UCL

# cromis-2

Clinical Relevance Of Microbleeds In Stroke

## Investigators meeting

Thursday 7 June 2012

SRN

Stroke Research Network

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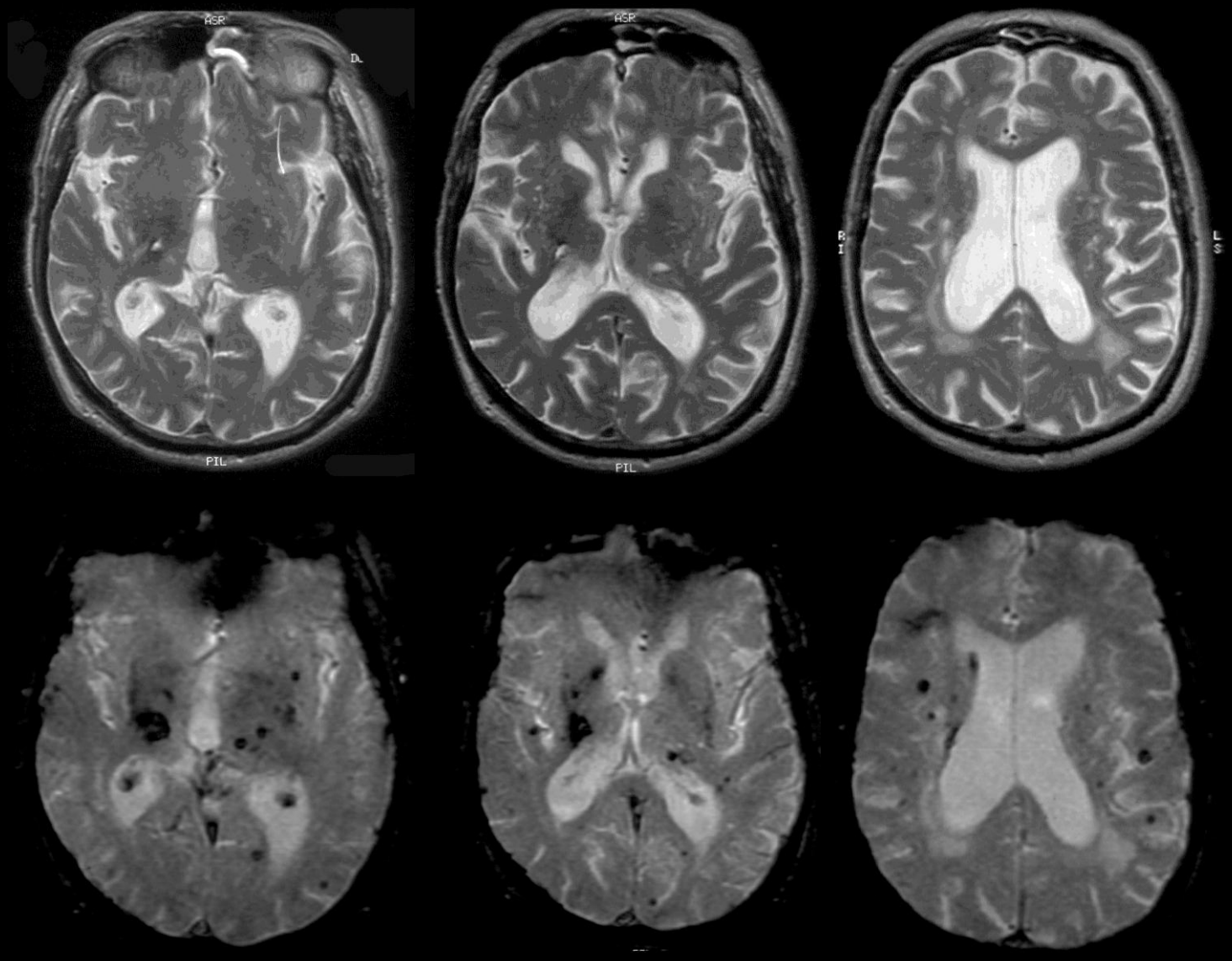
# Why study microbleeds?



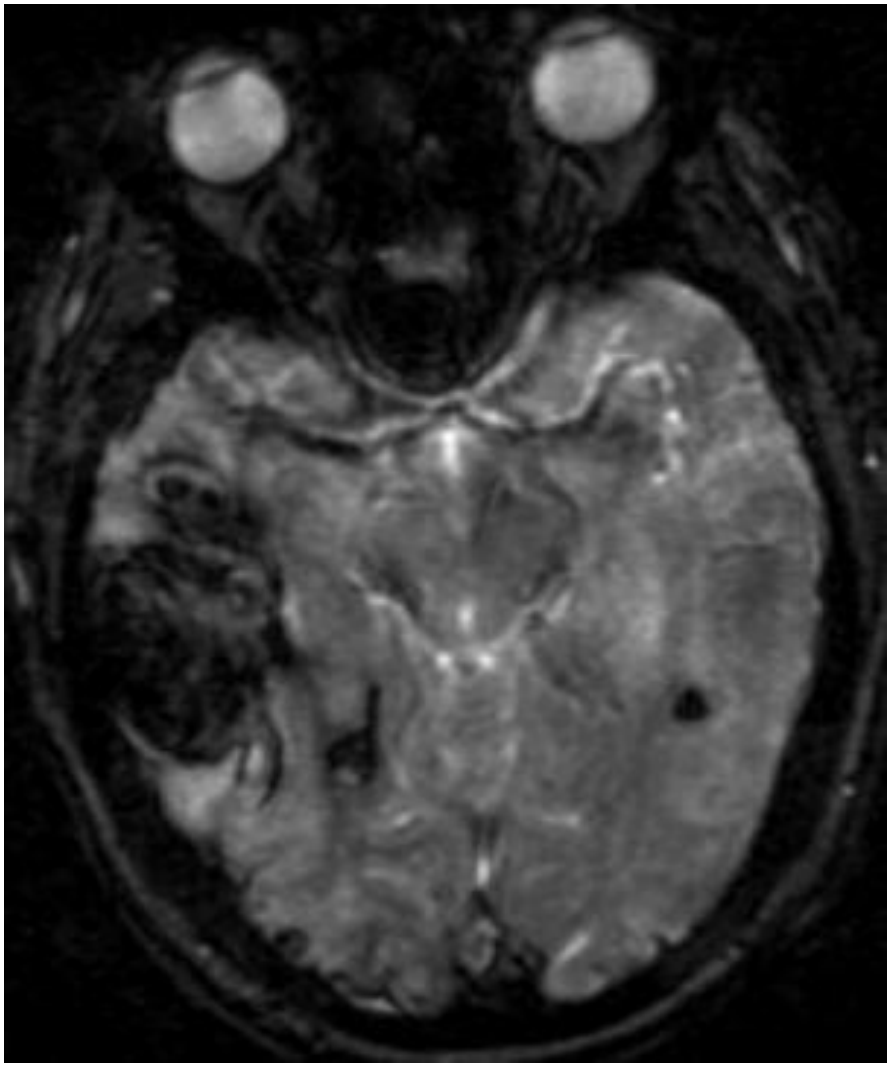
# The case of Mr AS

- 78 year old man
- Admitted with sudden dysphasia
- Abrupt onset, gradual recovery over 36 hours
- MRI showed a left temporal lobe infarct and multiple microbleeds
- Normal extracranial and intracranial vessels
- PFO with atrial septal aneurysm and spontaneous right to left shunt

- History typical of an embolism, probably from a proximal source (clean arteries leading to the affected region of the brain)
- Anticoagulated with LMWH with plan for PFO closure
- Day before PFO closure planned was watching TV and developed a headache and rapidly reducing conscious level

# Outcome

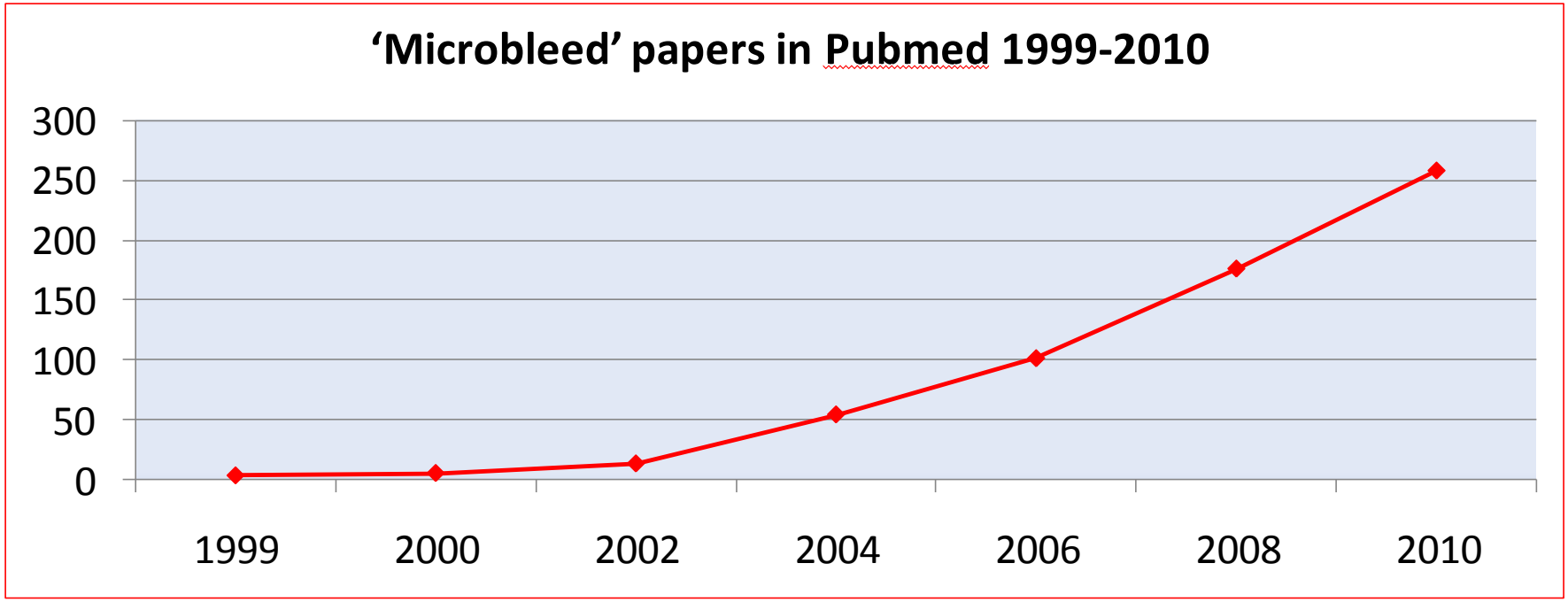
- Suffered large right hemisphere temporal lobe ICH
- Treated with recombinant activated factor VII
- Decompressive craniectomy
- Bithalamic infarction due to raised ICP compressing PCA perforators
- Survived, but persistent coma



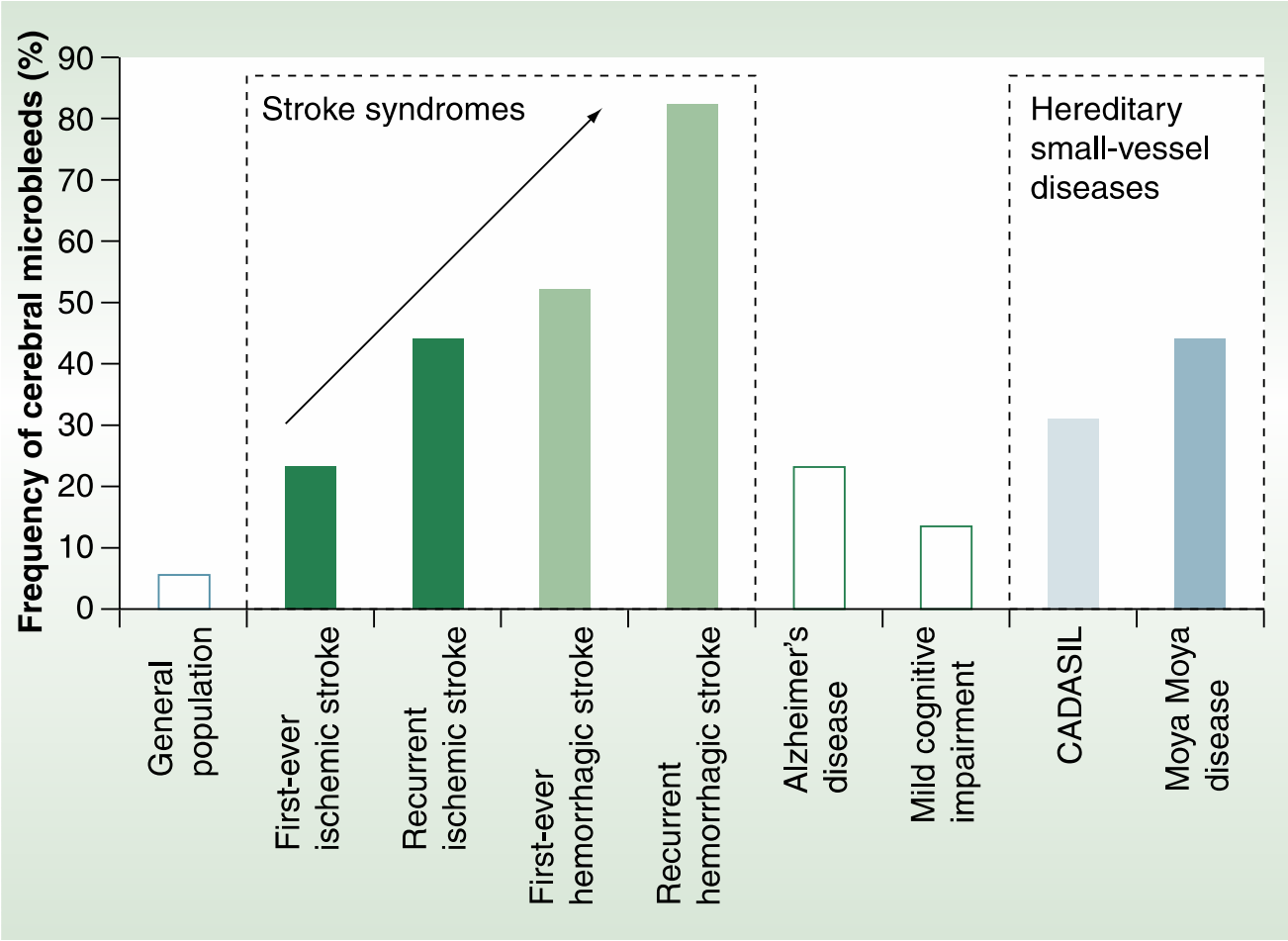
# Issues raised by the case

- Role of PFO and ischaemic stroke
- Role of anticoagulation in presumed cardioembolic stroke
- **What (if anything) to do when we find cerebral microbleeds?**

# Cerebral microbleeds: capturing the interest of researchers

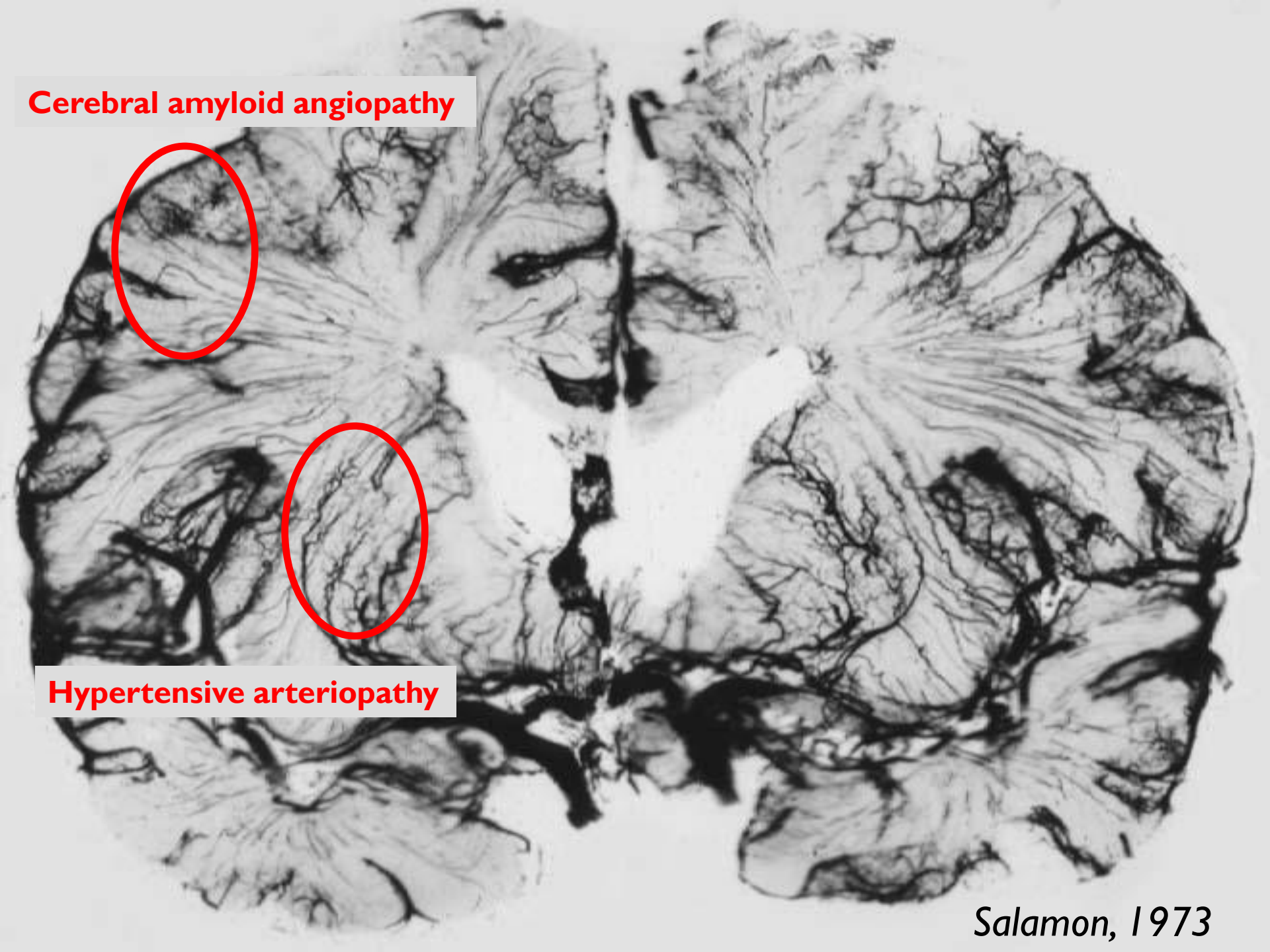


# Prevalence of microbleeds



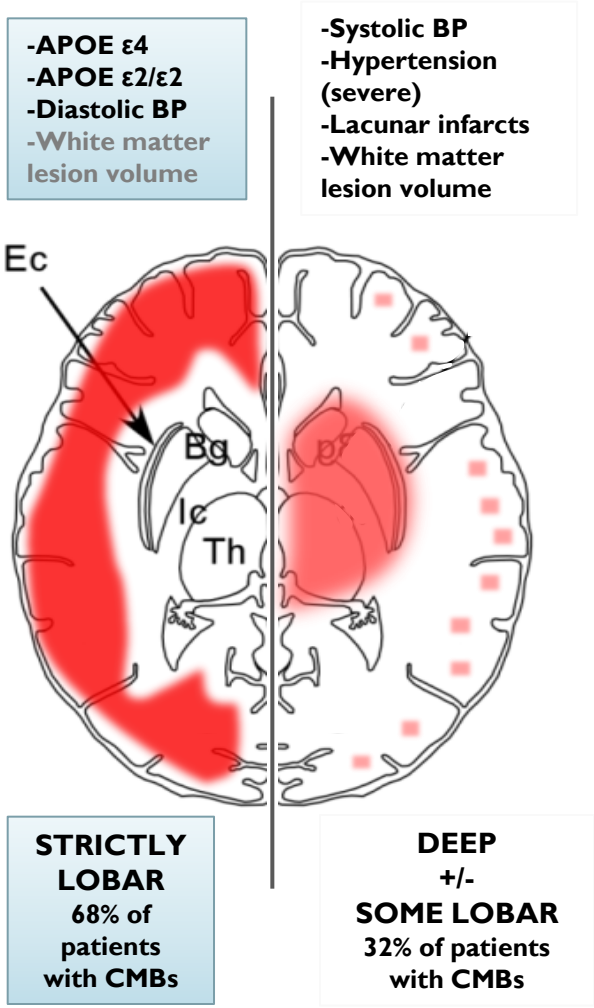

Charidimou and Werring *Fut Neurol* 2011

# Location, location, location!




*Salamon, 1973*

# Insights from population-based studies

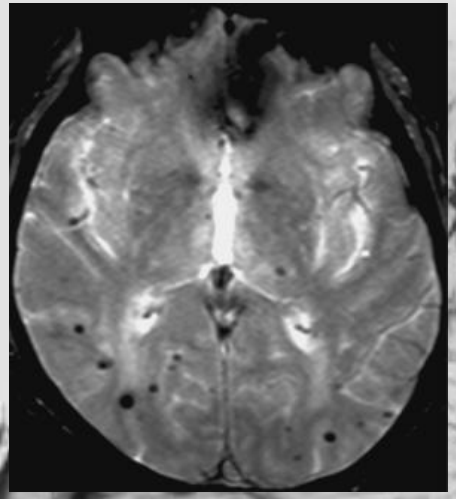


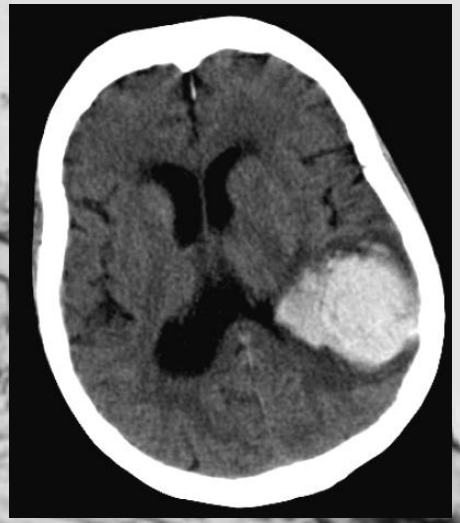

**Rotterdam scan study**

Strictly lobar CMBs associated with APOE genotype

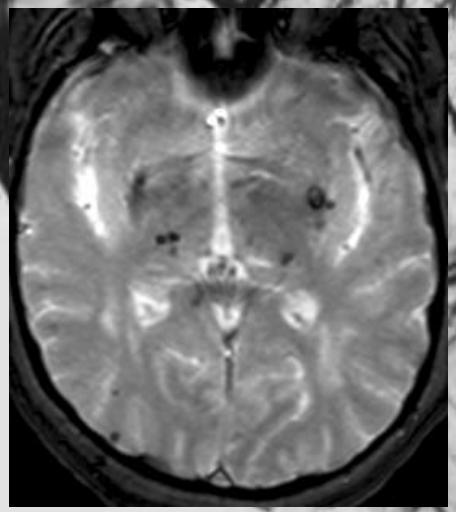
No association of deep CMBs with APOE genotype

If lobar CMBs are a marker for early CAA this may have Important clinical implications for treatment and prevention





**Cerebral amyloid angiopathy**

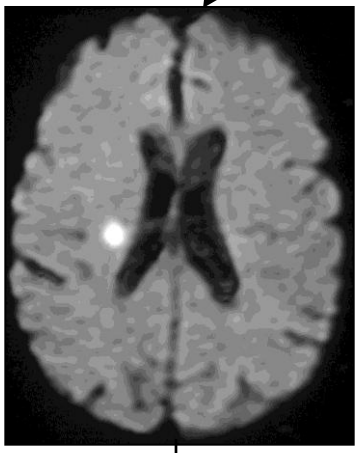


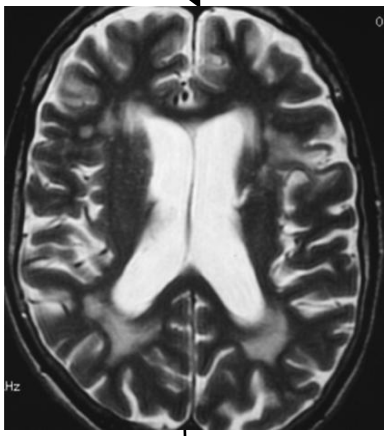
**Hypertensive arteriopathy (Arteriolosclerosis)**

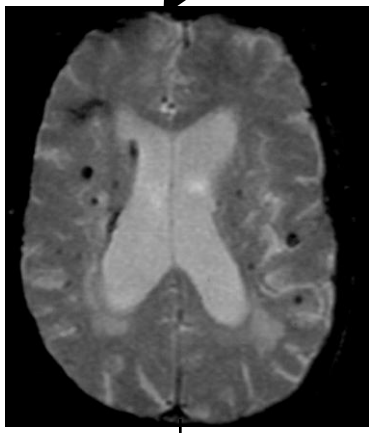
Small vessel diseases

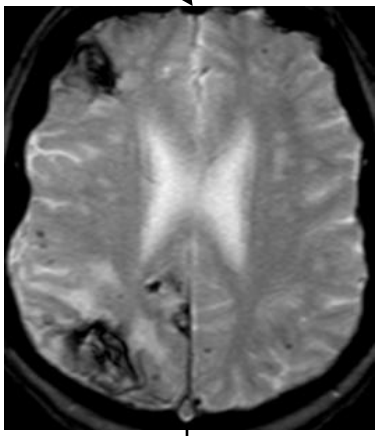
ischaemia

**bleeding**









Lacunar stroke syndrome

Cognitive, gait impairment

**Intracerebral haemorrhage**

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# *Microbleeds and genetic risk factors to predict the risk of intracerebral haemorrhage in anticoagulated patients after cardioembolic ischaemic stroke*

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Stroke Research Network

**n=1000**, UK wide study
2 year follow-up

*NESTED STUDY:*
*Case-control genetics and imaging study of warfarin-related ICH (n= 600)*

**Outcomes**
- Symptomatic ICH
- Recurrent stroke / TIA
- Time in range
- Deterioration in cognitive function and QoL

- Adults (>17 years old)
- Diagnosis of AF, intention to treat with warfarin
- Previous ischaemic stroke / TIA
- T2* GRE MRI and standard MRI sequences before starting warfarin

British Heart Foundation

The STROKE Association

# Outline for the day

- Study update – Clare Shakeshaft
- Small vessel disease, microbleeds and ICH – Dr Andreas Charidimou
- Site in focus – Royal Devon and Exeter team
- New anticoagulants – Dr Hannah Cohen
- Recruiting scenarios
- Keynote presentation: preventing strokes in AF – Prof Paulus Kirchhof
- Future plans and close
- Drinks Reception

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# Cerebral microbleeds: detection, mechanisms and clinical challenges

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**Cerebrovascular disease**

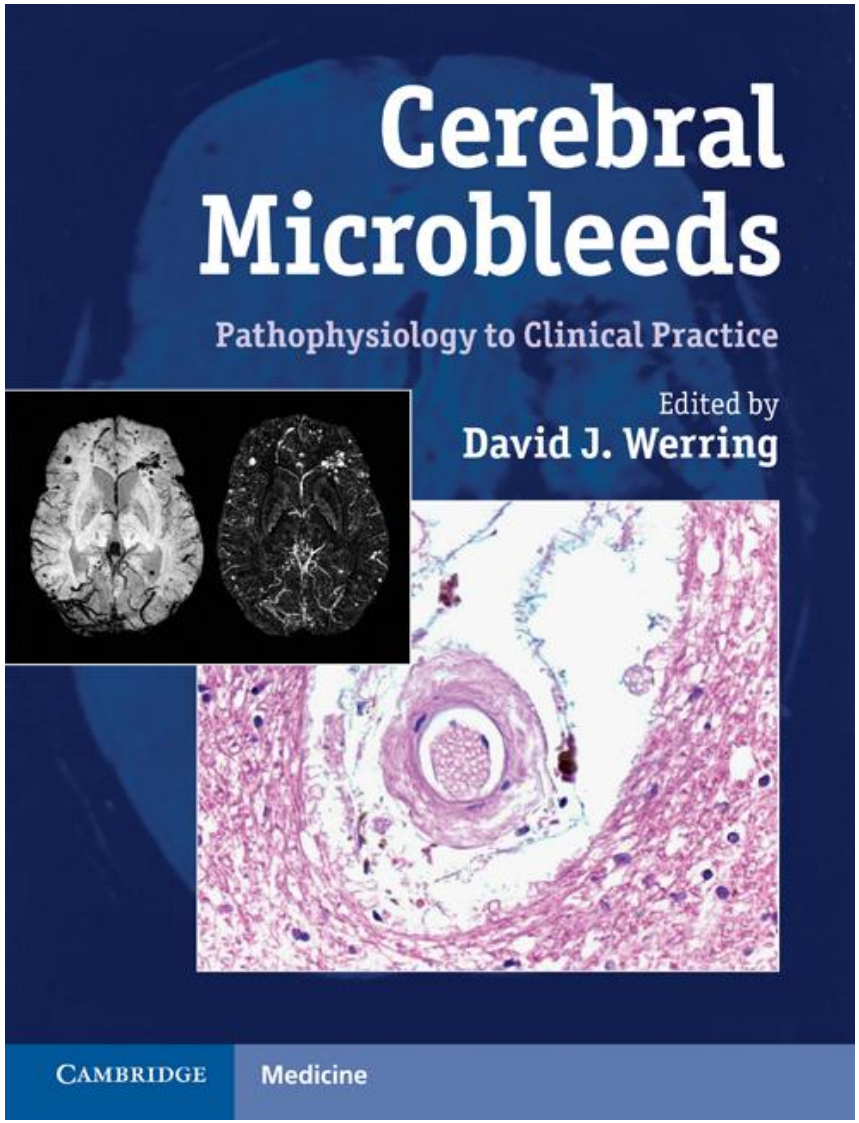
EDITOR'S CHOICE

REVIEW

## Sporadic cerebral amyloid angiopathy revisited: recent insights into pathophysiology and clinical spectrum

Andreas Charidimou, Qiang Gang, David J Werring

*J Neurol Neurosurg Psychiatry* 2012;**83**:124–137. doi:10.1136/jnnp-2011-301308



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