

Ebrain, E-learning & EAN Education

Hannah Cock
Institute of Medical & Biomedical Education
Epilepsy Group

Declaration

Dr Cock has received:

- Hospitality from all major AED manufacturers
- Invited talks & honoraria for UCB Pharma, Janssen-Cilag, Sanofi-Synthelabo, GSK, Eisai
- Unrestricted Research Grants from UCB Pharma, Johnson&Johnson & Pfizer

Dr Cock is Chair of EAN EC (2014-) & Clinical Lead on ebrain (2010-)

Dr Cock prefers gadgets to paper

This presentation reflects the views of author, and are independent of the meeting sponsor

Outline

- Introducing ebrain
- EAN Education & Accessing ebrain
- Why e-brain?
 - Adult learning
 - Changing culture & expectations
- Overview ebtaincontent & features
- Future developments & how you can contribute
- Try it out



Introducing ebrain

- E-learning resource, Launched 2011

world's largest, most comprehensive web-based training resource in clinical neuroscience.

Groundbreaking



Holmes Lancet Neurol 2012
Dassan Neurology 2012

- **Not For Profit**

- >500 authors, 25 module editors, 3 + 3 clinical leads
- \$150,000/year IT Development & Support
- EAN, UK Joint Neurosciences Council
- Institutional & Individual subscriptions



ebrain Curriculum

25 modules, 660 lessons

Peer-reviewed

Self assessment

Bibliography

- Speciality
Neurology, Neurosurgery,
Neuroradiology, Pain, eSpine
- Curriculum/learning pathways
- Topics
 - Epilepsy, Stroke.....

Additional Features

Virtual Patient

150 Webinars (EAN 2014, 2015; SE Colloquium....)

Quiz bank/assessment capabilities

Full Bibliography

Accessing ebrain

- Direct

www.ebrainjnc.com

- Free to Hinari/Low income countries (£0)
- Reduced Rates Middle Income (£75/year)
- Full individual subscription (£150/year)

- Via EAN

- Join EAN (EUR45 RRFS; 75; 150/year)
- Single Sign on via EAN website

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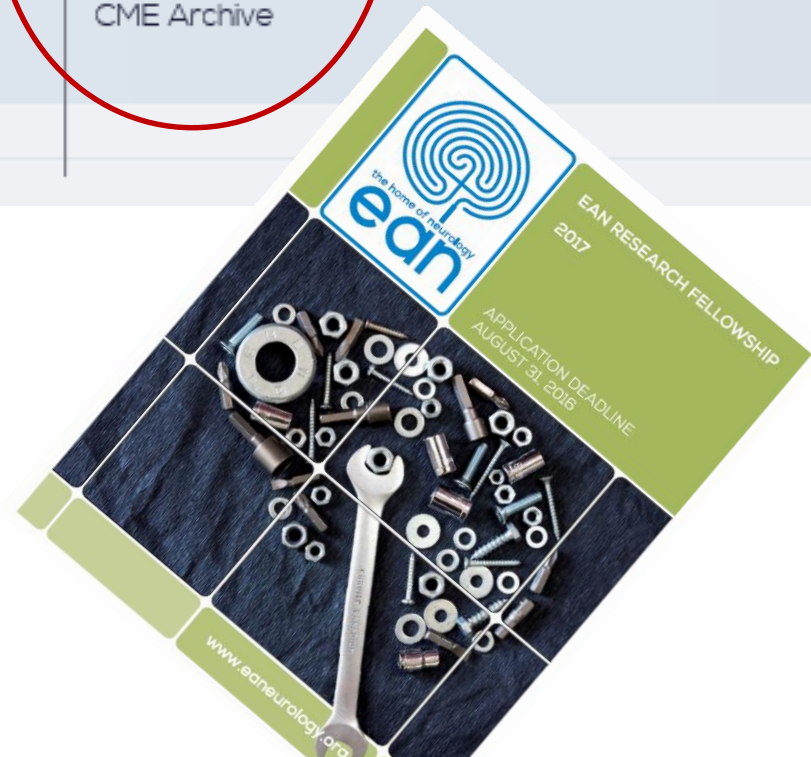
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All e-learning activities are free-of-charge for EAN registered users. Answer all questions correctly and you will receive one hour of CME. Every month one article is chosen for online learning. The following articles are available free of charge

Published in	Title	
September 2015	September 2015 - Efficacy and safety of pharmacological treatments for acute Lyme	 view questionnaire
October 2015	October 2015 - Non-aneurysmal subarachnoid hemorrhage in 173 patients: a prospective study of long-term outcome	 view questionnaire
November 2015	November 2015 - Patterns of anti-inflammatory drug use and risk of dementia: a matched case-control study	 view questionnaire
December 2015	December 2015 - Consensus review on the development of palliative care for patients with chronic and progressive neurological disease	 view questionnaire
January 2016	January 2016 - Intravenous thrombolysis for acute ischaemic stroke in the elderly: data from the Baden-Wuerttemberg stroke registry	 view questionnaire
February 2016	February 2016 - Clinical dissection of childhood occipital epilepsy of Gastaut and prognostic implication	 view questionnaire
March 2016	March 2016 - Diabetes mellitus exacerbates the clinical and electrophysiological features of Guillain-Barré syndrome	 view questionnaire
April 2016	April 2016 - Frequency and temporal profile of recanalization after cerebral vein and sinus thrombosis	 view questionnaire
May 2016	May 2016 - Distinguishing clinical and radiological features of non-traumatic convexal subarachnoid hemorrhage	 view questionnaire

European Journal of Neurology

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Volume 23, Issue 6

Pages 989–1136, i–i, e36–e37

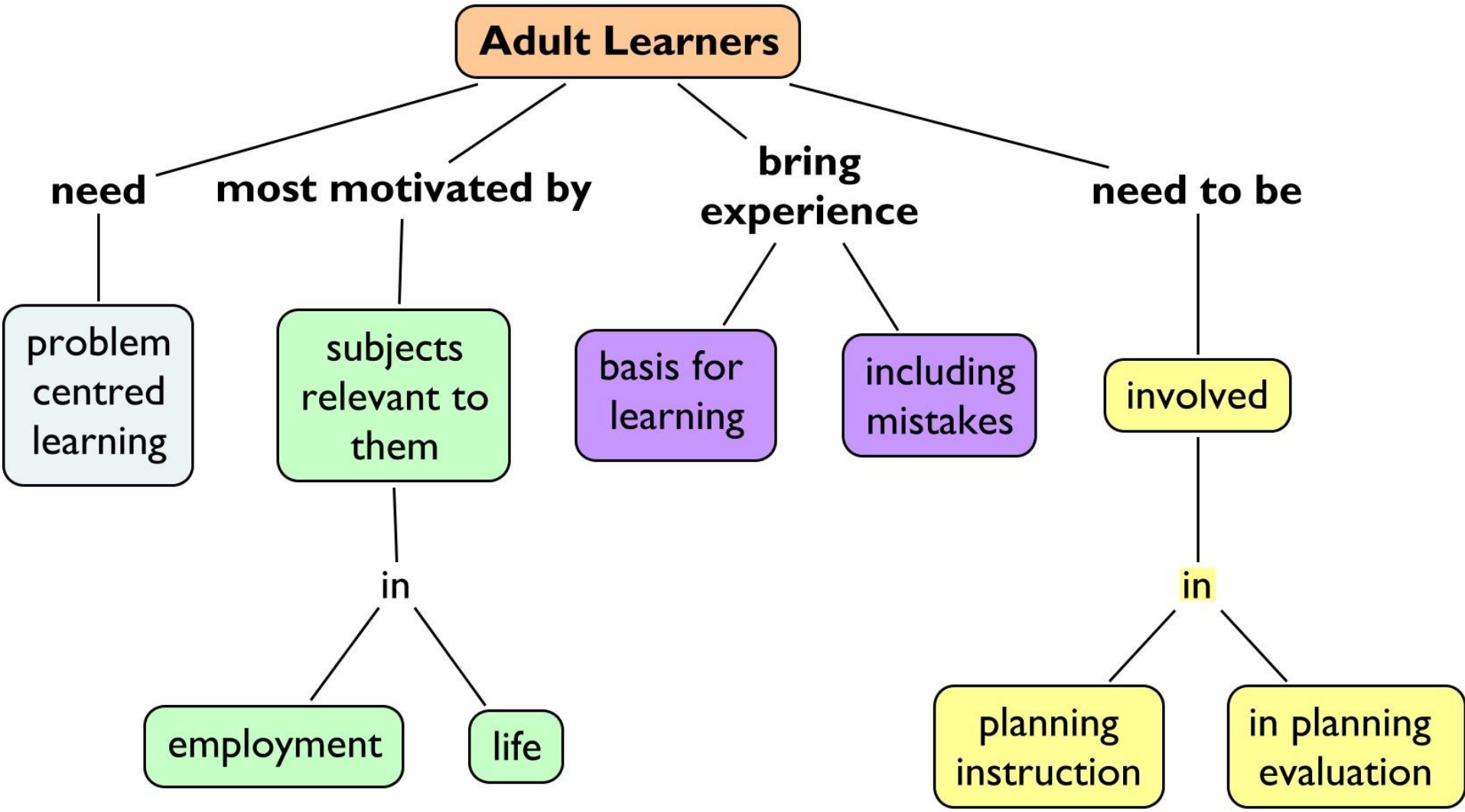
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Monthly article

1 CME Point, Single Best Answers (also EBN practice!)

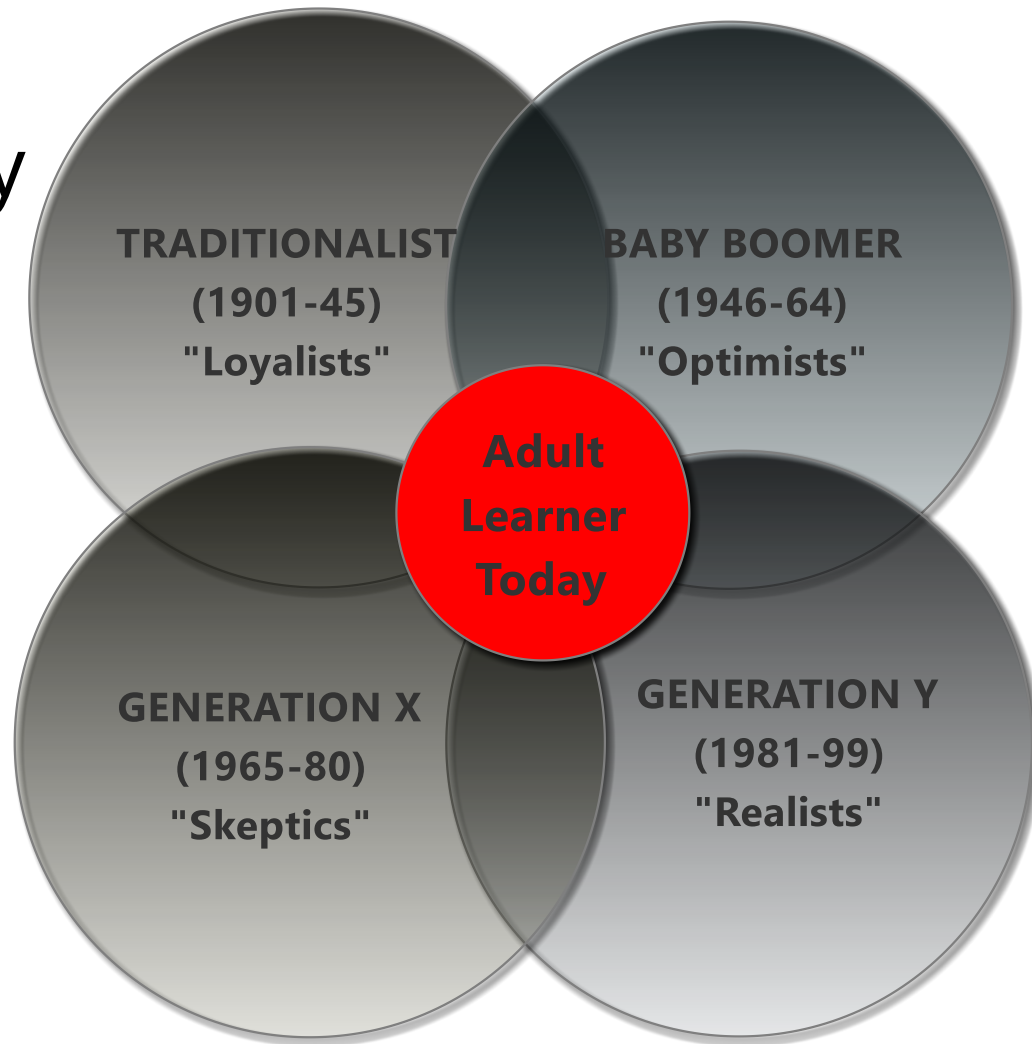
Why ebrain?

- Adult Learning theory



Why ebrain?

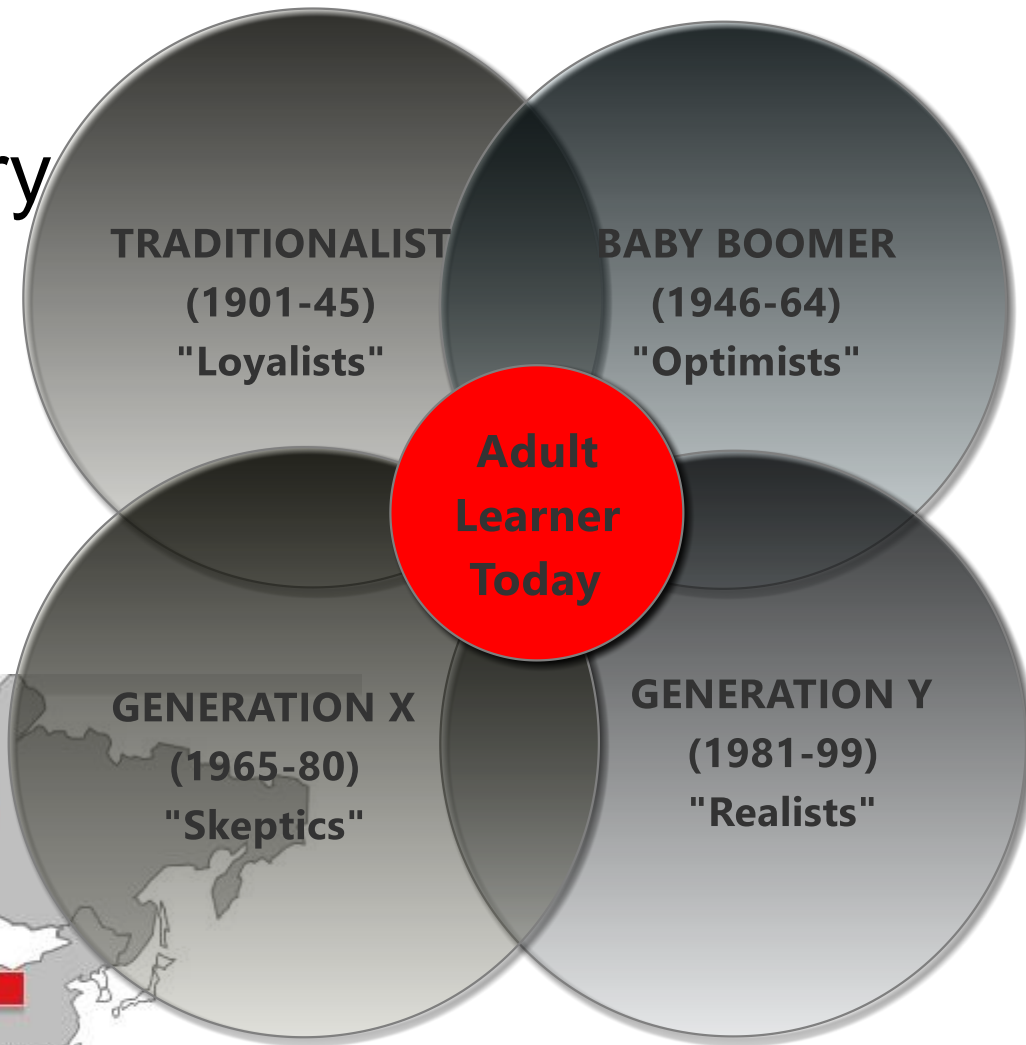
- Adult Learning theory
- Changing learners



Elkind, Neurology 2009

Why ebrain?

- Adult Learning theory
- Changing learners
- Increasingly globalized (but unequal) world



Elkind, Neurology 2009

Joeri VanDenBurg,
www.howcoolbrandstayhot.com

elearning

Advantages

- Wide audience
- Flexible/convenient
- Built in self-assessment
- Supports continuous learning
- Efficient
- On-going updating
- Multi-media
- Interactive

Dependent on

- Self motivation
- Technology access
- Maintaining attention



Appears no less effective (including for clinical skills)



ebrain: the guided tour



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Access your e-learning

Home



Welcome to the ebrain e-learning program, a gold standard in interactive online learning for professionals in the neurosciences.

Returning Clinicians, please click the 'Access your e-learning' button on the left to access your learning.

New visitors, organisations and **administrators** please select a menu option on the left.

For university undergraduate study, please select the 'ebrain *Lite*' button from the menu options on the left.

ebrain is a resource that can be used by both trainees and trainers to support continuous professional development. Lessons can be studied individually or in combination. Certificates are provided and can be used within portfolios.

ebrain, a **Not for Profit** initiative, is brought to you by the Joint Neurosciences Council and The European Academy of Neurology, and represents the world's largest, most comprehensive web-based training resource in clinical neuroscience.

Led by Professor Simon Shorvon, Mr Simon Thomson, Dr Hannah Cock and Dr Vitalie Lisnic, the 450+ contributing clinicians form part of a multi-disciplinary team of expert authors and reviewers drawn from all areas of the neurosciences, both in the UK and across Europe.

[For more information about the curriculum](#)

Why not also visit the Neuropathology and Ophthalmic Pathology teaching sections kindly provided by St James University Hospital in Leeds, UK, via the following link: [Virtual Pathology at the University of Leeds](#)



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Step 2. Computer Checker: The ebrain website **technical checker** enables your computer to automatically make sure you have the correct software needed to use the e-learning materials fully. (See the **Technical Checker** movie on the right. The **Popup Blocker** movie may also be helpful).

Step 3. Getting Started: When you first login, please complete the **Getting Started: Common Tasks, Features and Functionality** lesson, which will help you make the most of working with ebrain.

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An e-learning resource supporting training in the clinical neurosciences

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On these learning pathways pages we have provided links

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Lesson Overview

This session provides an overview of issues relating to carotid and vertebral artery dissection.

[News forum](#)

Topic 1

Launch Lesson

To launch the lesson, please click the title below.

[Ischaemic Stroke: Carotid and Vertebral Artery Dissection](#)

Topic 2

Learner Feedback

To provide feedback on this session, and to view all other learner feedback, please click below.

[Lesson Feedback](#)

Topic 3

Lesson Certificate

To generate a certificate for this lesson, please click below.
NB - You must first provide [lesson feedback](#) to be able to generate a certificate.

[Lesson Certificate](#)

Restricted (completely hidden, no message): 'Not available until the activity [Ischaemic Stroke: Carotid and Vertebral Artery Dissection](#) is marked complete. Not available until the activity [Lesson Feedback](#) is marked complete.'

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There are no upcoming events

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Recent activity

Activity since Friday, 2 October 2015, 6:15 PM

[Full report of recent activity...](#)

Nothing new since your last login

Popup Window





Ebrain Lesson Format

1500-2000 word paper

3-5 specific learning objectives

Assessment

Peer-reviewed

Multimedia-rich

Interactive

Acute Stroke Treatment

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Thrombolysis

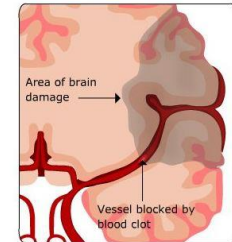
What is Thrombolysis?

Thrombolysis is a treatment for acute ischaemic stroke that is designed to break down blood clots and restore blood flow to the affected area of brain, thereby reducing the number of dead neurones. The only drug licensed for use in this way is alteplase (Actilyse), which was originally developed for treatment of acute myocardial infarction.

Alteplase is a recombinant tissue-plasminogen activator (r-tpa) and works by stimulating the body's own clot removal system. Its main effect is to reduce the level of disability and dependency.

Intravenous alteplase should be offered to all patients who are eligible. A potential complication is bleeding, and this is most likely to occur in the brain around the site of the infarct.

Mouse over to watch the animation.



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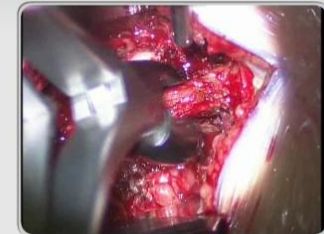
Surgical Technique

Next Slide

9 Spinous Processes

The rongeurs are used to pare down the bone at the base of the removed spinous process and along the laminae on either side. A 'herring-bone' pattern of bone nibbling will increase the effectiveness of this process.

Starting at the caudal end, a McDonald elevator or Watson-Cheyne dissector is used to encourage and develop a plane between the bone and the underlying ligamentum flavum. A small (2 or 3mm) Kerrison upcut rongeur can be inserted into this gap and used to further develop this opening. Change to a fenestrated suction; in case of a dural tear, this will minimise the risk of damage to nerve roots.



00:00 / 00:08

Click the ▶ button beneath the image on the right to watch the video, then select the next tab below to continue.

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Examination of the Limbs Part 1

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Approach

There are a lot of things you could do when examining the limbs – so to allow you to remember what to do and remember what you have found it is useful to have a framework to work within. We will return to this later to explore pros and cons of using a different order of examination.

Before you start the examination you should have been thinking about what you might find on examination on the basis of the history – what you have to look for.

During the examination you need to think about what you are finding. Can abnormalities be accounted for by difficulties with examination technique?

Are abnormalities reliable? Consistent?

It can be helpful to 'summarise' your findings in words in your own head as you go along (the patient may well find it rather distracting if you said it out loud)

In summary: Think.

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The General Approach

- Inspection
- Tone
- Power
- Reflexes
- Sensation
- Co-ordination
- We will consider each of these steps

Examination of the Limbs Part 1

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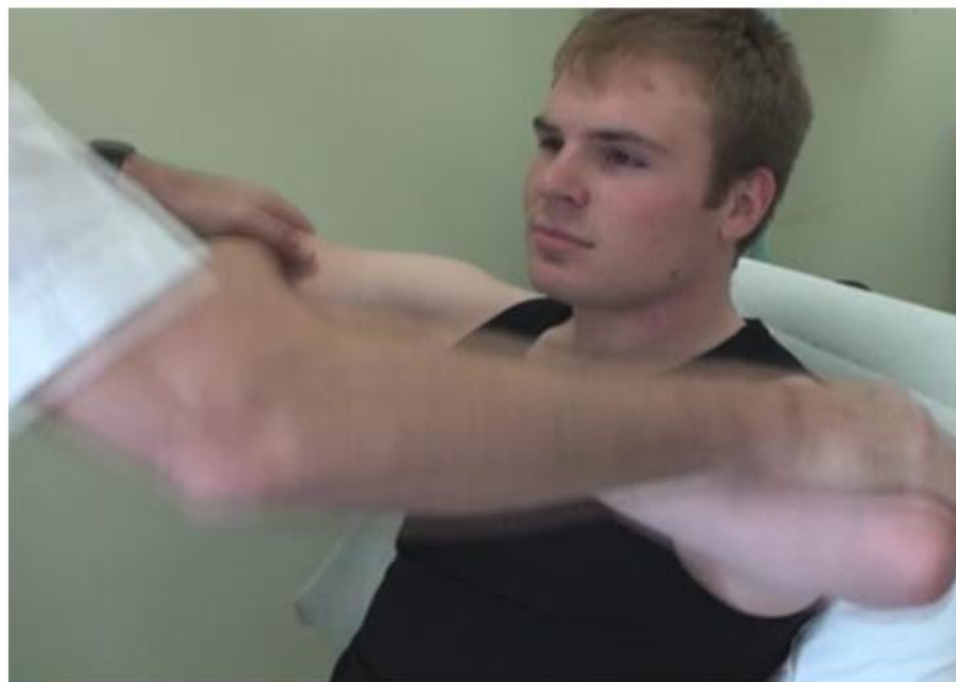
Power in Arms

*Mouse over to watch the **video**.*

Standard movements tested:

Watch the video shown opposite and below.

- Shoulder abduction: deltoid
- Elbow flexion: biceps
- Elbow extension: triceps
- Wrist extension: extensor carpi ulnaris and radialis
- Finger extension: extensor digitorum communis
- Finger abduction: index finger: First dorsal interosseous
- Little finger abduction: abductor digiti minimi
- **For finger and little finger abduction remember to fix the joint**
- **Thumb abduction: abductor pollicis brevis**



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Examination of the Limbs Part 2

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Joint Position Sense

Watch the video shown opposite.

Explain to the patient what you are going to do and demonstrate the movement with the patient looking at the joint.

Test distally starting with large movements. If the movement is felt reduce the amplitude to find the smallest movement reliably detected (usually an astonishingly small movement).

If the patient is unable to reliably detect the movement (remember 50% correct is chance) move to a more proximal joint.

Romberg's test is also a test of joint position sense.

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Mouse over to watch the [video](#).



Examination of the Limbs Part 2

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Self Assessment

Question 1

Select true or false for each of the following statements.

When examining the motor system:

Statement A

Value: 1

Wasting, increased reflexes and upgoing plantars are upper motor neurone signs.

- ☐ True
☐ False

Check Answer

Statement B

Value: 1

Asking the patient to grip your fingers and pull them towards you is useful screening test.

- ☐ True
☐ False

Check Answer

Statement C

Value: 1

MRC grade 3 power indicates a muscle cannot overcome resistance.

- ☐ True
☐ False

Check Answer



Learner Feedback

ebrain Certificate of Completion

This is to certify that

Hannah Cock

has completed the following ebrain course:

Occipital and Parietal Lobe Epilepsies

September 27, 2015

Carotid and Vertebral Artery Dissection

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Pathophysiology of Cervical Arterial Dissection

Carotid and Vertebral Artery Dissection

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Appropriate Imaging Tools to Make a Diagnosis

CT Angiography

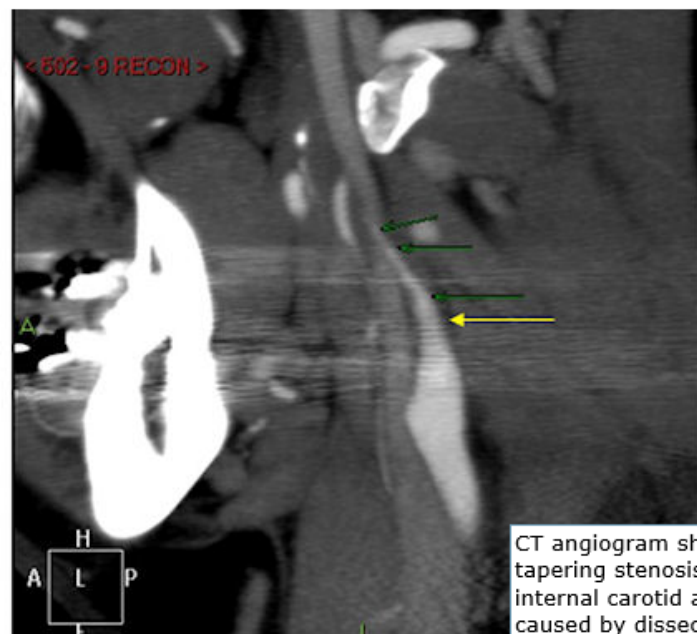
CT angiography can identify mural thrombus (thickening of the vessel wall by material with a different density to normal tissue) and allows accurate visualisation of the vessel lumen.

A dissection flap, long tapered stenosis, false lumen or pseudoaneurysm may be seen.

CTA has the advantages of being rapid to acquire and suitable for patients with contraindications to MRI (e.g. pacemakers, claustrophobia). It may be better than MRI for detecting vertebral dissection since it is not affected by signal drop-out. It has the disadvantages of ionising radiation exposure and iodinated contrast use.

Mouse over the image for further information.

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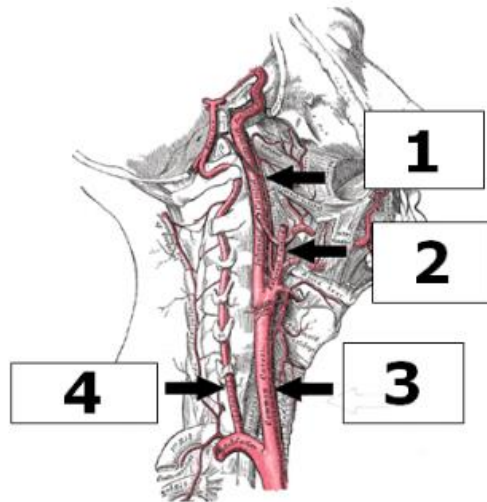
CT angiogram showing tapering stenosis in the left internal carotid artery caused by dissection

Self Assessment

Question 1

Can you identify the major cervical vessels?

Look at the image and answer the question below.



Question

Value: 4

Put the items in the correct order.

Common carotid artery

1 ▾

Vertebral artery

1 ▾

Internal carotid artery

1 ▾

External carotid artery

1 ▾

Check Answer

Occipital and Parietal Lobe Epilepsies

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score print

Occipital Epilepsies

Aetiology

Occipital epilepsy has many causes (idiopathic, vascular, tumour, cortical dysplasia). The seizure symptoms do not usually help to distinguish the underlying cause. However, onset in early childhood points strongly to a benign form.

Mouse over the links below.

The seizures

Visual hallucination

Blindness

Palinopsia

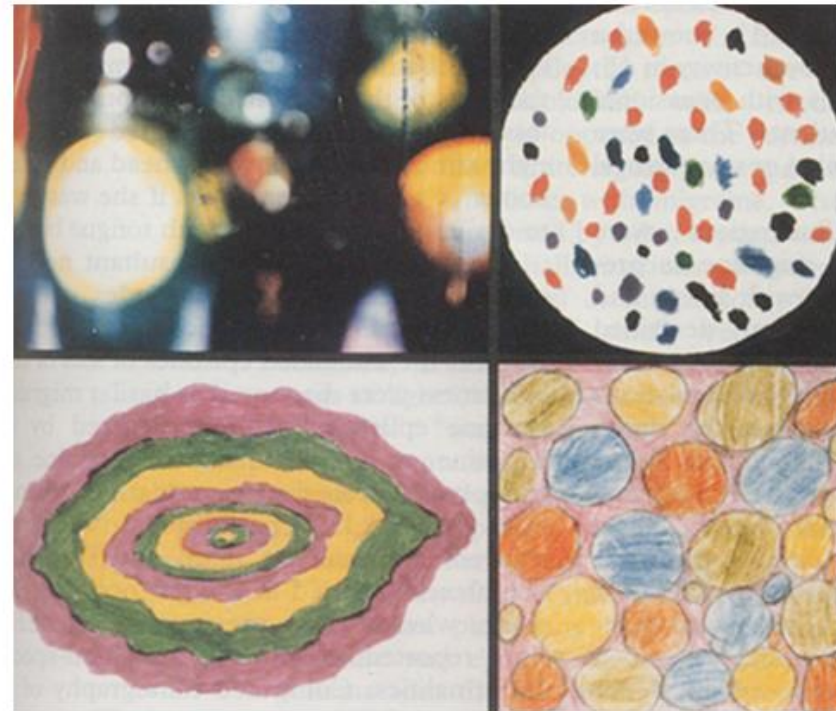
Eye movement

Mouse over the image

Visual hallucination

Occipital seizures typically manifest elementary hallucinations of blobs and colours (shown opposite) (though sometimes more formed but stereotyped hallucinations, e.g. of a butterfly in one visual field).

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Temporal Lobe Surgery for Epilepsy Part 2

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Technique of Anterior Temporal Lobectomy (ATL)

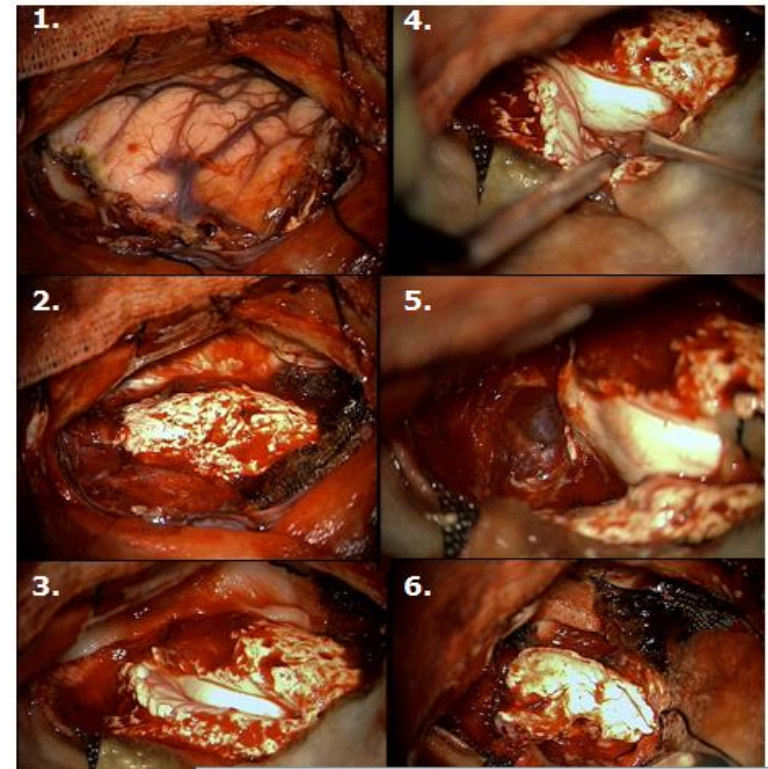
- Temporal craniotomy, exposing the lateral temporal lobe, and the sylvian fissure for orientation
- Infrasyllian coagulation of arachnoid aiming posterior, at 4.5 (L)/5.5 (R) cm rectangular turn for posterior resection towards the floor of the middle fossa
- Dissection and removal of the lateral temporal lobe including temporal pole, leaving the mesial structures
- Identification of the tip, then lateral opening of the temporal horn, identify choroidal point, then proceed with mesio-temporal resection as described above: amygdalum, uncus, hippocampal head, then en-bloc resection of the corpus hippocampi
- Achieve hemostasis without arachnoid coagulation e.g. with surgical

Mouse over the image for further information.

Modifications

- Pole-resection and extensive hippocampectomy (Wyler)
- Pole-resection and anterior unco-amygdalohippocampectomy
- Any 'tailored' (more extended) temporal lobe (temporo-occipital, -parietal, -frontal, -insular etc) resection after brain mapping or with awake resection to preserve language

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1. Superficial coagulation
2. Lateral temp. lobe resection
3. Opening the temporal horn
4. Identifying the choroidal point
5. Resection of uncus, amygdalum and HC-head
6. Mobilising HC and en-bloc resection

Cerebral Malaria

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Epidemiological Characteristics and Clinical Manifestations

Malarial Retinopathy

Malarial retinopathy is common. 60% of all children with cerebral malaria have malarial retinopathy on fundoscopic examination:

- Whitening of the macula that spares the central fovea
- Papilloedema
- Multiple retinal haemorrhages, often with pale centres

Malarial retinopathy is specific and might aid the diagnosing of cerebral malaria.

Prognostic features: in Malawian children, the presence of retinopathy, particularly papilloedema, which was associated with prolonged coma and death.

In patients who recover, retinopathy resolves over 1-4 weeks.

Mouse over the image for further information.

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The 'up' arrows show haemorrhages, the 'side' arrows show exsudates

Cerebral Malaria

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Management and Current Treatment Guidelines of Cerebral Malaria

Pre-referral Treatment

Cerebral malaria is severe malaria and, hence, is a medical emergency. The risk of death is greatest in the first 24 hours. The transit time between referral and arrival at health facilities able to administer intravenous treatment delays the commencement of appropriate antimalarial treatment.

It is recommended that patients be treated with the first dose of one of the recommended treatments before referral (unless the referral time is less than 6 hours).

Recommended pre-referral treatment options:

- Intramuscular artesunate, artemether, quinine, or
- Rectal artesunate

Learning Bite: In young children of less than 5 years of age, the use of rectal artesunate (10mg/kg) has been shown to reduce the risk of death and permanent disability.



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Diagnosis and Management of Trigeminal Autonomic Cephalalgias

Matharu MS, Goadsby PJ. Trigeminal autonomic cephalgias. J Neurol Neurosurg Psychiatry. 2002;72(Suppl 2):ii19-ii26.

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Goadsby, P & Sprenger T. Current practice & future directions in prevention and acute management of migraine. Lancet Neurology 2010; 9: 285-98.

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Matharu MS, Goadsby PJ. Trigeminal autonomic cephalgias. J Neurol Neurosurg Psychiatry. 2002;72(Suppl 2):ii19-ii26.

Matharu MS, Boes CJ, Goadsby PJ. Management of trigeminal autonomic cephalgias and hemicrania continua. Drugs. 2003;63(16):1637-77.

Cohen AS, Matharu MS, Goadsby PJ. Trigeminal autonomic cephalalgias: current



1ST CONGRESS OF THE EUROPEAN ACADEMY OF NEUROLOGY



1st Congress of the European Academy of Neurology, Berlin 2015
June 20-23 2015, Berlin, Germany

ebrain is pleased to offer approximately 100 webcasts recorded at the 1st Congress of the European Academy of Neurology, Berlin 2015.

<http://www.ebrainjnc.com/learning/course/category.php?id=56>

Teaching Course 5: Basic approach to the seizing patient level 1

Chairperson: Erik Taubøll, Oslo, Norway

This teaching course will focus on how to diagnose and treat epilepsy patients in clinical practice. The speakers will initially discuss how to characterize seizures through clinical findings, EEG and imaging techniques, then discuss possible aetiologies. Seizures are not necessarily epileptic, and having epileptic seizures do not necessarily mean epilepsy. But if so, a rational choice of antiepileptic drugs have to be done based on information on seizure and epilepsy type, but also on individual factors. And should every seizure imply start of AED medication? When should we start, and last, but not least, when should we stop treatment?

Clinical, EEG and imaging diagnosis of epileptic seizures	Milan Brázdil Brno, Czech Republic	Launch
Aetiologies of seizures in clinical practice	Erik Taubøll Oslo, Norway	Launch
Rational choice of antiepileptic drugs	Elinor Ben-Menachem Gothenburg, Sweden	Launch
When to start (and stop) antiepileptic drugs?	Tony Marson Liverpool, United Kingdom	Launch

Teaching Course 6: The Ageing Brain level 1

Chairperson: Marco Düring, Munich, Germany

Aging populations around the globe represent major challenges for society and healthcare systems. Brain health plays a major role in maintaining wellbeing as we age. This teaching course covers recent advancements in multiple areas of brain aging. Topics include psychological aspects, the measurement of brain aging using neuroimaging techniques as well as genetic and cellular aspects that facilitate our understanding of brain aging and might provide targets for future interventions.

Cognitive Ageing	Shu-Chen Li Dresden, Germany	Launch
Imaging brain ageing	Marco Düring Munich, Germany	Launch
Genetic architecture of brain aging	Hieab Adams Rotterdam, The Netherlands	Launch
The ageing brain and neurodegeneration	Sebastian Grönke Cologne, Germany	Launch

TC Epilepsy – basic approach to a seizing patient

Clinical, EEG and imaging diagnosis of epileptic seizures

Milan Brázdil

Brno Epilepsy Center,
1st Department of Neurology, Masaryk University,
St. Anne's Hospital, Brno, Czech Rep.
mbrazd@med.muni.cz

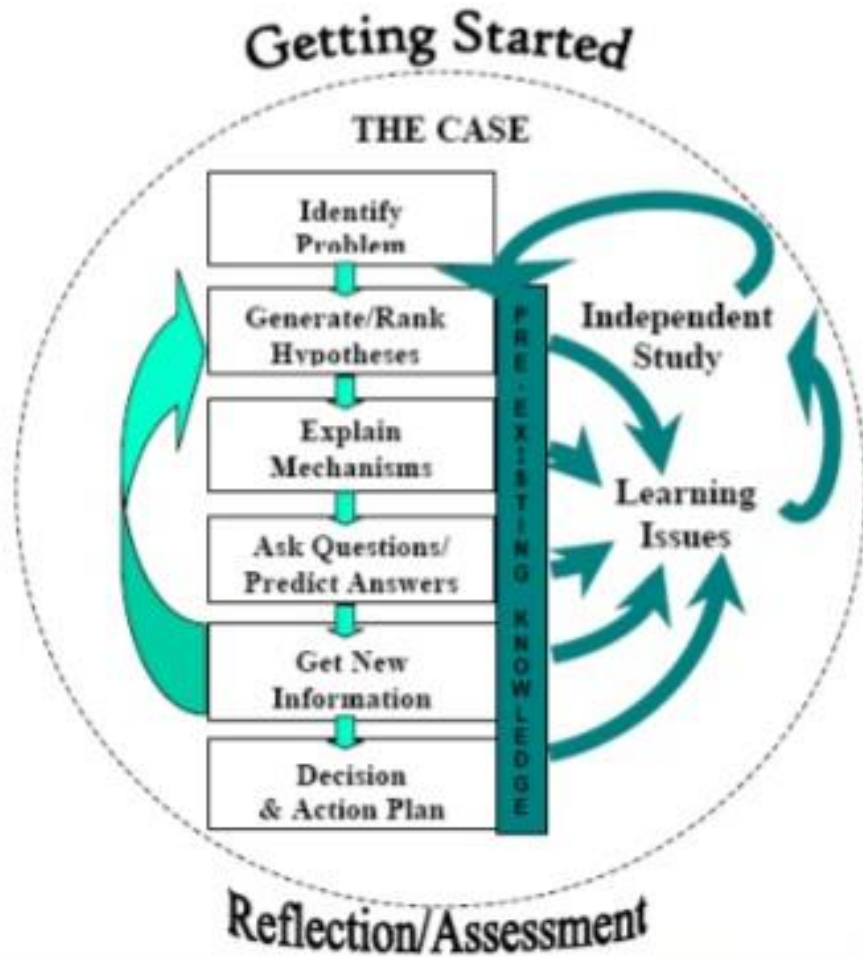
1st EAN Congress, Berlin 2015



SUBMIT



Virtual patients (decision Problem Based Learning)



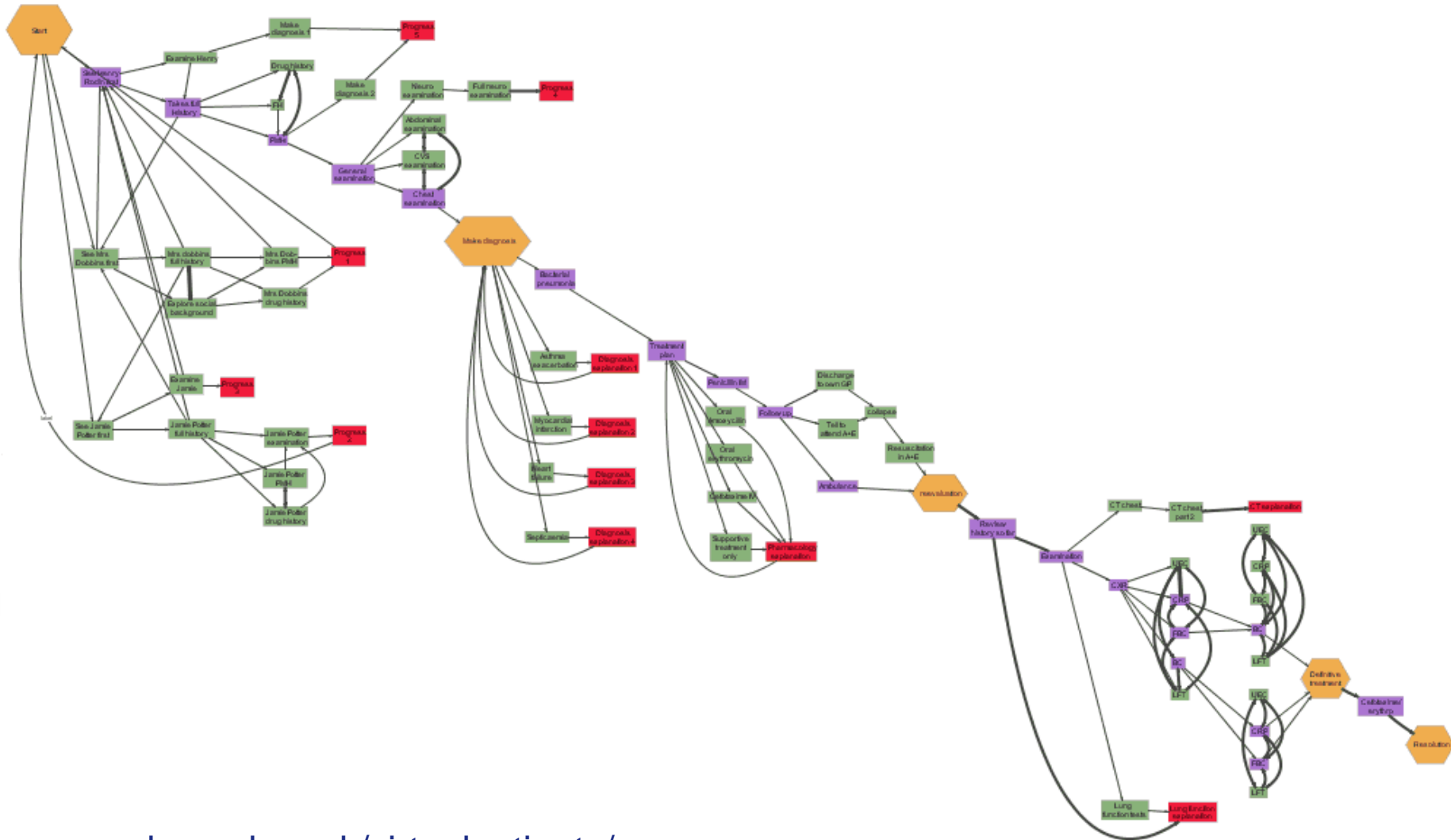
Very simple slides



secondlife.com



NODAL FORMAT



Virtual Patient Case Reports

Presentation

A 25-year-old obese woman presents with headaches. The headaches are continuous and severe. They have got slowly worse over 2 years. The headaches are worse in the morning but improve a bit later in the day.

There has been a recent episode when her vision blurred in both eyes for a few minutes. The vision has returned to normal now but she was scared by this and has come to see you. She takes no medication other than the oral contraceptive pill.

On examination there is a convergent strabismus.

Q: This is an image of the optic disc. What does it show? *Click 'A' for the answer.*

A: Papilloedema

Q: Why does she have a convergent strabismus?

A:



*Image courtesy of Jonathan Trobe, M.D. -
University of Michigan Kellogg Eye Center*

Next

What would you do now?

CT Brain

MRI Brain

No time for imaging do urgent Lumbar puncture

Write to a Neurosurgeon for a shunt

Neurosurgery Referral

You write a letter, it takes two weeks to be typed, checked and sent.

Four weeks later you get the following letter back from the neurosurgical department:

Dear Doctor,

Your patient with Benign Intracranial Hypertension came to clinic today. They were blind and despite urgent treatment the vision has failed to recover.

We recommend that you call your defence organisation.

Yours sincerely,



Back

Dead

Four days later the patient has a seizure, fails to regain consciousness and is ventilated. A repeat CT scan shows extensive enlargement of the mass lesion and severe cerebral oedema.

The patient dies.

At post mortem, the lesion is found to be a cerebral abscess. It enlarged, burst into the ventricle and the patient died from ventriculitis.

There was no presence of endocarditis and a tooth abscess was found.

Click the 'Next' button to continue.

Next



Management

She comes back 3 weeks later with a further headache. The papilloedema has improved though it is still present. You encourage her to loose weight and remind her that IIH is usually self limiting.

What would you do now?

Another Lumbar puncture

A Lumboperitoneal shunt

Acetazolamide

Optic nerve fenestration

Dural venous sinus stenting



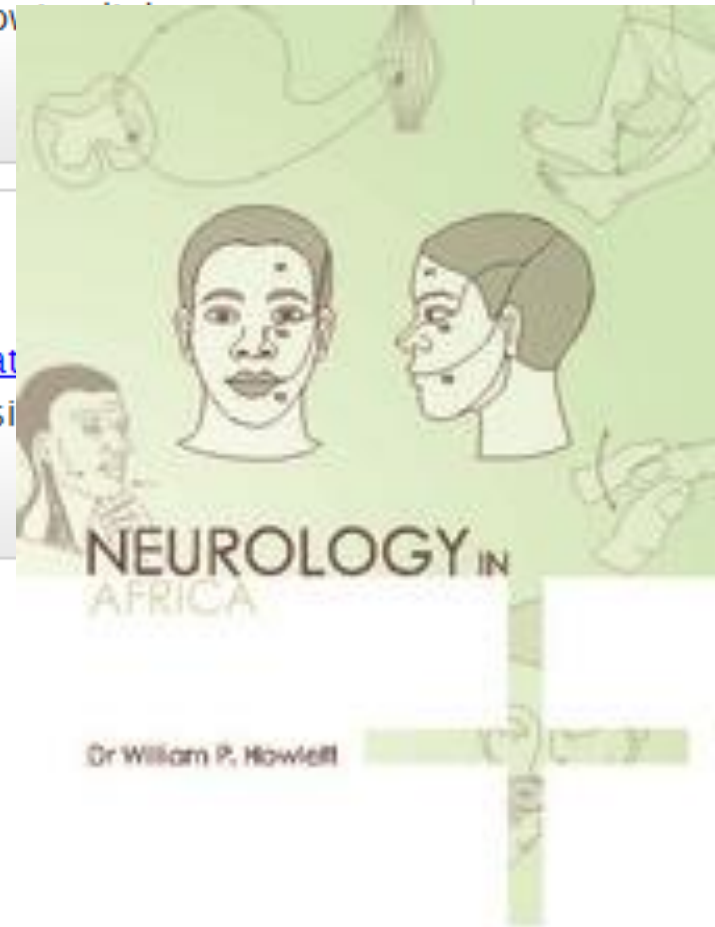
External resource links

Neuropathology and Ophthalmic Pathology

Why not visit the Neuropathology and Ophthalmic Pathology teaching sections kindly provided by St James University Hospital in Leeds, UK, via the following link:
[Virtual Pathology at the University of Leeds](#)

Neurocardiology: Epilepsy and Cardiovascular Disease

The above educational programme can be viewed on [Cardio-Debate](#) "Mini Courses" (www.cardio-debate.com/mini-courses). Please visit and register to view the content. Registration is free and quick.





The future of ebrain

Continued scaling up

- Pain
- eSpine
- Nerve & Muscle expansion
- Neuropsychology/Psychiatry
- Neuropaediatrics-MS

Revision & update all sessions post-review

Migration new platform

Potential for chat rooms, discussion forums, live webchats...

Multiple System Atrophy (MSA)

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Use and Limitations of Investigations in MSA

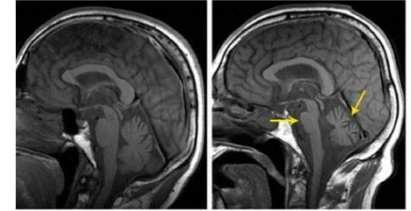
MRI may show:

Supratentorially

- Putaminal atrophy
- Hyperintense lateral putaminal rim
- Posterior putaminal hypointensity

Infratentorially

- Cerebellar atrophy
- Pontine atrophy
- 'Hot cross bun' sign in pons (non-specific sign of pontine atrophy)
- Hyperintense middle cerebellar peduncles (MCPs-also seen in FXTAS)



NB: MRI can be normal, especially in the earlier stages

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Getting involved

Authoring lessons

? Developing world/Africa perspective on all topics
African Academy of Neurology Learning Pathway

Peer reviewing lessons

Writing Virtual Patient Case Studies

Active call for cases

Hosting webinars

Hosting forums

All suggestions welcome...





Simon Shorvon Simon Thompson Hannah Cock Vitalie Lisnic

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Editors, authors, learners contributing feedback
EAN & WFN Africa Task Force