



University of Michigan Health System

Bowel Dysfunction Associated with Parkinson Disease

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HISTORICAL PERSPECTIVE

- Parkinson's disease (PD) was first described in 1817, *An Essay on the Shaky Palsy*, by James Parkinson
- Initially termed paralysis agitans
- The first description of PD included bowel symptoms
 - Constipation most common - Treatments include:
 - Stimulant laxatives to help the colon move stool
 - Techniques to encourage the expulsion of faeces from the rectum

DEFINITIONS

- Impairment or necrosis of dopamine producing neurons in the substantia nigra of the brain
- Histologic hallmark is the presence of Lewy bodies
- The substantia nigra is instrumental in the production of smooth and purposeful movement and other non-motor activities

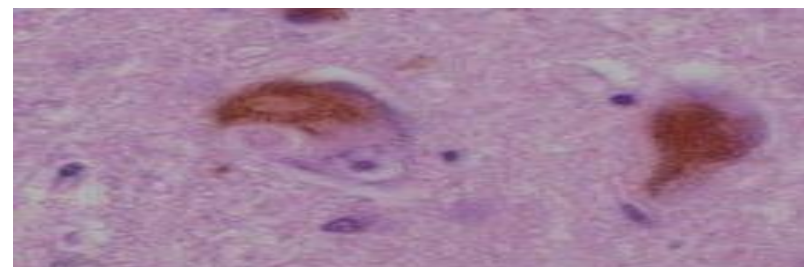


Image of a Lewy body

FACTS

- PD present in 1% of elderly Americans (60 and older)
- Incidence of PD increases with age
- PD demographics:
 - men > women
 - Caucasians > other races
- Health care costs exceed \$6 billion annually
- Second most common neurodegenerative disease

PARKINSON AND GASTROINTESTINAL (GI) DYSFUNCTION

- **Constipation is the most common GI disorder in PD**
 - Occurs in 70 - 80 % of patients and may precede the disease by decades
- **Motility disorders:**
 - Dysphagia (difficulty with swallowing)
 - Gastroparesis (delayed gastric emptying) reported in 43 -88 %
 - Delayed colonic transit (colonic inertia or slow transit constipation)
 - Rectal outlet obstruction (dyssynergic defecation)
- **Sialorrhea** (Excessive salivation) also reported

PATHOPHYSIOLOGY: PARKINSON DISEASE AND CONSTIPATION

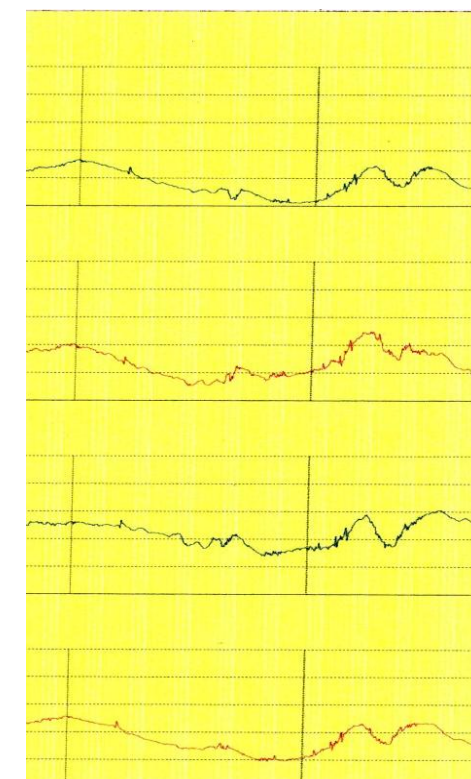
- Depletion of dopamine producing neurons in the colon
- Formation of Lewy bodies in the myenteric plexus
 - Unique bundles of nerve fibers within the muscle layers of the entire GI Tract
 - Distributed from the upper esophagus to the internal anal sphincter

PARKINSON DISEASE AND ANORECTAL FUNCTION

- Dyssynergic defecation due to:
 - Paradoxical contraction of the anal sphincter complex during defecation
 - Failure of puborectalis relaxation during defecation
- May also have lower resting pressures and maximum squeeze pressures

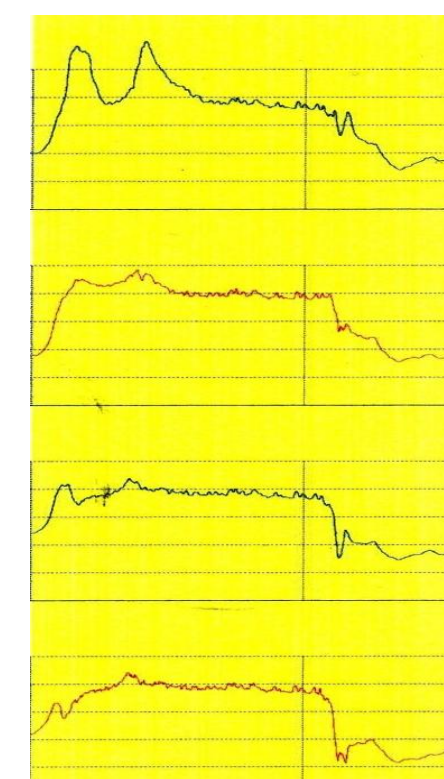
Normal Patient Anorectal Manometry: Attempt to Defecate

- Top to Bottom (External Anal Sphincter – EAS): Posterior EAS, Left EAS, Anterior EAS, and Right EAS



Parkinson Patient Anorectal Manometry: Attempt to Defecate

- Top to Bottom (External Anal Sphincter – EAS): Posterior EAS, Left EAS, Anterior EAS, and Right EAS



SUMMARY

- GI dysfunction is exceedingly common in PD
 - Significant impairment on quality of life
 - Symptoms may precede the diagnosis of PD
 - Symptoms are progressive
 - May affect function of the esophagus, stomach, bowel & anorectum
- Precise pathophysiology of GI dysfunction unclear
 - Autonomic dysfunction & Motor dysfunction
- Prevalence of PD anticipated to increase as the population ages

FUTURE TREATMENT

- Functional Magnetic Stimulation
 - Stimulates spinal nerves & deep muscles
 - May facilitate bowel emptying
- Complementary therapy
 - Acupuncture
 - Massage therapy
 - Herbal supplements
- Multidisciplinary approach to symptom management
- Nutritional interventions
 - To address vitamin and mineral deficiencies

INFORMATIONAL WEBSITES

- Michael J Fox Foundation for Parkinson's Disease
 - www.michaeljfox.org
- Parkinson's Disease Foundation
 - www.pdf.org
- American Parkinson Disease Association Inc
 - www.apdaparkinson.org