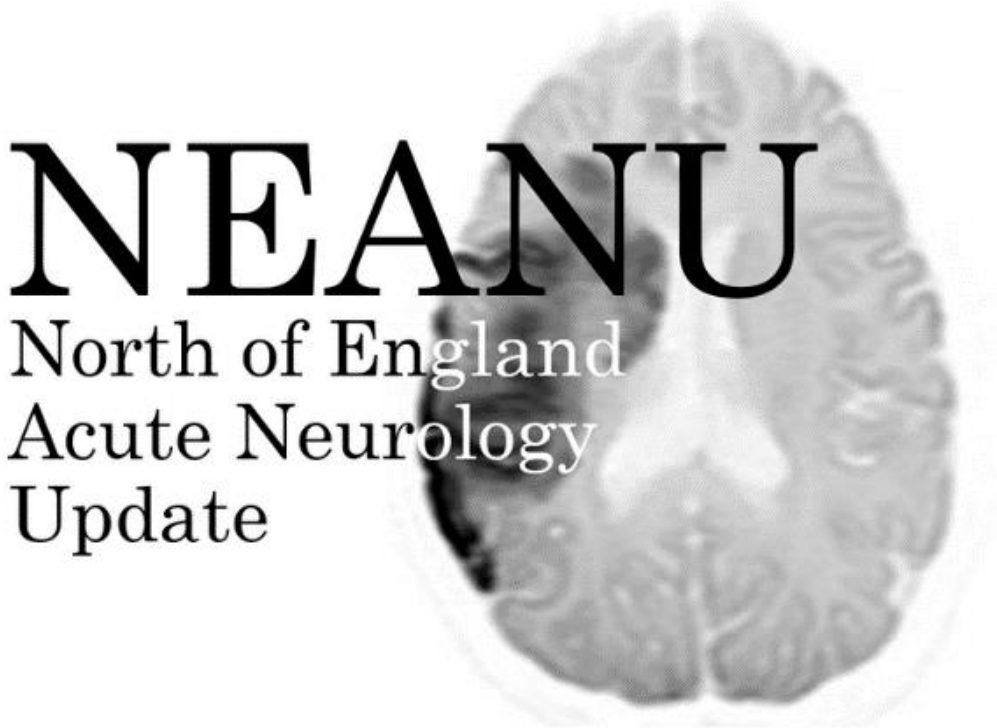


Eye signs in acute neurology

MANCHESTER 1824
The University of Manchester

Manchester Centre for Clinical Neurosciences

Salford Royal NHS
NHS Foundation Trust

Case A

- 30 year old male
- 2 day history blurred vision – both eyes
- Mild headaches for 1 week

- O/E
  - VA 6/24 bilaterally
  - Normal fields
  - Normal eye movements

Case A – Differentials?

Acute/subacute syndrome of raised ICP

Primary

- IIH

Secondary

- Cerebral venous sinus thrombosis (CVST)
- *Extracranial* venous obstruction
- Mass lesions
- Hydrocephalus
- Malignant hypertension
- Others: tetracycline (and other drugs) renal failure, SLE, Addison's, hypoparathyroidism…

Case A – Investigations?

- Brain imaging…

  with venography

Cerebral venous sinus thrombosis - 1

Key points

- Plain imaging can be normal – beware misdiagnosis of IIH
- MRV notoriously difficult to interpret…
- Look for underlying causes:
  - Rheum: SLE, APL, Behçets
  - Haem: thrombocythemia, protein S deficiency, anti-thrombin III deficiency, activated protein C resistance
  - Infections: mastoiditis
  - Post-partum, post-surgery, on OCP

Cerebral venous sinus thrombosis - 2

- Treatable…don't miss it:
  - Examine the fundi
  - Low threshold for venous imaging
- Treatment:
  - Anticoagulation
  - Look for a cause
  - Document visual fields and VAs – may need therapeutic tap or even lumbar drain
  - Don't worry (too much) about haemorrhage

Case B

- 65 year old male
- Double vision for 1 day
- Painless
- Worse looking to the left
- PMH
  - DM
  - HTN
  - Raised cholesterol

Case B - differentials

Acute painless NVI palsy

First, is it isolated? In the history and examination, specifically look for:

- Orbital disease (e.g. chemosis, proptosis)
- Myasthenia gravis (fatigue/variability, ptosis, eyelid closure weakness)
- Other cranial nerve lesions or brain stem signs (e.g. NVI palsy, Horner's sign)
- Systemic, infectious or inflammatory risk factors (e.g. malignancy, temporal arteritis)
- Severe headache (aneurysm…rare but important)
- Optic disc swelling (false localising sign)

Case B - differentials

- If truly isolated, causes of NVI palsy include:
  - Vasculopathic
    - Most common
  - Non-vasculopathic
    - Be more careful…
  - Traumatic
  - Congenital

Case B - treatment

- Treatment for vasculopathic NVI palsy
  - Watch and wait
  - Can worsen for up to 1 week
  - Can take 12 weeks to improve
- Neuroimaging not required, *unless*:
  - Progressive
  - Non-resolving
  - Any suggestion of non-isolated NVI
- Have a low threshold for checking the ESR/CRP

Case C

- 58 year old man, previously fit and well
- 6 week history of intermittent symptoms
- Double vision whilst driving
- Droopy eyelids in the evening
- Seemed to worsen recently after being given antibiotics for a chest infection

Tangent - pitfalls in myasthenia

- Exposing patient to a trigger:
  - https://www.myaware.org/drugs-to-avoid
- Missing a thymoma
- “seronegative” patients
- Steroids
  - High doses can cause “Drachman dip”
- Pyridostigmine:
  - Airway secretions – usually paused around intubated/extubation
  - IV pyridostigmine 30 times more potent…

Case D

- 66 year old man
- Headache for 2 days
- Droopy right eyelid since this morning
- Double vision

- PMH
  - DM, HTN, Raised cholesterol
- DH
  - Statin, metformin

Tangent – mono-ocular diplopia

<u>Key question: is the diplopia mono-ocular or binocular?</u>

Mono-ocular diplopia

False image visible **from one eye only**

Common causes include:

- Problem with tear film/cornea/lens/vitreous or retina
- Functional

Usually need to see friendly eye doctor rather than neurology

Binocular diplopia

False image visible when both eyes open.

Produced from eye misalignment of any cause.

Case D - differentials

Acute NIII palsy, pupil sparing

- First, is it isolated? Look for:
  - Orbital disease (chemosis, proptosis, disc swelling etc.)
  - Myasthenia gravis
  - Other CN lesions
  - Brainstem or limb signs
  - Systemic, infections, or inflammatory risk factors…low threshold for checking ESR
  - Severe headache (aneurysms…)

Case D - differentials

- If isolated, is the pupil involved?
  - Yes:
    - Aneurysm until proven otherwise
  - No:
    - Ischaemic – esp in patients with DM, but don't forget GCA
    - Trauma
    - Congenital

Case D - outcome

- CTA normal
- Pain settled in a few days
- Ptosis and ophthalmoplegia improved in around six weeks
- HTN, DM and cholesterol treatment optimised

Case E

- 61 year old man
- 3 weeks of right retro-orbital pain
- 1 week history of double vision, ptosis and reduced visual acuity from right eye
- Some night sweats for a few weeks, increasingly fatigued

- Otherwise fit and well

- No meds

Case E - examination

- Right eye proptosis and chemosis
- Right eye does not move at all
- RAPD in the right eye, VA 6/36
- Reduced sensation right forehead
- Absent corneal reflex

- **Which nerves are involved?**
  - NII NIII, NIV, NV, NVI

Case E – where is the lesion?

Case E - differentials

Subacute orbital apex syndrome

- Malignancy
- Inflammatory disease:
  - Sarcoidosis
  - Systemic lupus erythematosus
  - Eosinophilic granulomatosis with polyangiitis
  - Granulomatosis with polyangiitis
  - Giant cell arteritis
  - Thyroid eye disease
- Trauma
- Vascular
  - Carotid aneurysm/fistula

Case E - imaging

- Mucous blood and necrotic material (arrow)
- Soft tissue infiltration (arrowhead)

Case E - outcome

- Orbital decompression surgery and biopsy
- Steroids administered – VA improved to 6/12
- Histology showed large B-cell lymphoma
- Chemotherapy commenced

Case F

- 54 year old woman
- Sees chiropractor about her neck
- 2 days after neck manipulation, right eyelid drooping noticed
- Husband noticed that right pupil is smaller than the left
- No diplopia or visual loss

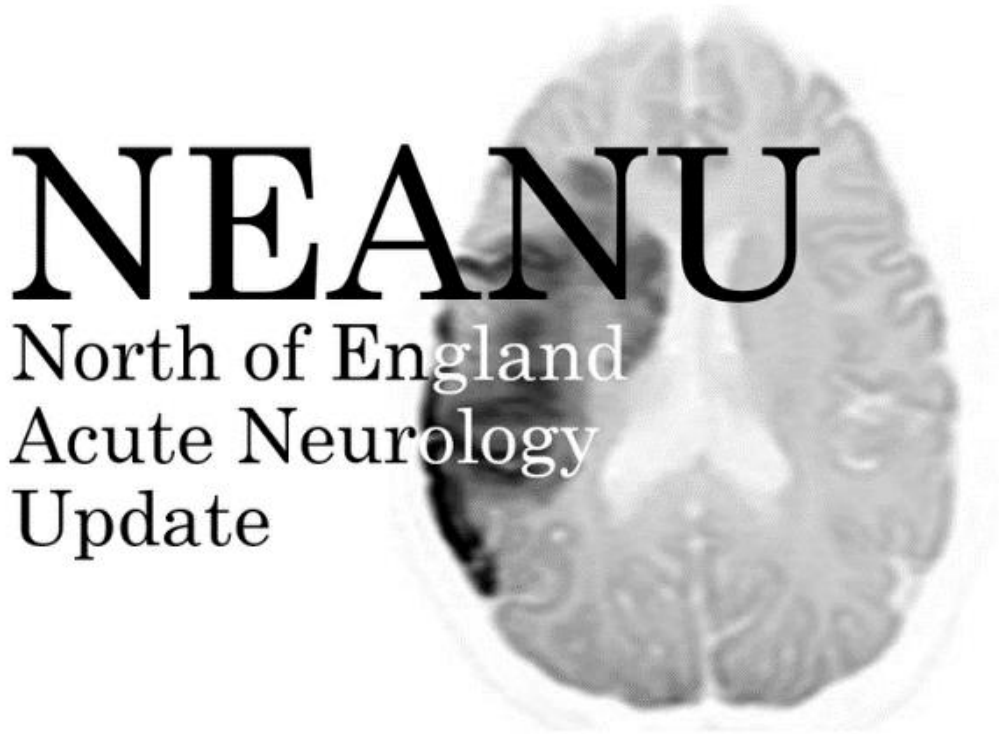
Case F - differentials

Horner's syndrome

- Lesion anywhere along sympathetic pathway:
  - Lateral brain stem lesions
    - Stroke
    - Tumour
    - Syringobulbia
  - Cervical spinal cord
    - Syringomyelia
  - Lung apex - Pancoast
  - Carotid disease
  - Orbital disease etc.

Case F - investigations

- Confirmed right carotid artery dissection
- Rx aspirin



Quick fire round: *the weird and the wonderful*

- History and a video/picture
- What tests?
- What diagnosis/treatment?

Quick fire 1

- A 30-year-old man
- Progressive dysphagia, dysarthria, and weakness in his arms and legs over 6 months
- Now unable to swallow – presents to ED
- O/E
  - Tongue wasting and ->
  - Widespread wasting and fasciculations, brisk reflexes
  - Normal sensation
- NCS - normal peripheral nerves
- EMG – florid acute and chronic denervation
- Diagnosis: ALS

Quick fire 2

- 50 year old lady
- GP sent in – “generally unwell, not responding to antidepressants”
- Gaining weight
- Tired all the time
- Intolerant of cold

- O/E ->
  - Woltman’s sign

- TFTs – T4 undetectable, TSH 20 (0/4-4)
- Diagnosis: Hypothyroid
  - Thyroxine started ->

Quick fire 3

- 70 year old lady
- 2 year history of gait disturbance
- Now falling – sent in “off legs”
- Memory failing (MMSE 12)
- Family told to look at local nursing homes

- O/E ->

- Imaging ->

- Diagnosis: NPH
- Rx VP shunt ->

https://www.nejm.org/doi/full/10.1056/NEJMicm1701226

Quick fire 4

- 48 year old female
- 2 week history of general malaise
- Now acutely confused, drowsy and started having abnormal movements

- O/E ->

- Na+ 130
- LP – protein 0.6, normal cells
- LGI1 antibodies positive in serum and CSF

- Diagnosis: autoimmune encephalitis with faciobrachial dystonic seizures
- Rx steroids +/- more aggressive immunosuppression

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2814%2960684-X/fulltext

Quick fire 5

- 26 year old female
- 2 weeks of change in behaviour – poor memory, confused speech
- Became drowsy and then comatose

- O/E ->
  - Jaw dystonia
  - Opisthotonos
  - Dystonic posturing upper limbs

- Ix
  - USS abdo – ovarian teratoma
  - Serum and CSF positive for NMDA receptor Abs

- Diagnosis: Paraneoplastic NMDA receptor antibody mediated encephalitis
- Rx
  - Immunosuppression
  - Tumour removal

https://jamanetwork.com/journals/jamaneurology/article-abstract/799191

Quick fire 6

Could you have worked it out from witness history alone?
Smart phone videos are **really** useful

https://www.nejm.org/doi/full/10.1056/NEJMra1500587

Quick fire 7

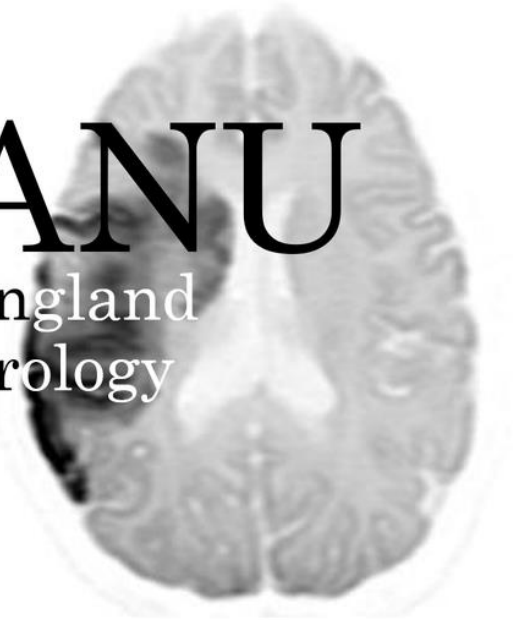
- 4 week history rash on face and hands
- Now struggling to get up the stairs

- O/E ->

- Ix
  - CK 2,500 IU/L
  - Mi2 autoantibodies
  - CT TAP no malignancy

- Diagnosis: dermatomyositis
- Rx: immunosuppression

NEANU
North of England
Acute Neurology
Update



Thanks and Questions?

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