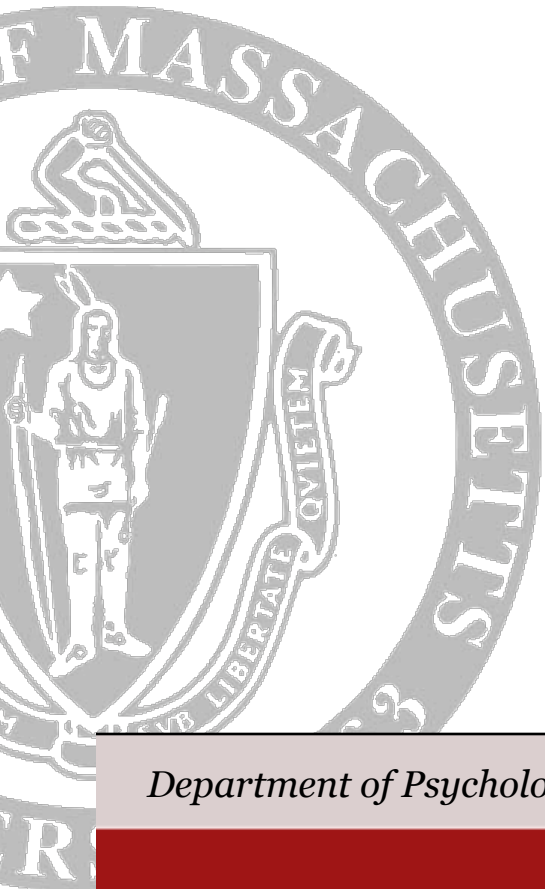


Neurobiology of brain dysfunction

Neurological diagnosis



Neurological Diagnosis

- The neurologist attempts to relate **symptoms and findings on neurological examination** to locations within the nervous system
- Example: a patient complains of headache
- Localization: pain sensitive structures in the head
- Scalp and scalp vessels, intracranial arteries, meninges

Case 1

Clinical features

- The neurological examination is normal
- The headaches are episodic, and associated with nausea, vomiting, and sensitivity to light and sound
- There is a strong family history of headache
- Likely diagnosis is **migraine**

Case 2

Case 2

- Young male
- Headaches bunched in periods of weeks to months with prolonged headache-free intervals
- Unilateral orbito-temporal piercing pain
- Last ½-3 hours
- Tearing, rhinorrhea
- Can occur during day or relatively shortly after going to sleep

Episodic Cluster headache

- Primary Trigeminal Autonomic Cephalgia
- Periodicity has suggested hypothalamic involvement
- Diagnosis historical, although imaging necessary to exclude mimicking conditions

Case 3

Partial Complex Seizure

- Alteration in awareness
- Amnesia for event
- Variety of stereotypical behaviors, such as staring “zoning out”, lip smacking, swallowing, walking in circles
- Initial symptoms sometimes identifiable, e.g. smells, tastes, psychic phenomena such as depersonalization, déjà vu, jamais vu, intense fear

Partial Complex Seizures

- Patient is bewildered during and after the event and can act violent or aggressive if attempts at restraint are made (spitting, kicking, etc.)
- In most cases, EEG provides support for the diagnosis of epilepsy (i.e. a seizure tendency)
- However, some patients with unquestionable seizure have normal EEGs, and vice versa

Partial Complex Seizures

- Alteration in, but usually not loss, of consciousness
- Staring, automatic behaviors such as circling, lip-smacking, swallowing
- Frequently preceded by sensory or psychic symptoms such as déjà vu or unusual olfactory symptoms
- Not conversant during attacks
- Confused after event, amnestic for event afterward
- Generally seizures begin in temporal lobe or insular areas

Case 4

Syncope

- “Faint”
- Generalized hypoperfusion of brain
- Premonitory symptoms are lightheadedness, graying of vision
- Usually slump over, brief loss of consciousness, pallor, limp tone, very alert afterward
- Causes are many: cardiac, medication, psychic(e.g. fear, sight of blood,etc)

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Cases 5-6

Cases 5-6

- Tremor
- Slowing
- Quiet speech
- Early symptoms of lost sense of smell



hypokinetic

Case 6

Case 6

- A 29 year old male reported clumsiness of his right arm and leg, slurred speech.
- Examination
- Additional history disclosed an episode of tingling in his arms and legs, accompanied by an electric shock-like sensation running down his spine when he flexed his neck. The symptoms appeared 5 years ago and lasted three weeks.

Multiple Sclerosis

- Dissemination in space and time necessary for the diagnosis
- MS must be the best diagnosis to explain the findings (i.e. exclude mimics like Sjogren's)
- Imaging and ancillary studies important in the decision
- No single test diagnostic of MS

Multiple Sclerosis

- Ancillary studies also of benefit
- Visual evoked potentials can demonstrate dysfunction in optic nerve pathways (i.e. an additional lesion) in patients with no visual symptoms
- CSF studies commonly demonstrate the presence of oligoclonal bands of immunoglobulins in the CSF(vs. the normal polyclonal response)