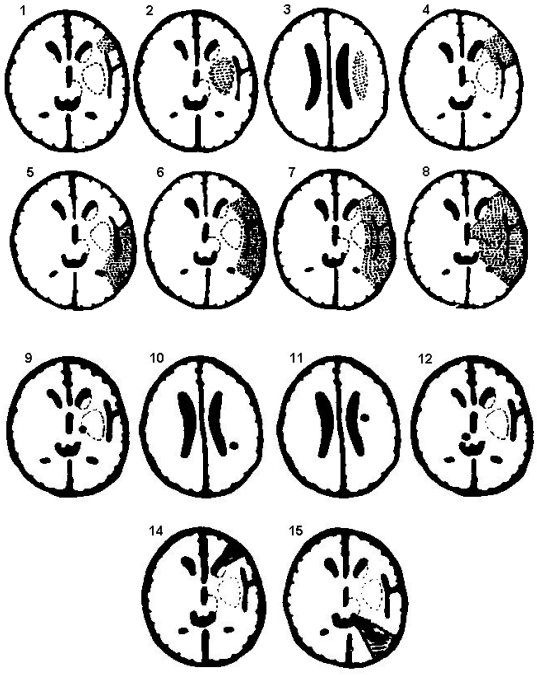
Lacunar/Borderzone sub-territory codes
9=lacune in internal capsule/lentiform
10=lacune in internal border zone
11=lacune in centrum semiovale
12=lacune in thalamus
13=lacune in brainstem, inc. pons (not shown)
14=anterior (mainly) border zone
15=posterior (mainly) border zone

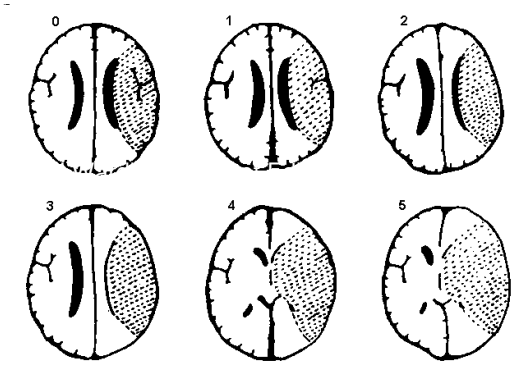
Cerebellum sub-territory codes
16=small cortical (not shown)
17=<1/2 hemisphere (medium) (not shown)
18=>1/2 hemisphere (not shown)

Brainstem sub-territory codes
11=small, i.e.<1/2 medulla (not shown)
12=extensive, i.e. pons + medulla (not shown)

c) degree of mass effect

Mass effect grading
0=no swelling
1=effacement of the sulci overlying the infarct
2=1+minor effacement of adjacent lateral ventricle
3=1+complete effacement of lateral ventricle
4=1+effacement of the lateral and third ventricle
5=4+shift of the midline away from the side of the ventricle
6=5+effacement of the basal cisterns





Diagrams © J Wardlaw, Univ of Edinburgh

IF INFARCT IS IN THE MCA TERRITORY ANSWER Q.6 &Q.7 (if not go to Q.8):

6. In your opinion does the new acute ischaemic change involve more than 1/3 of the MCA territory?

Y	N
☐	☐

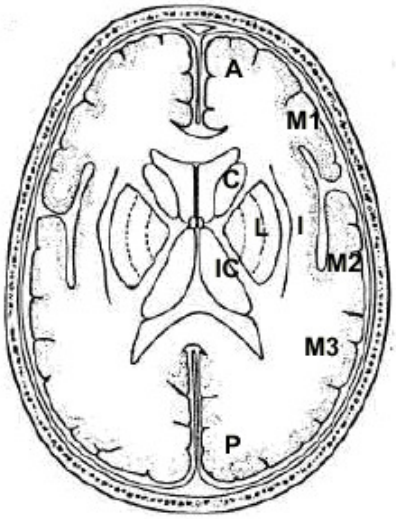
7. **ASPECTS for the MCA territory (see examples)**

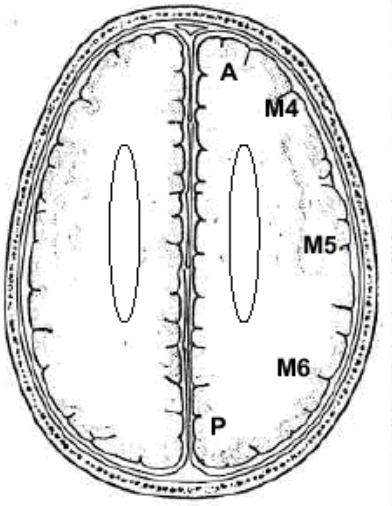
ASPECT Score:

Please indicate if each of the MCA areas shown opposite, in the hemisphere that you think is ischaemic, are normal or show some signs of an infarct (abnormal).

(NB: Does not include areas A or P)

	Norm	Abnorm
Caudate (C)	☐	☐
Lentiform (L)	☐	☐
Insula (I)	☐	☐
Internal Capsule (IC)	☐	☐
MCA1 (M1)	☐	☐
MCA2 (M2)	☐	☐
MCA3 (M3)	☐	☐
MCA4 (M4)	☐	☐
MCA5 (M5)	☐	☐
MCA6 (M6)	☐	☐





Diagrams and score taken from Lancet 2000;355:1670-1674

8. Is there a second (discrete) recent ischaemic lesion?

Y	N
☐	☐

If No go to Q.10

9. Describe second ischaemic lesion:

HYPERDENSE VESSEL SIGN

10. Is there a hyperdense artery? (see example in question 4)

Y	N
☐	☐

If No go to Q.12

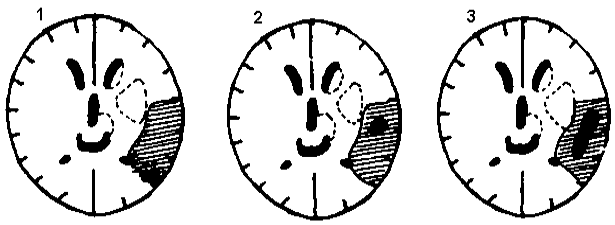
11. Name hyperdense artery:

HAEMORRHAGIC CHANGES

12. Is there any haemorrhage anywhere? Y ☐ N ☐ ***If No go to Q.14***

13. Classify haemorrhage (if more than one haemorrhage, tick all present – indicate order of significance) :

	Y	N	Order (insert 1, 2, 3 to indicate your estimate of the order of importance)	Size of Haematoma (max diam.): <3cm	3-5cm	5-8cm	>8cm
a) petechial haemorrhage (example 1 or 2 below)	☐	☐	☐	☐	☐	☐	☐
b) significant haemorrhagic transformation of infarct (i.e. underlying infarct still visible) (example 3 below)	☐	☐	☐	☐	☐	☐	☐
c) parenchymal haematoma (i.e. no infarct visible)	☐	☐	☐	☐	☐	☐	☐
d) parenchymal haematoma clearly remote from infarct	☐	☐	☐	☐	☐	☐	☐
e) subdural haematoma	☐	☐	☐	☐	☐	☐	☐
f) subarachnoid haemorrhage	☐	☐	☐				
g) extradural haemorrhage	☐	☐	☐	☐	☐	☐	☐
h) In your opinion, is the haemorrhage a major component of the infarct which is likely to have worsened mass effect or involved more brain in the damage present and so worsened symptoms, or if remote from the infarct, likely to have contributed significantly to the burden of brain damage?	☐	☐					



Haematoma with no or only slight mass effect

Haematoma with definite mass effect compressing surrounding tissue

Diagrams © J Wardlaw, Univ of Edinburgh

Reduction in brain tissue volume

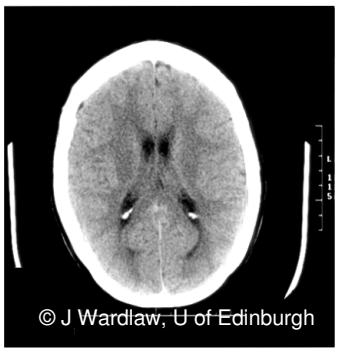
14. Is there any Reduction in brain tissue volume? **Y** ☐ **N** ☐ ***If No go to Q.16***

15. Classify atrophy (see examples and pick nearest likeness):

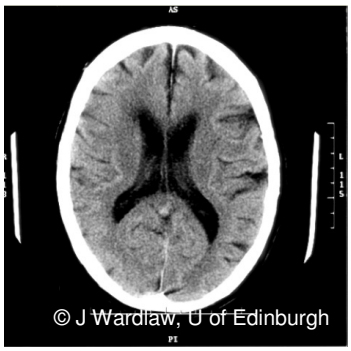
	None	Mod	Severe
central	☐	☐	☐
cortical	☐	☐	☐

CENTRAL reduction in brain tissue

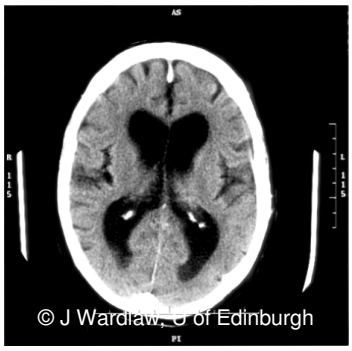
None



Modest

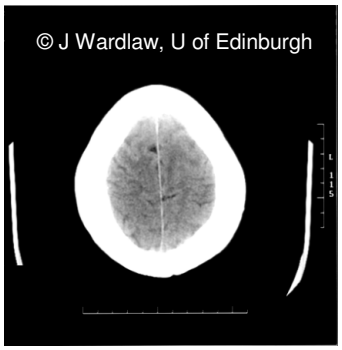


Severe

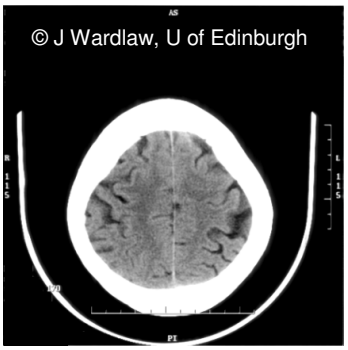


CORTICAL reduction in brain tissue

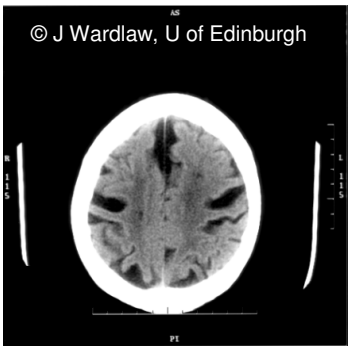
None



Mild



Severe



Approach validated in
Eur Radiol 2008;19:177-183

PERIVENTRICULAR LUCENCIES

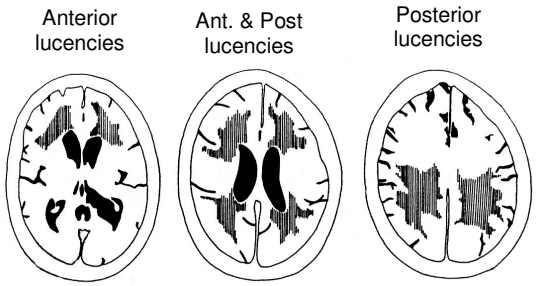
16. Are there any periventricular lucencies?

Y ☐ N ☐ ***If No go to Q.18***

17. Classify extent of white matter lucency

a. Anterior white matter **0,1,2** ☐
0= no lucency
1= lucency restricted to region adjoining ventricles
2= lucency covering entire region from lateral ventricle to cortex

b. Posterior white matter **0,1,2** ☐
0= no lucency
1= lucency restricted to region adjoining ventricles
2= lucency covering entire region from lateral ventricle to cortex

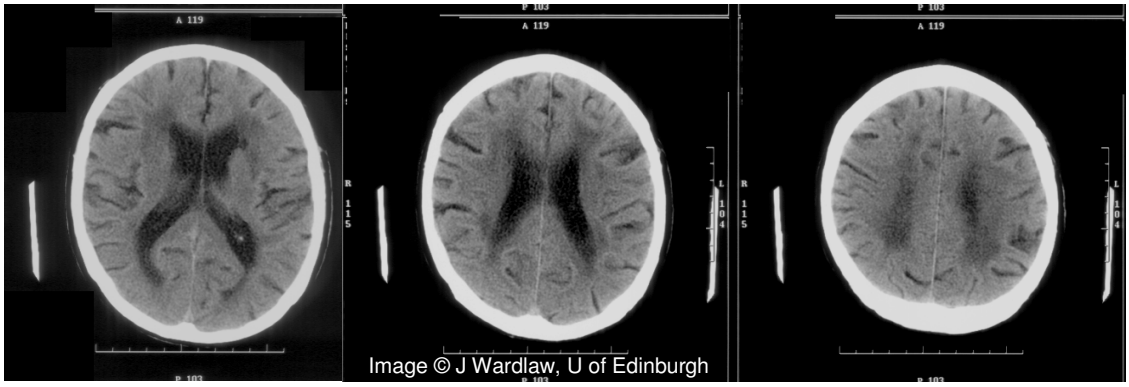


Slice through choroid plexus | Slice through cella media | Slice through centrum semiovale

(diagrams from van Swieten et al. JNNP 1990;53:1080-1083)

AWM = 1 PWM = 0

AWM = 2 PWM = 1



OLD VASCULAR LESIONS

		Y	N	
18.	Are there any old vascular lesions?	☐	☐	***If No go to Q.20***

		Y	N
19.	Classify old vascular lesion(s):		
	a) old cortical infarct(s)	☐	☐
	b) old striatocapsular infarct(s)	☐	☐
	c) old borderzone infarct(s)	☐	☐
	d) old lacunar infarct(s)	☐	☐
	e) old brainstem/cerebellar infarct(s)	☐	☐
	f) probable old haemorrhage	☐	☐

NON-STROKE LESIONS

		Y	N	
20.	Is there a non-stroke lesion, which could have accounted for the patient's stroke syndrome?	☐	☐	***If No go to Q.22***

		Y	N	
21.	Classify non-stroke lesion:			
	a) cerebral tumour	☐	☐	
	b) encephalitis	☐	☐	
	c) cerebral abscess	☐	☐	
	d) other (e.g. contusion)	☐	☐	**Specify Other:** ☐

22. COMMENT: