A Picture Worth a Thousand Worms: A Case of Folie à Deux of Parasitosis in an Early-Onset Parkinson's Patient and Significant Other

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INTRODUCTION

Primary delusional parasitosis, or delusional infestation (DI), is a somatic subtype of delusional disorder, with delusion of infestation being the sole psychotic symptom. Secondary DI stems from another psychiatric disorder or medical illness, and although rare, is associated with anti-Parkinson medications, antidepressants, and antiepileptics, among others (Kemperman et al., 2022). Folie à deux (FAD) is a rare psychotic disorder in which two intimately associated individuals simultaneously share similar or identical delusions. We present a rare case of folie à deux with secondary delusional infestation in the context of early-onset Parkinson's and OCD.

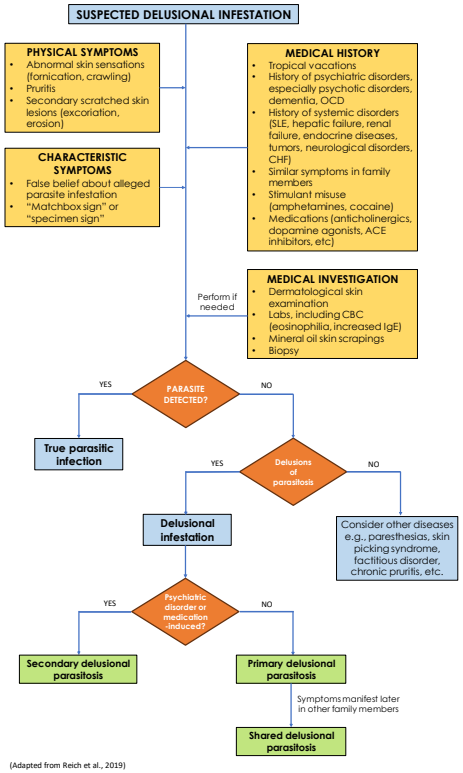
THE CASE

Patient is a 49-year-old woman with OCD, **early-onset Parkinson's disease**, hypothyroidism, Ehlers-Danlos syndrome, Raynaud's disease, adrenal adenoma, and, recently, COVID-19, who was hospitalized for medical work-up of delusional parasitosis. She presented with **tactile and visual hallucinations of worms, insects, larvae and biofilm**, which were associated with insomnia and fatigue. The **patient's partner** also endorsed seeing these living specimens and believed that the patient was experiencing true parasitosis. The disease was debilitating, causing the patient to temporarily take residence at a hotel to prevent transmission to her child. Her home medications included **fluvoxamine, atomoxetine, rasagiline, pramipexole, carbidopa-levodopa and medical marijuana**. **Zonisamide** was a newly added anti-Parkinson adjunct, shortly before her medical admission.

Medical investigation, including CMC, CMP, serum B12, serum folate, STI panel, urinalysis, urine toxicology, and a CT head, was unremarkable. The patient's zonisamide was discontinued, as it was the most recent addition to her medication regimen. Atomoxetine was also discontinued given its documented risk for causing DI.

The patient became frustrated regarding the apparent dismissal of her beliefs. She had poor insight into her psychiatric illness and was nonadherent with her quetiapine, which was prescribed for insomnia and the delusions. She repeatedly requested an infectious disease consultation. Ultimately, she was discharged with a referral to an integrated care program.

DIAGNOSIS



(Adapted from Reich et al., 2019)

PROPOSED MECHANISMS

Pathophysiology of Secondary D.I.

- Diminished functioning of striatal dopamine transporter (DAT) (Huber et al., 2007)
  - Schizophrenia
  - Depression
  - TBI
  - Alcoholism
  - Parkinson's
  - Huntington's
  - HIV
  - Iron deficiency
- Increased extracellular dopamine level
- Medications and substances that inhibit presynaptic reuptake at DAT → delusional parasitosis symptoms, e.g., fornication
  - Methylphenidate
  - Amphetamines
  - Cocaine
- *Unlike Parkinson's disease (PD) drug-related psychosis, DI secondary to PD medication is not related to duration of treatment, **but rather modification or increase of antiparkinsonian therapy** (Ojeda-López et al. 2015)

Psychodynamics of a Codependent Relationship

- More common in isolated communities or families where there is **an intense desire to defend the status quo** (Suresh et al. 2005)

The Principal (A)
- Dominant or overprotective
- "Inducer"
- Provokes B to accept her delusions rather than risk losing this gratifying bond
- Our patient A: paranoid from past unfaithful partners

The Associate (B)
- Dependent or submissive
- "Induced"
- Unconsciously acquires characteristics of the more dominant patient
- Our patient B: overly deferential & accommodating towards A

MANAGEMENT

Antipsychotics

- Decrease abnormally high dopamine transmission (Reich et al., 2019)
- Atypicals, such as risperidone or olanzapine, are considered first-line (Al-Imam, 2016)
  - Risperidone 1-8 mg/day - 69% positive impact after 6 months of treatment
  - Olanzapine 5-10 mg/day - 72% positive impact after 6 months of treatment (Freudmann & Lepping, 2009)
  - Few cases show efficacy with aripiprazole
  - Continue therapy in lower doses long-term to prevent recurrence
- Typicals, e.g., haloperidol, perphenazine
- LAIs can be considered
- Pimozide no longer as popular due to side effects

Breaking the Shared Delusion

- Crucial to separate principal and associate patients
- In most cases, the associate requires medication as well

Integrative & Collaborative Care

- Patients with delusional infestation rarely see psychiatrists and instead seek out non-psychiatric solutions due to poor insight into their illness (Kemperman et al., 2022)
  - 84.7% of dermatologists have seen at least one case of delusional parasitosis during their careers
- The psychiatrist can make recommendations to medical specialists, including dermatologists, infectious disease, and primary care doctors
- Medication education should emphasize that psychotropics can assuage the distress, anxiety and/or depression associated with the patient's other symptoms

CBT

- Depressed patients (combined with an antidepressant)
- Emphasis on rebuilding patient trust and forming connections between thoughts, emotions and behaviors

"MATCHBOX SIGN"

Our patient brought in numerous containers of urine and stool for testing and over 40 photographs and video footage of her tongue, extremities, saliva and urine, allegedly capturing the parasites.

CONCLUSION

We posit that this is the first reported case of folie à deux with *secondary* delusional parasitosis, and thereby enriches studies on both diseases. To our knowledge, this is also the first case of secondary DI induced by zonisamide. Quick recognition and treatment via discontinuation of the offending agent, separation of the affected patients, usage of an antipsychotic and ultimately referral to an integrative or collaborative care program are crucial for sustained remission of symptoms. We postulate that our Patient A's obsessions of betrayal by a significant other and "codependence" with Patient B increased their vulnerability to developing FAD. More studies are necessary to expand our comprehension of these rare and complex phenomena.

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