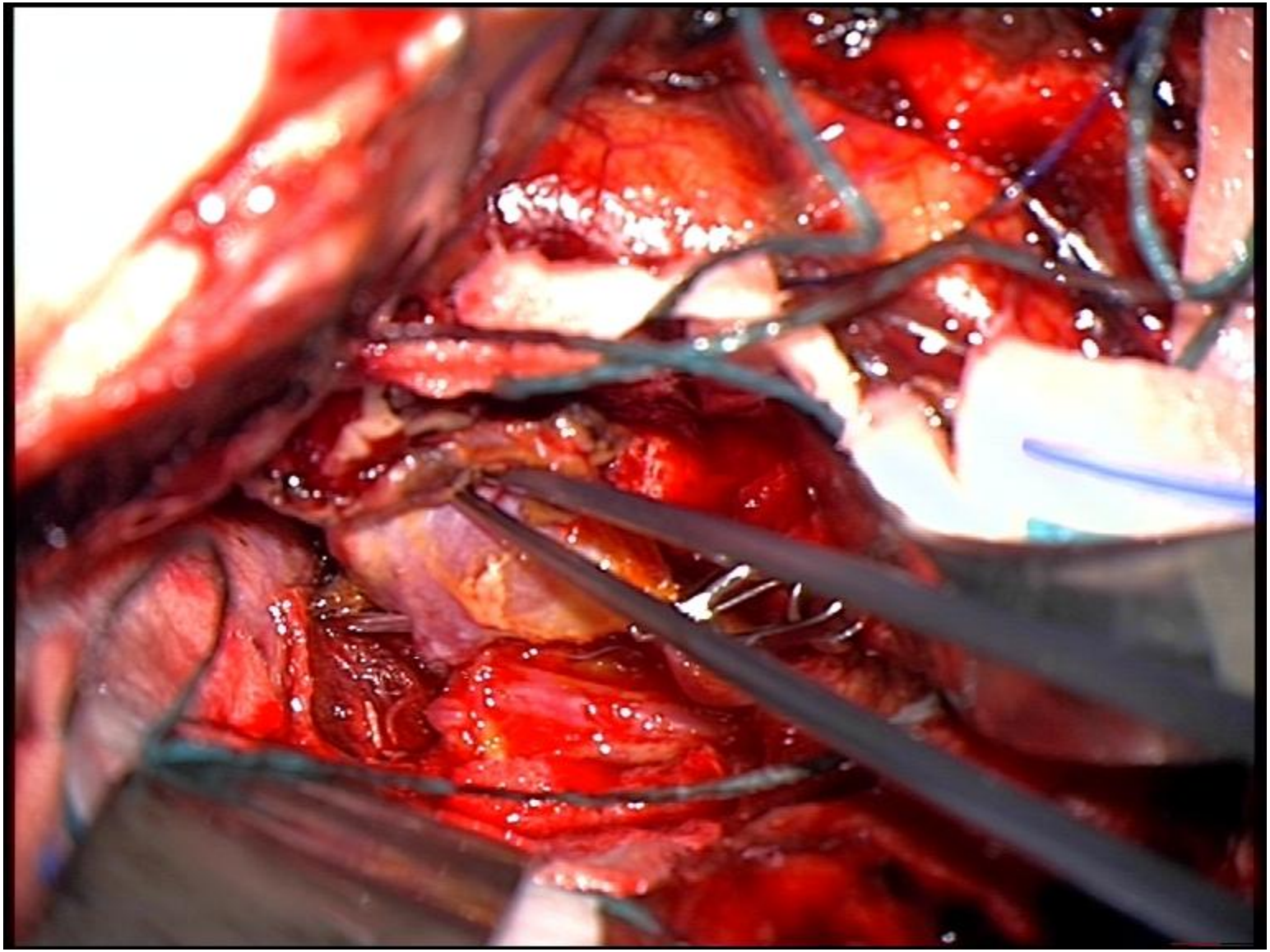
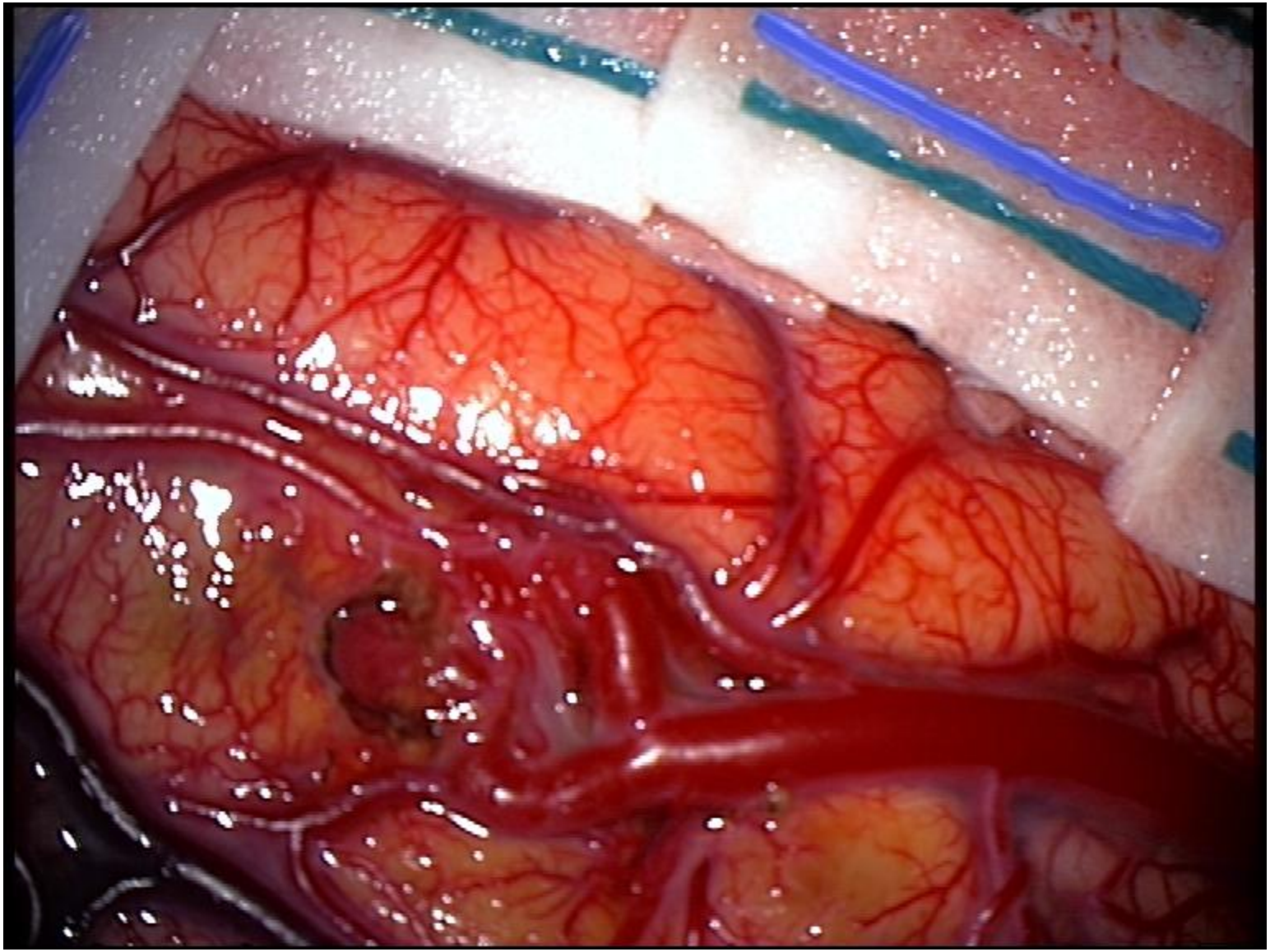
SUBARACHNOID HAEMORRHAGE

Dr T.P Moja
MB.chB (U.C.T), FCS (S.A) Neurosurg

CAUSES

- Traumatic
- Non-traumatic
  - Ruptured aneurysm 75-80% ***"Aneurysmal SAH"***
  - Vascular malformation 5%
  - Vasculopathy
  - Infections
  - Coagulopathy
  - Hypertension
  - Tumours





EPIDEMIOLOGY

- In North America
  - 10-20 people per 100 000 per year.
- MORTALITY
  - 10% die on scene
  - 40% of survivors are disabled

PATHOPHYSIOLOGY

- The amount of blood in the subarachnoid space will determine outcome. A massive haemorrhage is more than 150ml.
- Brain oedema(swelling)
- Raised intracranial pressure
  - Brain oedema
  - Haematoma
  - Hydrocephalus
- Ischaemia
  - Vasospasm
  - Raised ICP
  - Hyoptension

CLINICAL FEATURES

- Severe headache
- Neckstiffness
- Vomiting
- Loss of cosciousness or confusion
- Focal neurological deficits
- Seizures
- Cranial nerve deficits

Grading

- For Prognosis
- Serial evaluation of a patient – Improving or deteriorating
  - Grade 1
    - Mild to moderate severity headache
  - Grade 2
    - Severe headache with or without cranial nerve involvement
  - Grade 3
    - Confusion
  - Grade 4
    - Stupor and focal neurological deficits
  - Grade 5
    - Deep coma

INVESTIGATIONS

- Radiological
  - CT Brain
    - Abnormal 80%
    - Normal CT
  - CT angiogram
  - Conventional cerebral angiogram
  - CXR
- Lumbar Puncture
  - SAH vs Traumatic tap
  - Contraindications
    - Lateralizing signs
    - Coagulopathy

- ECG
- Blood
  - Clotting profile, FBC, U/E

COMPLICATIONS

- **INTRACRANIAL**
  - Rebleed
  - Vasospasm and infarction
  - Hydrocephalus
  - Haematoma – intracerebral, intraventricular, subdural
  - Raised intracranial pressure
  - Epilepsy
- **SYSTEMIC**
  - Pulmonary oedema
  - Arrhythmia
  - Stress ulcers

TREATMENT

- Resuscitation
  - Oxygen, Intubate and ventilate if comatosed.
  - IV fluids
  - May need inotropes
- Analgesia
- Sedation
- Anticonvulsants
- Nimodipine
- Cyclokapron
- Stool softner
- Stress ulcer prophylaxis
- DVT stockings

- <u>Definitive treatment</u>
  - Surgical
    - Clipping of the neck of the aneurysm
    - Trapping the aneurysm
    - Ligation of the parent artery

    - Timing of the surgery
      - Early vs late
  - Endovascular coiling