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Contamination Apophenia

***Adam Blumenberg*[1]*; *Adrienne Hughes*[2,3]**

[1]*Department of Emergency Medicine, Columbia University Medical Center, New York City, NY, USA.*

[2]*Department of Emergency Medicine, Oregon Health and Science University, Portland OR, USA.*

[3]*Oregon Poison Center, Portland OR, USA.*

***Corresponding Author(s): Adam Blumenberg**

Department of Emergency Medicine, Columbia University Medical Center, New York City, NY, USA.

Email: adamblumenbergmd@gmail.com

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Abstract

Physicians often care for patients with a firm fixed belief in a causal relationship between an exposure to a substance and non-specific symptoms when no such connection exists. Individuals feel as if they were polluted by the material and may employ dangerous measures to "detoxify" or "decontaminate" themselves. We dub this *contamination Apophenia*. Patients may be harmed by this condition in that they are at risk for falling prey to medical quackery, may receive delay in appropriate diagnosis and treatment, and feel distress over the belief itself. In accordance with the mission of medicine, we seek to better characterize this psychological phenomenon so as to mitigate suffering, prevent premature mortality, and provide optimal care. Clinicians should consider this when caring for patients with a firm belief in a concrete explanation for medically unexplained symptoms, and potentially refer the patient for psychiatric evaluation.

Introduction

Physicians often care for patients with a firm fixed belief in a causal relationship between an exposure to a substance and non-specific symptoms when no such connection exists. Common examples of the perceived contaminant include vaccines, heavy metals, "multiple chemicals," Lyme disease bacteria, fungi, fibers, plasticizers, and numerous others. Individuals feel as if they were polluted by the material and may employ dangerous measures to "detoxify" or "decontaminate" themselves. We dub this *contamination Apophenia*. In accordance with the mission of medicine, we seek to better characterize this psychological phenomenon so as to mitigate suffering, prevent premature mortality, and provide optimal care.

Apophenia is the unconscious propensity to make connections and meaningfulness between seemingly unrelated information or objects. Examples include astrology and numerology. In statistics, Apophenia can be classified as a type I error; seeing patterns when none exist. In psychology, Apophenia is understood as an error in perception; an attempt to find meaning for what one does not know [1]. *Contamination Apophenia* is the delusion that one is in a constant state of harm or risk by an exogenous substance.

In 2010, Rudaleviciene et al. examined the content of delusions in 295 patients suffering from schizophrenia, with 57.8% reporting delusions of poisoning [2]. The authors found the presence of delusions of being poisoned was related to older

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age of the patient, higher than secondary education, chronic course of schizophrenia, and younger parental age. Personal importance of the faith was not associated with prevalence of delusions of poisoning in patients with schizophrenia. In another study of 156 people (96 women, 60 men) with paranoid schizophrenia, Rössler et al. found delusions of poisoning occurred more often in women than in men [3]. The authors also found that women were significantly more likely to have delusions of persecution in addition to their delusions of poisoning. Patients often reported being poisoned by close relatives or health workers and assumed that poisoning was carried out through medication, food or drinks.

Our patients demonstrate behavioral features, which may be described as delusional, obsessive, anxious, and paranoid. Other aspects of their lives may be relatively normal in that patients maintain interpersonal relationships, manage a job and personal finances, and have no hallucinations, negative psychotic symptoms, or disorganized behavior. Typically, patients experience non-specific symptoms such as paresthesia, "brain fog," loss of vigor, headache, nausea, and chronic fatigue. They may receive diagnostic evaluation and latch onto an abnormal test such as a urine concentration of a particular metal just above the reference range, thereafter erroneously attributing all negative experiences to heavy metal poisoning.

The unfounded belief in personal bodily corruption causes specific harms to patients. Firstly, patients are at risk for falling prey to medical quackery and sham treatments. A 2015 study examining unorthodox treatments marketed to those who believe themselves to be afflicted with chronic Lyme disease found over 30 bizarre treatments including bee venom, imbibing urine, and bleach [4]. A 2018 study found over 700 clinics marketing unapproved stem cell therapy to patients for a plethora of questionable indications [5]. A 2006 Morbidity and Mortality Weekly Report released by the CDC documented multiple fatalities related to intravenous chelation dubiously intended to remove heavy metals [6], while today an internet search easily identifies hundreds of clinics advertising this treatment directly to patients. Secondly, the misattribution of symptoms to a perceived contaminant delays diagnosis of their actual etiology. Symptoms may in fact be caused by multiple sclerosis, malignancy, major depressive disorder, or other medically accepted diseases with effective treatments. Misattributing the cause of the symptoms defers diagnosis and treatment, and prolongs suffering. Thirdly, the belief that one has been contaminated in itself causes distress.

The distinction between illness and disease is vital in understanding how individuals deal with health and sickness. Disease refers to structural or functional abnormalities of body systems and organs, whereas illness refers to a patient's subjective experience of being unwell, whether based on underlying disease pathology or not [7]. As Eric Cassell once stated, "illness is what the patient feels when he goes to the doctor, disease is what he has on the way home [8]. Although these terms describe different views of malady, they are not entirely distinct entities, but instead explanatory models. Disease and illness are different ways of constructing reality, which overlap to some extent.

A patient's perspective on ill health is strongly influenced by their cultural and social background as well as their individual personality traits. What is regarded as a genuine illness in one cultural group or society may not be regarded as such in another group. Similarly, attitudes toward the need for medical care and behavior after medical consultation occurs may vary greatly between individuals and cultural groups. Cultural variations in somatic symptoms are the result of several interacting factors, which determine how individuals identify and perceive bodily sensations, understand disease, and seek medical attention. In Westernized societies, culture-specific somatic complaints vary significantly. Payer described that in England, there is a focus on "bowel problems," whereas in the US and Canada, there is more focus on "environmental diseases," "viruses," and "multiple chemical sensitivities" [9]. Payer also described how in Germany, there is emphasis on "low blood pressure" and "poor circulation," while in France, "liver crisis," and a disorder called "adult spasmophilia," which consists of symptoms of fatigue, hyperventilation, dizziness, cramps, and palpitations is more common [10]. It is therefore possible that *contamination Apophenia* falls within the category of culture-bound syndrome.

Richardson and Engel describe treatment of patients with medically unexplained symptoms emphasizing the need for early recognition, acknowledging uncertainty about cause of symptoms, and collaborative care including early discussion about a potentially psychiatric etiology of symptoms [11]. Physicians should take a similar approach when caring for patients who firmly ascribe their symptoms to a specific contaminant. Physicians should identify patients at risk of *contamination Apophenia* when there is self-report of certain conditions such as in **Table 1.**

Despite the possibility of *contamination Apophenia* falling into an already defined psychiatric disease, the nature of impurity by delusion predisposes patients to the specific risks of medical charlatanry. Through vain attempts at "detoxification" patients jump from one ineffective and possibly dangerous treatment to the next with no relief. In order to provide better care for our patients, further discussion of this condition is warranted with increased physician awareness, establishment of diagnostic criteria, and research into effective therapies. Clinicians should consider this when caring for patients with a firm belief in a concrete explanation for medically unexplained symptoms, and potentially refer the patient for psychiatric evaluation.

Table 1: Conditions and substances, which raise suspicion for *contamination Apophenia*.

1	Heavy metal poisoning
2	Multiple chemical sensitivity
2	Black mold exposure
4	Sick building syndrome
5	Gulf war syndrome
6	Agent orange
7	Chronic fatigue syndrome
8	Brain fog
9	Chronic Lyme disease
10	Gadolinium deposition disease
11	Chronic candidiasis
12	Electromagnetic hypersensitivity
13	Leaky gut syndrome
14	Morjellons

Contributions

Dr. Adam Blumenberg and Dr. Adrienne Hughes conceptualized, researched, wrote, and edited the manuscript.

References

1. Mishara AL. Klaus Conrad (1905-1961): Delusional mood, psychosis, and beginning schizophrenia. Schizophr Bull. 2010; 36: 9-13.
2. Rudalevičiene P, Adomaitiene V, Stompe T, Narbekovas A, Meilius K, et al. Delusions of persecution and poisoning in patients with schizophrenia: sociocultural and religious background. Medicina (B Aires). 2010; 46: 185-192.
3. Rössler V, Walter MH, Richter R. The phenomenology of delusions of poisoning in persons with paranoid schizophrenia. Fortschritte der Neurol Psychiatr. 2019; 87: 695-701.
4. Lantos PM, Shapiro ED, Auwaerter PG, Halperin JJ, Baker PJ, et al. Unorthodox alternative therapies marketed to treat Lyme disease. Clin Infect Dis. 2015; 60: 1776-1782.
5. Turner L. The US direct-to-consumer marketplace for autologous stem cell interventions. Perspect Biol Med. 2018; 61: 7-24.
6. Deaths Associated with Hypocalcemia from Chelation Therapy - Texas, Pennsylvania, and Oregon. 2003-2005. Morb Mortal Wkly Rep. 2006; 55: 204-207.
7. Eisenberg L. Disease and illness Distinctions between professional and popular ideas of sickness. Cult Med Psychiatry. 1977; 1: 9-23.
8. Cassell EJ. The Healer's Art : A New Approach to the Doctor-Patient Relationship. 1st ed. Philadelphia: Lippincott; 1976.
9. Payer L. Borderline Cases. Sciences (New York). 1990; 30: 38-42.
10. Payer L. Medicine and Culture : Varieties of Treatment in the United States, England, West Germany, and France. First Owl book ed. New York: Henry Holt and Company. 1996.
11. Richardson RD, Engel CC. Evaluation and Management of Medically Unexplained Physical Symptoms. Neurologist. 2004; 10: 18-30.