Delusional Infestation

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It is a common experience among dermatologists that patients often have psychological overlays to their chief complaints. This particularly holds true for complaints related to condition of the hair and scalp. The exact incidence in any particular dermatologic practice most likely depends on the dermatologist's interest; however, even for those dermatologists who are not particularly interested in the psychological aspects of dermatologic disease, some patients have such overt psychopathologic conditions, such as delusion of parasitosis, that even the least psychologically minded dermatologist feels obliged somehow to address the psychological issue. Ideally, this would be accomplished through referral of the patient to a mental health professional. In reality, the majority of psychodermatologic patients are reluctant to be referred to a psychiatrist. Many lack the insight regarding the psychological contribution to their dermatologic complaints. This holds particularly true for the delusional patients.

The dermatologist is often the physician designated by the patient to handle the chief complaint, even if the main disorder is a psychological one. Therefore, it is essential for dermatologists dealing with such patients to expand their clinical acumen and therapeutic armamentarium to effectively handle the psychodermatologic cases in their practice. To accomplish this goal, the following steps are required:

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Learn to classify and diagnose psychodermatologic disorders. Because so many different types of conditions lie in between the fields of dermatology and psychiatry, it is paramount to have classification systems that will help clinicians understand what they are dealing with. There are two ways to classify psychocutaneous cases: first, by the category of the dermatologic presentation, e.g., neurotic excoriation, and, second, by the nature of the underlying psychopathologic condition, e.g., depressive disorder, generalized anxiety disorder, or obsessive-compulsive disorder.

Become familiar with the various therapeutic options available, both non-pharmacologic and psychopharmacologic.

Recognize the limits of what can be accomplished in a dermatologic practice: typically, a dermatologist does not have the time, training, or inclination necessary to administer most non-pharmacologic approaches. If a dermatologist seriously considers the challenge of treating these patients with psychopharmacologic agents, the selection of appropriate agents is dictated by the nature of the underlying psychopathologies that need to be treated. In order to prescribe effectively and safely for these patients, the dermatologist must have a basic understanding of the pharmacology of psychotropic agents.

Optimize working relationships with psychiatrists, since dermatologists and psychiatrists tend to have different perspectives when analyzing a clinical situation, different styles of communication, and different approaches to management.

Most psychocutaneous conditions of the hair and scalp can be grouped into the following four categories:

Psychophysiological disorders, in which the scalp disorder is exacerbated by emotional factors, e.g., hyperhidrosis, atopic dermatitis, psoriasis, and seborrheic dermatitis of the scalp

Primary psychiatric disorders, in which there is no real skin condition, but all symptoms are either self-induced or delusional, e.g., trichotillomania, neurotic excoriations, factitial dermatitis, delusion of parasitosis, or psychogenic pseudo-effluvium

Cutaneous sensory disorders, in which the patient has various abnormal sensations of the scalp with no primary dermatologic lesions and no diagnosable internal medical condition responsible for the sensations

Secondary psychiatric disorders, in which patients develop emotional problems as a result of the underlying disease, usually as a consequence of disfigurement

The presence of delusion defines psychosis. A delusion is a false idea on which the patient is absolutely fixed. A delusion is deemed to be a basic psychotic phenomenon, in which the objective falseness and impossibility of the delusional content are usually easy to realize. Delusional convictions are not simple misbeliefs: they are constitutions of an abnormal mind that refer to the individual's cognitive experiences of his or her environment – their ego–environment relationship. Delusions are not voluntarily invented by the patients: they are caused by psychotic experiences. From the psychodynamic point of view, a delusional disorder is a special consequence of abnormal self-development. The delusion derives from the patient's desire to be in a safe place, away from the tension caused by the brittleness and contradictoriness of the patient's ego–environment relationship. The subjective certainty of the delusion's content causes its incorrectability: patients consistently keep their convictions, without considering their incompatibility with reality. Neither contrary experiences nor logical arguing can influence them. By definition, delusional patients have no insight, and others cannot talk them out of their belief system.

The type of delusional patient most often seen by the dermatologist is not the schizophrenic, but the patient with monosymptomatic hypochondrial psychosis. Monosymptomatic hypochondrial psychosis is characterized by a delusional ideation held by a patient that revolves around one particular hypochondriacal concern, while with schizophrenia many other mental functions become compromised, besides the presence of delusional ideation.

Delusional of parasitosis represent the most frequent delusional disorder presenting in dermatology. Patients have fixed belief of a usually skin-related invasion or infestation by a number of parasitic species, whose identity has varied over time. Since 2002, an increasing number of patients have complained of unverifiable fibers and filaments in or on the skin, associated with numerous nonspecific Lyme disease-like systemic complaints. This entity has been named Morgellons disease by the patients themselves, although medical evidence for its existence is lacking. Currently the delusional assumption of infestation with Morgellons should be considered as a new type of delusion of parasitosis, however with some sort of inanimate material. Harth et al. have therefore recommended in case of delusion of parasitosis including Morgellons disease the use of the broader term delusional infestation [1].

9.1 Delusion of Parasitosis (Ekbom's Disease)

In delusion of parasitosis or Ekbom's disease, there is an unshakable conviction that the skin is infested by parasites. In the older literature, this condition is also described as parasitophobia or acarophobia. However, the terms with phobia attached to them are misnomers and should be omitted, because in classic phobia, patients are aware of the fact that their fearful reactions are both excessive and irrational, while in the case of delusions of parasitosis, the patient is truly convinced of the validity of his or her perceptions.

In dermatologic practice the type of delusional patient most frequently seen is the patient with a delusional ideation that revolves around only one particular hypochondriacal concern. These patients are said to suffer from monosymptomatic hypochondriacal psychosis. These patients are different from other psychotic patients, such as schizophrenics or patients with a major depression, since the latter have many deficits in mental functioning, which is not the case in patients with monosymptomatic hypochondriacal psychosis. Moreover, a delusional disorder appears to run distinct from schizophrenia and mood disorders and does not appear to be a prodrome to either of these conditions.

From a nosologic point of view, delusion of parasitosis is classified as a delusional disorder of the somatic type/with predominantly somatic delusions.

In the medical literature, the typical patient with delusions of parasitosis is reported to be a middle-aged woman, though there seems to be a bimodal distribution of age group. Delusion of parasitosis is frequently encountered in patients in their 20s and 30s of either sex who are at a lower socioeconomic status and who have a marginal existence in society, in work, and in interpersonal relationships.

Patients report cutaneous sensations such as crawling, biting, and stinging, which they relate to their unshakable conviction that their skin is infested by parasites. They often bring in bits of dry skin, debris, and other specimens to try to prove the existence of parasites (Fig. 9.1a). Sometimes secondary injury to the skin (Fig. 9.1b) or infection such as cellulitis may result from excessive scratching or the attempt to remove the imaginary parasites from the skin, also regional reactive lymphadenitis (Fig. 9.1c).

Though the patient with delusions of parasitosis presenting to the dermatologist more frequently suffers from monosymptomatic hypochondriacal psychosis, it must be remembered that the presence of a delusional ideation may be one particular manifestation of a more global psychiatric derangement, such as schizophrenia or major depression.

In fact, in 1951 entomologist Jay Traver published in the *Proceedings of the Entomological Society of Washington* her personal experiences with a mite infestation of her scalp that resisted all treatment and was undetectable to anyone other than herself. However, one must mention that the article made no sense entomologically. The house dust mites (*Dermatophagoides pteronyssinus*) do not parasitize humans. They reside in bedding where they feed on sloughed off skin and represent allergens that may cause rhinoconjunctivitis or asthma or may exacerbate atopic dermatitis. And yet, Traver wrote that she had the highest success in finding live mites on her pillow and scalp. Thus it is likely that she really did find *Dermatophagoides* mites, but the claim that they were parasitizing her is unfounded. Finally, no arthropod could have survived the onslaught of chemicals Traver used on herself on a daily basis, nor would any parasite be able to avoid detection by a dermatologist for that long. *Dermatophagoides* themselves can be easily killed by putting bed sheets in the household dryer for 10 min and are detectable by vacuuming the floor and examining what is collected (Fig. 9.2). A rational person, particularly an entomologist, should never have leaped to the conclusion that the mites were active parasites nor insist so adamantly on the existence of a parasite in the face of

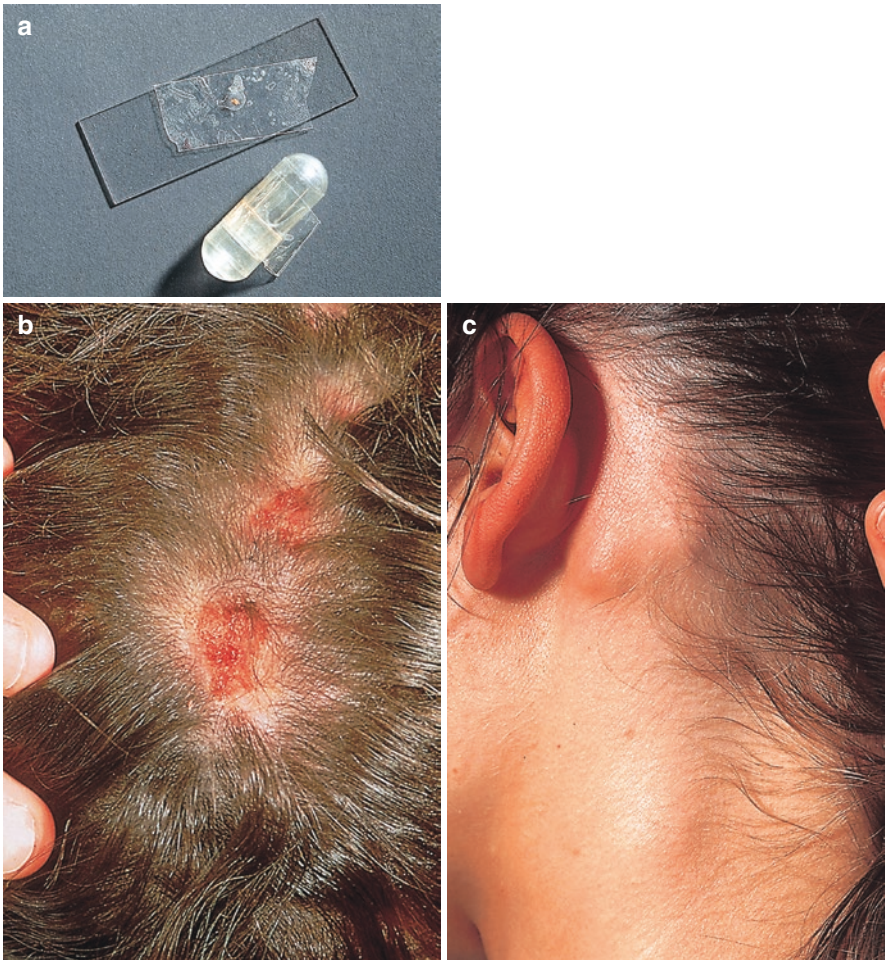

Fig. 9.1 (**a**–**c**) Delusion of parasitosis: (**a**) specimen provided by patient for examination, (**b**) self-inflicted excoriation of the scalp, (**c**) regional reactive lymphadenitis

repeated failure by professionals to find or exterminate the parasite over the span of decades. The conclusion the scientific community took from the paper, with full awareness of the tragic and dramatic irony of the situation, was that Traver was an entomologist with delusion of parasitosis. The Traver paper is unique in the scientific literature in that its conclusions based on data that were unconsciously fabricated by the author's mind. The paper may have merited retraction on the grounds of error or even scientific misconduct by reason of insanity, but such a retraction raises the issue of discrimination against the mentally ill. Ultimately, this paper raised the question what responsibilities journals have when faced with delusions disguised as science and what right editors have to question the mental sanity of an author [2].

Fig. 9.2 House dust mite (*Dermatophagoides pteronyssinus*)

Another subset of patients with delusions of parasitosis to consider are those who are substance abusers. Drugs such as cocaine and amphetamine can induce formication and sometimes a delusional state that can be clinically identical to that of idiopathic delusions of parasitosis. Because the induction of formication is so well-known among cocaine users, this phenomenon has been labeled cocaine bugs among substance abusers.

Also, neurologic disorders, such as multiple sclerosis, pernicious anemia, and especially in the elderly brain dysfunction with manifest encephalomalacia due to cerebral arteriosclerosis [3] should be considered in the differential diagnosis.

Trigeminal trophic syndrome results from a prior injury to the sensory distribution of the trigeminal nerve. Patients typically respond to the altered sensation with self-mutilation, most often in the region of the nasal ala; however, three patients with trigeminal trophic syndrome involving the scalp with self-induced ulcerations have been reported. Of these, two developed delusions of parasitosis based on the resulting symptoms of trigeminal trophic. Symptoms such as formication may mimic delusion of parasitosis; however, trigeminal trophic syndrome may be differentiated from delusion of parasitosis by the restriction of symptoms and ulcerations to the distribution of the respective trigeminal nerve [4].

Delusion of parasitosis should always be a diagnosis of exclusion, particularly the presence of inflammatory and pruritic skin disorders or real infestation, such as pediculosis capitis and furunculoid myiasis of the scalp, should not be overlooked.

A case of pseudo-delusory syndrome caused by *Limothrips cerealium* (Fig. 9.3) was reported in a 59-year-old female farmer, who came to observation because of intense itching and sensation of walking insects on the head, with no objective cutaneous signs except lesions due to scratching. After repeated visits, in which negative results of clinical and laboratory tests suggested the diagnosis of delusion of parasitosis, the authors finally isolated on her head some insects, identified by stereomicroscopy as *L. cerealium*. Careful inspection of the house of the patient allowed identification, as possible source of parasites, a wheat field and a deposit of grains

Fig. 9.3 *Limothrips cerealium*

used for animal feeding. Temporarily removing the patient from her usual environment resulted in complete clinical resolution [5].

Finally, chronic tactile hallucinosis describes those unusual cases in which patients develop chronic tactile sensations without delusions or other definable psychiatric disturbances and without associated medical or neurologic conditions. The condition can be associated with trichoteiromania, i.e., a self-inflicted patch of hair loss that results from the act of rubbing the scalp with fracturing of the hair shafts [6].

A case of delusional parasitosis with trichotillomania has been reported [7].

Trichophobia denotes the plucking of hair on the basis of the delusion of having to pull something out of the hair roots [8].

Since trying to talk a patient out of a delusion is generally counterproductive, the most feasible way to have an impact on delusional ideation is to start the patient with a delusional disorder on an antipsychotic drug.

Traditionally, pimozide has been prescribed [9]. Newer agents include risperidone and olanzapine. The most challenging aspect of managing patients with

delusions of parasitosis is to try to get their cooperation in taking one of these agents. This results from the discrepancy between the patient's belief system and the clinician's understanding of the situation. The first step is to establish a good rapport with the patient. In trying to do so, it is important to recognize that the patient with delusions of parasitosis is expecting the clinician to treat him with respect as a skin patient, not as a psychiatric case. Therefore, the most effective approach is to take the chief complaint seriously, give the patient a good skin examination, and pay attention to whatever specimens are brought in. However, one should not make any comment that may reinforce the patient's delusional ideation.

Once the clinician senses that a reasonable working relationship is established with the patient, psychopharmacological treatment is offered as an empirical therapeutic trial, purposely avoiding any argument about the pathogenesis of the condition or the mechanism of action of the medication. No matter how skillful the clinician is, some delusional patients remain beyond reach. In this situation, the best the physician can do for the patient is simply to take on a supportive role and watch out for any secondary complication such as cellulitis, which may result from skin injury.

Untreated, the condition runs a chronic course. Many patients respond to pimozide, with symptomatic improvement occurring as early as 2 weeks after starting treatment, although several months of treatment may be needed for complete control. Most patients require ongoing maintenance therapy; some achieve remission; in a few, cure does occur. Remission is seldom associated with insight.

9.2 Morgellons Disease

Morgellons disease is the informal name of a self-diagnosed, scientifically unsubstantiated skin condition characterized by the presence of multicolored filaments that lie under, are embedded in, or project from the skin.

Individuals afflicted with the disease may have crawling or stinging sensations and, in addition, often experience a variety of systemic manifestations, such as arthralgias, fatigue, and altered cognitive function, all symptoms that are commonly reported by Lyme disease patients.

In light of the previous experience with Morgellons disease patients, a case definition for the condition has been proposed: a somatic Lyme disease-like illness associated with spontaneously appearing, slowly healing, filamentous, ulcerative skin lesions, with the key diagnostic criterion being colored, white, or black filaments (Fig. 9.4a, b) protruding from or embedded in skin. Filaments in Morgellons disease lesions usually require magnification of 50× (as opposed to the magnification of 10× normally used in dermatology) or more to be seen [10].

However, Morgellons disease remains a poorly understood condition, while the general medical consensus is that it is a form of delusional parasitosis in which individuals have some form of skin condition with sores that they believe contain fibers (Fig. 9.5a–d). Its presentation is very similar to delusional parasitosis, with the addition that people with the condition believe there are inanimate objects in

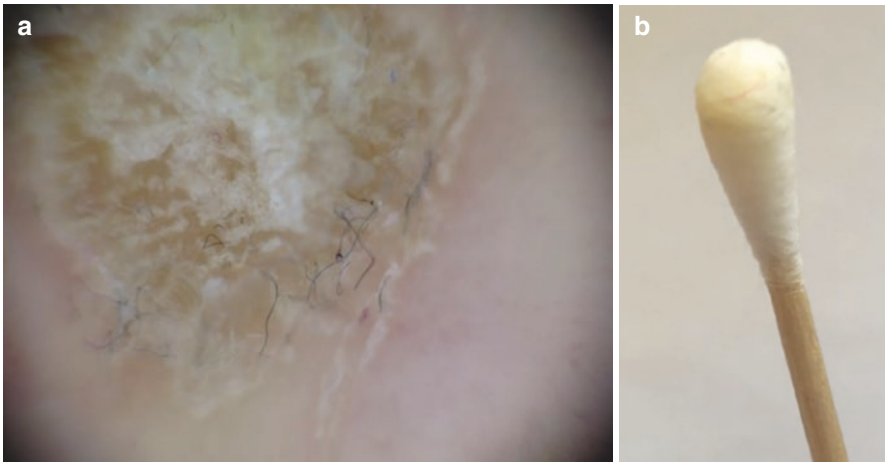

Fig. 9.4 (**a**, **b**) Morgellons disease: (**a**) black filaments on lesional skin, (**b**) colored filaments on a cotton swab. The fibers, when analyzed, are consistently found to have originated from cotton or other textiles

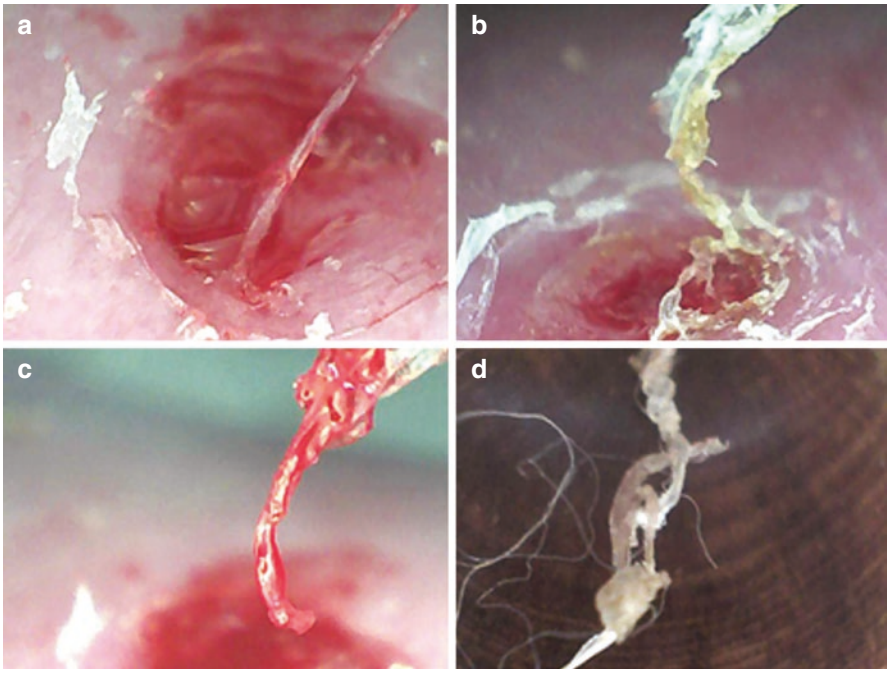

Fig. 9.5 (**a**–**d**) Morgellons disease: typical (self-inflicted) sores and fibers (of exogenous source)

their skin lesions. An active online community supports the notion that it is an infectious disease, disputes that it is psychological, and proposes an association with Lyme disease. Controversy has resulted with publications largely from a single group of investigators describing findings of spirochetes, keratin, and collagen in skin samples in small numbers of patients. These findings have been contradicted by much larger studies conducted by the CDC, which found skin samples mostly contained cellulose that came from cotton, with no evidence of infection or other causes.

In fact, Morgellons disease may represent a culture-bound syndrome, i.e., a combination of psychiatric and somatic symptoms that are considered to be a recognizable disease only within a specific society or culture, and is as such one of a group of mystery syndromes, such as multiple chemical sensitivity syndrome, amalgam disease, penile retraction syndrome (Koro), and the post-finasteride syndrome [11].

Expressly, the connection of Morgellons with Lyme disease is not surprising, since both have received the respective media attention, particularly in the USA. More broadly, it is an endemic that can be attributed to particular behavioral patterns within a specific culture by suggestion and therefore may also be referred to as a potential behavioral epidemic.

Vila-Rodriguez et al. state that the Internet promotes the spreading and supporting of bizarre disease beliefs since a belief is not considered delusional if it is accepted by other members of an individual's culture or subculture [12].

Sociologist Robert Bartholomew, who has studied the Morgellons phenomenon, states that the World Wide Web has become the incubator for mass delusion and Morgellons disease seems to be a socially transmitted disease over the Internet. According to this hypothesis, people with delusions of parasitosis and other psychological disorders become convinced they have Morgellons after reading internet accounts of others with similar symptoms.

Ultimately, Dermatologist Caroline Koblenzer specifically blames the Morgellons Research Foundation website for misleading people: "Clearly, as more and more of our patients discover this site, there will be an ever greater waste of valuable time and resources on fruitless research into fibers, fluffs, irrelevant bacteria, and innocuous worms and insects" [13].

References

1. Harth W, Hermes B, Freudenmann RW. Morgellons in dermatology [Article in German]. J Dtsch Dermatol Ges. 2010;8(4):234–42.
2. Shelomi M. Mad scientist: the unique case of a published delusion. Sci Eng Ethics. 2013;19(2):381–8.
3. Haas NL, Nicholson A, Haas MRC. Delusional parasitosis as presenting symptom of occipital lobe cerebrovascular accident. Am J Emerg Med. 2019;37(10):1990.e3–5.
4. Bolaji RS, Burrall BA, Eisen DB. Trigeminal trophic syndrome: report of 3 cases affecting the scalp. Cutis. 2013;92(6):291–6.
5. Guarneri F, Guarneri C, Mento G, Ioli A. Pseudo-delusory syndrome caused by Limothrips cerealium. Int J Dermatol. 2006;45(3):197–9.
6. Reich S, Trüeb RM. Trichoteiromania [Article in German]. J Dtsch Dermatol Ges. 2003;1(1):22–8.

7. Bhatia MS, Gautam RK, Shome S, Bedi GK. Delusional parasitosis with trichotillomania. J Indian Med Assoc. 1994;92(11):389.
8. Koo J. Psychodermatology: a practical manual for clinicians. Curr Problems Dermatol. 1995;VII(6):199–234.
9. Lorenzo CR, Koo J. Pimozide in dermatologic practice: a comprehensive review. Am J Clin Dermatol. 2004;5(5):339–49.
10. Middelveen MJ, Fesler MV, Stricker TB. History of Morgellons disease: from delusion to definition. Clin Cosmet Investig Dermatol. 2018;11:71–90.
11. Trüeb RM, Régnier A, Dutra Rezende H, Gavazzoni Dias MFR. Post-finasteride syndrome: an induced delusional disorder with the potential of a mass psychogenic illness? Skin Appendage Disord. 2019;5(5):320–6.
12. Vila-Rodriguez F, MacEwan BG. Delusional parasitosis facilitated by web-based dissemination. Am J Psychiatr. 2008;165(12):1612.
13. Koblenzer CS. The challenge of Morgellons disease. J Am Acad Dermatol. 2006;55(5):920–2.