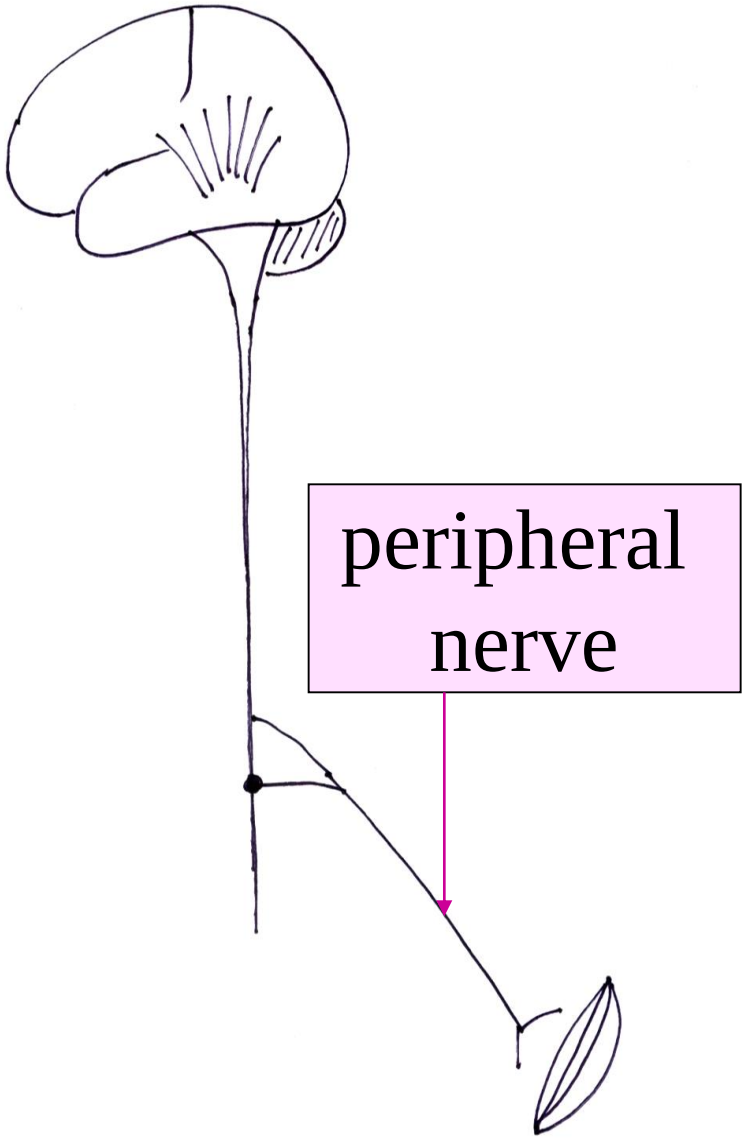
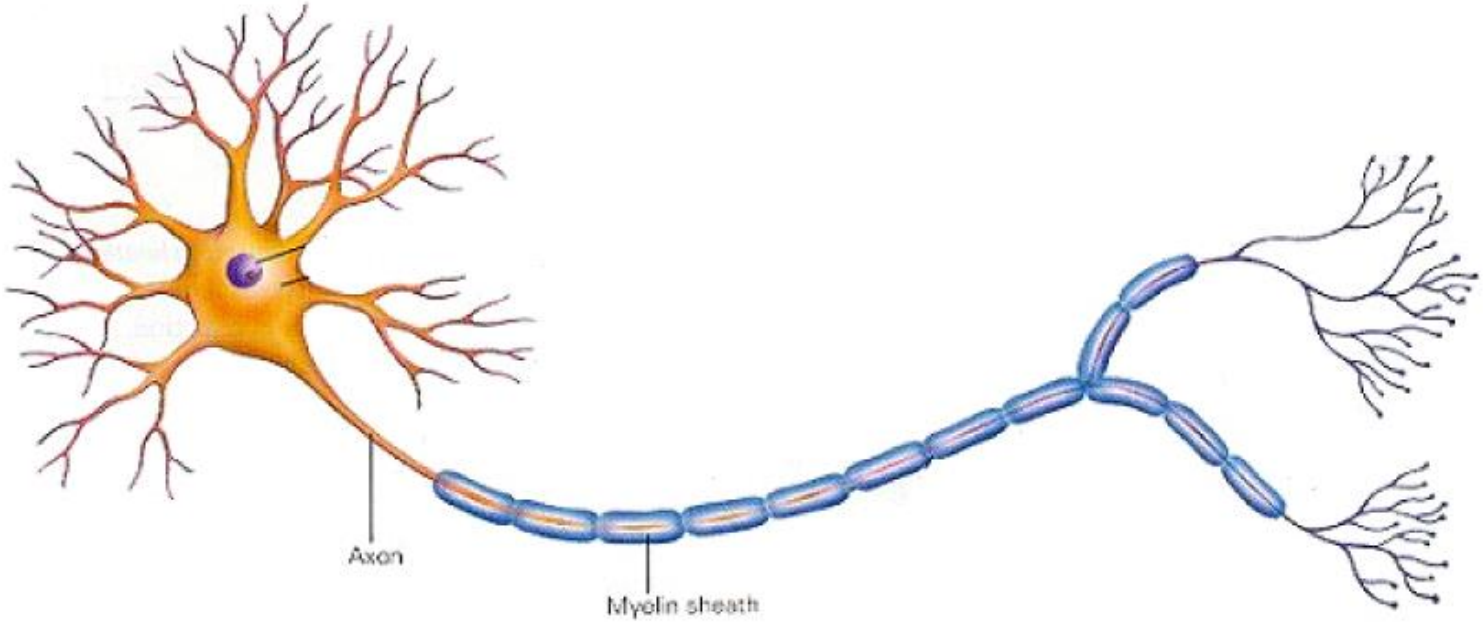
Disorders of peripheral nerves

Peripheral nerve disease



- distal signs
- motor - LMN weakness
- reflex loss
- sensory loss
  - large fibres - JPS, vibration
  - small fibres - pain, temp.
- autonomic

Peripheral nerve disease



- demyelination
  - loss of myelin, axon intact
- axonal degeneration

Peripheral nerve disease - types

- Mononeuropathy
- ‘Mononeuritis multiplex’
- Polyneuropathy

Mononeuropathy

- Trauma
- Entrapment neuropathy
  - median N. - carpal tunnel syndrome
  - ulnar N. - cubital tunnel syndrome
  - lateral cutaneous N. of the thigh - meralgia paraesthetica
  - tibial N. - tarsal tunnel syndrome

Mononeuritis multiplex

- diabetes
- leprosy
- vasculitis
- connective tissue diseases
- sarcoidosis

Polyneuropathy- causes

- diabetes
- alcohol
- infections - leprosy, diphtheria, HIV, …
- inflammatory - Guillain-Barre synd., CIDP
- drugs - INAH, metronidazole, ….
- other metabolic - B12 deficiency, CRF, porphyria, …
- toxins - lead, organophosphates, …
- hereditary - HMSN (Charcot-Marie-Tooth dis.)
- paraneolastic
- other ….

Polyneuropathy - clinical features

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- motor
- sensory
- autonomic

Polyneuropathy - clinical features

- bilateral, symmetrical
- distal weakness, wasting
- reflexes - diminished or lost
- numbness, cannot feel texture
  - 'feeling of mud on my soles'
  - 'walking on cotton wool'
- pain, 'pins & needles', 'burning'
- 'glove & stocking' sensory loss
  - pain, touch, temperature
- JPS loss - sensory ataxia, Romberg's sign
- thickened nerves - leprosy, HMSN, …

Polyneuropathy - clinical features…

autonomic neuropathy

- CVS - postural hypotension
  loss of HR & BP variation with Valsalva
- GIT - vomiting (gastroparesis), nocturnal diarrhoea
- GUT - bladder - retention, incontinence
  erectile dysfunction
- skin - loss of sweating

Peripheral nerve disease - investigation

- Confirm peripheral nerve disease
  - nerve conduction studies / electromyography
    - demyelination/ axonal degeneration
  - nerve biopsy
- Look for cause

Peripheral nerve disease - treatment

- Symptomatic treatment - peripheral nerve disease
  - Neuropathic pain –
    - anti-depressants - tricyclics, …
    - anti-epileptics - carbamazepine, gabapentin, pregabalin
  - physiotherapy
- Treat the cause

Guillain-Barre syndrome

GBS - pathophysiology

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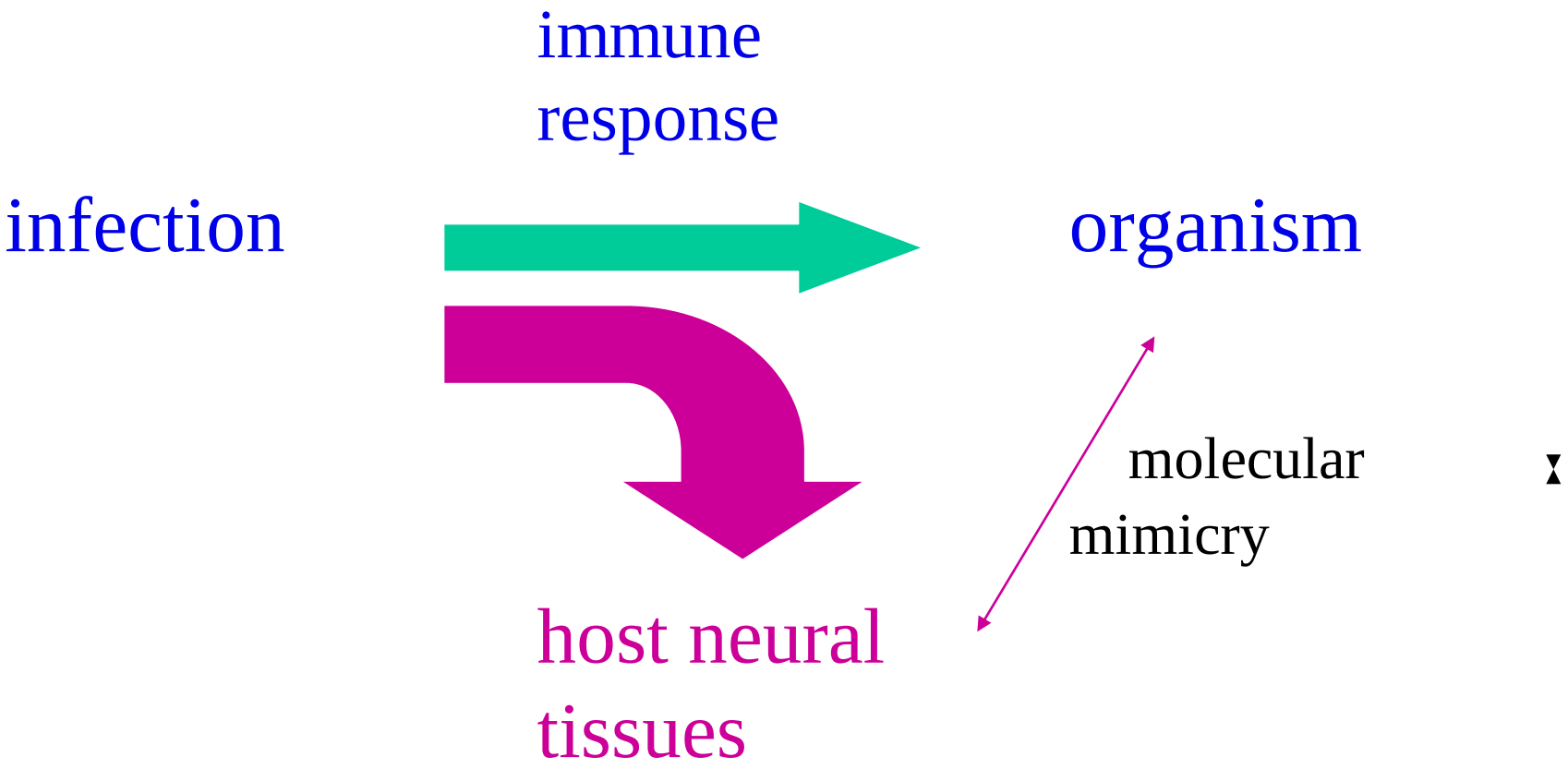


GBS - pathophysiology

- antecedent events

  infection - viral - CMV, EBV, VZV, HIV

  Campylobacter, mycoplasma

  vaccines

- molecular mimicry

  shared antigens between pathogen & surface glycolipids of peripheral nerves

- immune mediated inflammatory poly-radiculo-neuropathy

GBS - pathophysiology

target epitopes

- Schwann cell membrane or myelin

  demyelination - AIDP

- axonal membrane

  axonal damage - axonal GBS

- cerebellum, cranial nn. 3 4 6 , dorsal root ganglia

  Miller- Fisher syndrome

  ataxia, ophthalmoplegia, areflexia

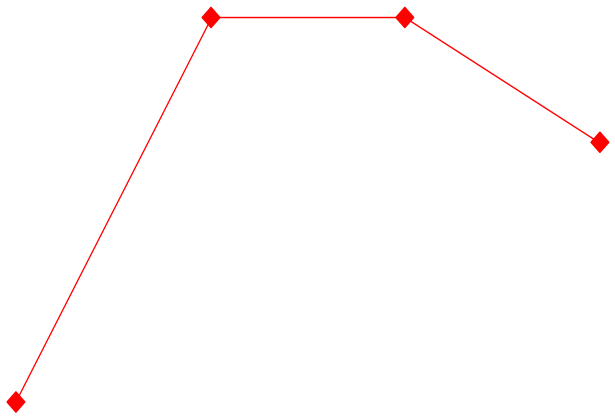
GBS - clinical features

GBS - clinical features

- acute flaccid areflexic paralysis
- self - limiting
- 2/3 - trigger event
- rapid progression - upto 4 weeks

plateau

recovery



GBS - clinical features

- acute, symmetric, flaccid motor weakness

  2 or more limbs - proximal, ascending

  cranial nerves – facial, bulbar, ophthalmoplegia

  respiratory
- areflexic
- sensory - symptoms common, signs few
- autonomic - cardiovascular, bladder, bowel
- pain - 1/3rd severe

GBS - diagnosis

- Clinical
- CSF - high protein (80%)
  cells normal
  ‘protein-cellular dissociation’
- NCS / EMG
  demyelination
  axonal degeneration

- changes best seen after 10-14 days

Exclude - other causes of acute flaccid paralysis

Exclude - other causes of acute flaccid paralysis

poliomyelitis

myasthenia

paralytic rabies

porphyria

toxic neuropathy - OP

electrolyte imbalance

diphtheria

botulism

snake bite

GBS - management

- General

  monitor – pulse, BP, RR, single breath count, vital capacity

  1/3 - intensive care

- Respiratory support - VC < 20 ml/kg

  * no signs of breathlessness

- Specific treatment - Immunomodulation

  plasma exchange, IVIg - equally effective

  * steroids - no benefit

- Rehabilitation