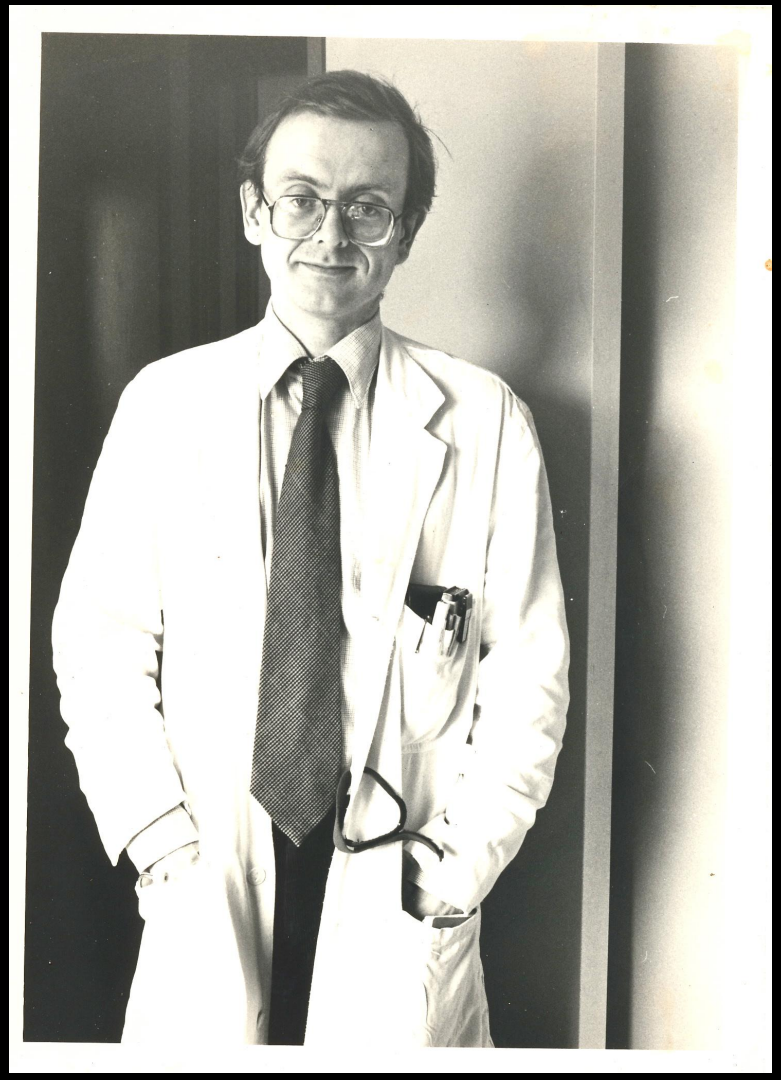
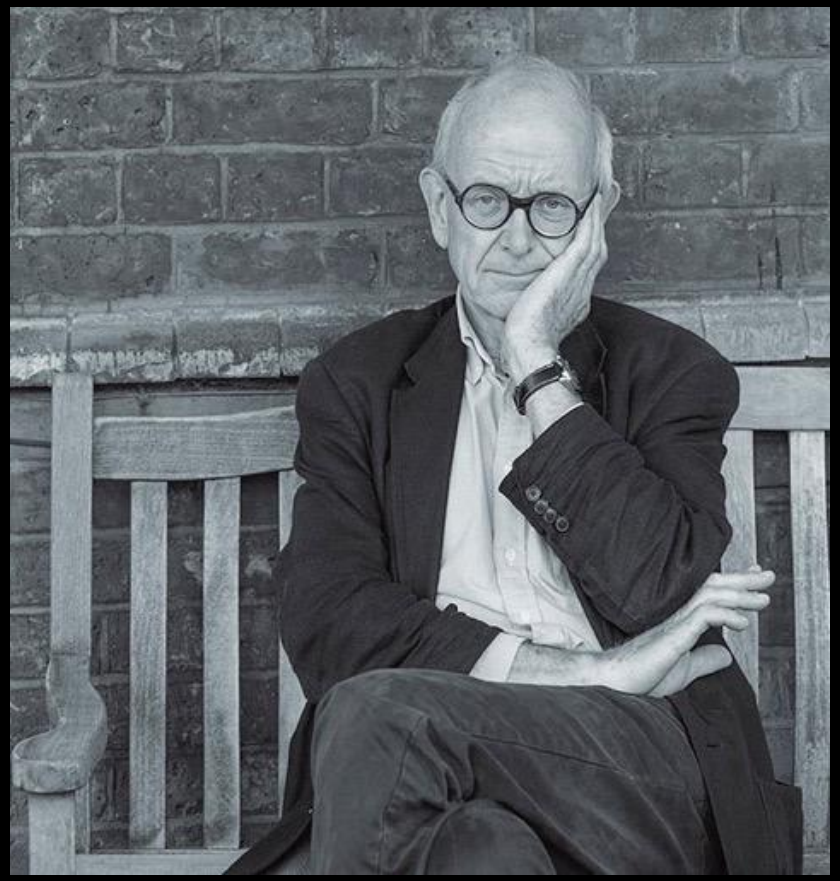
# What I learned from 40 years of neurosurgery

Henry Marsh

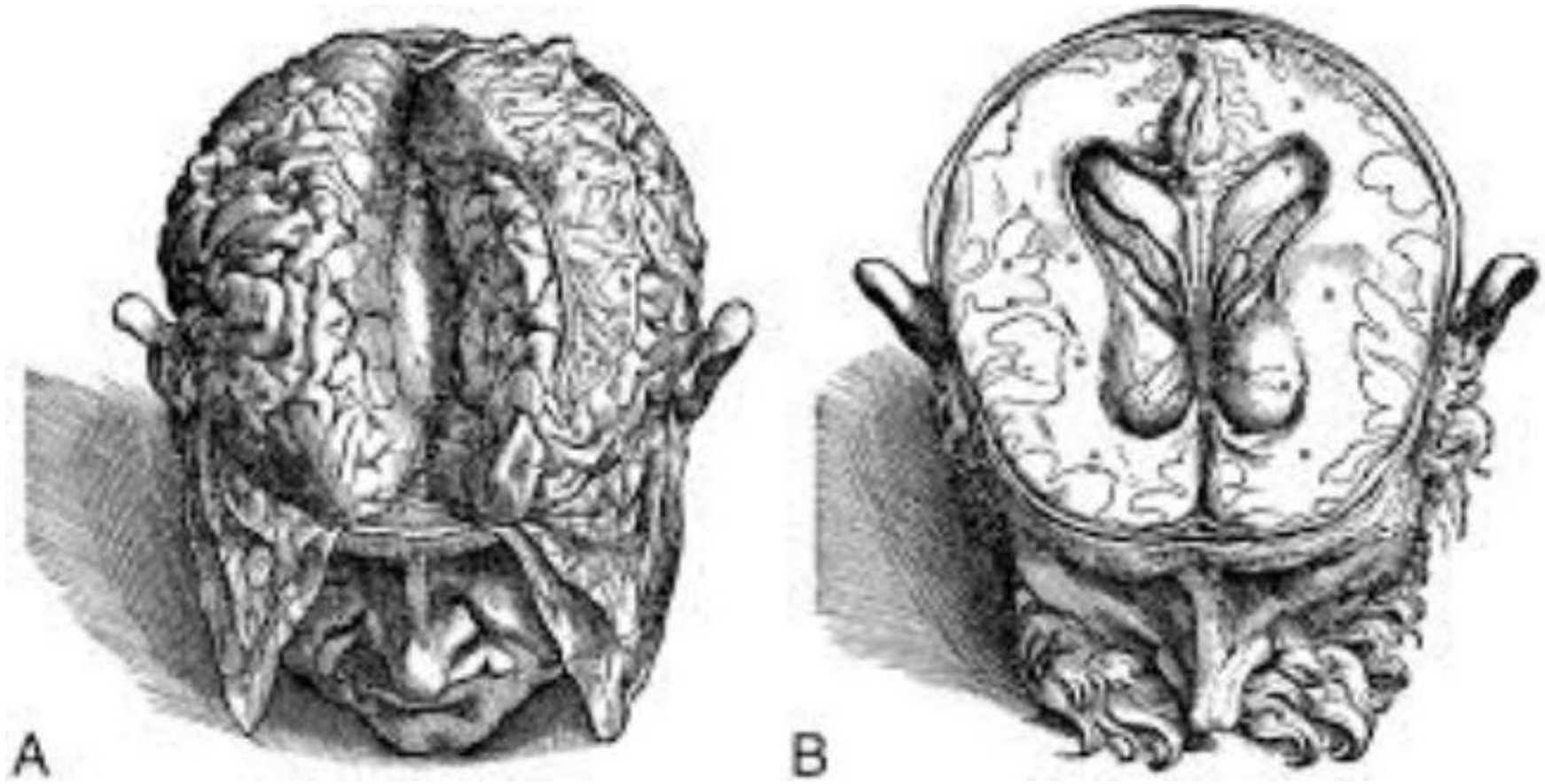
St George's Hospital





# Why did I become a neurosurgeon?

- Excitement and drama
- Love of patient care
- Fascination with the brain
- Using my hands
- Power and status
- Altruistic violence
- Money
- Inspiring teacher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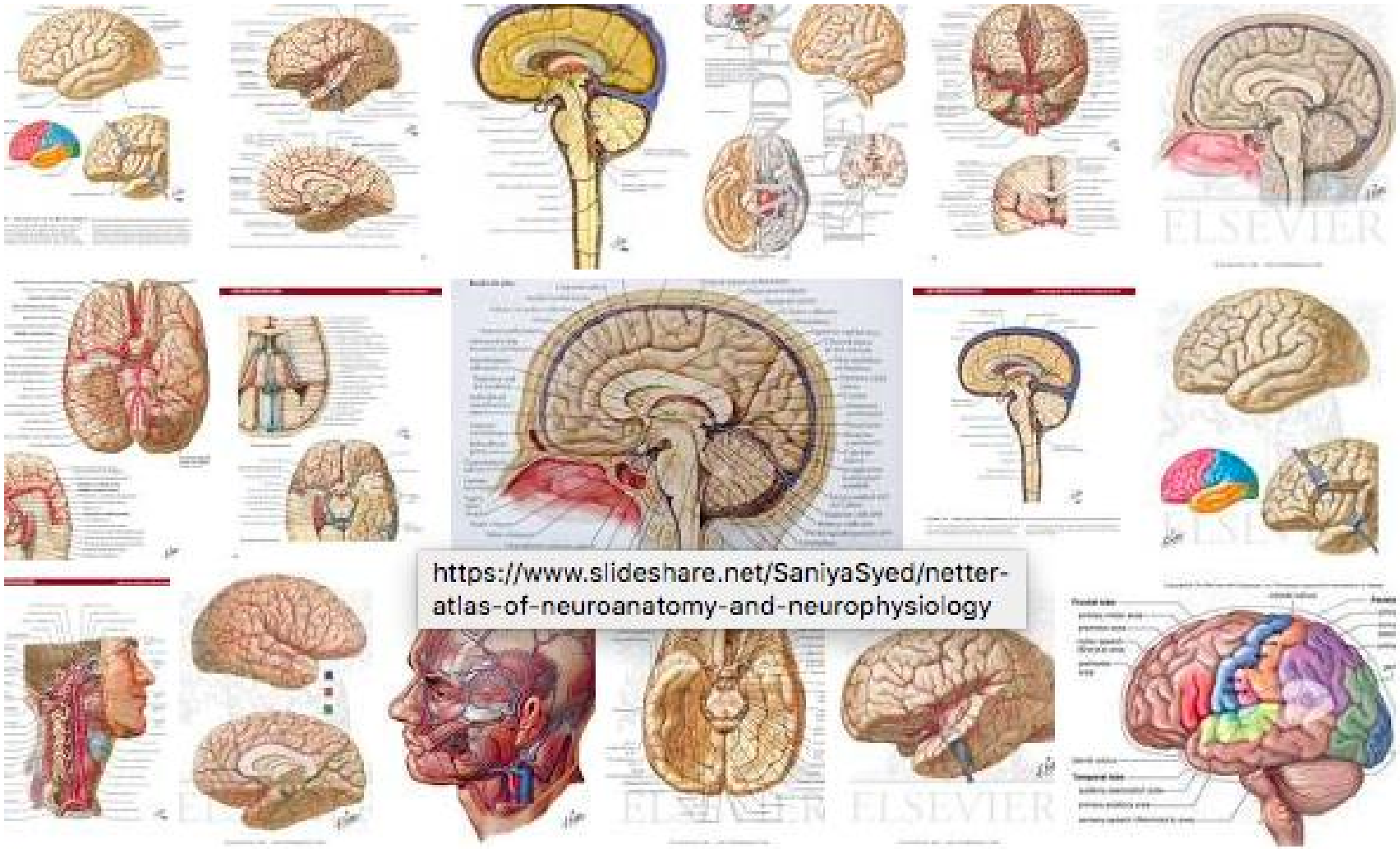



More images for netter brain

Report images

“I sit on a committee with other residency directors. As you probably know, the US also implemented duty hour restrictions.  A number of years ago our then head of Neurosurgeon came to the committee and asked for an exemption to the 80 hour a week rule. When the committee asked why an exemption should be given to neurosurgery and not the others, he said:

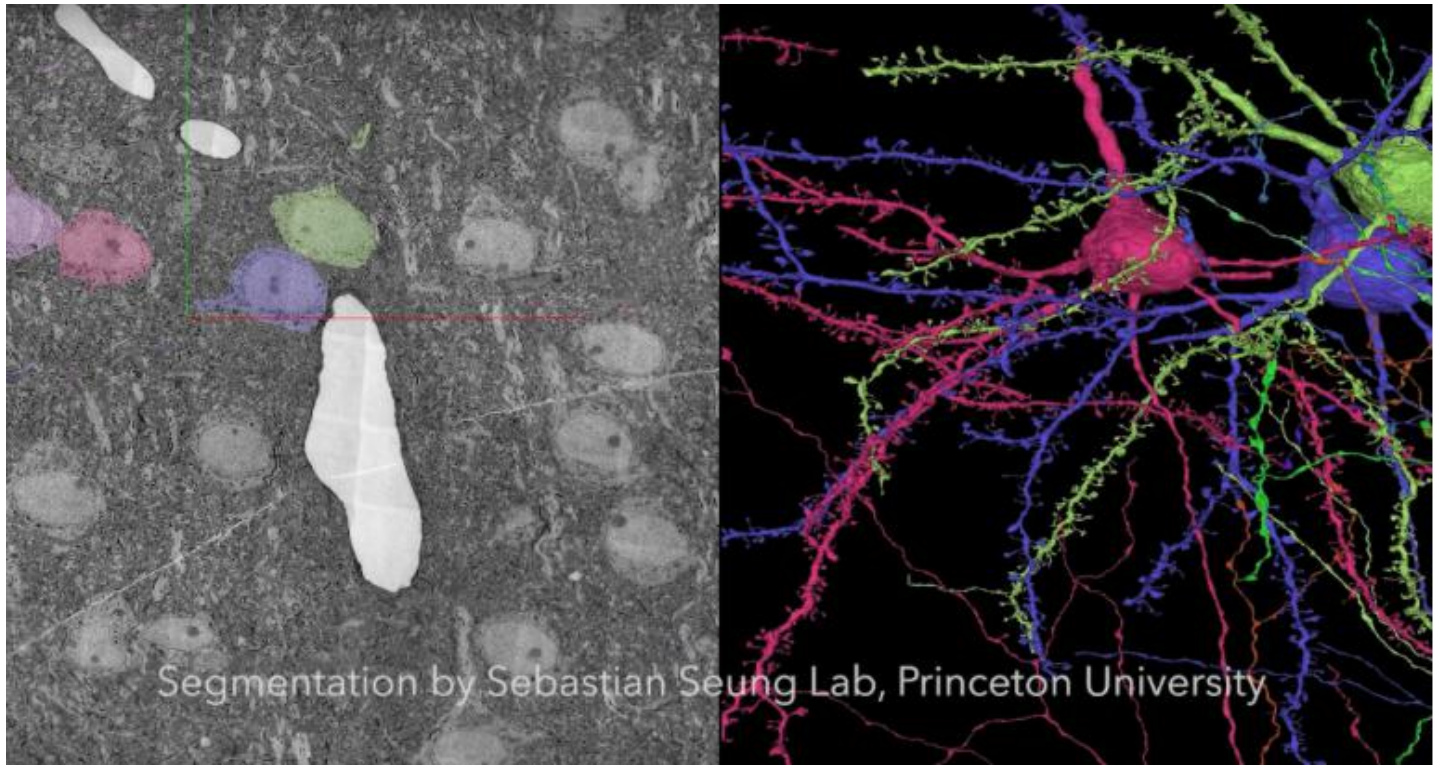
- ‘because neurosurgeons are superior humans, mentally, physically and sexually’.

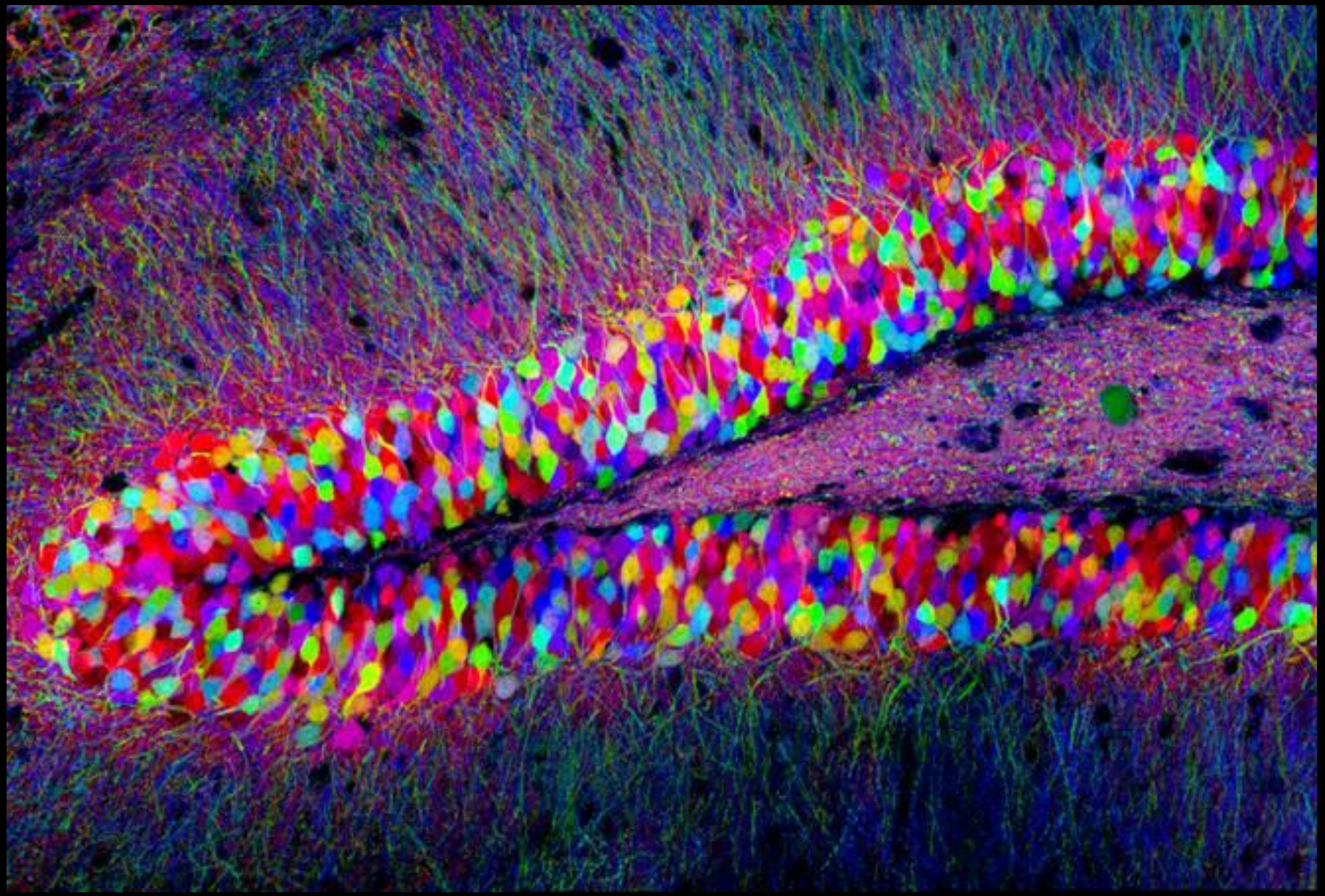
- You can’t make this stuff up!”

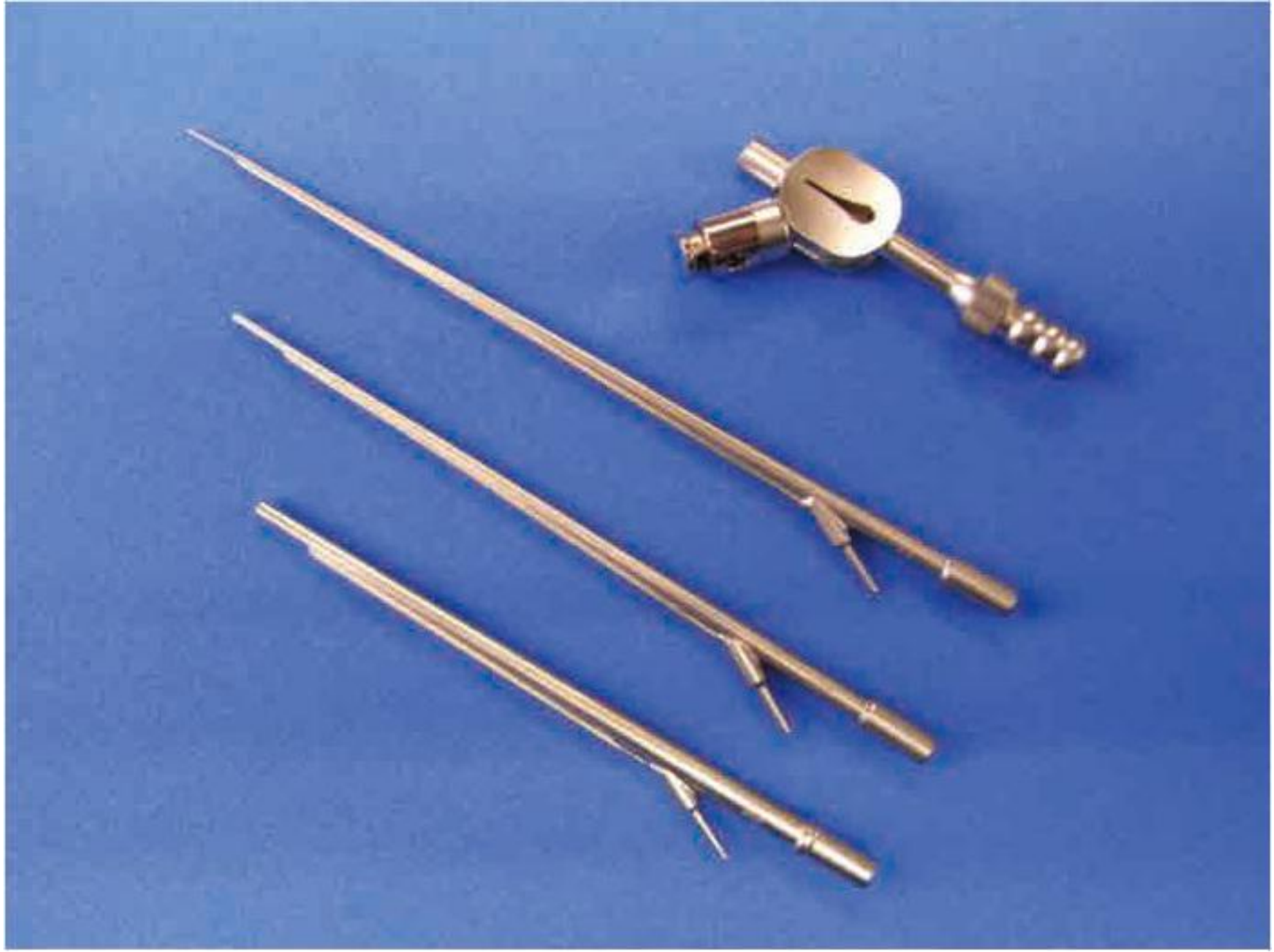
- Dr Linda Hill. UCSD

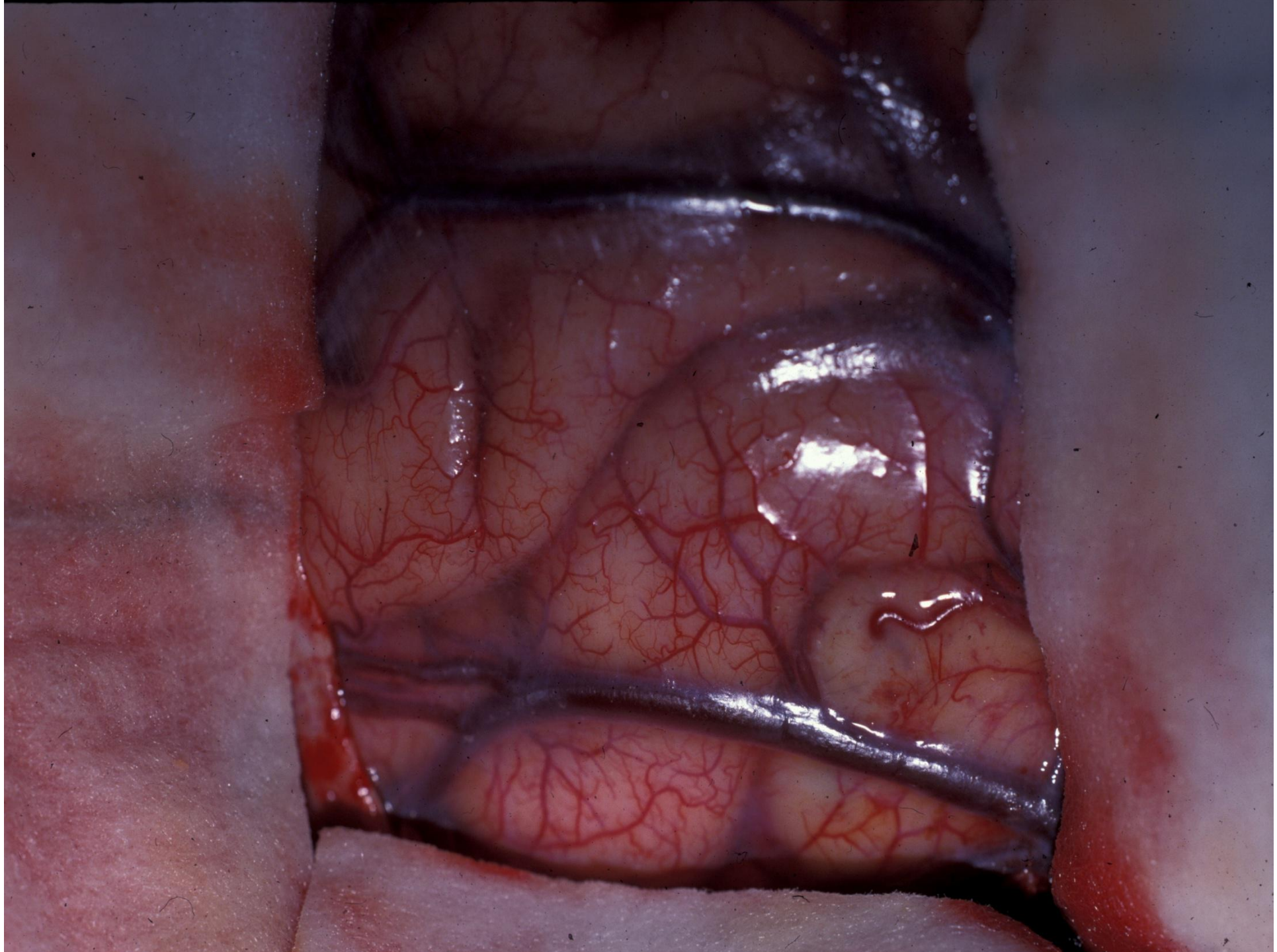
# One cubic millimetre of cortex ( human brain about 1450 cc)

- 50 - 100,000 neurones
- A billion synapses









*British Journal of Neurosurgery* (1990) 4, 485–491

**ORIGINAL ARTICLE**

# Cortical mapping and resection under local anaesthetic as an aid to surgery of low and intermediate grade gliomas

A. RICHARD WALSH, RICHARD H. SCHMIDT & HENRY T. MARSH

*Department of Neurosurgery, Atkinson Morley's Hospital, London, UK*

**Abstract**

We report four cases of the use of per-operative cortical mapping during craniotomy under local anaesthesia to define the relationship between the glioma and speech and somatosensory cortex. This enabled a radical subtotal (two cases) or an apparent total (two cases) excision of the tumour close to somatosensory and speech cortex with no permanent neurological deficit. Use of this technique allows radical excision of intrinsic low and intermediate grade gliomas that would otherwise be considered unexcisable and may lead to an improved survival.

**Key words:** *Glioma, cortical mapping, neurostimulation, tumour excision.*

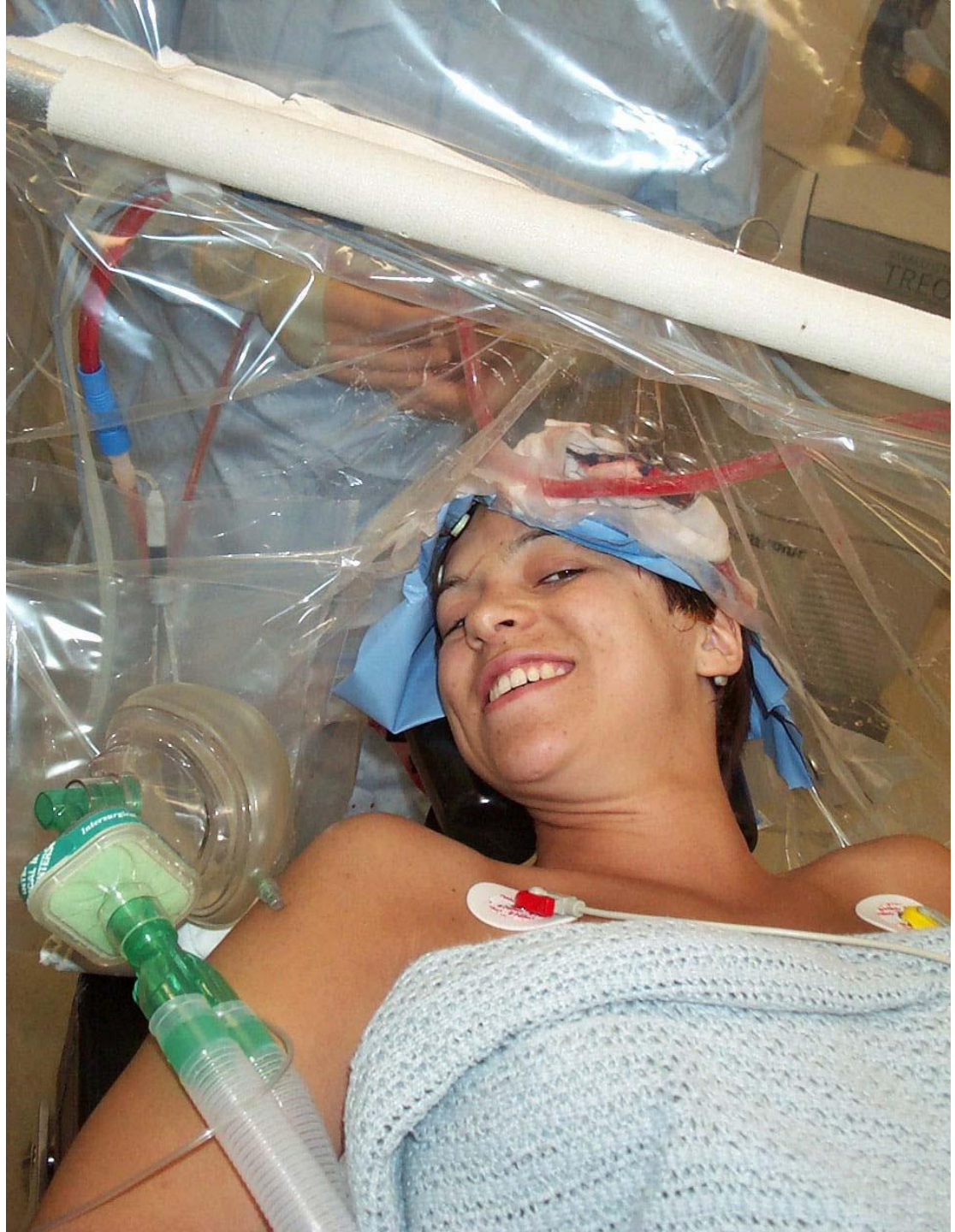
## Introduction

With the increasing availability of CT and more recently MRI scanning the majority of patients with adult onset epilepsy will be investigated by one of these scanning modalities. More patients with the radiological appearances of low grade gliomas will be identified. The correct management of these tumours remains controversial, varying from no treatment and regular follow-up to surgical resection of the tumour with adjuvant radiotherapy. More recently evidence favouring radical surgical resection in association with adjuvant radiotherapy has been presented.[1–4]

One of the major limitations to surgical excision of these lesions has been the risk of producing a neurological deficit in patients whose only symptom is epilepsy. This is a particular problem with tumours adjacent to the primary sensorimotor, or speech cortex. Cortical mapping has been used as an aid to cortical resection in epilepsy surgery since the pioneering work of Penfield and his co-workers.[5–6] We report the use of awake craniotomy using cortical mapping to identify the primary sensorimotor and speech cortex, thus enabling maximal resection of the low and intermediate grade gliomas, supporting previous work in this field.[7–8]

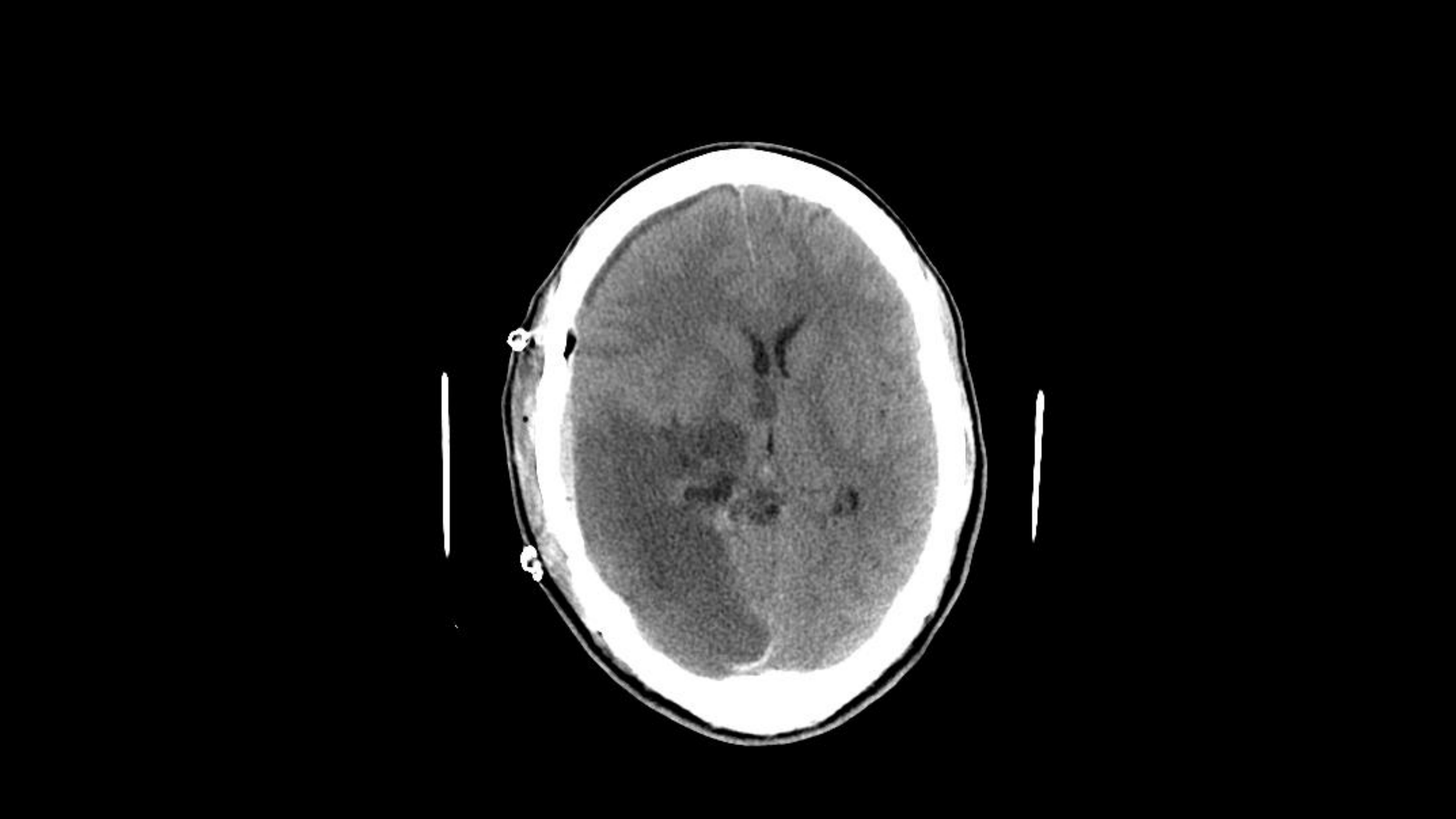
## Method

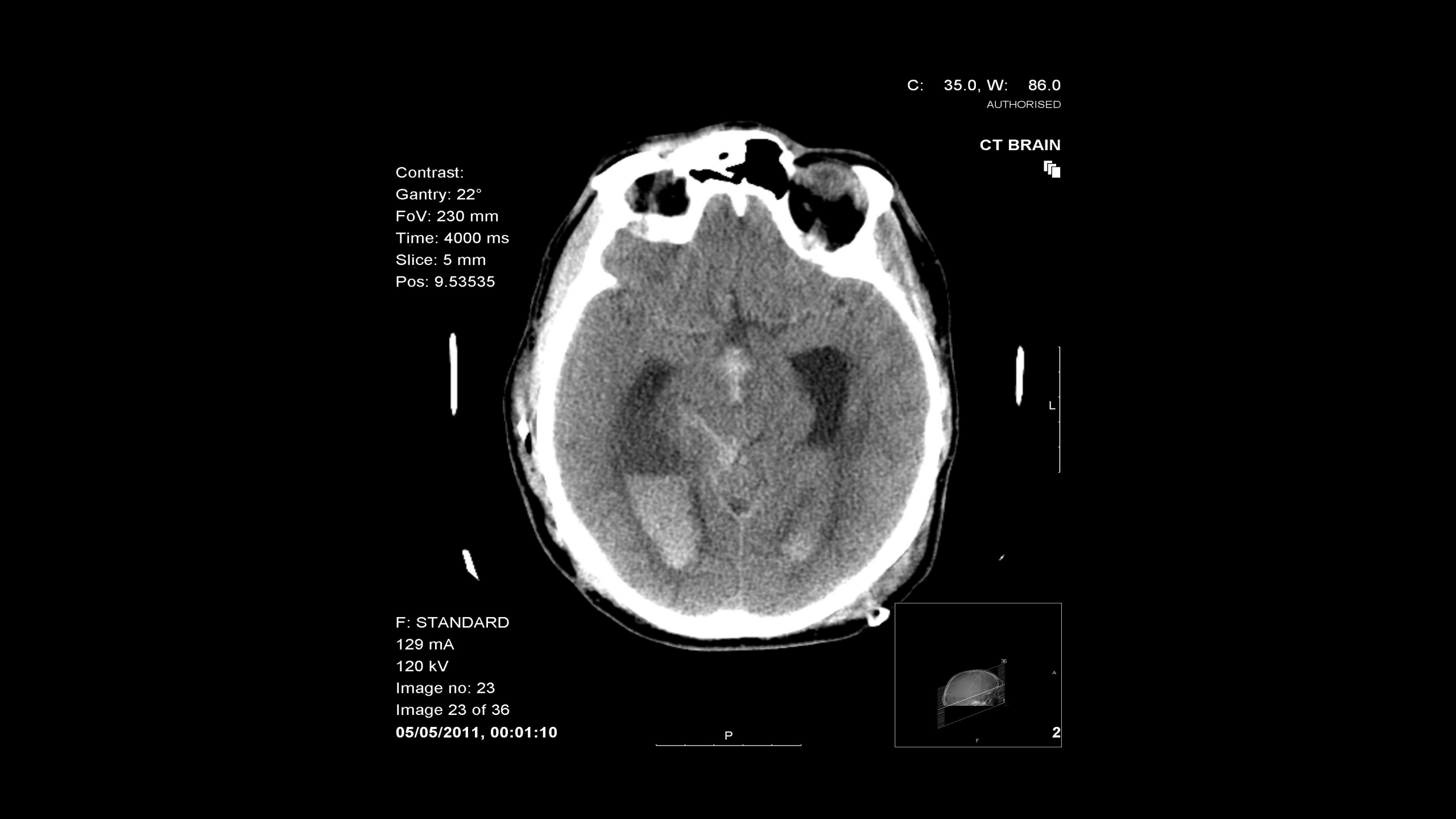
Careful attention to comfort of the operating table is required. Per-operative sedation is produced with a combination of diazepam and propofol, or a combination of Fentanyl, Midazolam and Droperidol. Local scalp anaesthesia is achieved using a field block with a mixture of equal volumes of 0.5% lignocaine and 0.25% marcaine. A standard craniotomy is then performed using an osteoplastic bone flap. Elevation of the bone flap sometimes caused discomfort due to dural sensation, usually



# Not only power and glory but also…

- Shame
- Fear
- Guilt
- Empathy hurts

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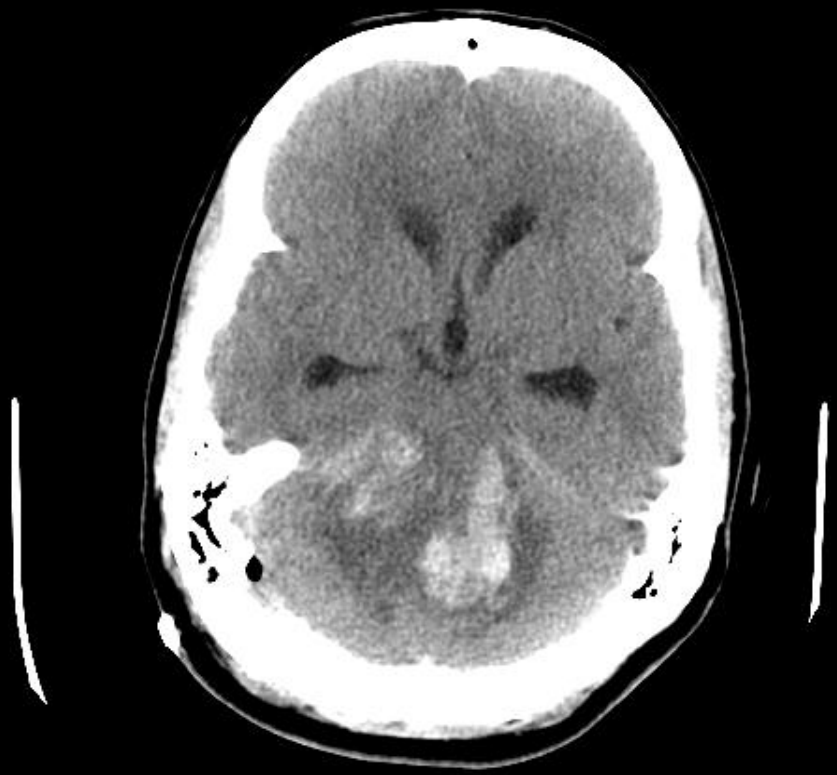


“Every surgeon carries within himself a small cemetery to which he must go from time to time to contemplate. It is a place full of bitterness and regret. A place where he must look for an explanation for his failures.”

*Rene Leriche. La Philosophie de la Chirurgie. Paris. Flammarion. 1950.*

MISTAKES

# EASY

Operating

# DIFFICULT

- Decision-making
- Communicating with patients and relatives, especially when things have gone badly
- Training juniors
- Recognizing mistakes and bad outcomes
- Admitting to mistakes and asking for help
- Getting on with colleagues
- Getting on with management

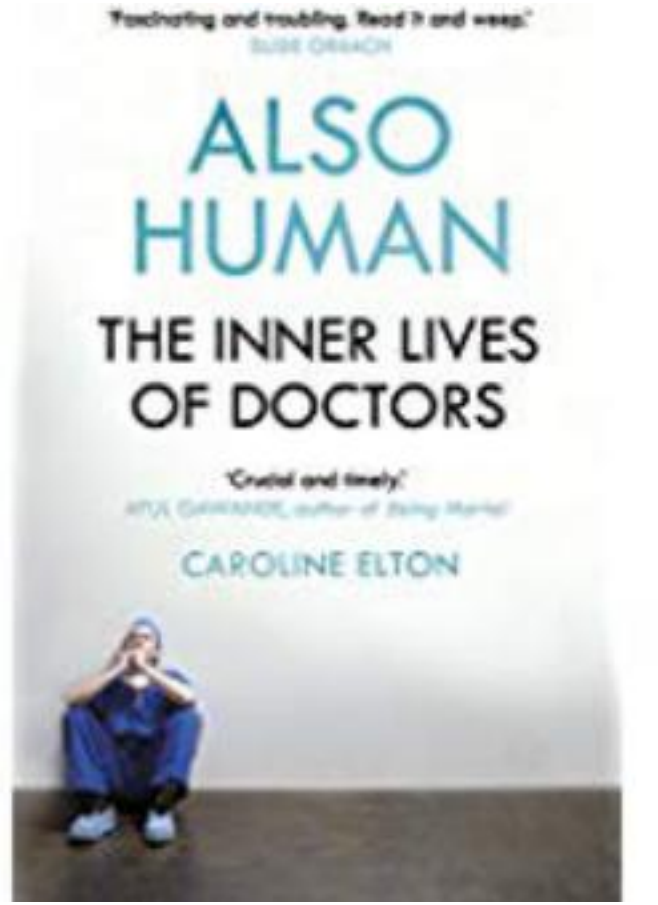
# The Surgical Tight-Rope:You better not look down…..

- Compassion v. detachment
- Individualism v. team working
- Conscience v. institutional loyalty
- Vocation v. money
- Training v. doing it myself
- Self-confidence v. self-criticism
- Honesty v. pretence
- Bravery v. recklessness
- Hope v. realism
- Silent stoicism v. expressing ones feelings

# 1. COMPASSION v. DETACHMENT

"Doctors have much to learn from Palliative Care doctors."

"Doctors must stop seeing patients as Other"



# EMPATHY



Charles Dharapak / AP

# Learning Empathy From the Dead

The first-year dissection is often an experience that teaches medical students to emotionally detach from their patients. By forcing future doctors to learn about the lives of their cadavers, some medical schools are trying to reverse the effect.

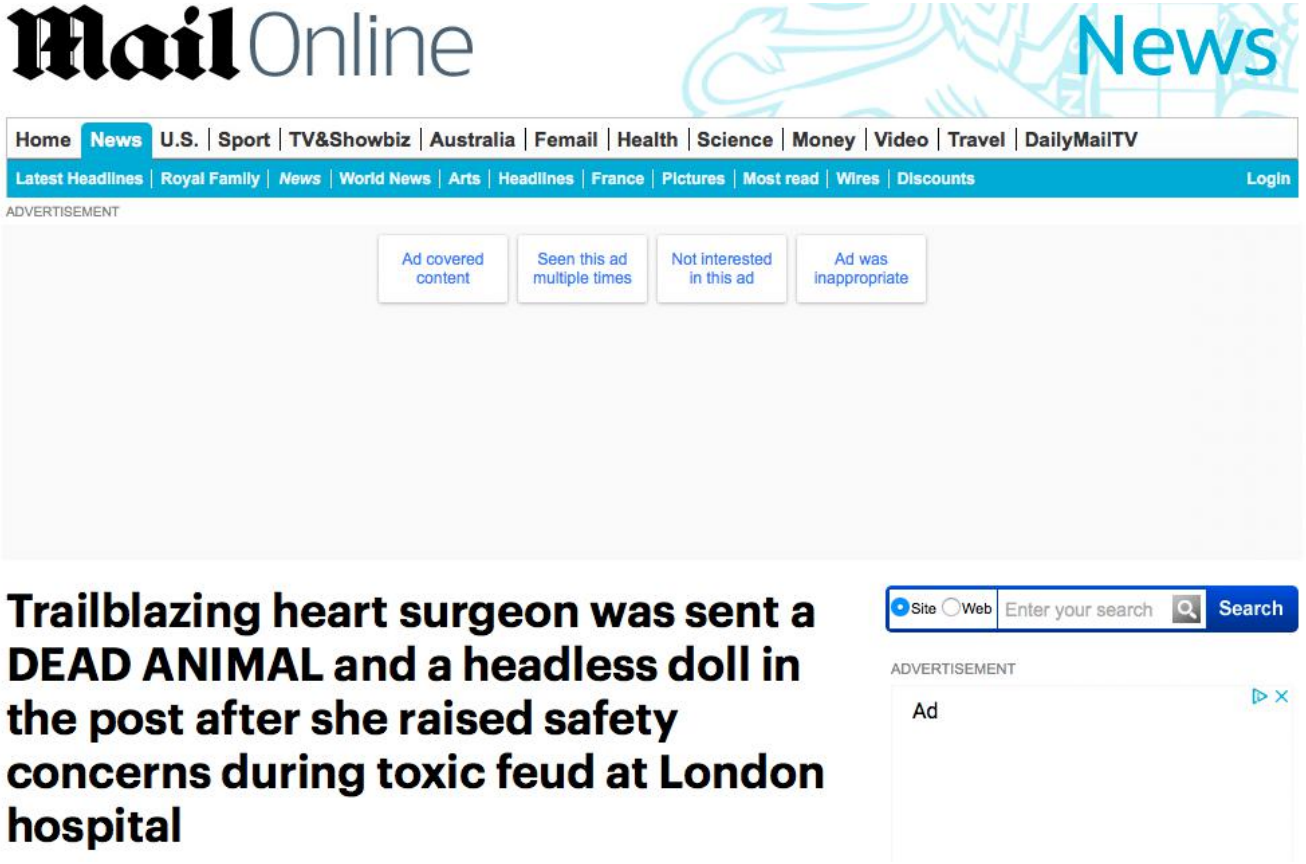
JOHN TYLER ALLEN | JUL 28, 2015 | HEALTH

EMPATHY

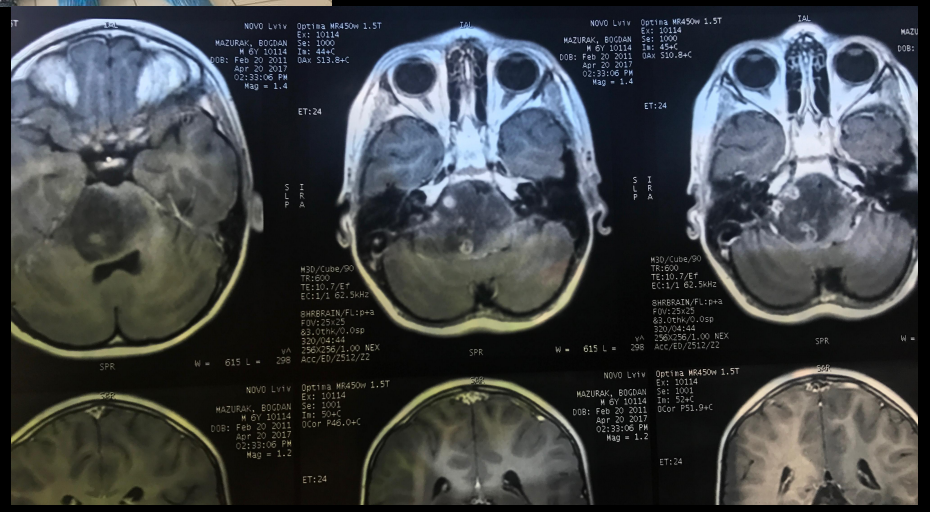
# 2. Individualism v team working


BEEP TO SUPPORT NHS DOCS!
TIRED DOCTORS MAKE MISTAKES
We are the BMA
No to

# 3. Conscience v. institutional loyalty



# 4. Vocation v. Money



INSTITUTO DE ONCOLOGÍA INTERVENCIONISTA

**Dr. Alberto Siller Aguirre**
PEDIATRIC HEMATOLOGIST/ONCOLOGIST
PROFESSIONAL ID: 7896645

**Dr. José Alberto García de la Fuente**
INTERVENTIONAL NEURORADIOLOGIST
PROFESSIONAL ID: 983570

Monterrey, Nuevo León, Mexico

## INTRA-ARTERIAL CHEMOTHERAPY COSTS

### 1. INTRA-ARTERIAL PROCEDURE

*Payment method: Bank Transfer*

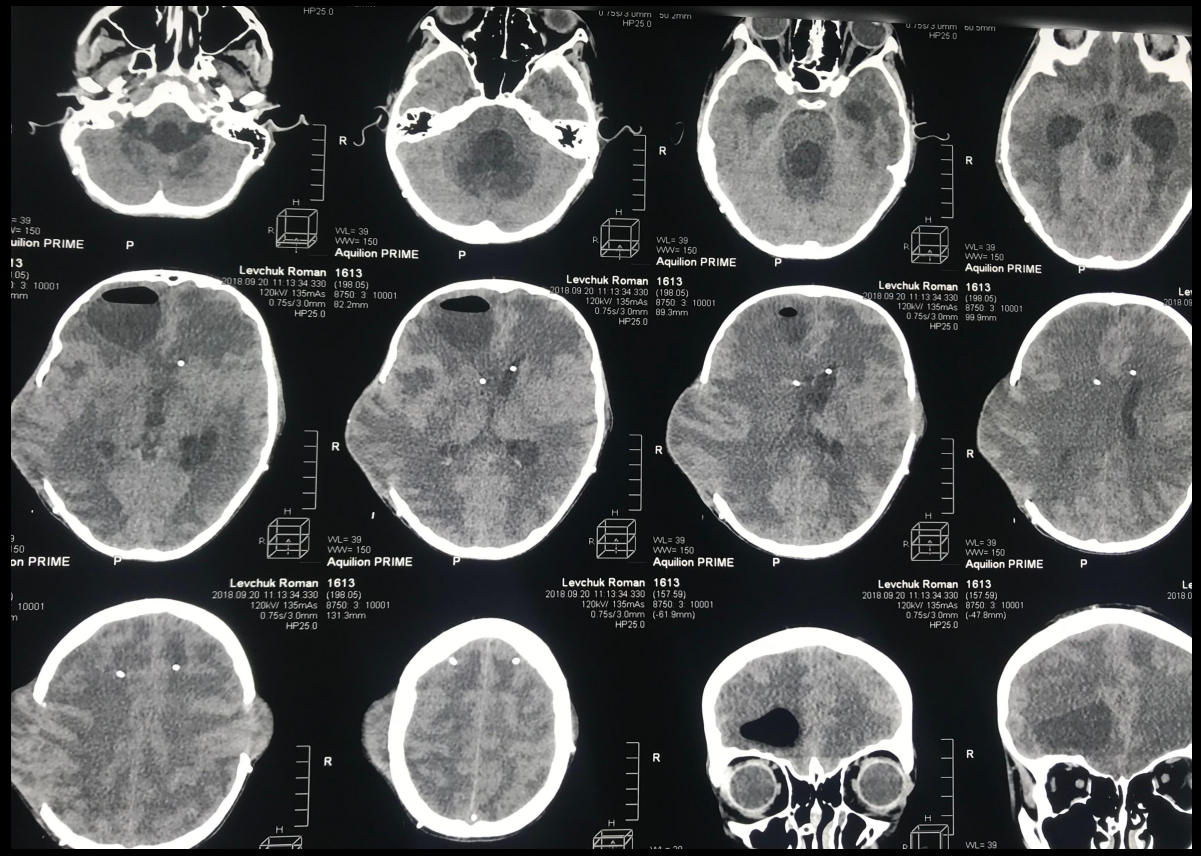
The costs and professional fees of the involved doctors for the Intra-arterial Chemotherapy are:

| | |
|---|---|
| ALBERTO SILLER, MD Pediatric Oncologist | $2,500.00 USD |
| ALBERTO GARCIA, MD Interventional Neuro-Radiologist | $2,500.00 USD |
| TITO RESENDEZ, MD Pediatric ICU | $1,500.00 USD |
| ROXANA DE HOYOS, MD Anesthesiologist | $1,000.00 USD |
| Chemotherapy Drugs and Monoclonal Antibodies | $3,500.00 USD |
| **TOTAL for Intra-arterial Chemotherapy** | **$11,000.00 USD** |

BANORTE

| | |
|---|---|
| **Bank:** | BANORTE |
| **Account name:** | Instituto de Oncologia Intervencionista SC |
| **Account number:** | 033 316 8527 |
| **CLABE :** | 072 580 00333168527 0 |
| **Swift:** | MENOMXMT |
| **Address:** | Av.Hidalgo 2727 Colonia Obispado Monterrey Nuevo León 64050 |

Cerro del Topo 853, Obispado, 64060 Monterrey, N.L., Mexico Tel: +52 81 80 30 72 28 +52 81 80 30 72 29
info@idoimexico.com www.idoimexico.com




10 year old boy one month after severe head injury

- “Stupid parents, I will make money from them”
- “Poor parents – I feel sorry for them ( but will ask for some money)”
- “The operation *might* help” ( which is not true)

# The surgical decision

The risk/benefit of operating

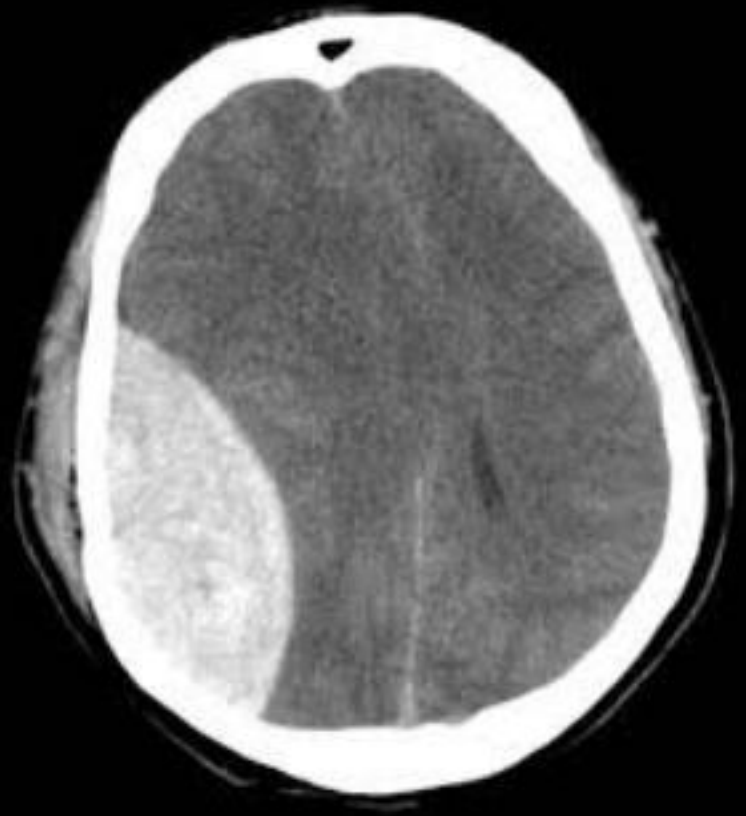
versus

The  risk/benefit of not operating.

- But these are *probabilities,* not certainties and are questions of judgement

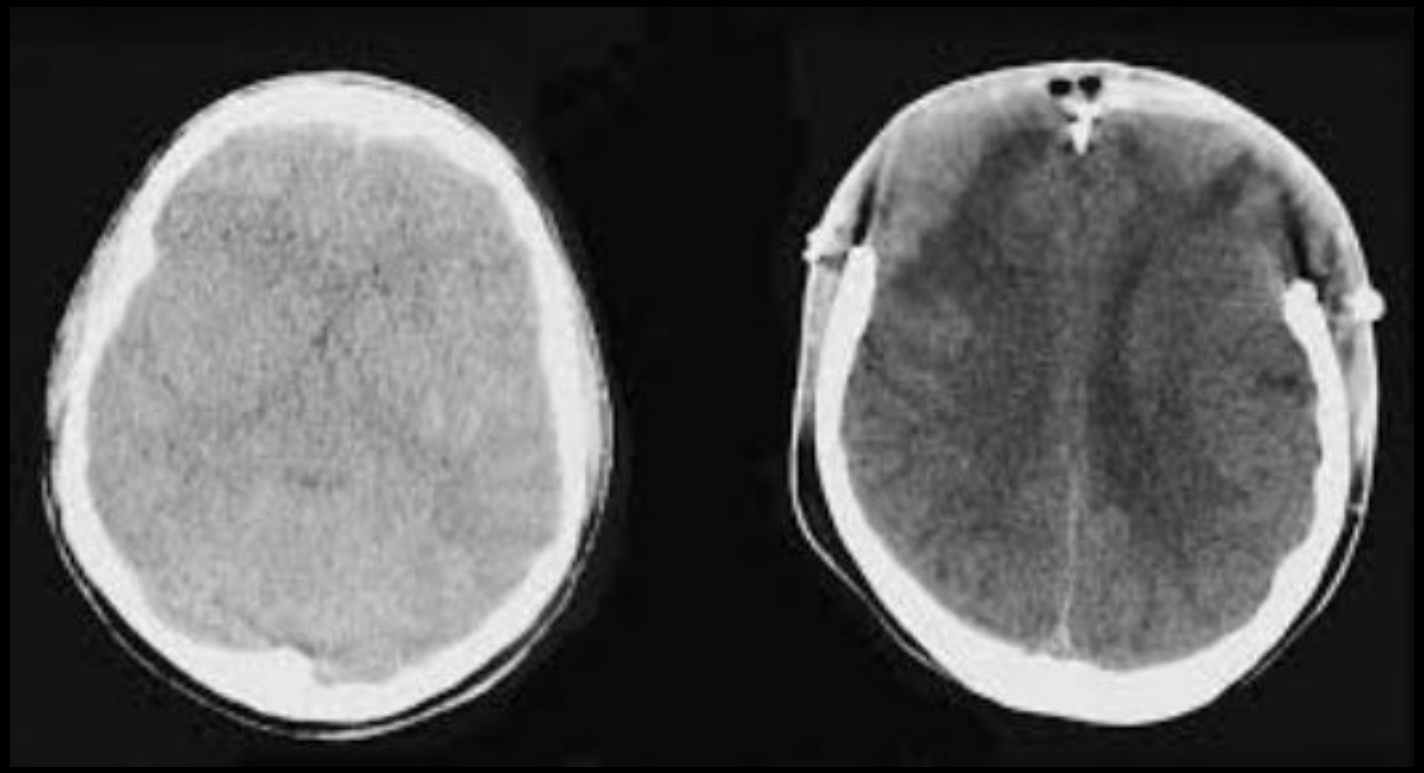
- How well do I know the natural history?
- The risks of surgery in *my* hands or in the world expert's?
- How well do I remember my previous cases?
- Were they really  identical cases?

# CERTAINTY

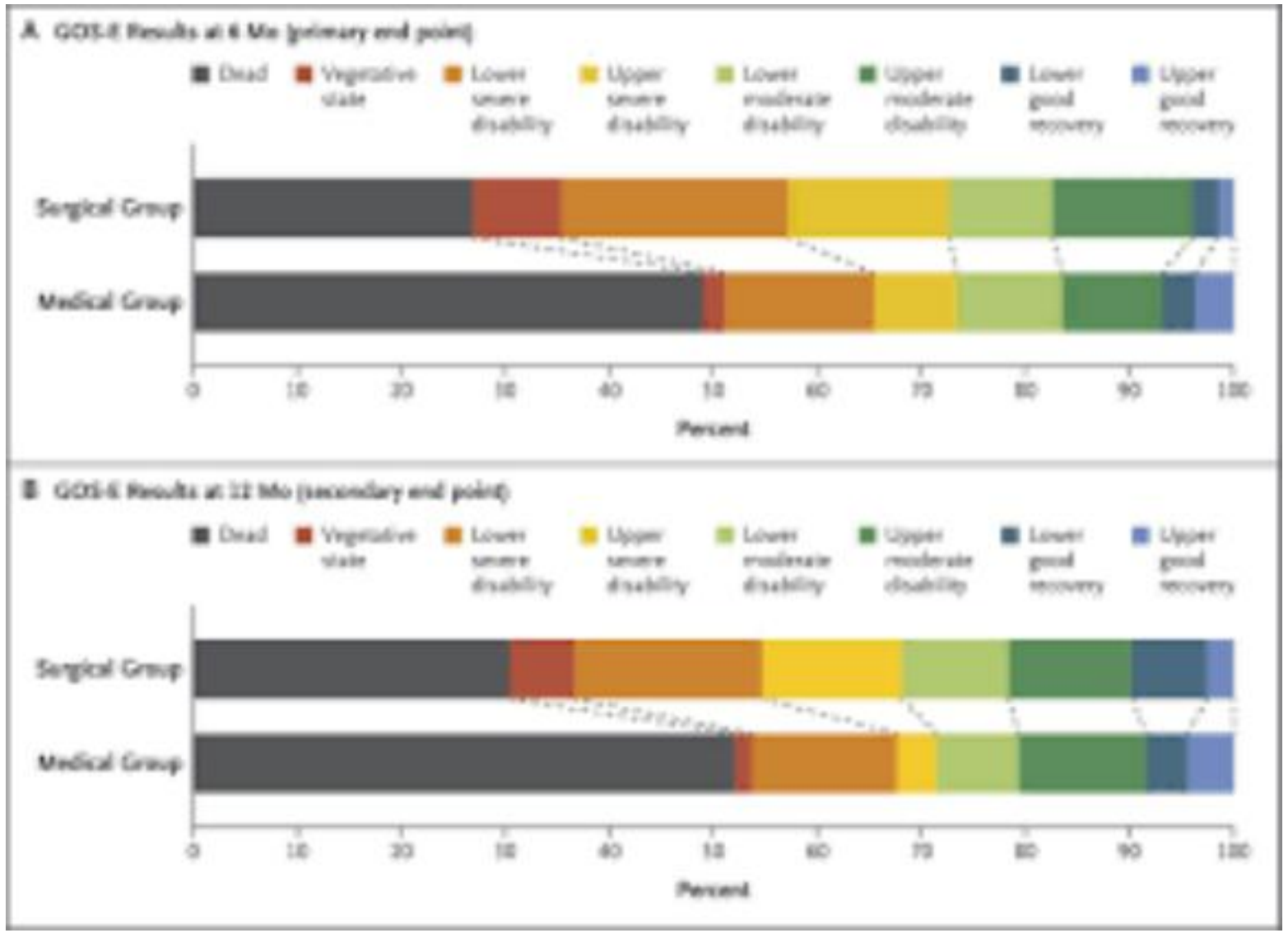


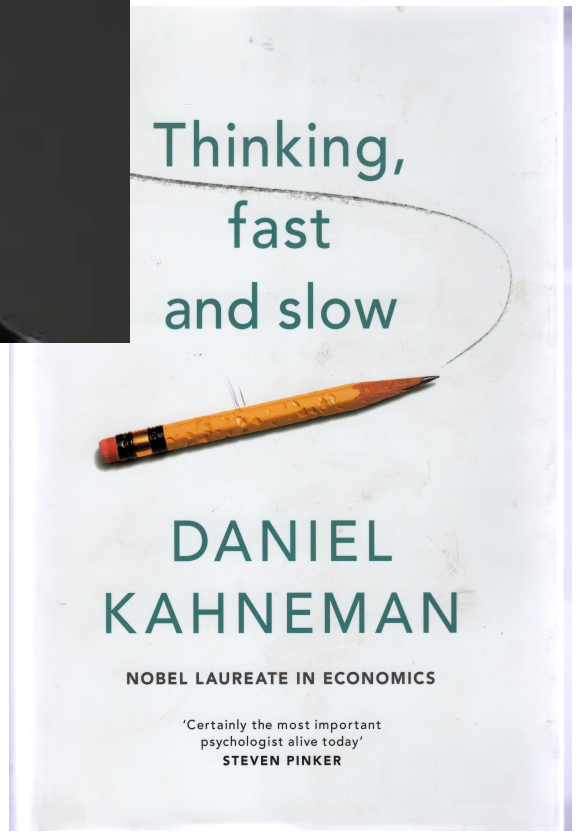
A 20 year old man  2 hours after a head injury with a deteriorating conscious level

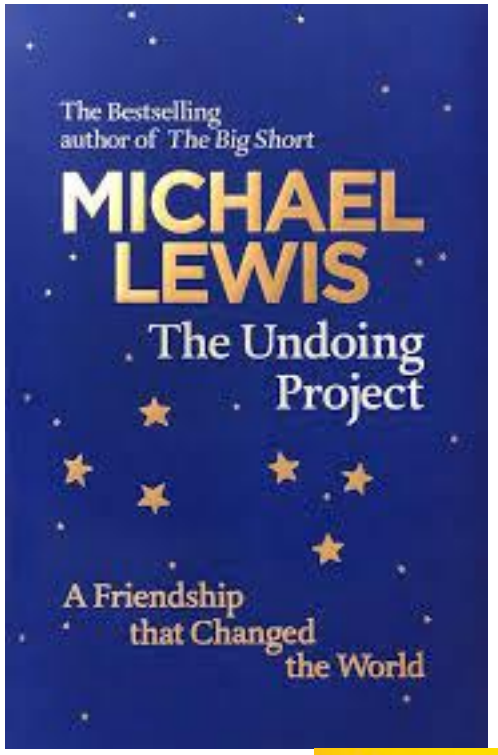
# UNCERTAINTY

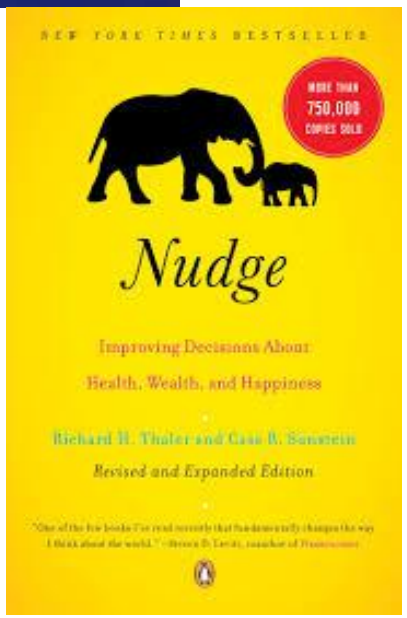


Severe head injury before and after
decompressive craniectomy


A GOS-E Results at 6 Mo (primary end point)
Dead
Vegetative state
Lower severe disability
Upper severe disability
Lower moderate disability
Upper moderate disability
Lower good recovery
Upper good recovery
Surgical Group
Medical Group
0
10
20
30
40
50
60
70
80
90
100
Percent
B GOS-E Results at 12 Mo (secondary end point)
Dead
Vegetative state
Lower severe disability
Upper severe disability
Lower moderate disability
Upper moderate disability
Lower good recovery
Upper good recovery
Surgical Group
Medical Group
0
10
20
30
40
50
60
70
80
90
100
Percent


Thinking,
fast
and slow
DANIEL
KAHNEMAN
NOBEL LAUREATE IN ECONOMICS
'Certainly the most important
psychologist alive today'
STEVEN PINKER


The Bestselling
author of The Big Short
MICHAEL
LEWIS
The Undoing
Project
A Friendship
that Changed
the World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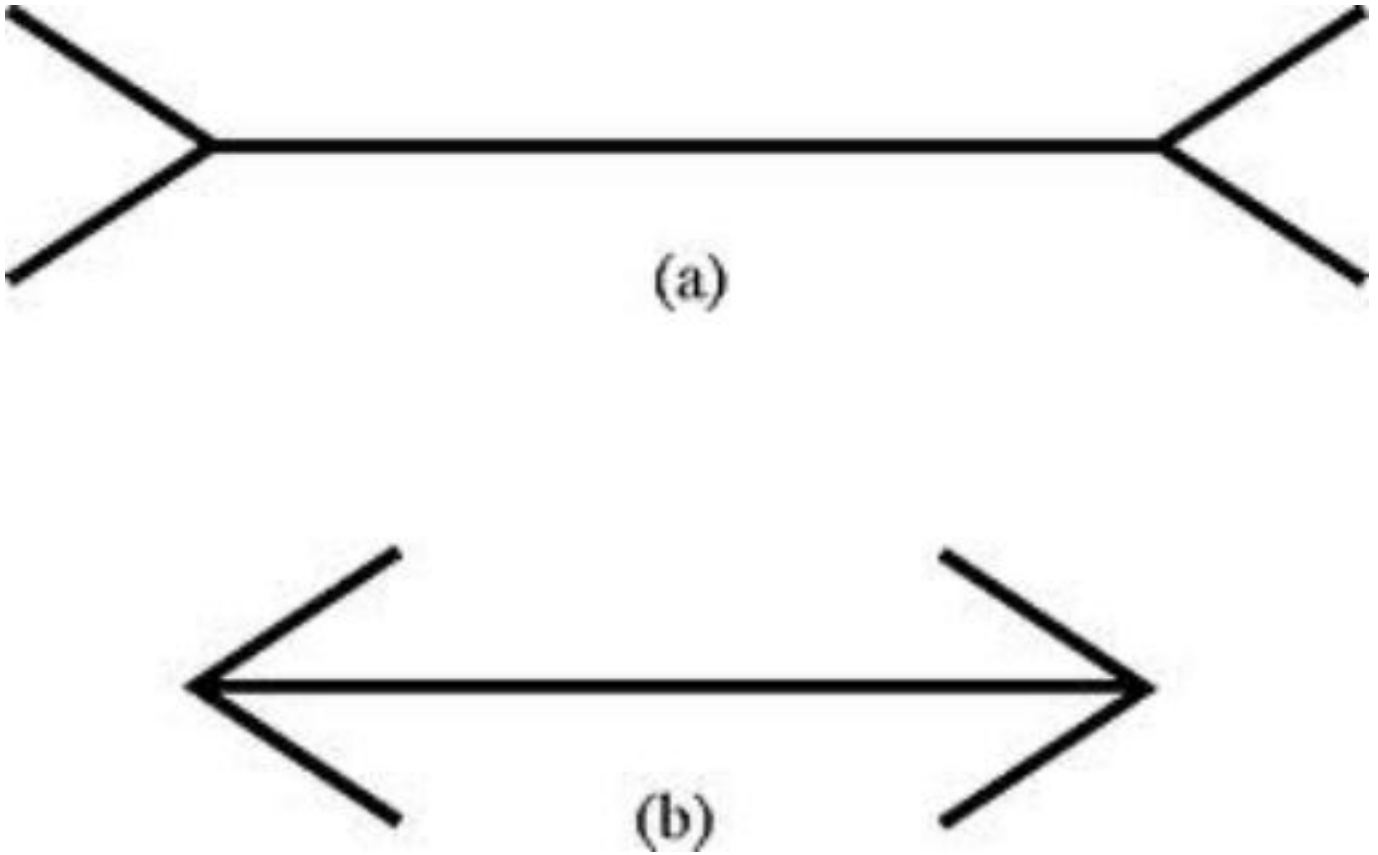
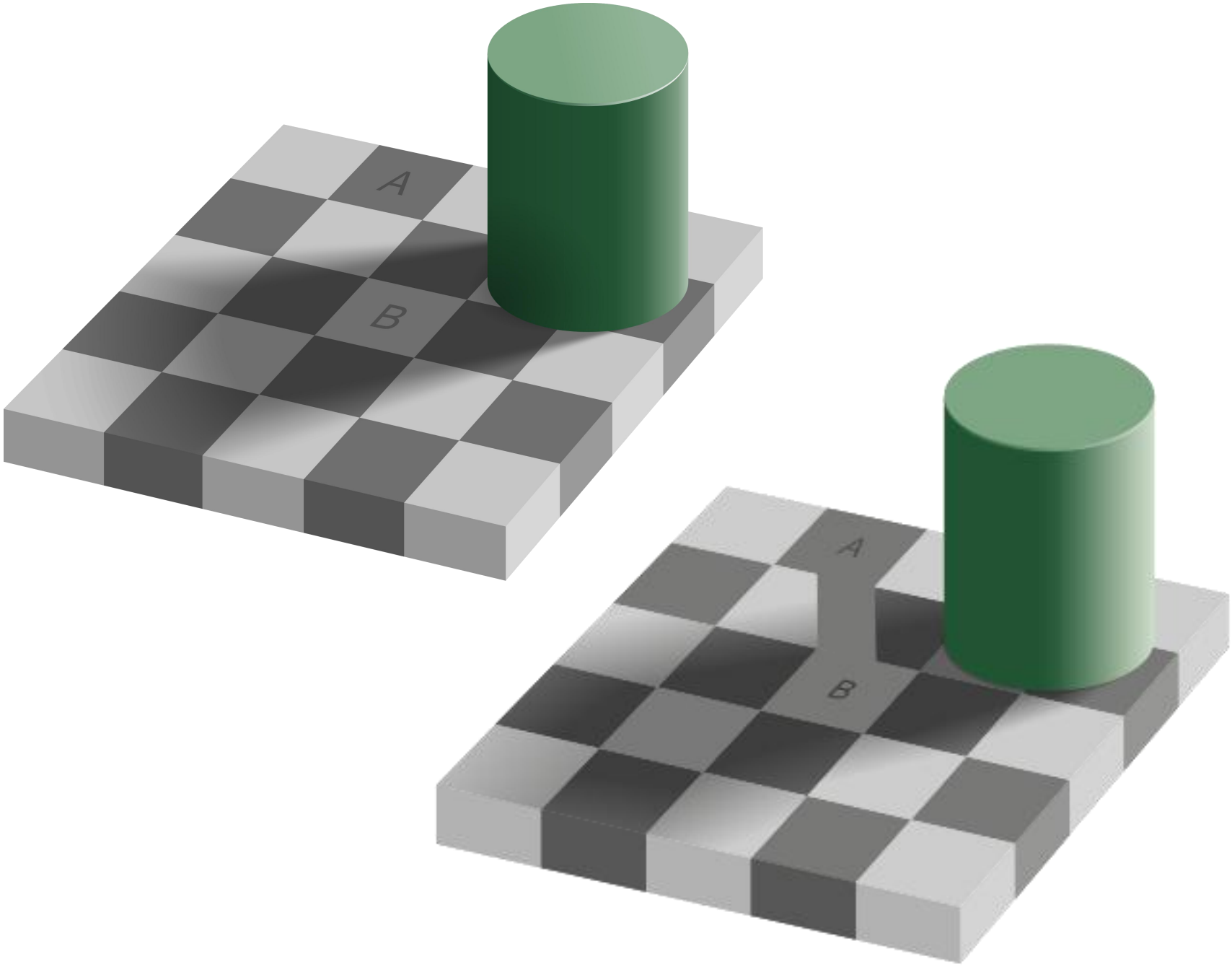
MORE THAN
750,000
COPIES SOLD
Nudge
Improving Decisions About
Health, Wealth, and Happiness
Richard H. Thaler and Cass R. Sunstein
Revised and Expanded Edition

We consistently tend to  make mistakes  when estimating probabilities




A
B
A
B

# Cognitive (= thinking) biases

Confirmation effect

Halo effect

Hindsight bias

Availability heuristic

Framing effect

Anchoring

Optimism bias

And many more……..

# What did I learn?

- That other people are better at seeing my mistakes than I am
- The importance of good colleagues and of being a good colleague

Self-confidence?

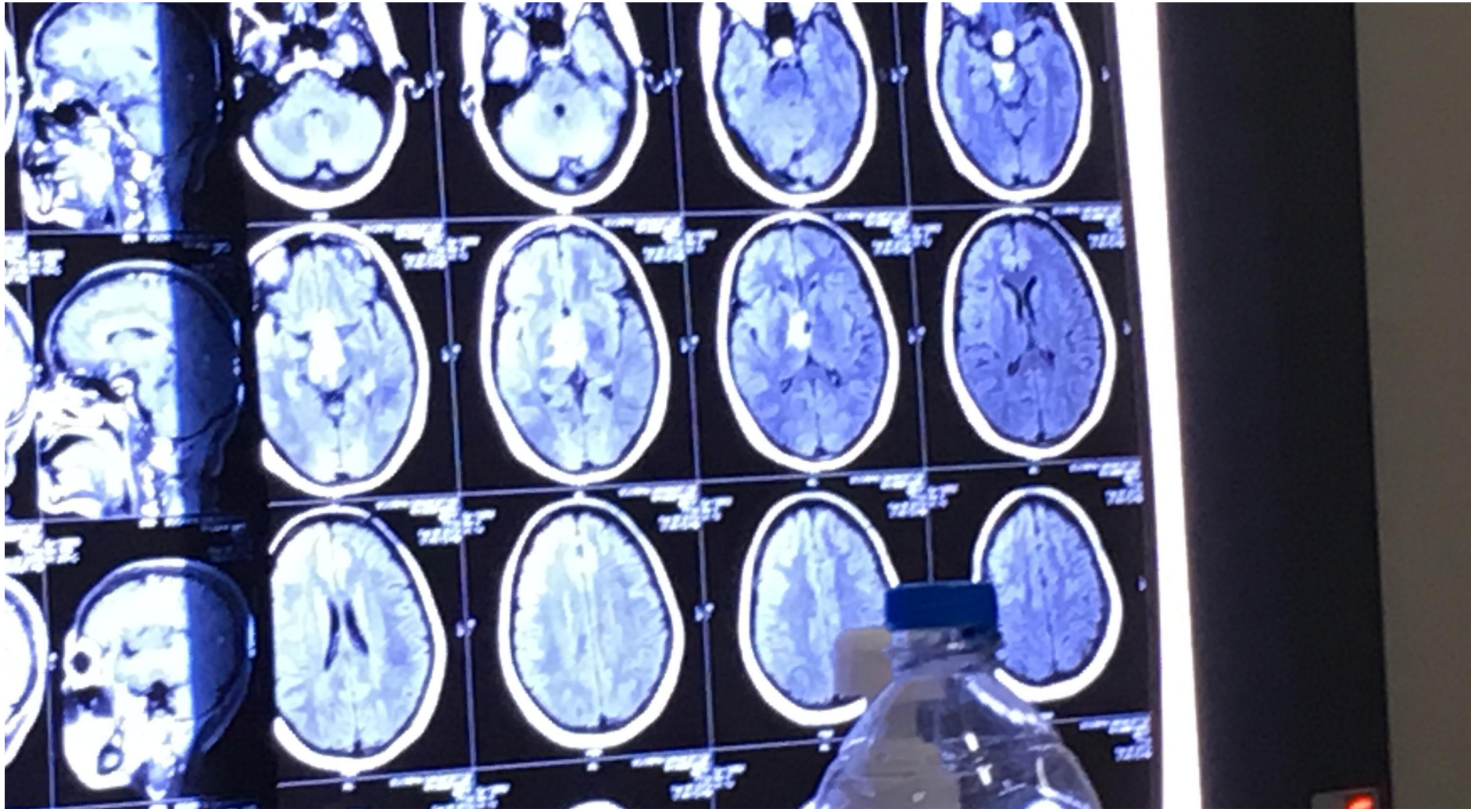
"It may seem strange to the outside world, but they often view the infantry role as more dangerous, due to the unpredictability of patrolling. Our operators will understand what they are facing when they make the 'long walk', and will have planned accordingly."

"When you walk up to a bomb to neutralise it by hand, the adrenaline is flowing and you go into tunnel vision mode to try to dispel any fear you've got. Adrenaline helps," he says. "You've got to steady your breathing and can feel the drum beat of your heart of course."


GLAMOROUS
GLENNIS


THE
RIGHT
STUFF

“I was always afraid of dying. Always. It was my fear that made me learn everything I could about my airplane and my emergency equipment, and kept me flying respectful of my machine and always alert in the cockpit”.
Chuck Yaeger

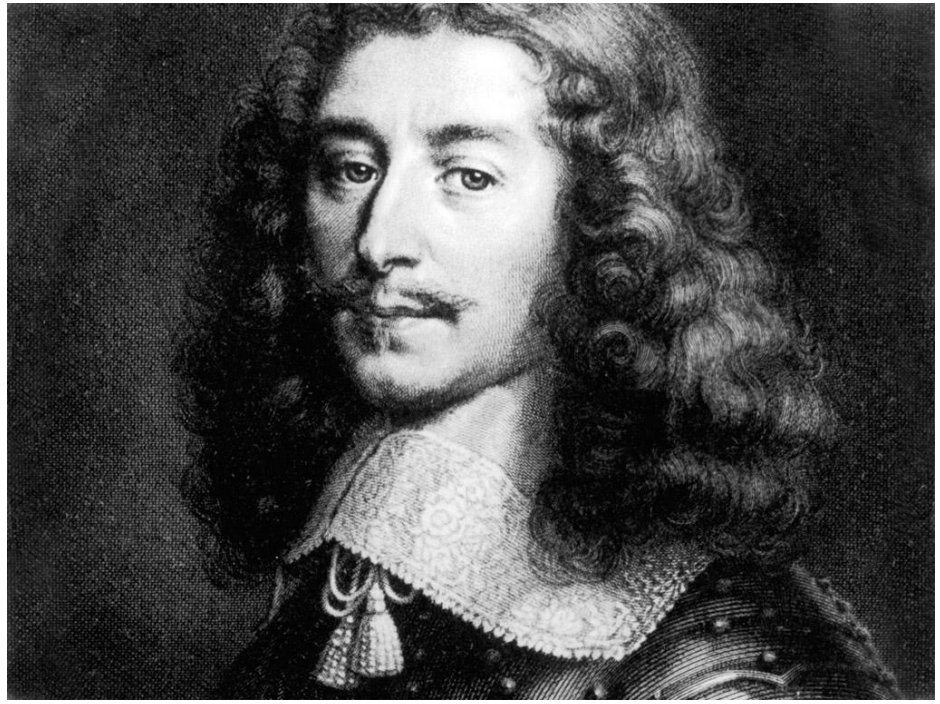


Communicating with patients

# 6. Honesty v. pretence

“The steadfastness of the wise is but the art of keeping their agitation locked in their hearts”.

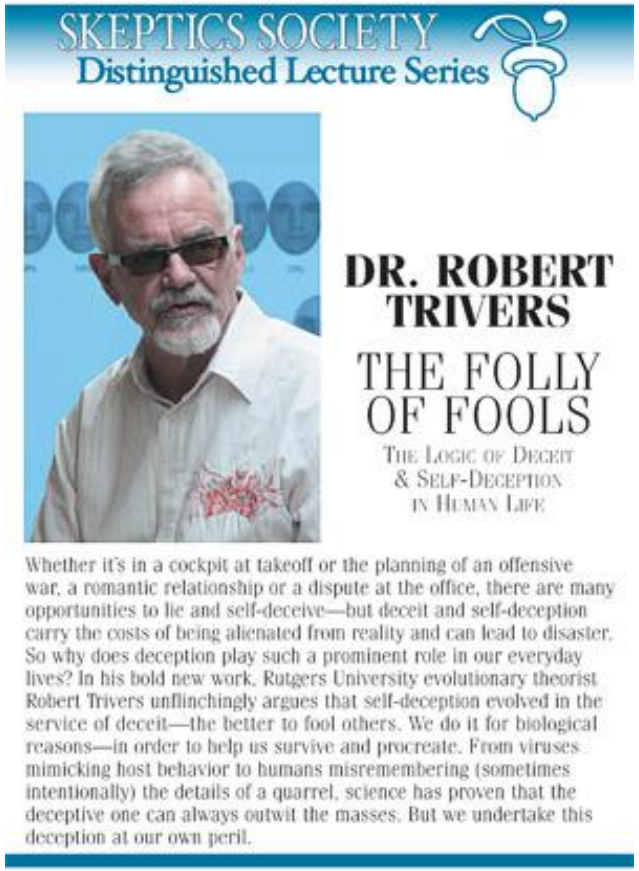
La Rochefoucauld 1613-1680

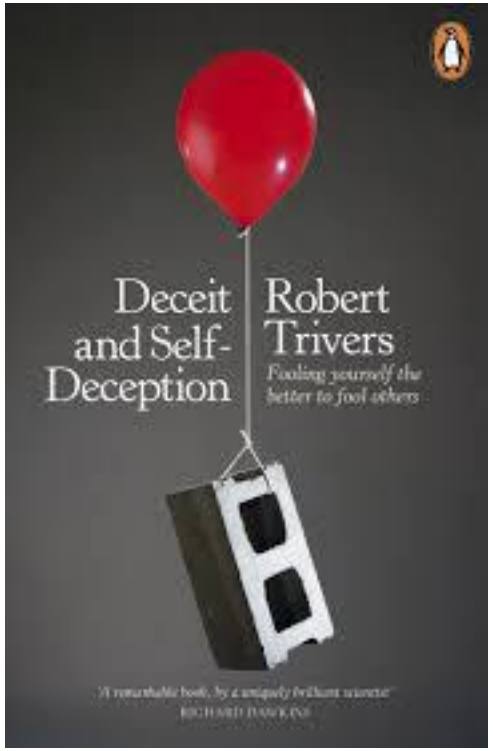


# 3 ways of hiding agitation (= stress)

- Not having it in the first place ( psychopaths)
- Hiding it from others
- Hiding it from oneself.

# SELF CONFIDENCE & SELF-DECEPTION



# Health and Social Care Act 2008. Regulations 2014. Regulation 20

- “Providers must be open and transparent”
- If a notifiable safety incident occurs the patient must be informed both verbally and in writing and an apology (“an expression of sorrow or regret”) given.
- Providers must promote a culture that encourages candour,open-ness and honesty at all levels.

# GMC Duty of Candour 2015

- “You MUST apologize when a mistake has been made”.
- This will usually be the duty of the most senior responsible clinician, irrespective of who has made the mistake
- “For an apology to be meaningful it must be genuine”

Perspective

COMMENTARY

# To Err Is Homicide in Britain: The Case of Dr Hadiza Bawa-Garba

Saurabh Jha, MBBS, MRCS

DISCLOSURES | February 06, 2018



**Editor's Note**: *This article is reprinted with permission from The Health Care Blog.*

The good that doctors do is oft interred by a single error. The case of Dr Hadiza Bawa-Garba, a trainee pediatrician in the NHS, convicted for homicide for the death of a child from sepsis, and hounded by the General

# Loss of control

# How did I cope?

- Personality – strong self-belief.
- Authority - the hospital as a “total institution”
- Support from my colleagues and a feeling of belonging
- That I am  trusted
- On balance I do more good than harm