Stroke

The cerebrovascular event rate is as high as the coronary vascular event rate

stroke is after cardiovascular disease and cancer the third most common cause of death in industrialized countries

important cause of long term disability

new therapeutic options have changed managemnt during the recent years and stroke is now considered as an medical emergency

Stroke

4 aspects of acute stroke therapy have been shown to improve outcome in ischaemic stroke

1. stroke care in specialised units (Stroke units)
2. platelet inhibitors such as acetylsalicylic acid within 72 hours
3. intravenous thrombolysis within 4.5 hours
4. hemicraniectomy within 48 hours

Stroke

The intensivist is involved in stroke care when cardiovascular or respiratory dysfunction has developed

certain types of ischaemic stroke are often treated in the ICU:
- large space occupying hemispheric infarct
- space occupying cerrebellaer infarct
- basilar artery thrombosis

Stroke

Assessment according the principle `secure physiology first`

Immediate resuscitation according to A B C protocol

determine cause of stroke

Immediate determine indication for acute revascularisation therapy

assess optimal management location

patients with brainstem infarction, large hemispheric infarctions or space occupying lesions ar at special risk of airway and oxygenation disturbance and consequently require continuous monitoring

Stroke

history contains previous diseases

medication

when did the first symptoms occur ?

Did the patients awake with symptoms and signs ?

Contraindications for antikoagulation or thrombolysis ?

To distinguish ischaemic from haemorrhagic stroke, CT imaging is necessary

Stroke

DD: Clinical findings favouring the diagnosis of intracerebral hemorrhage:

onset during a hypertensive crisis

progression of symptoms within minutes

early, excessive vomiting

early / immediate loss of consciousness

Acute onset of headache

Stroke

Other differential diagnosis

Subarachnoid haemorrhage: sudden occipital headache, meningism, CT-finding

Meningitis

Postictal paresis

migraine

sinus veneour thrombosis

Stroke

Mechanisms of stroke

Microangiopathic or lacunar stroke

preceeding TIA, often in clusters

insidious onset and a progressive course

Lacunar lesions are småll, and in areas with high density of axons, eg pedunculi or brain steem

pure motor stroke, pure sensory stroke, sensory-motory stroke, ataxia and hemiparesis, dysarthria

Stroke

Systemic embolism

history of cardiac disease, eg mechanical or cardiac vakve dysfunction, atrial fibrillation, ventricular thrombus, dilated cardiomyopathy, recent myocardial infarction (<4weeks), left ventricular aneurysm

sudden onset, maximal severity at onset

onset usually during activity, in awake state

recurrent TIAs in different areas

Stroke

Large artery thrombosis

large vessel disease with post-stenotic perfusion deficit, sudden atherothrombotic occlusion

clinical picture similar to systemic embolism

history include typical artherosklerotic risk factors,

frequent TIAs, amaurosis fugax

progression over minutes to hours is characteristic

Stroke

Dissection of cervical arteries

recent trauma

previous infection

connective tissue disease (eg Marfan syndrome)

clinical picture with focal neurological syndrome and severe headache, tinnitus

Stroke

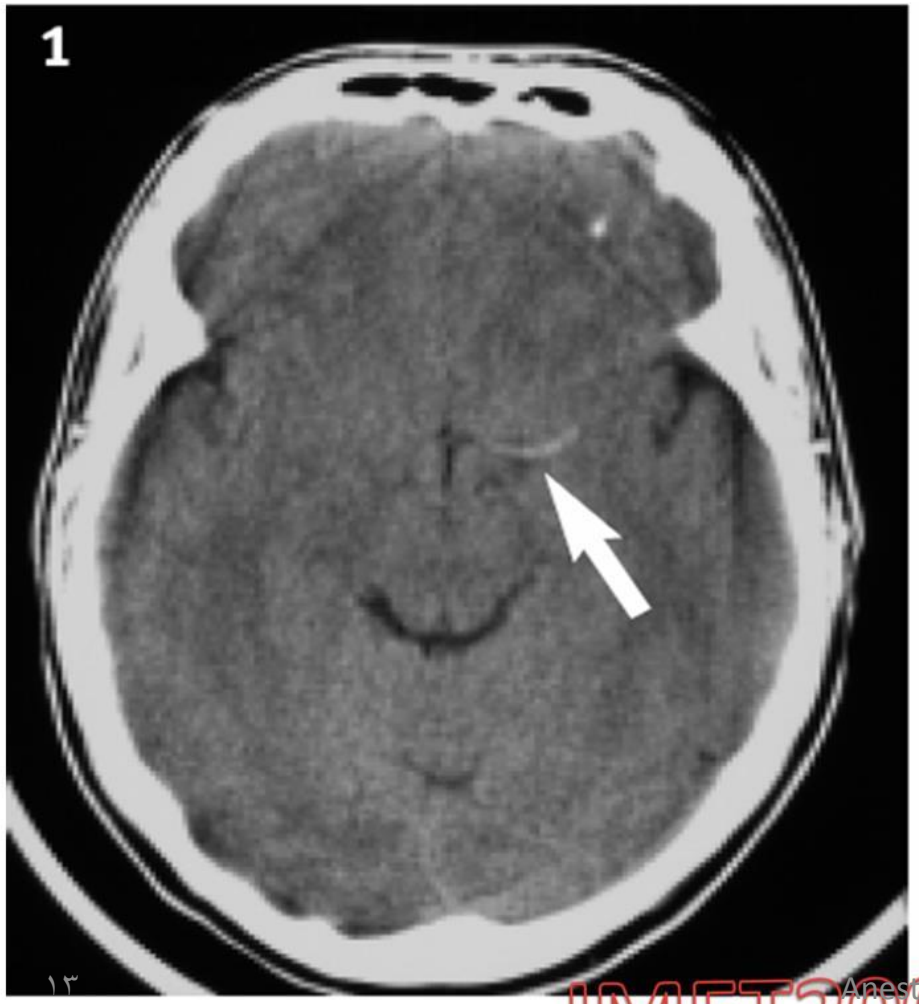
Main switchpoint: Ischaemic stroke, intracerebral haemorrhage or subarachnoidal haemorrhage ?

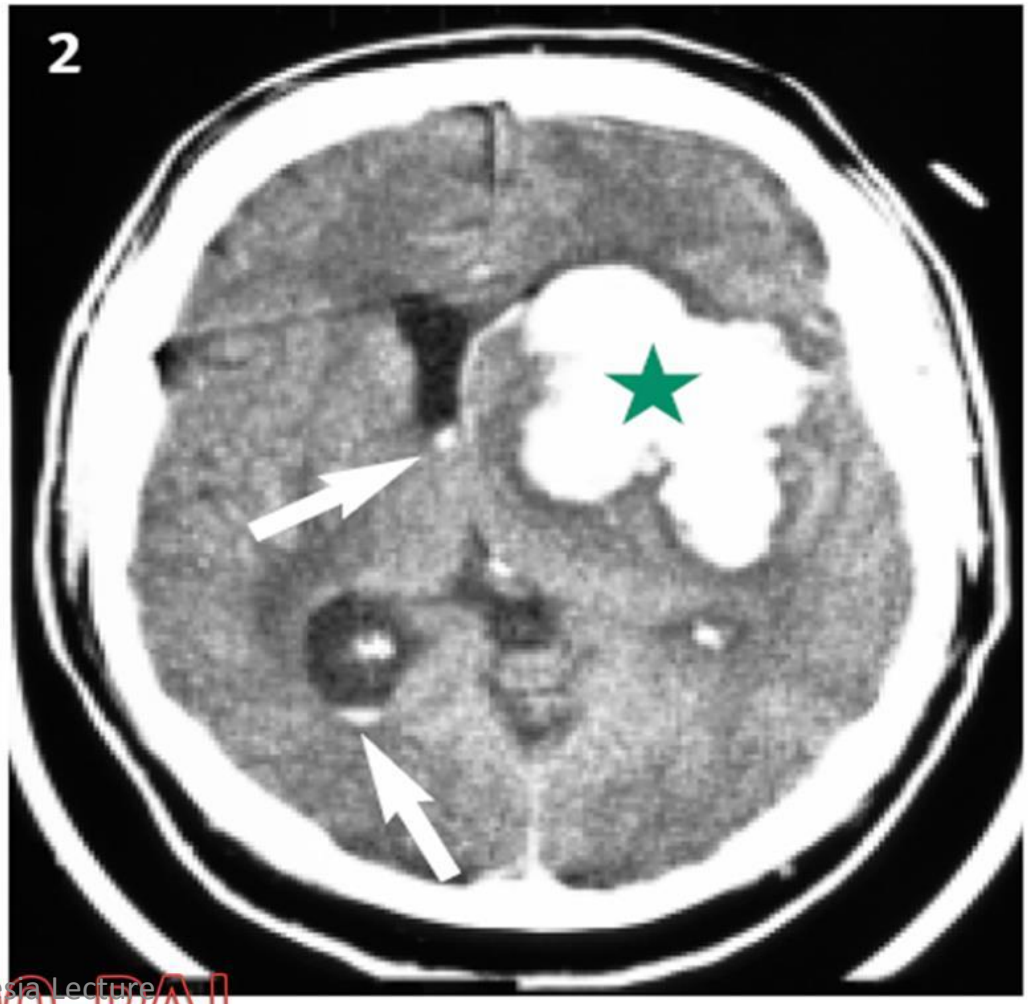
Thrombolysis yes or no ?

CT-scan

Stroke

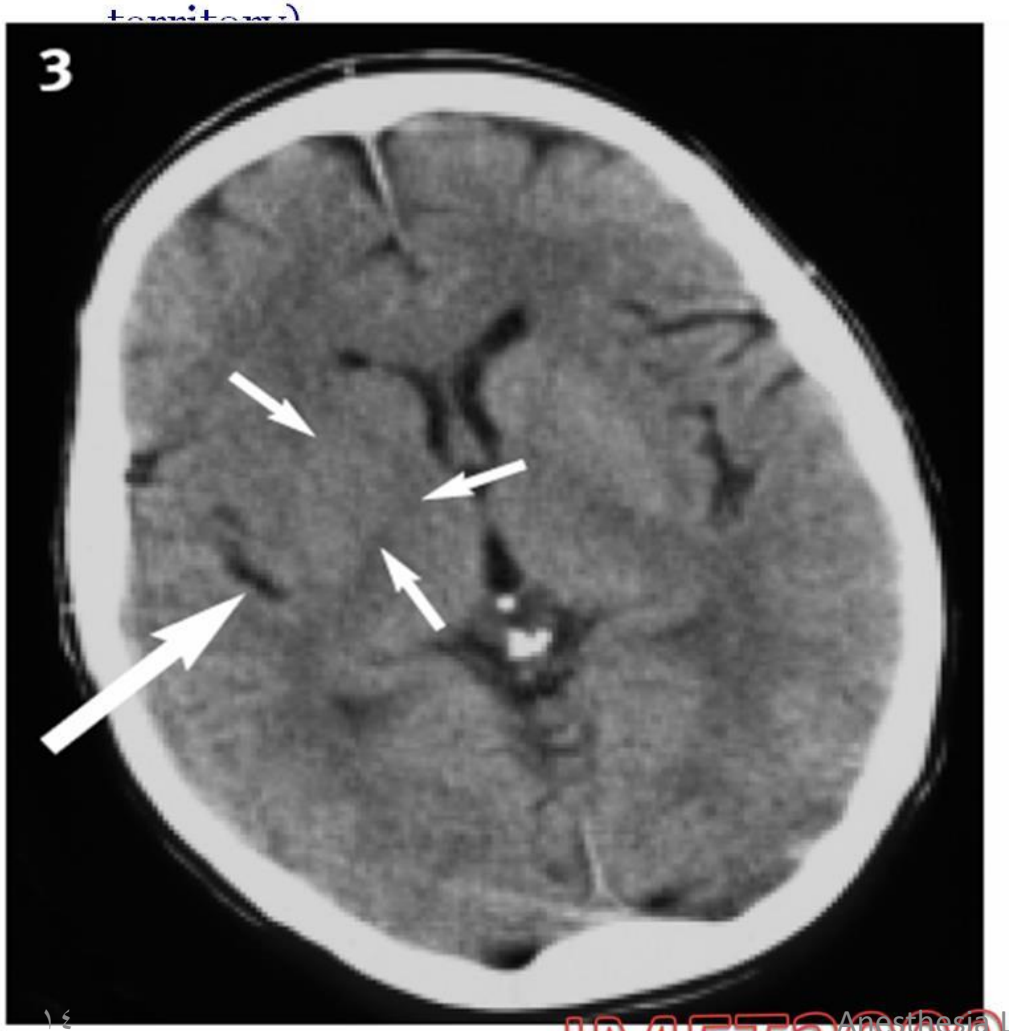
The patients in images 1 and 2 presented with severe right-sided hemiparesis an aphasia. The onset of symptoms in both cases was two hours before the scan was taken.

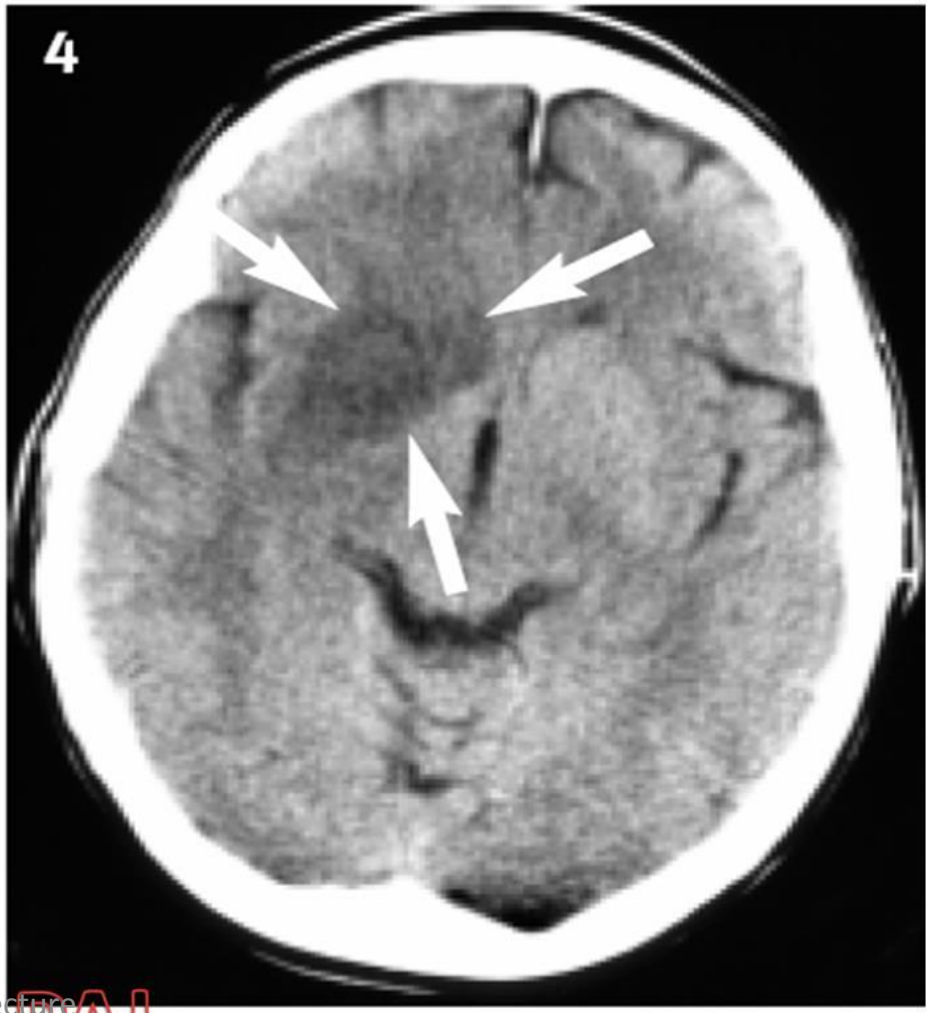




Stroke

Image 3 shows only early signs (see later) which are no longer considered contraindication to thrombolysis (as long as these signs do not exceed 1/3 of the MCA territory)



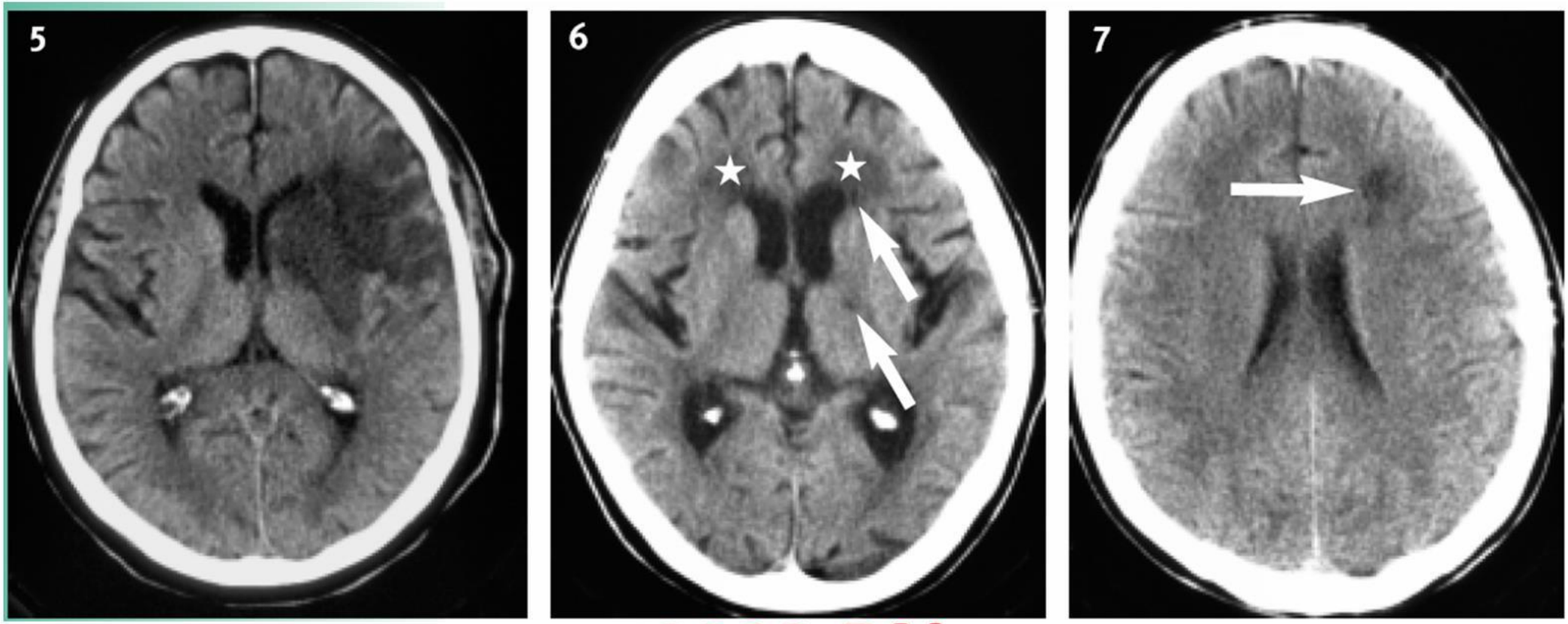


Stroke

5. territorial infarction due to embolic occlusion of a left MCA branch

6.microangiopathic stroke due to artheriosklerosis

7. borderline ischemia between MCA and ACA, suspect for carotid stenosis



Stroke

Blood pressure management:

lower BP only if marked hypertension is present: systolic > 120 mmHg, diastolic > 120 mmHg

aboid hypotension or a sudden dropp in BP

In intracranial haemorrhage

treat it BP > 160 mmhg syst and under 120 mmHg syst

Stroke

Decompressive surgery

hemicraniectomy if uncontrollable increased ICP

prevents transtentorial herniation in Pt with large MCA infaction

surgical decompression of the posterior fossa may be life saving

Early selection within 24-48 hours is important, can improve mortality from 70 to 20% and improves functional outcome

Stroke

Standard neurointensive care: ?

Stroke

Haemodynamic stability

oxygenation

normoglycaemia

normothermia

Stroke

Specific treatment:

1. Recanalisation

2. Secondary prophylaxis

Stroke

- ***Inclusion criteria***
- Ischaemic infarct with significant neurologic deficit
- symptoms not regressing spontaneously
- symptoms not minimal
- ***Exclusion criteria*** see page 35

- Recommendet agend rtPa; streptokinase has hight rate of bleeding complications

Stroke

- ***Secondary prophylaxis should been started within 48 hours***

- aspirin as first line
- slightly increased effect in combination with dipyridamol
- Clopidrogel is slightly more effective than aspirin alone

Stroke

Stroke unit ?

Early rehabilitation and physiotherapy !!!