Psychiatric Diseases Presenting as Infectious Diseases

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Although many psychiatric diseases have somatic manifestations, some focus on fears or delusions of infection. When a patient with a psychiatric basis for an apparent infection presents to an infectious disease physician, the physician may find the problem confusing, amusing, and ultimately frustrating until the psychiatric basis for disease is recognized. Some of these psychiatric disorders can be treated and controlled with medication and psychotherapy, although patients may resist psychiatric referral. This article reviews examples of psychiatric disorders in patients who present to the infectious disease physician, including factitious infection, malingering, obsessive compulsive disorder, phobias, veneroneuroses, somatization disorders, and delusional infection. The role that physicians play in amplifying these disorders is reviewed. Strategies for referral to psychiatric services are also discussed. Patients with a psychiatric disease are seen in infectious disease practices more commonly than physicians realize.

Factitious Disorder

Case 1. A healthy left-handed 26-year-old male medical student presented with three episodes of cellulitis of his right arm that occurred over 6 months. On each occasion, the cellulitis failed to respond to oral antibiotics, and the patient was hospitalized because of fever, chills, and dehydration; inflammation resolved with intravenous antibiotic therapy. No organism was isolated from blood cultures. The patient was considered “demanding.” During the third admission, the patient was confronted in a supportive way by his attending physician and a psychiatrist who had seen the patient for an anxiety disorder previously. The patient denied self-induced infection, but no further episodes of cellulitis occurred.

Factitious illness is defined as simulated or induced illness [11, 13–20]. Factitious infection and fever are common manifestations of factitious disease [14]. Factitious illness is now well known, if not always well recognized, by physicians [11]. A diagnosis of factitious fever and/or infection was diagnosed for 32 (9%) of 343 patients evaluated for prolonged fever of unknown origin [11]. Of the patients with factitious fever, 78% were female, and the average age of the patients was 23 years; 16 (76%) of 21 adult patients had medical or paramedical (pharmacy or laboratory) training. Factitious fever has also been described in proxy patients, usually when parents report or induce a fever in a child [11, 15, 18].

The typical presentation of factitious infection and fever has been reviewed previously [11, 15]. There is no pathognomonic historical, physical examination, or laboratory finding [20]. However, certain features may provoke suspicion, including polymicrobial infection (particularly when the organisms isolated are typical of stool or saliva) without an underlying cause;
fever that cannot be documented by using careful oral or urine temperatures; a pulse-temperature differential; vague, dramatic, or inconsistent histories; a patient with a background in health care; and in cases of simulated illness, normal results of physical examination and laboratory studies [19, 20]. Recurrent episodes of cellulitis and abscesses in unusual but easy to reach locations (such as the nondominant arm) are also clues to self-induced infection.

A wide range of psychiatric diagnoses have been applied to factitious fever and infection, including malingering, personality disorder, conversion reaction, depression, hypochondriasis, and psychosis [11, 18]. The fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) assigns factitious illness to its own category [13].

Aduan et al. [11] suggested guidelines for managing patients with factitious illness, including early psychiatric consultation, acknowledgment of real stresses in the patient’s situation, empathetic limit setting, and open staff communication. There is no pharmacologic approach to factitious illness itself, but treatment of coexisting psychiatric disorders, if present, may enhance the ability of the patient to cope with confrontation and redefinition of illness behavior [18, 21–26]. Factitious disorder may be limited to a few episodes, but more often the course is chronic.

**Factitious Disorder: Munchausen Syndrome**

**Case 2.** A 32-year-old woman presented to an emergency department complaining of nonproductive cough, shortness of breath, and advanced HIV infection. She reported a history of pneumocystis pneumonia treated at another hospital. Despite normal results of physical examination, laboratory tests, and chest roentgenography, she was admitted to the hospital, and intravenous trimethoprim-sulfamethoxazole therapy was started; when a rash developed, therapy was switched to pentamidine. She was considered a “difficult” patient. An infectious disease fellow recognized the patient as someone who had presented to another hospital with a similar history but was HIV seronegative with a normal CD4 cell count. A repeated test for HIV infection was negative. The patient was told that she was HIV seronegative but that she had another significant medical problem (i.e., Munchausen syndrome) that would require additional evaluation and treatment. She accepted this assessment but rejected psychiatric evaluation and signed out of the hospital.

DSM IV does not distinguish Munchausen syndrome from other types of simulated illness, but some investigators have considered it the most refractory subset of factitious illness: chronic patients with elaborate medical histories who wander from hospital to hospital and who resist psychiatric intervention [18]. In recent years, patients with Munchausen syndrome have presented with factitious HIV infection [27–33]. Patients with Munchausen syndrome manifesting as HIV infection must be distinguished from patients who have fears or delusions that they are HIV-seropositive [34–37], in part because the latter may be more treatable. It is important for the consulting physician to obtain old medical records and, if these are not available, to confirm conditions for which there is no clinical evidence. Early psychiatric consultation, open staff communication, and limit setting are important management tools, but these patients are refractory to behavior modification.

**Malingering**

**Case 3.** A 23-year-old woman presented to an HIV clinic. She reported that she was HIV seropositive, which had been diagnosed at an out-of-state clinic. She was involved in AIDS activism and appeared on cable television and traveled on behalf of AIDS groups. She denied medical complications of HIV infection and was taking no medications, and results of physical examination were normal. It was the practice of the HIV clinic to retest all patients who had been tested for HIV infection at another location. The patient avoided retesting, although she submitted to determination of a CD4 cell count, which was 1,100/mL.

Four months after she was enrolled in the clinic, she agreed to a test for HIV infection, which was negative. At that point, she acknowledged that she was HIV-negative and that she had enjoyed the attention, travel, and access to medical care. She was asked to participate in an advisory group of women at risk for HIV infection, from which she seemed to derive satisfaction.

Malingering is defined as the intentional production of symptoms to avoid duty or gain benefit [13, 38, 39]. The DSM IV suggests that malingering should be suspected if the patient presents in a medicolegal context, if there is discrepancy between the patient’s claimed disability and physical examination or laboratory findings, and if there is lack of cooperation with diagnostic and therapeutic suggestions [13, 39]. Malingering has been distinguished from factitious illness by the presence of a concrete benefit derived by claiming illness [13], such as appearing on television or obtaining free travel, but the distinction is not always easy to make. Despite the stigma associated with HIV infection, being (or appearing) HIV seropositive does confer medical and social welfare benefits [39]. In this case, the patient’s CD4 cell count and efforts to avoid testing for
HIV infection suggested that she was not HIV-seropositive. She had obtained tangible benefits, did not have a multitude of physical complaints, and responded positively to an alternative way to gain attention. Thus, she was assigned to the category of malingering rather than a factitious syndrome.

Phobia

Case 4. A 42-year-old man presented to a travel clinic to identify countries where AIDS was not present. Despite a history of adventurous foreign travel, he had avoided international travel for >10 years because he was fearful that while traveling abroad he might require medical attention (such as an injection or transfusion) and that he would ‘‘catch AIDS’’ in this manner. He was not ordinarily afraid of needles or of travel.

Phobia is defined in the DSM IV as a ‘‘marked or persistent fear of clearly discernible, circumscribed objects or situations,’’ with avoidance, if possible, of the phobic stimulus [13]. Phobias are common but only occasionally result in changes in behavior significant enough to warrant a psychiatric diagnosis. This patient presented with a specific phobia classified in the ‘‘other type,’’ which includes fearing and avoiding situations that may lead to contracting an illness. However, his phobia also fit marginally into the blood-injection-injury subtype. Often, more than one subtype of phobia is present [13].

The object of fear may change over time. Syphilis and tuberculosis provoked anxiety in the early part of this century. HIV infection is a more frequent phobic stimulus today [34].

Phobias cause fear and avoidance but are not associated with the specific rituals or compulsions of obsessive compulsive disorder (OCD) [40]. Jenike and Pato [35] reported a case of ‘‘disabling fear of AIDS,’’ which has more features characteristic of OCD than a phobia, and Freed [41] reported two cases of ‘‘AIDophobia,’’ which are more typical of hypochondriasis.

Specific phobias can be lessened by gradually increasing exposure to and knowledge about the phobic stimulus [42, 43]. This patient was vaccinated against hepatitis B and educated about prevention of HIV infection. He was referred to a company that provides travelers with packets containing syringes and intravenous catheters to be used in the event of injury or illness abroad, with the specific intent of avoiding bloodborne diseases. Armed with information and this packet, he traveled to Central America and later to Africa.

Veneroneurosis

Case 5. A 25-year-old man with a history of occasional perioral ‘‘fever blisters’’ described a 1-year history of intermittent swelling of his left upper lip. This swelling was sometimes accompanied by intraoral painful ulcers, measuring a few millimeters in diameter. Each episode lasted a few weeks and then resolved. The patient attributed these ulcers to a single episode of orogenital contact with a female partner. Serologies for HIV infection and syphilis were negative. His primary care physician had never seen the ulcers but had prescribed acyclovir therapy for the patient. The episodes did not resolve with acyclovir therapy, so treatment was switched to valacyclovir and then to famciclovir without resolution.

The patient was referred to an infectious disease physician for evaluation of ‘‘acyclovir-resistant herpes.’’ He complained of left upper lip swelling at the time of the visit. He noted a history of ‘‘borderline’’ cystic acne treated with isotretinoin and also reported tiny, white, nontender ‘‘bumps’’ on his inner lip and penis. The patient reported that he had read extensively about sexually transmitted diseases in medical texts belonging to a friend in medical school. Physical examination did not reveal any abnormalities. The patient was reassured that the white bumps represented normal glands and that the oral ulcers were likely aphthous ulcers. He called the physician three times in the following week for clarification and to discuss new information obtained from the Internet.

Veneroneurosis and syphilophobia [7] are old-fashioned terms that encompass ‘‘genitally focused hypochondriasis’’ [44], venereal disease obsessions, phobias, and delusions [34–37, 41]. Perhaps because of the emotional issues surrounding sexual behavior, anxiety about a sexual encounter may manifest itself as a fear or conviction that one has been infected with a sexually transmitted infection [45, 46]. There are descriptions of syphilophobia and delusional syphilis (‘‘noddlepox’’) in the medical literature of the 17th century [7]. This man’s presentation was consistent with hypochondriasis, a preoccupation with having a serious disease based on misinterpretation of signs or symptoms, despite medical reassurances to the contrary [13]. Sexually transmitted disease phobias, obsessions, delusions, and hypochondriasis will respond to the same measures as less genitally focused counterparts (see below).

OCD

Case 6. A 53-year-old male banker with a contamination obsession presented to an infectious disease physician because his psychiatrist had suggested that he learn more about germs in an effort to ‘‘intellectualize’’ his obsession. The patient would not shake hands with the physician and became diaphoretic while sitting in the office. The patient reported that he washed his hands hundreds of times each day. He had five pages of questions and was especially concerned about fatal infection following contact with feces. He later returned for a second visit because he believed that the first visit had given him some relief.

Case 7. A 22-year-old son of a rabbi presented to an HIV clinic requesting a test for HIV infection. When asked about risk factors for HIV infection, he reported a single heterosexual experience 3 years before. His test was negative for HIV infection. He then reported that he had been tested ‘‘many’’ times for HIV infection and later admitted that he had been tested at least 200 times. He described recurrent intrusive thoughts about
being HIV-positive and received transient relief from these thoughts when he tested negative.

OCD is defined in the DSM IV as the presence of either obsessions or compulsions that cause distress, are time-consuming, or interfere significantly with functioning [13]. Fulfilling a ritual compulsion provides temporary relief from the anxiety induced by an obsessive thought, but anxiety recurs.

Approximately 45% of people with OCD have contamination obsessions, and ~50% have washing compulsions [47]. The presence of such characteristic obsessions or compulsions makes the diagnosis fairly easy [48], but OCD may be overlooked by physicians when it manifests in indirect ways, such as dermatologic conditions due to excessive hand washing [47]. OCD patients with contamination obsessions infrequently present to infectious disease physicians because of their fear of contamination by the physician but may be referred by psychiatrists as part of cognitive therapy (see below).

The content of obsessions is modified by current events [49]. The patient described above who sought testing for HIV infection was obsessed with the fear that he was HIV-seropositive. Jenike and Pato [35] described a patient with a fear that he had contracted AIDS who searched his body for lesions dozens of times a day and was not comfortable unless he had a thermometer in his mouth.

Treatment includes pharmacologic, behavioral, and cognitive approaches [50]. Serotonin reuptake inhibitors may reduce obsessions and compulsions. Behavioral therapy consists of confronting the feared object in escalating amounts, without recourse to a response ritual. For example, a patient may not be allowed to wash after touching a “contaminated” object [48]. The treatment is most effective for patients with rituals and less effective for patients with obsessions only [48]. Cognitive therapy tries to stop obsessional thoughts by challenging them; this approach may involve learning more about an obsession to be able to rationally challenge it. Cognitive therapy has had limited success [43, 51].

**Somatization Disorder**

**Case 8.** A 38-year-old woman presented to an infectious disease doctor to confirm a diagnosis of chronic fatigue syndrome. As a child, she was admitted to the hospital on several occasions because of various ailments, and during her twenties, she underwent multiple breast biopsies and had allergic reactions to many medications and recurrent sinusitis. For 3 years, she had noted “cold intolerance,” localized musculoskeletal pain, headaches, numbness in the left hand, ringing in her ears, photophobia, poor night vision, recurrent pharyngitis, symptoms of “irritable bowel” and nausea, dysuria, loss of libido, acne, difficulty initiating and maintaining sleep, night sweats, severe premenstrual cramps, and “hypothyroidism.” She had seen 12 doctors to evaluate these problems. When the results of thorough diagnostic tests were negative or normal, a diagnosis of chronic fatigue syndrome was made. Various antidepressants, anxiolytics, muscle relaxants, nonsteroidal antiinflammatory drugs, allergy shots, vitamins, mild exercise, acupuncture, and massage had no lasting benefit.

Somatization disorder is characterized in the psychiatric literature by multiple unexplained complaints. The criteria for diagnosis are rigorous, and most complaints of somatization disorder fall into the “subsyndromal” [52, 53] or undifferentiated category [13]. The diagnostic criteria in the DSM IV require four pain symptoms, two gastrointestinal symptoms, one reproductive symptom, and one pseudoneurological symptom plus onset before 30 years of age and persistence over several years, “resulting in treatment being sought or significant impairment” [13]. The literature reports that there are distinguishing characteristics for patients with somatization disorder [52], including unexplained complaints, disproportionate impairment, and vague, dramatic, or odd presentations. However, there is clearly some overlap with other psychiatric conditions such as factitious illness and malingering. Unfortunately for diagnostic purposes, there is also overlap with a variety of infectious and autoimmune conditions.

Diagnostic criteria for chronic fatigue syndrome resemble those for somatization disorder [54, 55]. Some investigators have concluded that chronic fatigue syndrome is a somatization syndrome [1, 2, 56], although this conclusion is obviously controversial. Patients for whom chronic fatigue syndrome is diagnosed often report diverse symptoms in addition to those included in formal case definitions of chronic fatigue syndrome [55]. Persistent fatigue in the company of multiple somatic complaints has been attributed to a variety of infectious causes over time, including chronic brucellosis [5, 6], chronic Epstein-Barr virus infection [4], systemic candidiasis [4], and human herpesvirus 6 infection [57].

Once somatization disorder is identified, diagnostic efforts should be limited. Inpatient admission for medical evaluation and invasive procedures should be avoided [58]. Regularly scheduled health care visits should provide an opportunity for the patient to express concern and the physician to provide reassurance. Utilization of health care services decreases if a psychotherapist is involved in the care of the patient [58].

**Hypochondriasis**

**Case 9.** A 72-year-old woman insisted that her primary care provider refer her to an infectious disease doctor for evaluation of a morning cough of many years’ duration. The patient had a 45-pack/year smoking history and was a current smoker. She had seen an allergist and a pulmonary specialist in an effort to “get to the bottom of this problem.” Repeated chest roentgenograms, sputum examinations (including examination of acid-fast bacillus smears and cultures), and two bronchoscopies had revealed nothing more than evidence of chronic bronchitis attributable to smoking. The patient believed that she had a “bronchial infection” and asked for another chest
roentgenogram and antibiotic therapy. She acknowledged the role that smoking played in her symptoms but refused to consider quitting.

**Case 10.** A 34-year-old woman who was a pharmaceutical company sales representative and had recurrent vaginal candidiasis presented to an infectious disease doctor requesting a test for HIV infection. She had been tested twice previously, once ~7 years before and once 2 years before; both tests were negative. She had been married for 5 years to a spouse who, to her knowledge, was monogamous. She stated that she read about HIV infection as part of her occupation; she was aware that vaginal candidiasis was more common in HIV-seropositive women and feared that her recurrent disease reflected undiagnosed HIV infection.

Hypochondriasis is defined as a “preoccupation with fears of having, or the idea that one has, a serious disease based on a misinterpretation of one or more bodily signs or symptoms” despite medical reassurances to the contrary [13, 52]. The patient may have been to many physicians in an effort to find a diagnosis that meets his expectations. Hypochondriasis is a frequent cause of visits to primary care providers [52, 53] and a less frequent, although still common, cause of referral to specialists, although this may change as managed care influences referral patterns. Patients may have an actual medical condition (e.g., chronic bronchitis or recurrent vaginitis) but overlay these conditions with exaggerated anxiety about the cause.

The DSM IV assigns hypochondriasis to somatoform disorders. Hypochondriasis has recently been grouped with OCD in a spectrum of related conditions [59, 60]; however, it has features that are not typical of OCD, and it is likely that it is a heterogenous disorder [47]. Although the young man who had been repeatedly tested for HIV infection might appear to fall within a hypochondriacal category (fear of having a disease despite medical reassurances to the contrary), his transient relief of anxiety through testing puts him in the category of an OCD. The phobic patient may fear getting HIV infection but does not believe that he has contracted the disease. Freed [41] reported two cases of “AIDophobia” that are more typical of hypochondriasis. Other patients with anxiety syndromes manifesting as AIDS have been described [37, 50, 61]. There are several descriptions of patients who believed that they were HIV-seropositive in the absence of confirmatory evidence [34, 62] but in the setting of other psychiatric disease; these cases may have represented a delusional infection (see below).

Hypochondriacs amplify routine physical sensations and attribute them to disease [63], but these persons can learn to pay less attention to these symptoms and not to attribute them to illness [64, 65]. Primary care and infectious disease physicians can learn to reassure the patient without the need to order diagnostic or therapeutic interventions [53, 64]. Underlying depression and anxiety disorders can be diagnosed and treated. An approach that includes a psychotherapist and the primary care provider works best [64].

**Conversion Disorder**

**Case 11.** A 42-year-old female health care worker presented to an infectious disease physician’s office with a diagnosis of chronic encephalitis. Symptoms of vertigo, neck stiffness, and headache started 8 years earlier, 24 hours after she was accidentally stuck with a phlebotomy needle from a patient with supposed encephalitis. Multiple medical evaluations yielded a fluctuating array of physical examination findings and mildly abnormal results of laboratory tests that did not fit into any pattern. Persistent vertigo forced the patient to hold on to the wall to maintain balance. She was confined to bed much of the time. The patient stated flatly, “I am suffering a lot . . . I’m so ill.” After a thorough history, physical examination, and review of records, plus several visits in an attempt to establish a therapeutic relationship, the physician suggested there was not an explanation at the present for the patient’s illness but that her overall health might be improved by psychotherapy and even hypnosis; the patient found this suggestion “insulting” and did not return for follow-up visits.

The unconscious production of symptoms affecting voluntary functions, representing the patient’s portrayal of a serious illness, is called conversion disorder [13, 53]. Generally, these symptoms are neurological in character, affecting motor or sensory function. Symptoms are “not intentionally produced or feigned” [13] but do affect functions under voluntary control, such as vision or balance. Symptoms of conversion disorder reflect the patient’s interpretation of neurological or psychological syndromes; thus, the sophistication of the presentation relates to the level of the patient’s understanding and experience. The infectious diseases portrayed are often those with dramatic neurological symptoms, such as tetanus or rabies. In the developed world, where rabies is rare, most patients with conversion disorder cannot make a very convincing presentation of rabies, but in countries where people may have seen human rabies, the presentation may be more realistic [66].

Hypochondriacs believe a serious disease underlies their symptoms and display concern. In patients with conversion disorder, “the focus is on the . . . symptom,” and the patient may exhibit indifference (la belle indifférence) to the potential seriousness of the cause of the symptom [13].

The patient may respond to the supportive but authoritative physician who suggests that symptoms will resolve. Symptoms of conversion disorder may resolve following hypnosis, but for patients with malingering or factitious disorder, symptoms will not resolve following hypnosis. In addition, using psychotherapy to provide the individual with alternative ways to communicate distress and using medication to reduce anxiety may help [67].

**Delusional Infection**

**Case 12.** A 37-year-old female photographer presented to an infectious disease physician complaining of a parasitic infec-
tion in her right leg. She had suffered minor trauma to her leg 18 months before. Following incessant autodebridement, a superficial abrasion measuring a few centimeters in diameter had enlarged to a undermining ulcer measuring 20 × 8 cm. The patient provided photographs of the lesion, including 8 × 10-in enlargements, which she believed documented a “worm infestation.” She also provided ~2 oz of scabs that she had carefully saved in a plastic bag, “to be tested for parasites.’’

As Schrut and Waldron [68] dryly expressed it, “problems involving arthropods and emotionally disturbed persons have long been known to the medical and entomologic professions.” Since 1894, when Thibierge described patients who believed that their skin was infested by parasites, there have been many reports of delusional infestation [68–88]. Some investigators have noted frequent occurrence in foreign-born people now residing in the United States [77, 80].

There are two general categories of delusional infection, those that involve only the skin, classically called delusional parasitosis, and those that are internal or systemic [62]. Family members may be enlisted to support the patient’s suspicions, even to the point of precipitating folies a deux, where a partner or family member shares the psychotic belief [68, 77, 83]. Thus, a spouse may agree that he has seen worms crawling in a wound. Many of these persons complain that their homes are infested as well. So-called “induced cases,” where other persons believe that they have become infected by the same organism, may occur with a frequency as high as 12%, higher than the rate of secondary cases of any other psychosis [70, 77].

Patients may induce skin lesions by excoriating or attempts at extermination (dermatitis artefacta) [84]. The patient may produce “evidence” of infestation, typically pieces of skin in a container [79], called the “matchbox sign” [83], which perhaps should be updated to the “Ziploc sign.” Although these patients usually present to the dermatologist, family practitioner, internist, or even veterinarian or entomologist [68, 76, 85], they sometimes find their way to the infectious disease physician.

Delusional infections have included tuberculosis and anaphylaxis [85]. There has been one case report of delusional rabies [69]; the patient did not exhibit symptoms of rabies but did have multiple somatic complaints that she attributed to rabies with delusional intensity. There have been two case reports of the use of phenelzine, a monoamine oxidase inhibitor, leading to delusional parasitosis [73, 74]. Delusions of venereal disease, called venerophobia (but not strictly speaking a phobia), have been reported [77, 87]. In recent years, the content of these delusions may include HIV infection [34, 36, 77, 78].

The exact category of psychopathology to which to assign this condition is a matter of controversy [70]. Patients with delusional infections usually have no prior major psychiatric diagnoses and have no other symptoms of psychosis [87]. Munro [71] called delusional parasitosis a monosymptomatic hypochondriacal psychosis. Hypochondriasis can be distinguished from delusional infection because the conviction of illness is not of delusional intensity—the patient with hypochondriasis can acknowledge that he may be exaggerating. Schizophrenic patients and other patients with psychosis may have somatic delusions as part of a more extensive symptom complex [80]. Cocaine or amphetamine intoxication and alcohol withdrawal can produce transient somatic hallucinations (formication or “‘coca bugs’” [89]), but the delusions do not persist.

Delusional infection is usually progressive, with both worsening local trauma and psychopathology, but is treatable with psychoactive drugs. When a patient presents complaining of parasitic infestation, appropriate medical evaluation should be made; as reported in an editorial [83], physicians would do well to check the matchbox before ascribing all of the symptoms to psychopathology. Some parasitic diseases have psychiatric components [90].

Gould and Gragg [75] suggested an overall approach to treating these delusions that includes being certain of the diagnosis, making a positive bond with the patient, and using medication to reduce anxiety and psychotic thinking. Several groups have reported some success with pimozide, an oral antipsychotic used to treat Gilles de la Tourette’s syndrome [8, 91–94]. Pimozide can cause extrapyramidal reactions and prolongation of the Q–T interval as well as other electrocardiogram changes. Some investigators have suggested starting pimozide therapy, after a baseline electrocardiogram, at a dosage of 1 to 2 mg/d; the dosage should increase by 1 mg every several days and not exceed ~10 mg/d [8, 92]. Electrocardiograms should be obtained periodically.

Delusions resolve over several weeks; most patients respond to a daily dose of ~4 mg [8, 82]. After several months without delusions, the dose can be tapered [93]. Some patients have recurrent delusions when administration of the medication is stopped [92]. Other investigators have reported less success with pimozide but some success with tricyclic antidepressants plus neuroleptic medication when warranted [77, 95].

**Physician Facilitation**

**Case 13.** A 38-year-old woman returned from a vacation in Montana with a 4-mm itchy papule over the small toe of her left foot that resembled a mosquito bite. Surrounding erythema gradually enlarged to 3 cm in diameter and then resolved. About 10 days later, she began having fatigue. She saw her primary care provider who sent specimens for determination of titers of antibody to *Borrelia burgdorferi*. EIA revealed an IgM antibody level of 2.06 and a negative IgG antibody. The primary care provider prescribed the patient a 21-day course of doxycycline therapy, and she felt transiently better; however, she again felt fatigued and was referred to an infectious disease doctor with a diagnosis of chronic Lyme disease.
Her physical examination was unremarkable. After a search of the literature, the infectious disease physician discovered that there was little or no Lyme disease in Montana, that it was not uncommon to have a titer of IgM antibody of 2 by EIA without B. burgdorferi infection, and that the patient had received adequate therapy if she had had Lyme disease. When the infectious disease physician called the primary care physician with this information, the referring physician said angrily that he had sent the patient to the infectious disease specialist to initiate intravenous ceftriaxone therapy at home and that if the specialist would not do it he would. The patient returned to the infectious disease physician on her own initiative several months later, complaining that she still felt tired despite 6 weeks of intravenous ceftriaxone therapy. Physical examination revealed an enlarged thyroid. Her level of thyroid-stimulating hormone was 6.2 μg/mL. This information was conveyed in a letter to the primary care physician.

Physicians sometimes facilitate psychiatric disorders (as in the cases of Munchausen syndrome, veneroneurosis, somatization disorder, hypochondriasis, and conversion disorder that were presented above) by not recognizing the disorder, by taking the patient’s word and/or not performing a physical examination, by disregarding laboratory test results, by trying too hard to give the patient an organic diagnosis, or by believing that antibiotic therapy is innocuous. Fear of Lyme disease, generated in part by media attention, has resulted in the overdiagnosis and overtreatment of Lyme disease and sometimes results in underlying problems being overlooked [96–98].

Despite the example given above, most physicians do not start ill-judged or excessive therapy. However, all physicians fail to recognize patients whose primary disorder is functional rather than organic [99]. Because patients with a psychiatric basis for presentation to an infectious disease physician are baffling, there is a tendency to order and reorder tests. Obviously, physicians do not want to fail to recognize an infectious disease, but the failure to recognize the psychiatric disease can be dangerous for patients, partly because of the iatrogenic consequences of an unrelenting search for an organic diagnosis. Some clues underlying psychiatric conditions are the vague or dramatic histories provided by the patient (factitious illness), clear evidence of material gain (malingering), incessant phone calls and messages (hypochondriasis), dramatic but inconsistent neurological presentation (conversion disorder), and a confrontational attitude and unshakable conviction of infection (delusional infection). Patients with genitally focused hypochondriasis tend to be solitary young men [7], patients with factitious illness tend to be young women, and those with delusional infection tend to be middle-aged or older women [10].

Psychiatric Referral

Most patients with OCD and phobias recognize that they have a problem; they rarely present first to an infectious disease physician and do not resist psychiatric referral. Patients with hypochondriasis and somatization disorder will respond to structured programs that formalize communication with their primary care providers and teach them to assign different interpretations to bodily sensations. A psychiatric referral can be suggested as a way of providing support for the emotional stresses associated with serious and chronic illness.

Patients with factitious illness, conversion disorder, or delusional infection may be the most problematic, actively resisting psychiatric intervention. Hostile or paranoid reactions may greet even the most tactful suggestion of psychiatric referral. If the patient is unwilling to see a psychiatrist, it is helpful for the infectious disease physician to review the case with a psychiatric colleague.

The infectious disease physician may need to initiate psychopharmacologic therapy [8, 9], particularly for patients presenting most often to infectious disease physicians, those with delusional infection. Pimozide, as discussed above, is a drug with apparent benefit for patients with delusional infection. The drug should not be described to the patient as an antibiotic but rather as a drug that will decrease some of the unpleasant sensations and anxiety related to the illness.

Conclusion

The fear of infection occupies a vivid place in the imagination and appears in many forms in psychiatric disorders. In some cases, these frustrating disorders can be treated successfully with medication and psychotherapy, but some patients react with hostility to the suggestion of psychiatric intervention. These patients are seen in infectious disease practices more often than we are aware.

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