IMEC'S MEETING

Neglected Truths of Parkinson Disease
« More than just the shakes »

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Question 1: Parkinson’s Disease is contagious or not?

- Age: most important risk factor
- Sex: men > women
- Genes: a double risk in the child, and a triple risk in the siblings.
- Toxins: exposing high doses of poisonous chemicals (pesticides)
- Lifestyle:
  - Non-smokers and non-caffeine users have a higher risk of developing Parkinson’s???
  - Smoking make some symptoms of Parkinson’s worse.
  - People who do little exercise may have increased risk as well.

PARKINSONISM VS. PARKINSON'S DISEASE

PARKINSONISM
VERSUS
PARKINSON'S DISEASE

PARKINSONISM	PARKINSON'S DISEASE
Parkinsonism is a syndrome characterized by a combination of Bradykinesia, stiffness, and tremors	Parkinson's disease is a clinical syndrome characterized by lesions in the basal ganglia
Comparatively rapidly progressive condition with additional features like hallucinations, delusions, & dementia	Major clinical features include resting tremors, rigidity, stiffness, Akinesia & dysfunctional postural reflexes, etc.
More than 80% of the identified cases are due to Parkinson's disease. Secondary causes include vascular conditions, drugs, infections, etc.	Root cause is multifactorial such as heredity, positive family history, advanced age, and environmental toxins
Take a longer duration to respond or do not respond at all to the treatment with Levodopa	May respond faster since it is less progressive

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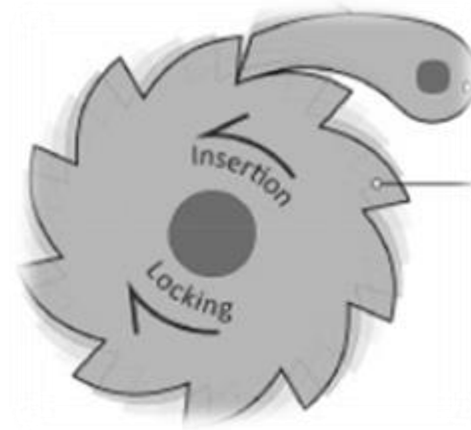
Parkinsonism

- ***Bradykinesia***
- Cogwheel rigidity
- Resting tremor ("pill rolling")
  - Absent in ~20-30% with PD
- Postural Instability
  - Not at presentation in PD



In fact, most people with Parkinsonism have PD

The challenge is to sort out which do not

Step 1: Parkinsonism

- Bradykinesia
- And at least one of the following:
  - Muscular rigidity
  - 4-6 Hz rest tremor
  - Postural instability (with no other cause such as impaired proprioception)

Additional motor features of Parkinsonism

- Decreased arm swing
- Micrographia
- Decreased blink rate and facial expression (hypomimia)
- Shuffling gait
- Difficulty arising from a chair car or turning in bed

- Soft, monotone voice
- Freezing
- En bloc turning
- Flexed posture
- Festination
- Drooling

Micrographia

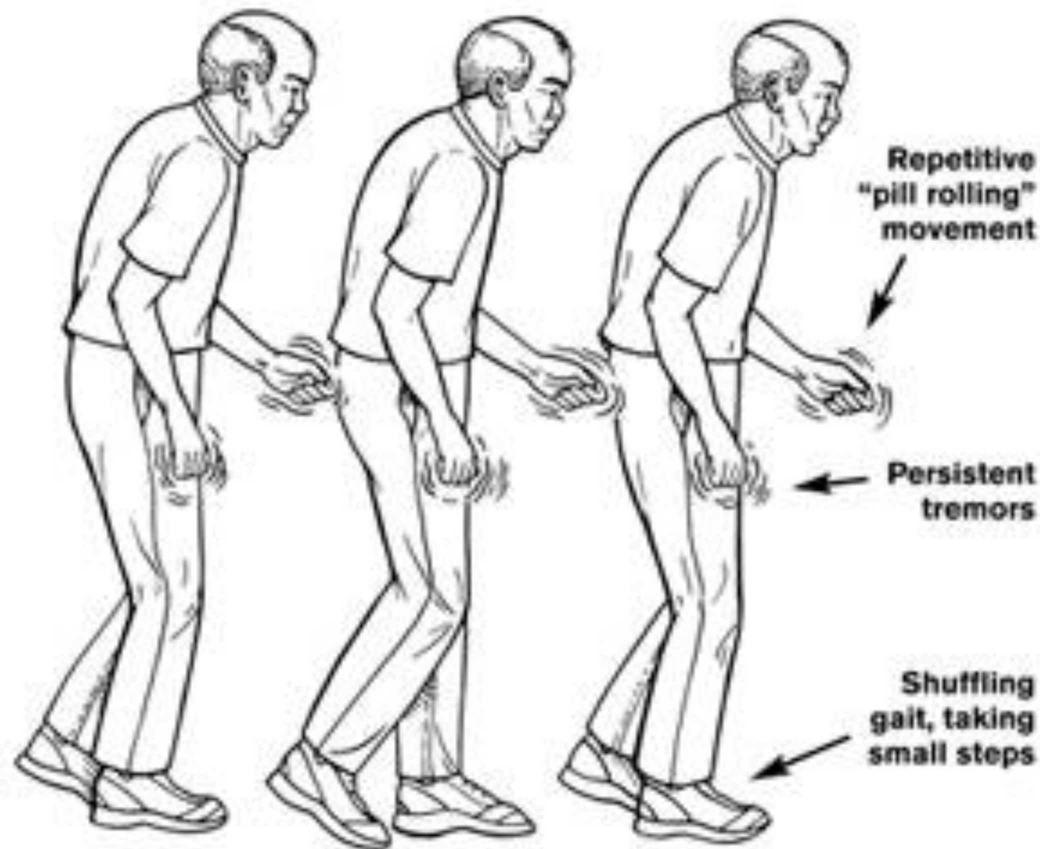
PD-OFF handwriting

ry had a little lamb its fleece was white as s

PD-ON handwriting

ry had a little lamb its fleece was white as s

Shuffling gait



Non-Motor Features of PD

SENSORY

- Anosmia
- Pain: not common
- Akathesia
- Internal tremor
- Fatigue: common

AUTONOMIC

- Orthostatic hypotension
- Urinary urgency, incontinence, nocturia
- Constipation
- Sweating, Dysphagia, Erectile dysfunction

SLEEP: very common

- Insomnia
- Restless leg syndrome
- REM behavioral disorder
- Daytime sleepiness

NEUROPSYCHIATRIC

- Depression
- Anxiety
- Panic attacks
- Apathy
- Hallucinations and delusions
- Executive function
- Dementia

Step 2: Exclusion criteria for PD

- History of repeated strokes/stepwise progression
- History of repeated head injury
- History of encephalitis
- Oculogyric crises
- Neuroleptic treat at onset of sympto,s
- More than one affected relatives
- Sustained remission

- Supranuclear gaze palsy
- Cerebellar signs
- Early, severe autonomic involvement
- Early, severe dementia
- Babinski
- Presence of cerebral tumor or hydrocephalus
- No response to large dose of Levodopa
- Exposure to MPTP/other toxin
- Strictly unilateral features after 3 years*

Step 3: Supportive prospective criteria for PD (≥ 3 required)

- Unilateral onset: very typical
- Rest tremor present
- Progressive disorder
- Persistent asymmetry
- Exellent and sustatained (>5 years) response to levodopa
- Presence of DA dyskinesia
- Clinical course ≥ 10 years

Tips for examining parkinsonism

TREMOR: Distractible, Re-emergent

- Mental distraction may bring it out
- Can start in an individual finger
- Often present during walking
- PD tremor usually affects hand/forearm
  - May begin in foot
  - May involve lips, chin, tongue
  - Head and voice tremors are not typically seen in PD and suggest an alternative diagnosis
- May "re-emerge" while maintaining posture
- Rest tremor in PD often spreads to the ipsilateral limb before the contralateral limb

5. 4. 2000

Tips for examining parkinsonism

AKINESIA/BRADYKINESIA

- Spouse may be more aware of slowness in functioning than the patient
- Decremental response with finger, hand and foot tapping
- Absent arm swing
- The pt may only complain of symptoms in one hand but on exam, the ipsilateral foot is almost always slow as well
- Slow shoulder shrug
- Watch the patient put on/take off their shoes and socks

Tips for examining parkinsonism

RIGIDITY

- Best felt at the wrist (flexion/extension or circular motion) or elbow
- Often easier perceived when the limb is moved slowly
- Can be brought out with a contralateral maneuver (Froment's sign)
- Often present at the neck

Parkinsonism: Differential Diagnosis

- DRUG-INDUCED:
  - Antipsychotics (Risperidone, Olanzapine…)
  - Antiemetics (metoclopramide)
  - Amiodarone
  - Valproic acid (Depakin)
  - Calcium channel blockers
  - Lithium
- Usually atremulous, and symmetric
- Patient may not be on medication at the time of visit
- Take a careful drug history
- May take ~1 year (or longer) for DIP to resolve

Parkinsonism: Differential Diagnosis Degenerative diseases

- Progressive supranuclear palsy
- Multiple System Atrophy
- Corticobasal syndrome
- Alzeihmer's disease
- Frontotemporal dementia
- Wilson's disease
- Hungtinton's disease
  - Junvenile onset
- Neurodegenerative with brain iron accumulation
- X-linked dystonia-parkinsonism
- Rapidly progressive dystonia-parkinsonism
- Neuroacanthocytosis
- SCAs (Spinocerebellar atrophy)
- …

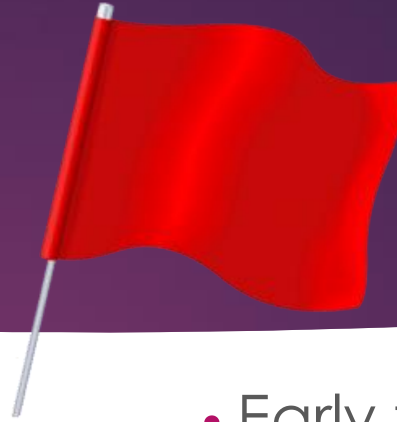
Parkinsonism: Differential Diagnosis Others

- Vascular parkinsonism
- Hydrocephalus
- Post-traumatic
- Structural lesion
- Hemiatrophy-hemiparkinsonism
- Alcohol withdrawal
- Normal aging
- Psychogenic
- Others

Red flags

- Should lead to a reconsideration of the diagnosis of PD
- They may not be present at disease onset
- Few are absolute and they need to viewed in clinical context
- PD is very heterogenous, for example:
- May have juvenile onset PD (generally monogenic)
- May have relatively early dementia in PD
- May have significant dysautonomia early in PD

Red flags



- Poor response to levodopa (Up to 1000mg/day)
- Early onset or rapidly progressive dementia
- Early hallucinations/delusions
- Rapidly progressive course
- "Wheelchair sign"
- Early, prominent gait difficulty
- Supranuclear gaze palsy including downgaze

- Early falls
- Early/prominent dysphagia or dysarthria
- Upper motor neuron signs
- Parietal signs
- Early dysautonomia

Take home points

- Parkinsonism: Bradykinesia plus Resting Tremor AND/OR rigidity AND/OR postural instability
- The initial clinical diagnosis of PD should be re-considered at each visit
- Be familiar with red flags and other atypical features that cast doubt on the diagnosis of PD.
- Be on guard for drug-induced parkinsonism
- The most common mimickers of PD are parkinsonian syndromes (MSA, PSP, etc…)

Tell us your story!