Introduction to neurosurgery; brief history of Hungarian neurosurgery

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Lectures on neurosurgery

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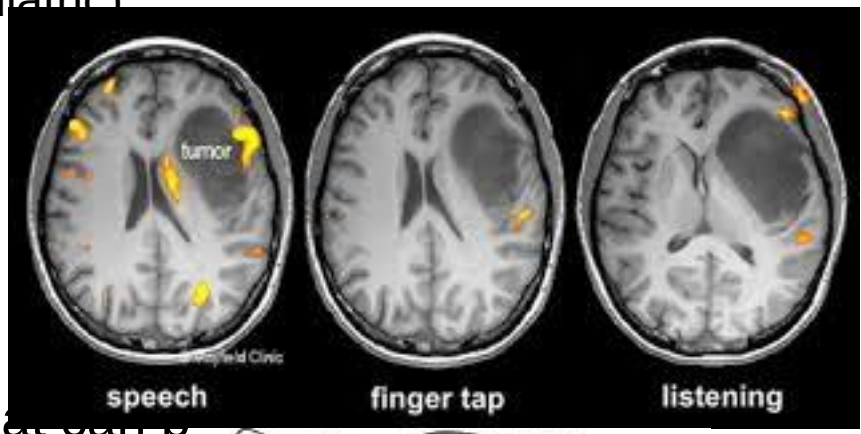
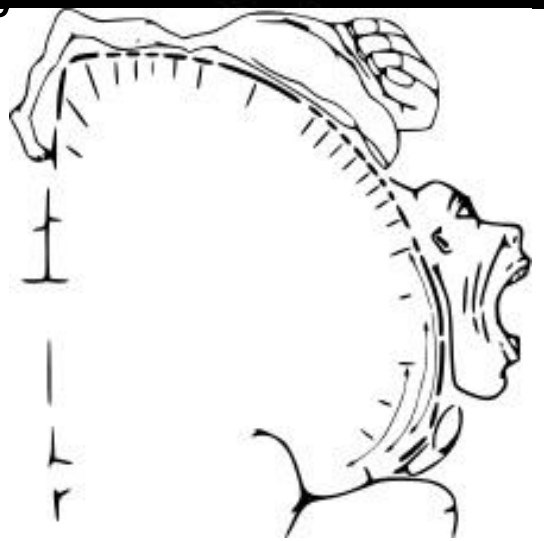
Subject of neurosurgery

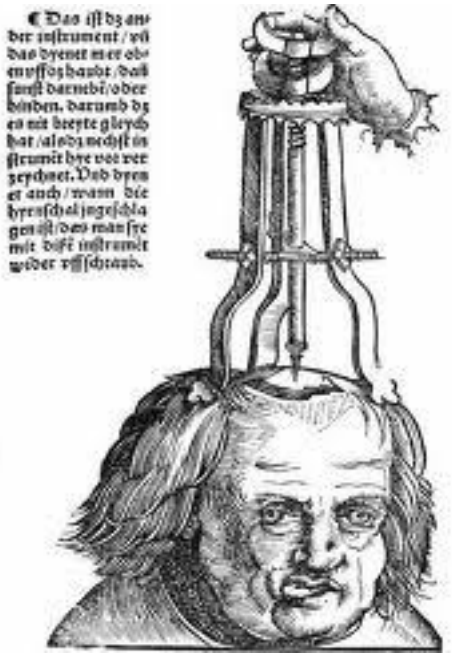
- Surgical treatment of organic disorders of CNS
  - Developmental disorders (mostly pediatric)
  - CNS trauma (TBI and spinal)
  - Tumors
  - Vascular malformations
  - Degenerative pathologies



- Those functional disorders of CNS that can b
  - Certain types of epilepsy
  - Movement disorders
  - Chronic pain
  - Psychiatric disorders

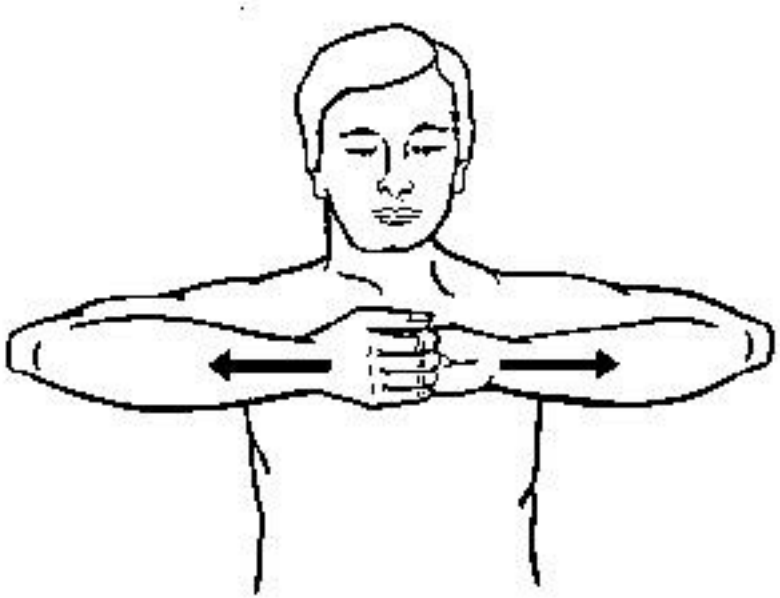


Brief historical account



Sine qua non conditions of modern neurosurgery

- Development of neuroanatomy – evolution of neurology as speciality *per se* (symptomatology, pathology, localization)
  - Camillo Golgi (1843-1926), Santigo Ramón y Cajal (1852-1934), Lenhossék Mihály (1863-1937), Szentágothai János (1912-1994)
  - Jendrassik Ernő (1858-1921)

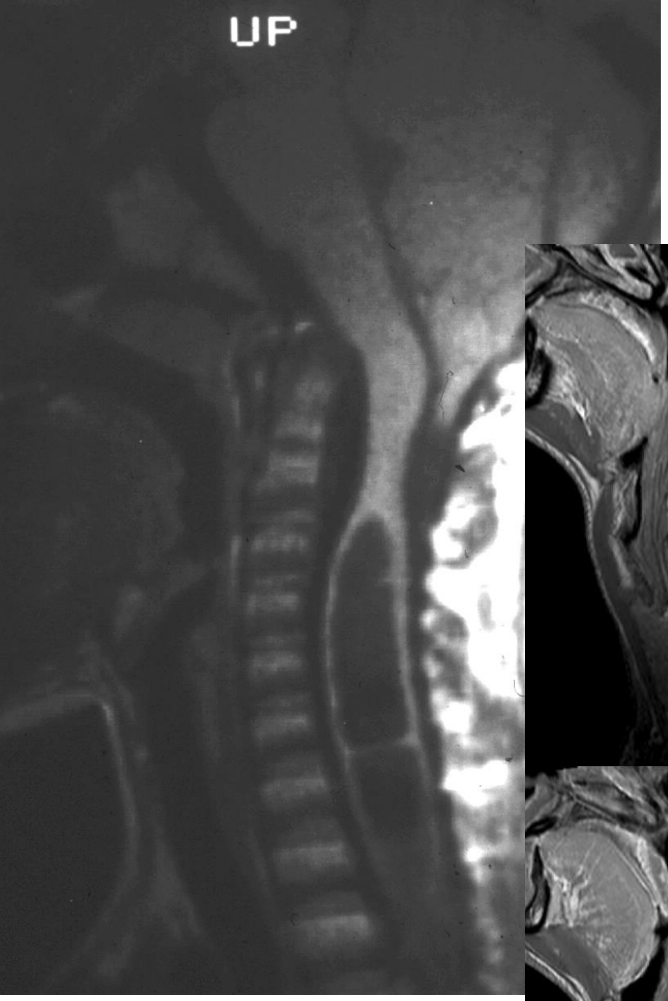


- Ability to suspend pain
  - Development of narcosis and ar
- Antisepsis, asepsis
  - Semmelweis Ignác (1818-1865),
  - Sir Joseph Lister (1827-1912)

Definition of pain

International Association for the Study of Pain (1994)

„An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”



syringomyelia

CIP (congenital insensitivity to pain)

Medical science and pain

- Reversible suspension of pain
  - Beginning of modern surgery

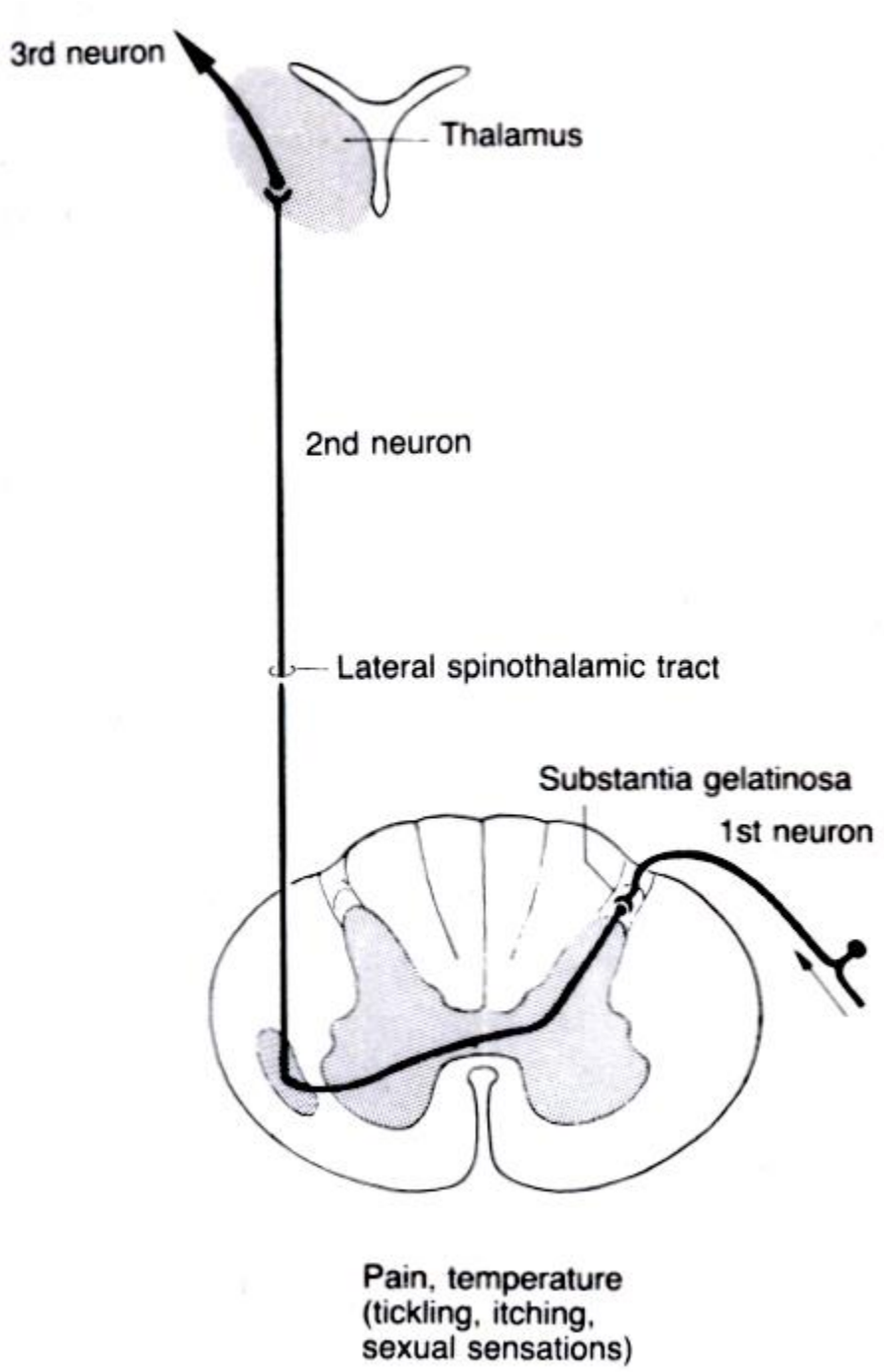
- Treatment of painful chronic states
  - Medical
  - Surgical - neurosurgical
  - Other procedures

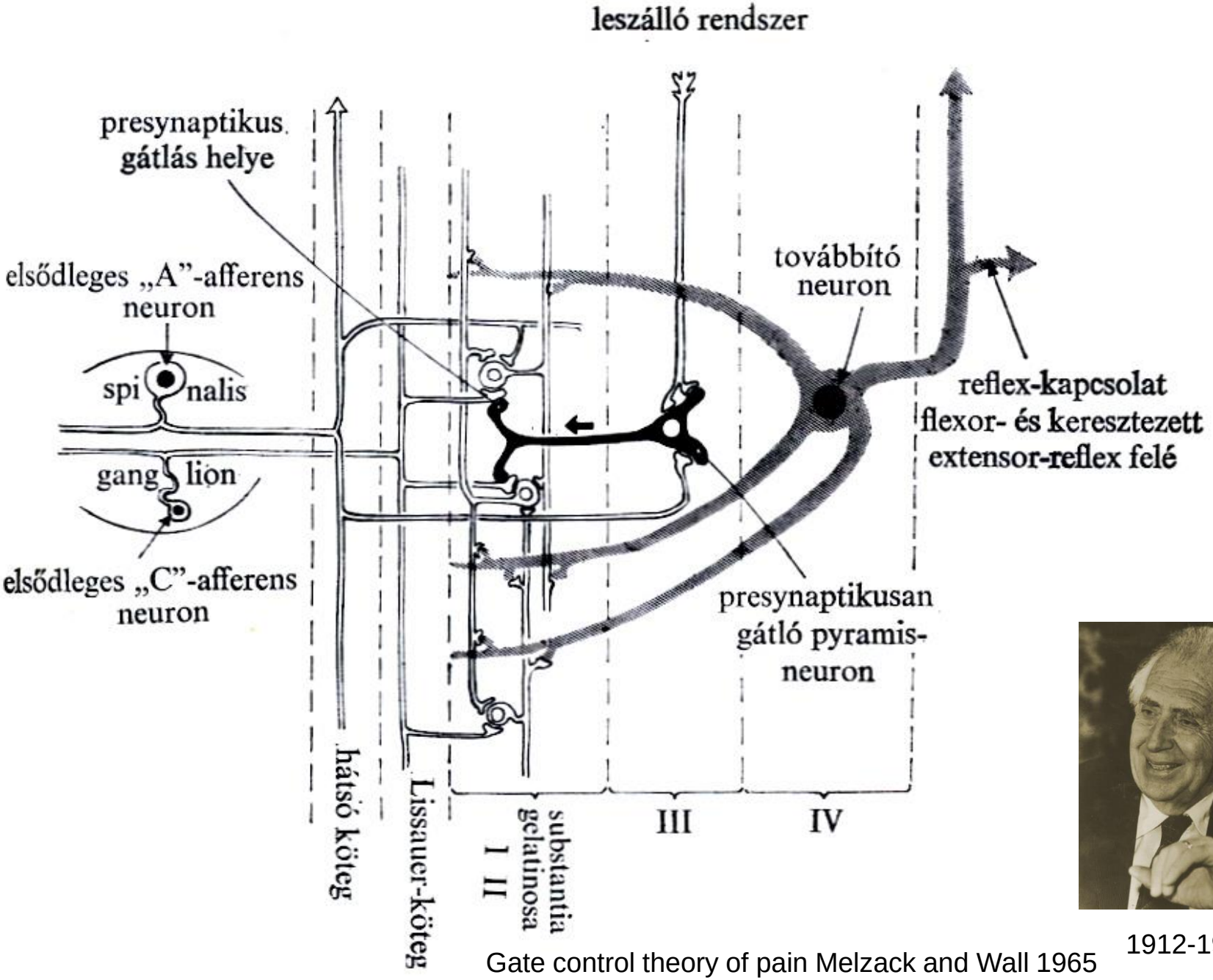
Anatomy of pain

Types of nociceptors

1. Mechanosensitive
2. Thermosensitive
3. Chemosensitive (histamin, bradykinin, prostaglandins, K-ion, acidic compounds, etc.)

Coupling of a nociceptive peripheral nerve to the central pathways

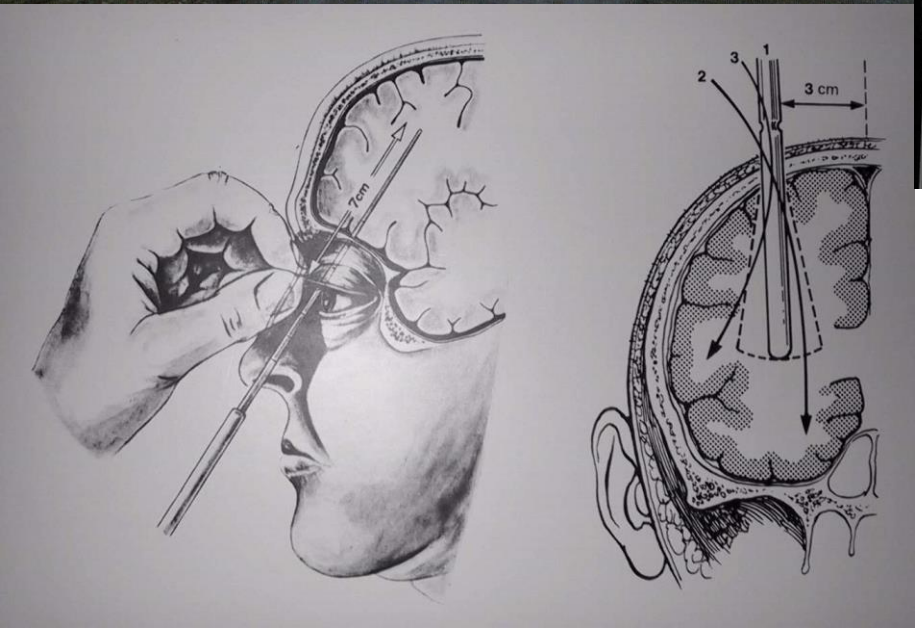




1912-1994

Gate control theory of pain Melzack and Wall 1965

Walter Freeman demonstrerar tekniken vid lobotomi. Western State Hospital, Washington, 1949.



Egas Moniz
1874-1955

LIVING MADE EASY.

PRESCRIPTION FOR SCOLDING WIVES.

London. Pub.d by T. M.c Lean, 26, Haymarket, Jan.y 1. 1830.

George Berkeley
1685-1753

ESSE EST PERCIPI...

Neurosurgical parallel of this theorem

ESSE EST VIDERI…

visualize

and

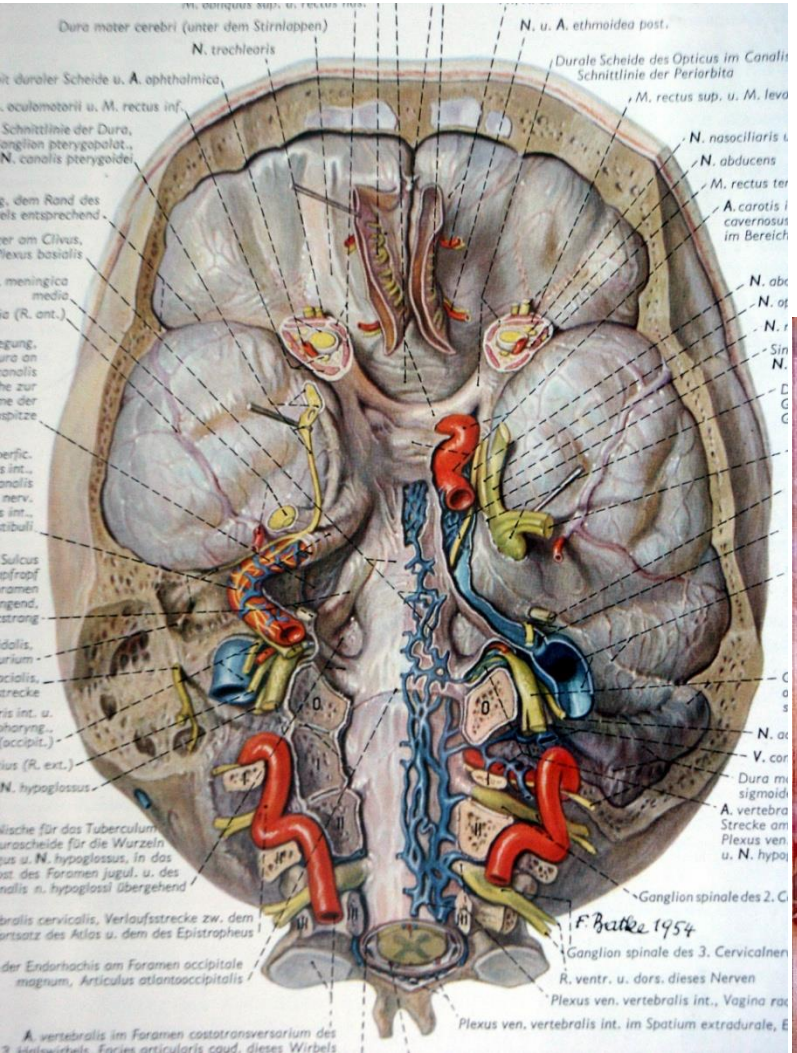
localize

Any pathology within the CNS that can be visualzed may also be subject of neurosurgical procedure

Localisation by deduction

Walter Dandy 1937

Baltimore, USA



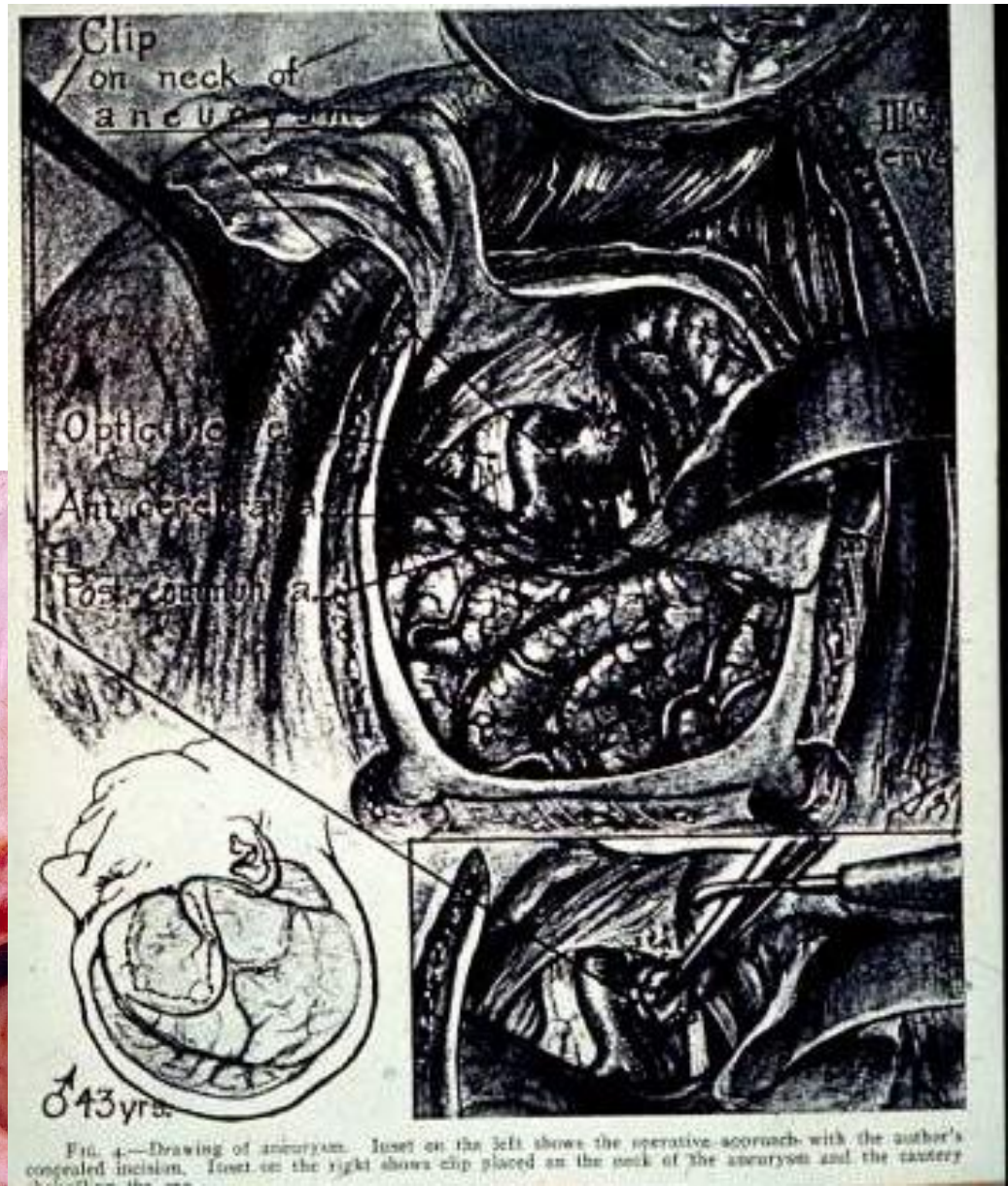


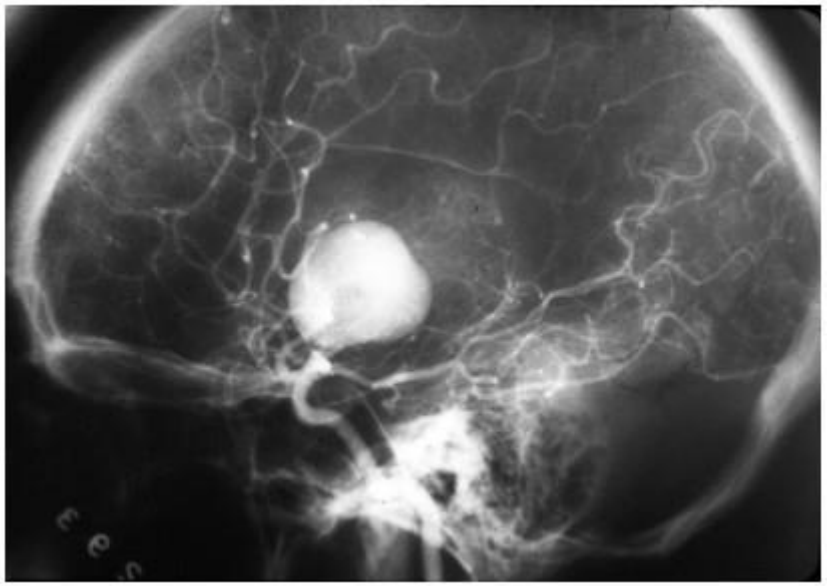
FIG. 4.—Drawing of aneurysm. Inset on the left shows the operative approach with the author's concealed incision. Inset on the right shows clip placed on the neck of the aneurysm and the cautery

X-ray – X-ray pictures

Angiography since 1927

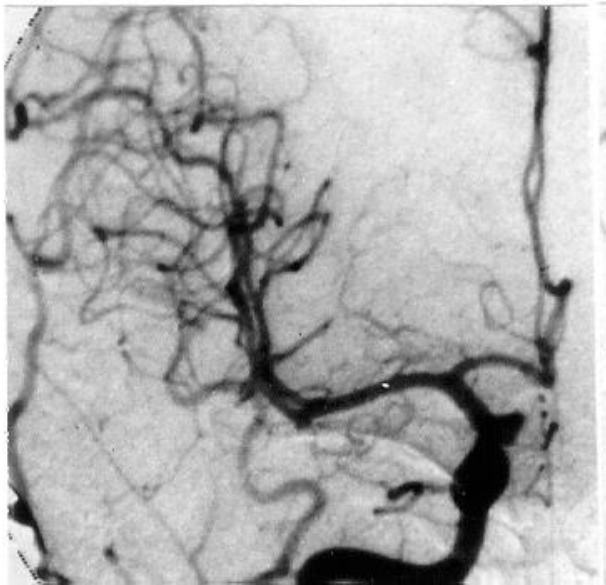
António Caetano de Abreu Freire Egas Moniz

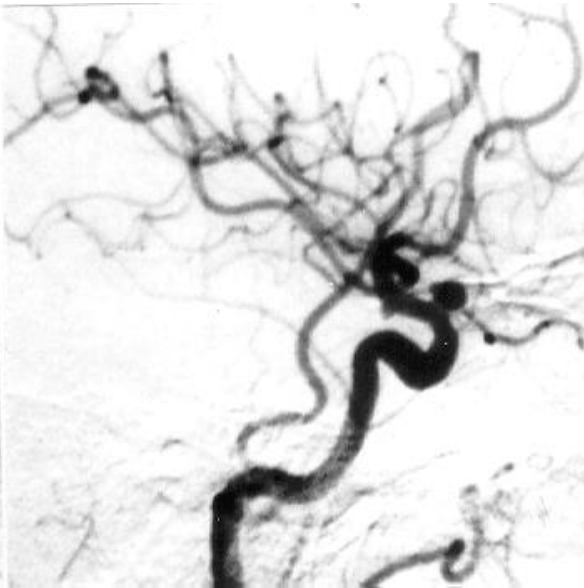
1874-1955



Conventional

DSA angiography →

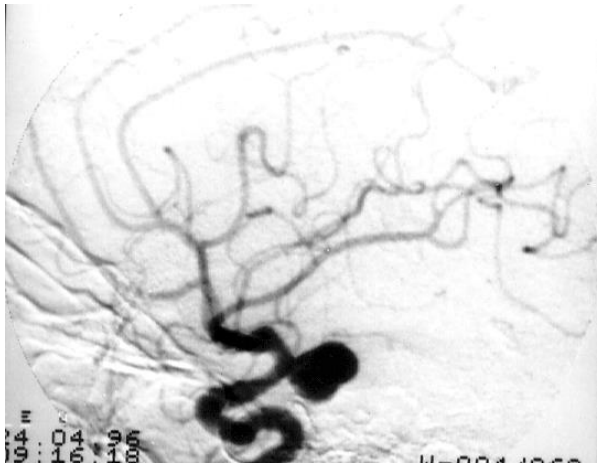




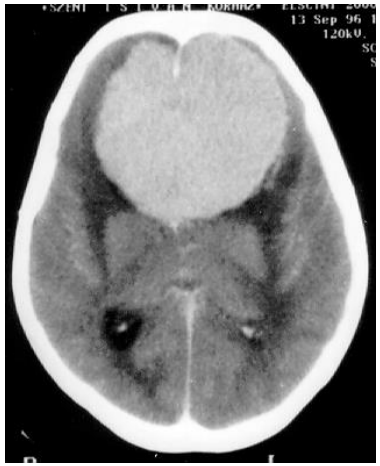
Sir Godfrey Newbold Hounsfield
1919 - 2004

Computerized image reconstruction

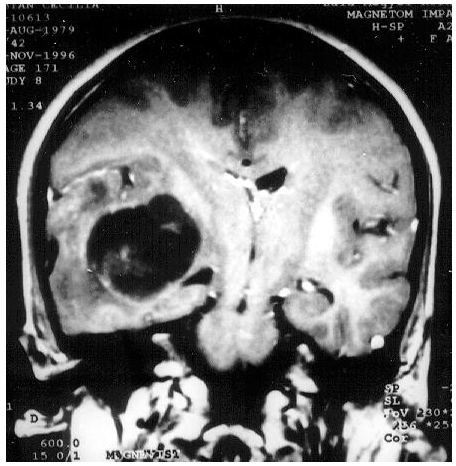
High resolution visaulization in 3D



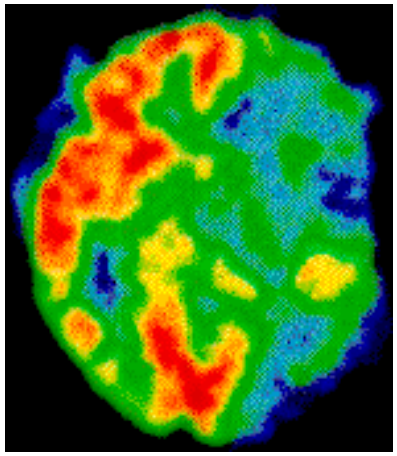
DSA



CT

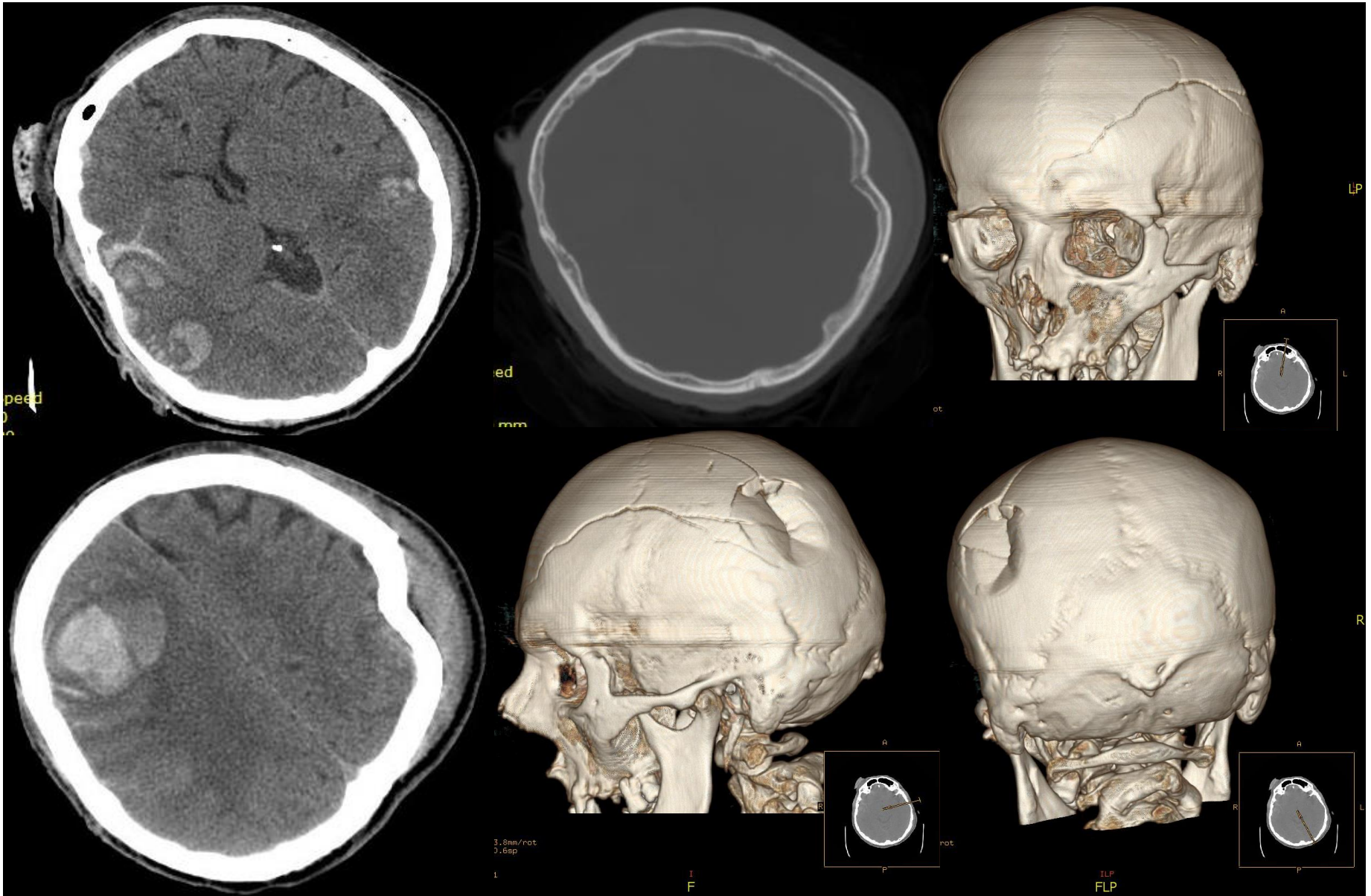


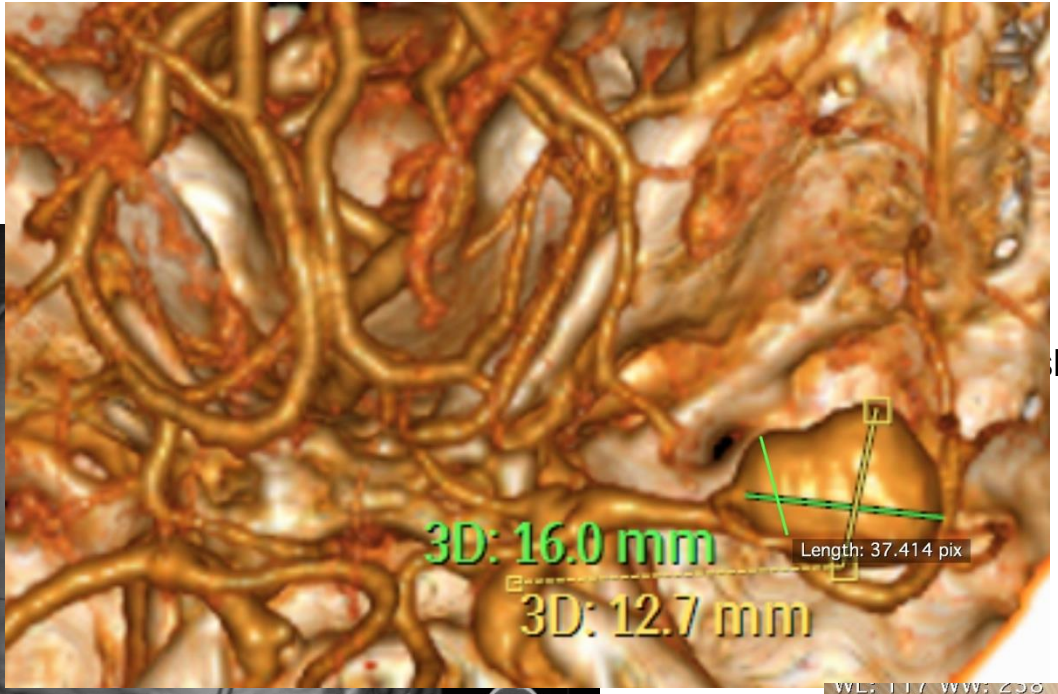
MRI



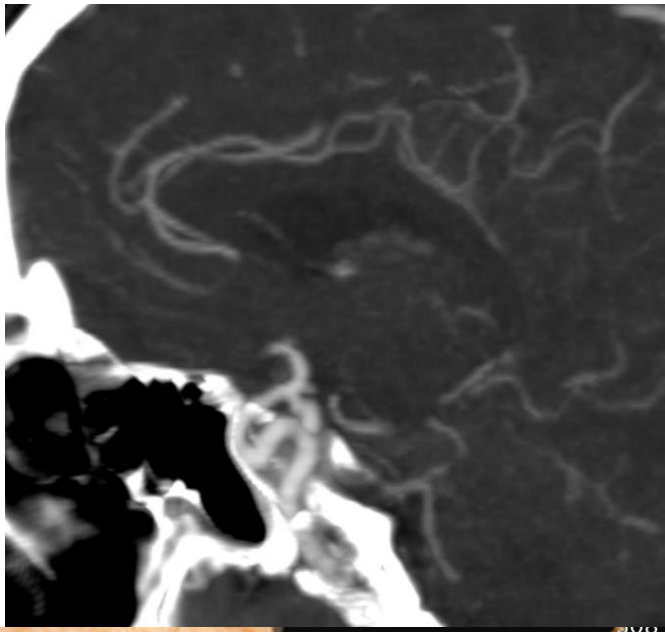
PET

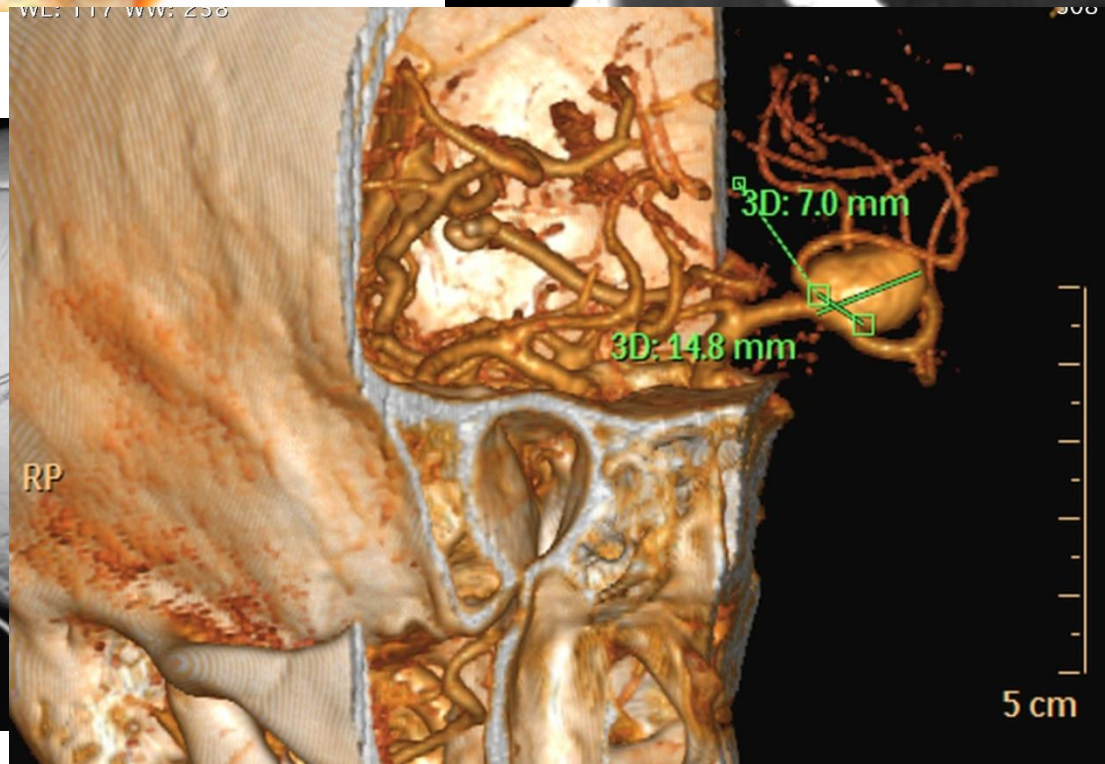
What is the use of modern imaging technology?





shunt line

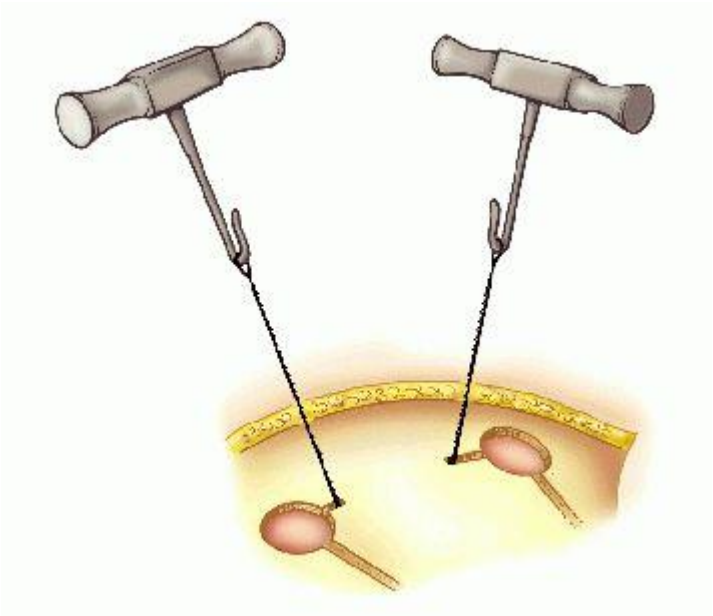




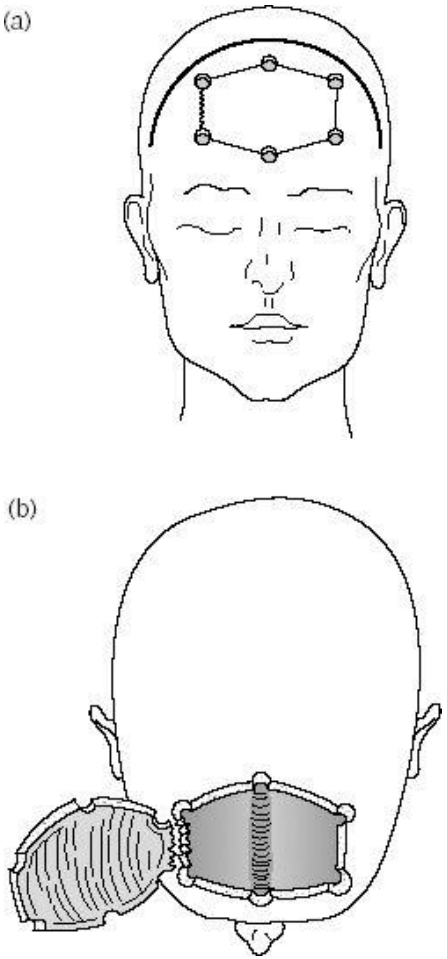
Surgical approach

???

Craniotomy

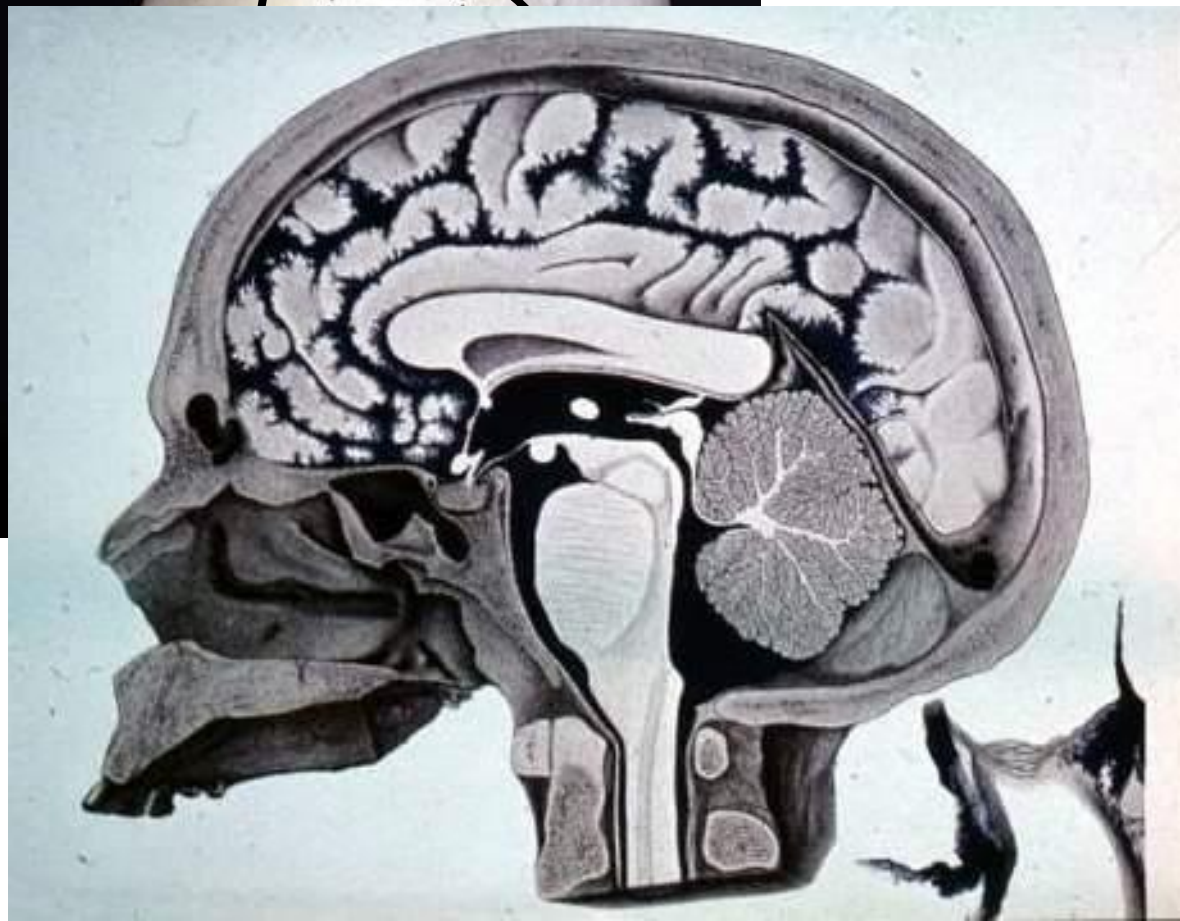


Gigli saw



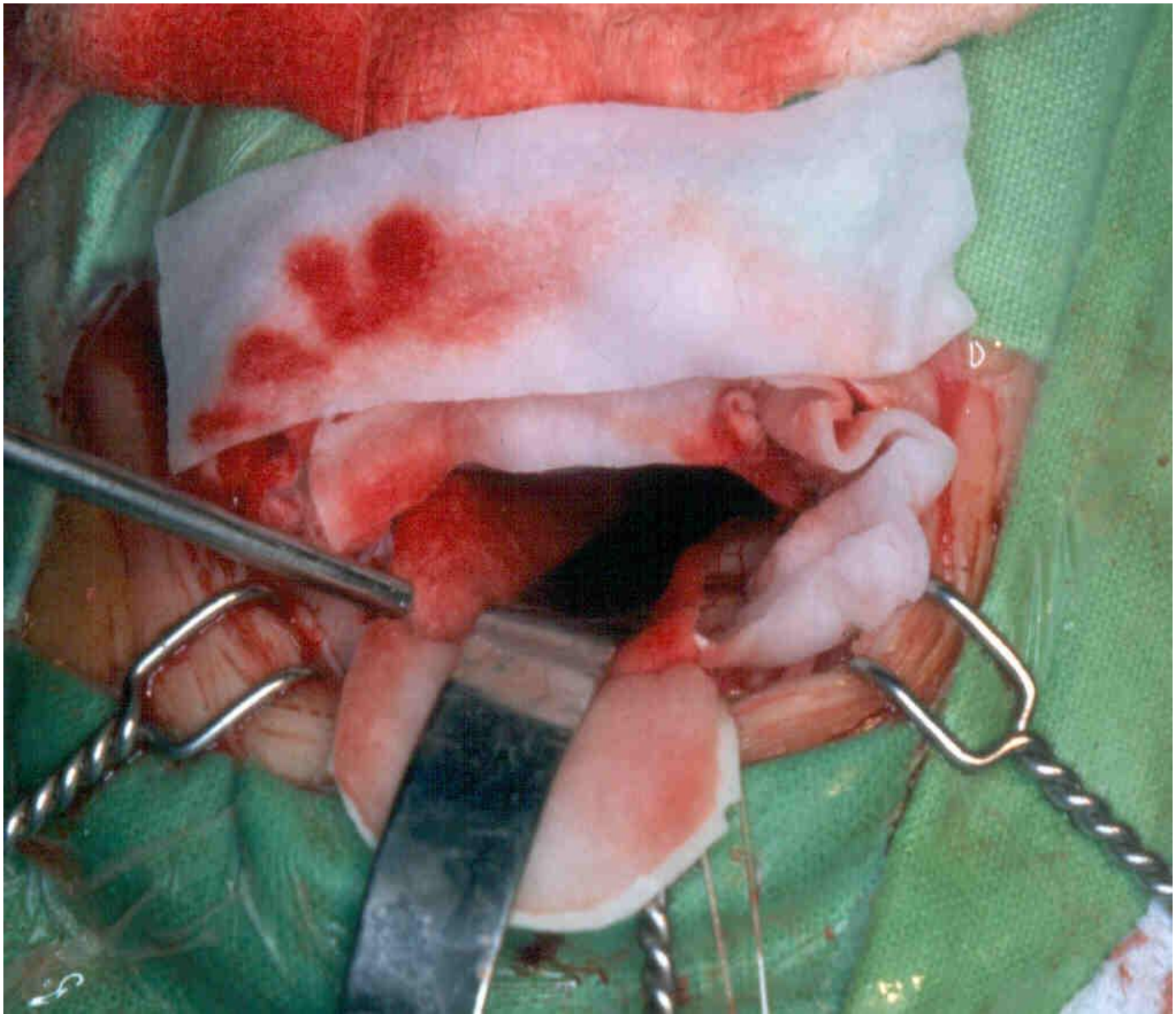
Leonardo Gigli (1863-1908)

Microsurgical approach



Neurosurgical approach

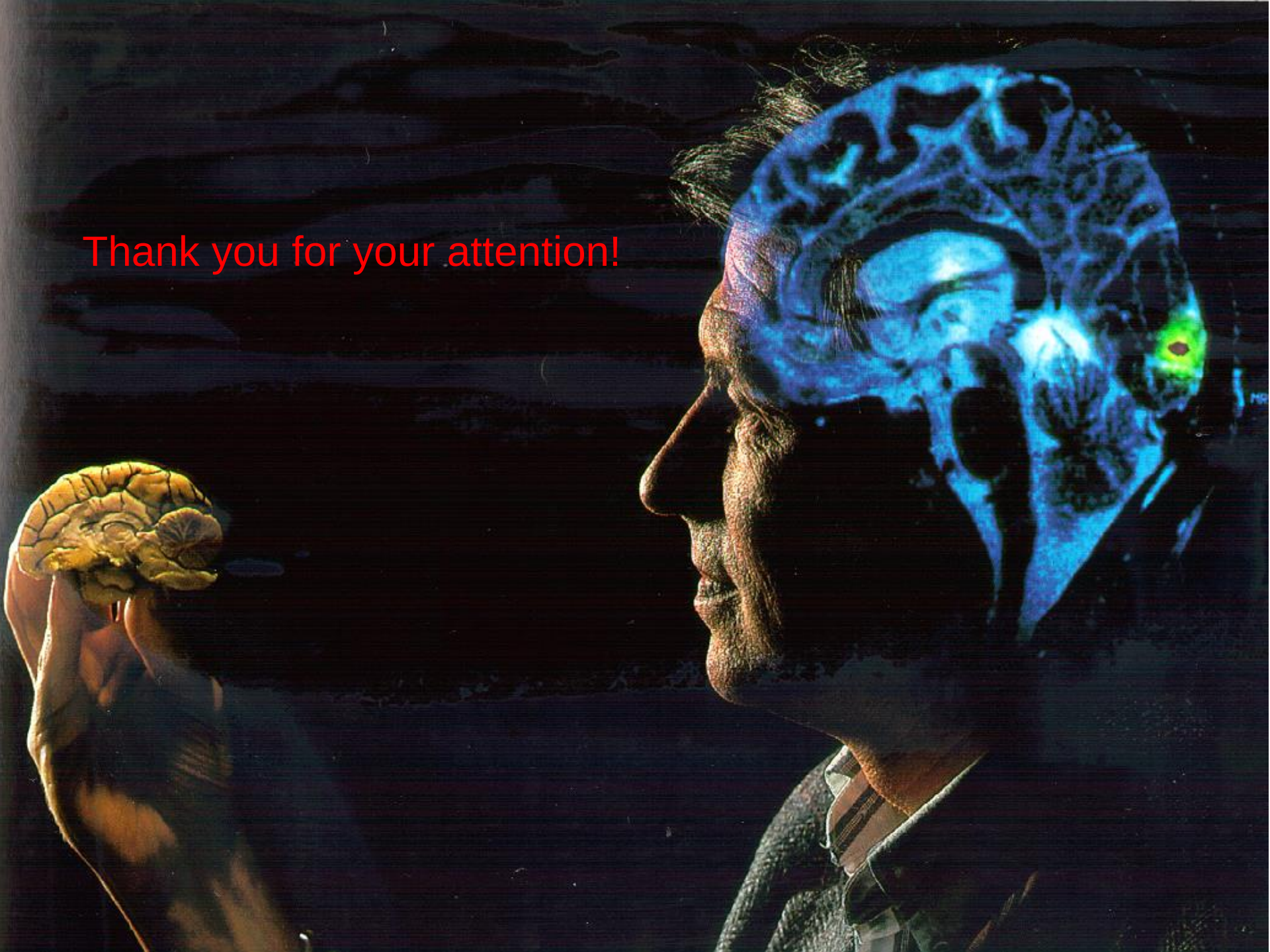
fronto-lateral, supraorbital, osteoplastic craniotomy, superciliar cut




ZEISS


Carl Zeiss
SONY
OPMI


Dräger
68
99


Thank you for your attention!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