Imperial College London

Clinical demonstration – MS

Case summary – Mr. JD - part 1

- June 1976 (age 17) - onset of nausea, followed by double vision, left-sided numbness (presenting relapse)
- Brain infection/inflammation suspected. Lumbar puncture for CSF analysis
- Gradual recovery over weeks
- June 1977 - recurrence of similar sx (2nd relapse)
- Diagnosis of MS hypothesized
- Winter 1978 – leg numbness from waist down, inbalance (3rd relapse)

Case summary – Mr. JD - part 2

- Winter 1978 – leg numbness from waist down, inbalance (3rd relapse)
- Sep. 1979 – left leg numbness lasting 10 days followed by complete recovery (4th relapse)
- May/June 1985 (age 36) sensory disturbances inside mouth. (5th relapse) Seen at SMH, repeated LP. Results confirmed inflammation in CSF. Formal diagnosis of relapsing remitting MS.

Case summary Mr JD – part 3

- 1993 (age 34)- progressive limping in left leg (start of secondary progressive course)
- Mid 1995 began using walking stick
- 1997 – started using one crutch, then two crutches
- 2000 onwards (age 41) began to use wheelchair occasionally. Became WC bound since Apr 2003
- 2006 right-sided facial droop sparing the eye muscles resolving in few weeks (6th relapse)

Multiple sclerosis: definition

- A chronic inflammatory multifocal demyelinating disease of the central nervous system of unknown cause resulting in loss of myelin and oligodendroglial and axonal pathology
- Typically affecting young adults with exacerbating-remitting pattern or chronic progressive evolution

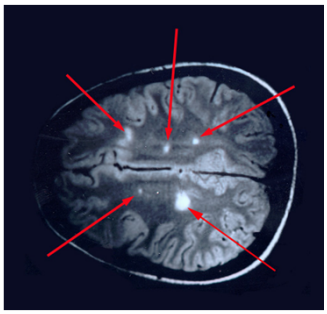
MS: main clinical manifestations and their *tempo*

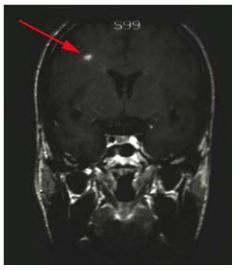
- Symptoms result from disruption of myelinated tracts in the CNS
  - **Visual**
  - **Motor**
  - **Sensory**
  - Cognitive and psychiatric
  - Bowel, bladder
  - Sexual
- Onset: hours to days
- Recovery: days to months

Diagnosis of MS

- MRI showing characteristic CNS white matter lesions
- Cerebrospinal fluid (CSF) analysis shows indices of **inflammation**
  - Increased production of Immunoglobulin in CSF
  - Oligoclonal Immunoglobulin bands

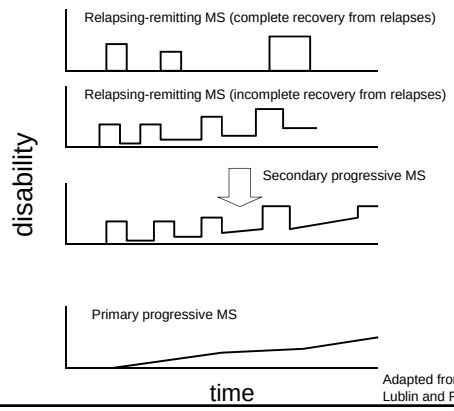
MRI in MS – multiple areas of hyperintense signal





Courtesy of Dr J Rose, Univ. of Utah

Clinical subtypes of multiple sclerosis



Adapted from Lublin and Reingold, 1996

Take home points – MS

- **Onset and Symptoms**:
  - Usually presents in young adulthood between the ages of 20 and 40 years
  - inflammation and disruption of myelin in the CNS
  - can involve any neurological function – most commonly sensory, motor and visual symptoms
- **Clinical Course:**
  - MS typically begins as exacerbating (relapsing) - remitting disorder, evolves into progressive course (secondary progressive MS)
  - Less commonly starts with a progressive course (primary progressive MS)
- **Diagnosis**:
  - Primarily based on clinical history
  - Supported by magnetic resonance imaging (MRI) and cerebrospinal fluid (CSF) analysis showing inflammatory abnormalities
- **Therapy**:
  - Immuno-modulatory and immuno-suppressive treatments are aimed at reducing relapses – effect on long-term prognosis unclear