AAFP GLOBAL HEALTH SUMMIT

Primary Health Care and Family Medicine: Health Equity for All

Delusional parasitosis

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When word gets out that you have experience or interest in global health, **patients <u>will</u> self-refer for help with their personal infestations**

"Those *other* doctors I saw aren't experts like *you* are!"

Case 1


(not really him)

- College student (STEM)
- Incapacitated by infestation – GI worms
- Prior treatment with anthelminthics ineffective
- Photo (on phone) of worm (in toilet) that emerged from stool
- Brought by mom, a nursing supervisor, who heard we were "parasite experts"

Case 2


(not really him)

- Out-of-state professional (psychologist)
- Found us via internet search
- Symptoms since trip to Europe
- Extensive workup; they didn't find anything
- Treated with (inappropriate) antiparasitic drug

Case 3

- 50 y.o. woman, with 7+ months symptoms of bump in her nose, worm-like eye discharges, linear mucosal lesions, which she sees as evidence of a parasitic infection.
- Travel to Africa 7 years earlier,
- Provided 15 photos showing her concerns

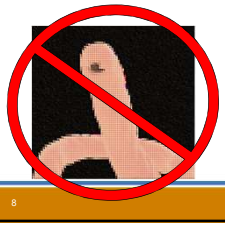
Case 4

- 55 yo female with no travel history, convinced that there are visible parasites [representing the complete life cycle] in her stool.
- Four year history of being bothered by the feeling that she has a parasite; this has impacted her activity level; she has gained weight.
- Sought care many places, workup negative, felt shamed by response of providers

Variations on a theme

- Morgellon's term coined by a foundation of self-identified sufferers;
  - A self-identified mystery disease, where itching is thought to be caused by poorly understood fibers. Picking to an extreme degree can accompany this phenomenon. [example from our family medicine service; picking into the calvarium requiring bone grafting]
- Delusory cleptoparasitosis
  - The belief that one's home is infected with parasites or arthropods [can overlap with more classic DP]. More frequently presents to pest control professionals
- Illusions of parasitosis
  - A real reaction to environmental agents mis-interpreted as arthropods. Distinct from DP in that these people can be reasoned with.

The suffering is real…



The organisms are not!

APPROACH TO THE PATIENT

Classification Scheme for Delusional Parasitosis

- **Primary-** a single delusional belief
- **Secondary functional-** the belief is associated with an underlying psychiatric disorder; e.g. schizophrenia, OCD, depression
  [treat the underlying disorder]
- **Secondary organic** – related to a non-psychiatric diagnosis [e.g. medical v. substance abuse] formication can be a common pathway

Differential diagnosis

(they are not all nuts)

Non-psychogenic causes

- **Neuropathic**
  - Stroke (*Prog Neuropsychopharmacol Biol Psychiatry* 2006, *J Clin Diagn Res* 2015)
  - Multiple sclerosis (*Neurologia* 2018)
  - Post-herpetic neuralgia (*Indian J Psychol Med 2017)*
  - Peripheral neuropathy (*Arq Neurosiquiratr* 2013)
- **Hematologic**
  - Iron deficiency anemia (*JAAD Case Rep* 2017)
- **Nephrology**
  - Dialysis (*CANNT J* 2015, *Int J Artif Organs* 2012)

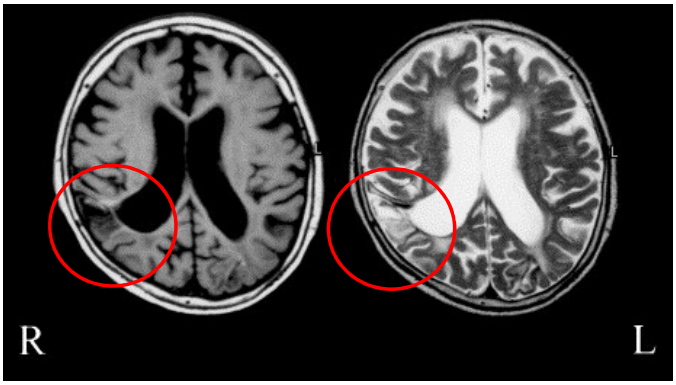
Non-psychogenic causes

- **Endocrinological**
  - Hyperthyroidism (*J Med Case Rep* 2013)
- **Iatrogenic**
  - Stimulants (Adderall et al) (*Aust N Z J Psychiatry* 2014, *Psychosomatics* 2015, *BMJ Case Reports* 2018, *Case Rep Psychiatry 2012*)
  - Anti-Parkinson drugs (pramipexole) (*Psychosomatics* 2015, *Mov Disord Clin Pract* 2016, *Clin Exp Dermatol* 2018)
  - Antibiotics (ciprofloxacin) (Pharmacopsychiatry 2006)

Psychogenic causes

- **Psychiatric**
  - OCD (*J Dermatolog Treat* 2017)
  - Dementia (*J Neuorpsychiatry Clin Neurosci* 2015, *J Clin Diagn Res* 2015, *Acta Neurol Belg* 2015, *Appl Neuropsychol Adult* 2013)
  - Dementia treatment (donepezil) (*J Clin Psychopharmacol* 2011)
  - Psychosis
- **Substance abuse** (*J Am Acad Dermatol* 2017, *Am J Clin Dermatol 2016*)

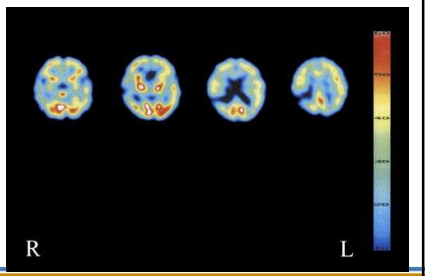
PATHOPHYSIOLOGY
(at least some clues)



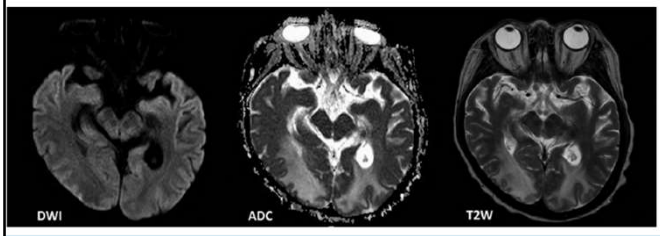
Functional?

Symptomatic →

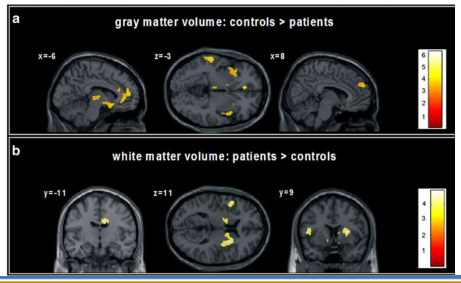
Treated →



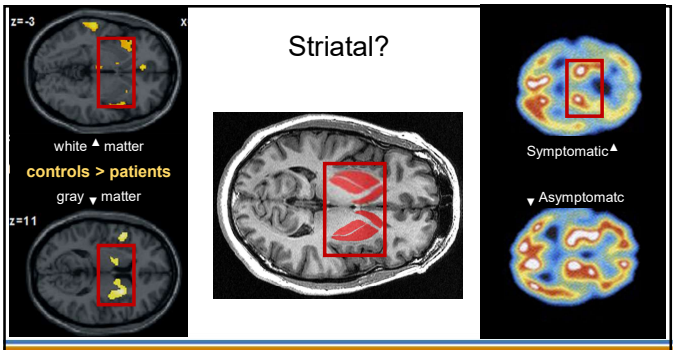
Posterior reversible encephalopathy syndrome (**PRES**)



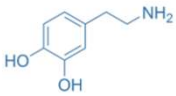
Structural?



Striatal?



Dopamine Transport function (DAT)



- Substance-induced
  - **DAT-inhibition in the striatum** (psychostimulants)
  - **Decreased striatal DAT-density/velocity** (alcoholism)
- Organic-induced
  - **Decreased striatal DAT-ligand binding** (Parkinson, Huntington's chorea, Multiple-system atrophy,hyperuricemia, HIV)
  - **Decreased DAT-expression** and **decreased DA-reuptake** (diabetes)
  - **DAT degradation** in the damaged area and **decreased DAT-ligand binding** (CVA)
  - **Decreased striatal DAT expression** ipsilateral to injury (traumatic brain injury)
  - **Decreased striatal DAT-density** (iron deficiency)
- Psychiatric-induced
  - **Decreased striatal DAT-binding** (schizophrenia, depression)

Med Hypotheses 2007;68:1351-8

EFFECTIVE TREATMENT

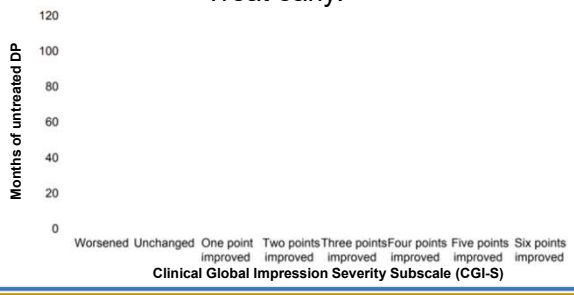
First step

Treat the underlying cause… if identified

Empiric treatment

- Nematodes: [ascaris, ankylostoma, pinworm] pyrantel pamoate, 1g [the alternatives are not practical at present, albendazole, mebendazole]
  - Strongyloides; can exist for decades; antibody test available, ivermectin, two doses
- Higher likelihood of schistosomiasis [unlikely with typical DP patients] praziquantel [also DOC for tapeworms]
- In the typical case of no identifiable parasites, a reasonable empiric option would be pyrantel pamoate, 1g.

Treat early!



Medication

Neuroleptics	Others
Aripiprazole	SSRIs
Blonanserin	
Paliperidone	Clonazipine
Pimozide	
Promazine	
Risperidone	
Ziprasidone	

Mark's Method (adapted from Jay Keystone [RIP 03 Sept])

- **Validate experience**
  Your suffering is real
  You came to the right expert
- **Confirm lack of infestation**
  Prior treatment or testing
  "If were infected, not now."
- **Explain the symptoms**
  "Phantom limb pain" analogy
  Faulty neurological signals
- **Treat the symptoms**
  Neuroactive medication (pimozide)

  Yes, its an antipsychotic;

  No, I don't think you are psychotic
- **Code**
  Ekbom Syndrome G25.81

CLINICAL STRATEGIES

Tim's Treatment

- Take the patient's symptoms seriously, and perform needed physical and laboratory exams [broadly but within reason].
- Provide reasonable empiric treatment for likely parasites
- Try to explain that a diagnosis of delusional parasitosis happens in normal people, not crazy people, and encourage patients to be open to treating the thoughts associated with the parasite idea.
- Ideally, try to interact with patient's PCP and wrap-around behavioral health services.

Case 1

Saw in follow-up at 1 and 4 months

Symptoms resolved; tapered medication stepwise

No recurrence of symptoms

Mother caught me in hospital hallway with profuse appreciation for "giving my son his life back"

Case 2

Empirical treatment and pimozide

Expressed understanding and agreement with plan

Did not return for follow-up

Case 3

Physical exam performed; Labs reviewed [multiple prior O/P's done]

Discussed that many people have such symptoms that they attribute to parasites; discussed that this idea does not represent a generalized psychiatric disorder but a narrow erroneous belief

Agreed to treat with Albendazole [as well as praziquantel given freshwater exposure.]

Requested follow up in one month

Case 4

- Physical exam, including review of specimen photos
- Agreed with patient on a course of medication: ivermectin to handle a wide variety of parasites, and risperidone to handle the feelings of being infected.
- Patient took all the ivermectin, took one dose of risperidone and stopped it; asked to be referred to the "Undiagnosed Disease Network" or be treated for ropeworm. No further followup.

Questions & discussion

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