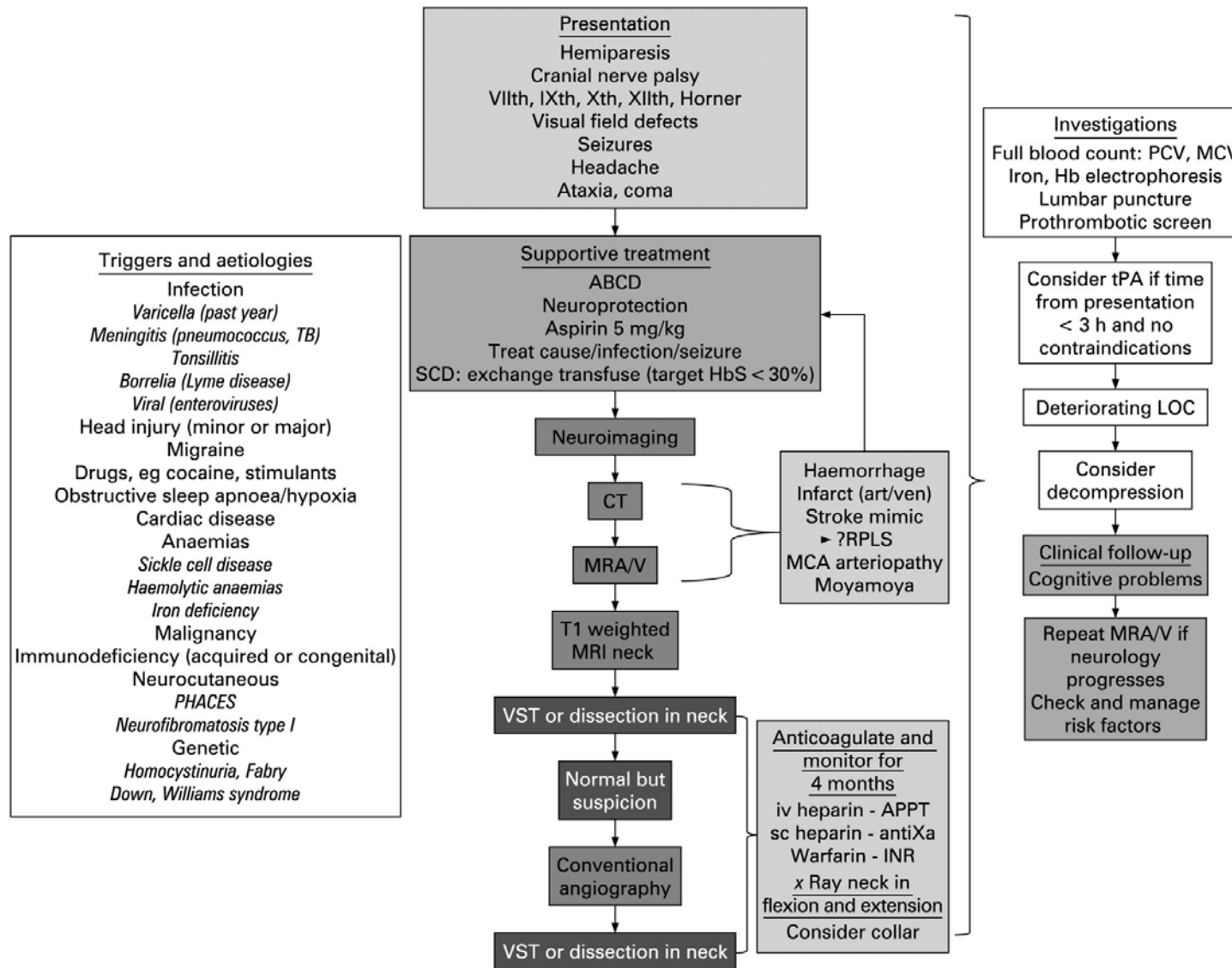
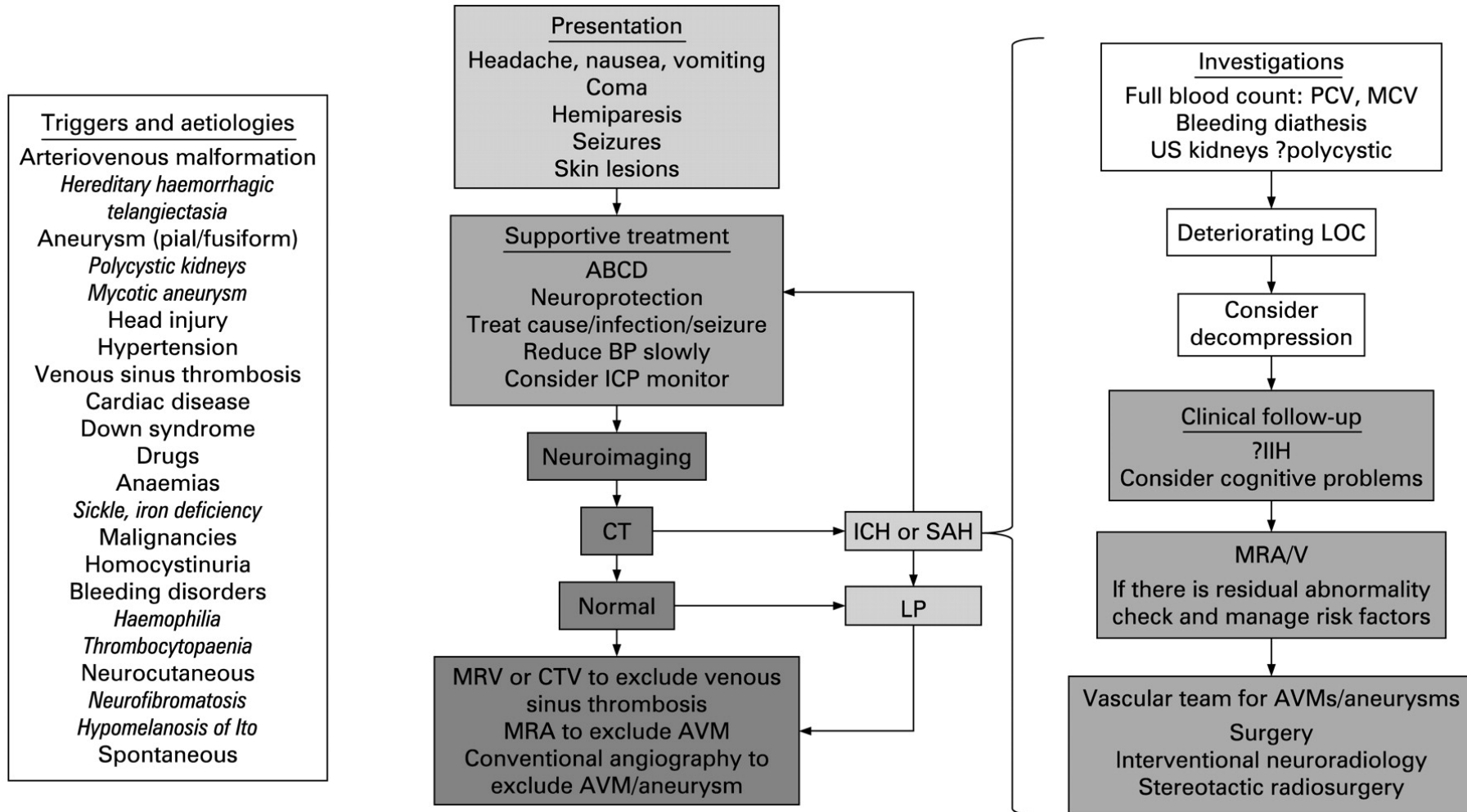


Flow diagram for the diagnosis and management of arterial ischaemic stroke



Pappachan J, Kirkham F J Arch Dis Child 2008;93:890-898

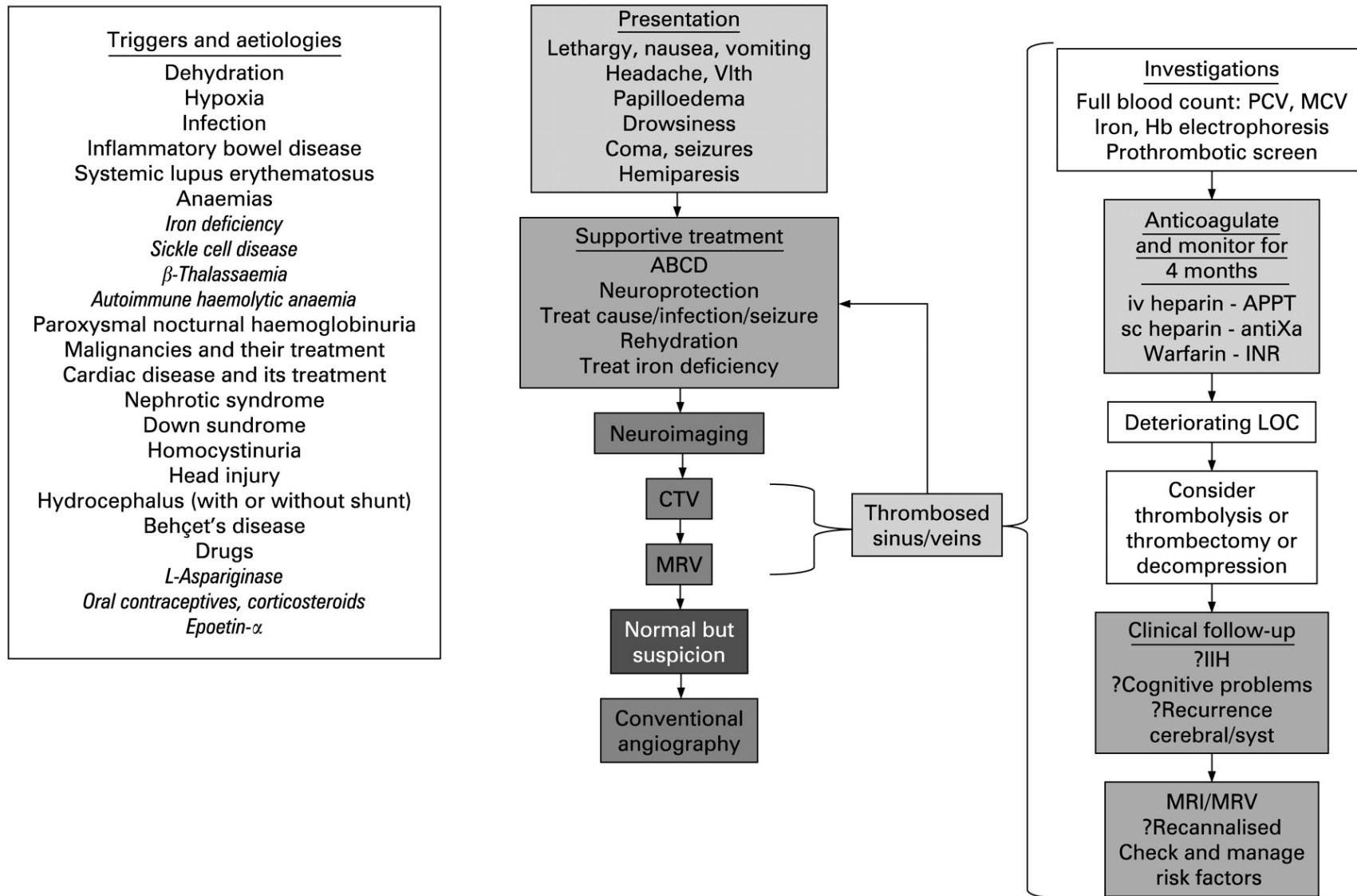
Flow diagram for the diagnosis and management of haemorrhagic stroke



Pappachan J, Kirkham F J Arch Dis Child 2008;93:890-898

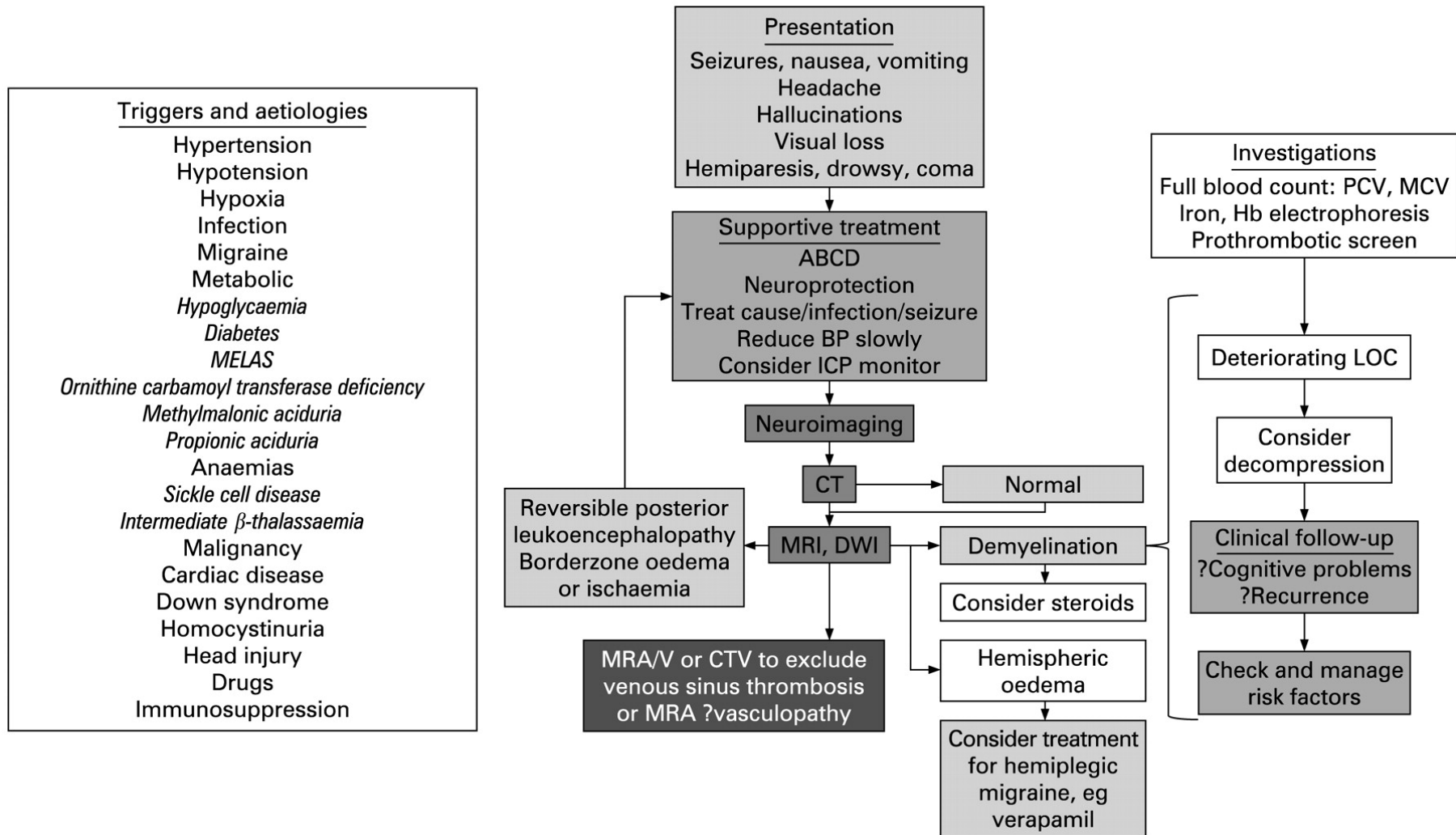


Flow diagram for the diagnosis and management of venous sinus thrombosis



Pappachan J, Kirkham F J Arch Dis Child 2008;93:890-898

Flow diagram for the management of stroke mimics



Pappachan J, Kirkham F J Arch Dis Child 2008;93:890-898



Differential diagnosis in children presenting with acute focal neurological deficit I

- All stroke syndromes are potential neurosurgical emergencies and should be discussed with a consultant paediatric neurologist on presentation. Further management and any transfer may involve liaison with the nearest available PICU.
- Acute ischaemic arterial stroke±haemorrhage±mass effect
- Acute venous stroke±haemorrhage±venous infarction±mass effect
- Primary haemorrhagic stroke±mass effect
- Non-accidental injury
 - subdural haematoma
 - strangulation with compression of internal carotid artery

Differential diagnosis in children presenting with acute focal neurological deficit II

- Posterior leukoencephalopathy (hyper/hypotension or immunosuppression)
- Unilateral hemispheric cerebral oedema, for example secondary to diabetes, hyperammonaemia (ornithine carbamoyl transferase deficiency)
- Hemiplegic migraine (but diagnosis of exclusion – migrainous symptoms seen in cerebrovascular disease)
- Post-ictal (Todd's paresis)
- short duration so neuroimaging essential if persistent
- children with prolonged seizures may develop permanent hemiparesis with seizures (hemiseizure-hemiplegia-epilepsy)

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Differential diagnosis in children presenting with acute focal neurological deficit III

- Acute disseminated encephalomyelitis
- Brain tumour
- Encephalitis, for example secondary to Herpes simplex (usually have seizures)
- Rasmussen's encephalitis
- Mitochondrial encephalopathy with stroke-like episodes
- Alternating hemiplegia

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stroke I

Magnetic resonance imaging (MRI)

(including diffusion and perfusion),

• to exclude haemorrhage arteriography (MRA), venography (MRV) • to define extent and territory of infarct

- MRA to define vascular anatomy of circle of Willis and neck vessels
- T1-weighted spin echo of the neck with fat saturation sequence to exclude dissection
- MRV to exclude venous sinus thrombosis

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Emergency imaging for childhood stroke II

- diffusion imaging to differentiate acute from chronic infarction
- perfusion imaging to demonstrate areas of abnormal cerebral blood flow, blood volume and mean transit time
- CT scan to exclude haemorrhage if MRI not available acutely; consider CT venography
- Conventional angiography if:
 - haemorrhage without coagulopathy and cause not obvious on MRA or MRV
 - ischaemic stroke, MRA normal and fat-saturated T1-MRI of the neck does not demonstrate dissection

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