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# When allergology meets psychiatry: delusional parasitosis (Ekbom's syndrome)

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## KEY WORDS

*Delusional parasitosis, Ekbom's syndrome, delusional infestation.*

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## SUMMARY

*Delusional parasitosis (DP) or Ekbom's syndrome is an uncommon psychiatric disorder that may represent a challenge for the allergist. DP is characterized by the fixed belief to be infested with parasites or small living creatures, although there is no medical evidence for this. The management of this condition is difficult, as patients with this paranoid disorder reject psychiatric diagnosis and treatment and often consult many specialists (dermatologists, internists or allergists). The patients may also share the delusional disease with other people living in close emotional relationship. We report herein a delusion of parasitosis simultaneously occurring in two spouses, and discuss the clinical features of the disease.*

Delusions of parasitosis (DP) or "Ekbom's syndrome" is a psychiatric disorder in which patients has a fixed and false belief of being infested by parasites. These patients generally refuse psychiatric referral or treatment, and often refer to dermatologists or other specialists such as allergists, because they are convinced of having an allergy problem (1, 2). DP can also manifest as a "folie a deux" (3), a condition where a person living with the patient share the false belief. The essential feature of this condition is a delusion that develops in an individual who has a close relationship with another person, termed as the "inducer" or "primary case". The relationship is usually prolonged, unhealthy, and provokes social isolation in the affected members (4). The "Folie a famille", where all the members of a family share the delusion, is a very rare condition (5, 6). We describe one case of patients with "folie a deux", who consulted dermatologists, internal medicine specialists, infectious disease specialists and aller-

gists for pruritic skin lesions. This case is also a paradigmatic example of a "psycho-allergological" disorder.

## Case report

A 66-year-old woman was admitted to our Allergy Unit (Department of Internal Medicine) in July 2010. She reported a long-lasting history of itching mainly localized in arms, abdomen and back. The disease was reported as heavily troublesome, and significantly impaired the everyday activities of the patient. She had been seen by several physicians, had experienced temporary relief with anti-scabies treatments and with steroids. The physical examination revealed rare itchy erythematous papules over the trunk and limbs. No primary dermatological diagnosis was made, although scabies was immediately excluded. The patient underwent routine biochemistry assays, research for parasites and ova, chest-X-ray,

abdomen ultrasonography, brain CT-scan, and pan-colonoscopy. All those diagnostic procedures provided negative results and no infection and/or infestation could be demonstrated. At a more detailed interview, the patient reported that his husband suffered from similar complaints since many months. Also the husband had skin lesions similar to those of the patient. The skin complaint had started in our patient after she had developed a delusion of persecution, with the false belief that her neighbours and relatives were out to harm her and her family. She believed that the “persecutors” had provoked a worm infestation in her family, which was responsible of skin lesions. The husband agreed with the delusion, and this was causing a progressive social isolation of the patients. Finally, the patient took a vial containing a “skin parasitic specimen” to support the diagnosis of parasitosis (Figure 1).

A psychiatrist was then consulted, who diagnosed a paranoid disorder in the wife and a shared psychotic disorder in the husband (*folie a deux*). An initial therapy with haloperidol resulted in no benefit, and concerted efforts by the medical team (internist, allergist, dermatologist, psychiatrist) to convince the patients of the necessity of therapy and/or counselling failed. The patient required to be discharged and was then lost to follow-up.

## Discussion and literature review

Delusional parasitosis (DP) is a term coined by Wilson and Miller in 1946 to describe a particular psycho-cutaneous picture which had previously identified with various definitions. DP (Ekbom's syndrome, dermatophobia, delusion of infestation) is characterized by the continuous belief of being infested by parasites, although no medical evidence of infestation is found. Patients with DP hold a fixed belief that they are infected by unicellular parasites, bacteria, viruses or

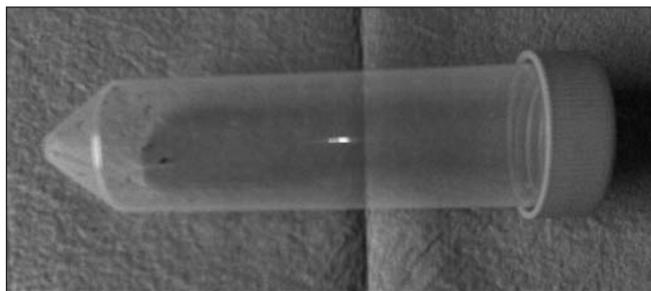
worms, or infested with insects, or infiltrated by organic and non organic fibers, or other forms of inanimate particles known or unknown by medical science.

Patients usually experience itching, which they attribute to the presence of animals in or under the skin. They often try to self-treat the disorder by scratching or by using disinfectants or pesticides. This causes skin lesions and itching, which in turn confirm the patient's belief of being infested and leads to a vicious circle of skin lesions, itching and delusional beliefs. It is possible that the delusional belief arises from the need to explain itching, when there is no other obvious explanation. It is also possible that the delusional belief arises spontaneously but, again, scratching and the use of aggressive substances provide the “proof” of ongoing infestation.

Patients may also exhibit parasite specimens in a matchbox (“matchbox sign”), in a pill bottle, in a plastic bag or on adhesive tape. This phenomenon is quite characteristic but not mandatory for diagnosis (the reported frequency is about 26%) (8). Skin lesions typically predominate in those body regions that can be easily reached, whereas the body sides opposite to the patient's handedness lesions are usually absent (8, 9). Reassurance by a physician may temporarily reduce the delusional intensity of the belief, but this effect rapidly vanishes. It is important to remind that DP is not a disease per se, but rather one clinical manifestation or symptom of a more complex psychiatric disease, that is paranoid schizophrenia. DP must also be differentiated from obsessive-compulsive disorders, which can result in ritualized skin cleaning and consecutive skin lesions. In this case there is no unshakeable belief of being infested by parasites. Obsessive fears of contamination or being dirty, or intrusive thoughts about hand washing, cause stereotypical rituals of self-cleaning (7). In 5–15% of cases, DP can be shared by more than 1 person (“*folie a deux* or *trois*”), usually in the same household (10). In this case, the person who first develops the illness (the “inducer”) persuades the others of his/her delusion until the delusional belief is shared. Interestingly, treating the inducer with sufficient antipsychotic medication usually causes a recovery of all other affected people.

DP can be classified as primary or secondary (7). In primary DP, the delusion arises spontaneously as a mono-delusional disorder, in accordance to the criteria of the International Classification of Diseases (ICD-10) and of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)(4). Also in the case of primary DP, the symptom expresses anyway the existence of an underlying paranoid disorder. In secondary DP, the delusional disorder arises as a consequence of another major medical, neurological or psychiatric disorders

**Figure 1** - A vial containing a “skin parasitic specimen” to support the diagnosis of parasitosis took by the patient (the “matchbox sign”).



(e.g. dementia, depression, diabetes, or cardiovascular accidents)(11). A secondary and transient DP can also occur during intoxication with amphetamines, cocaine or dopamine (12, 13).

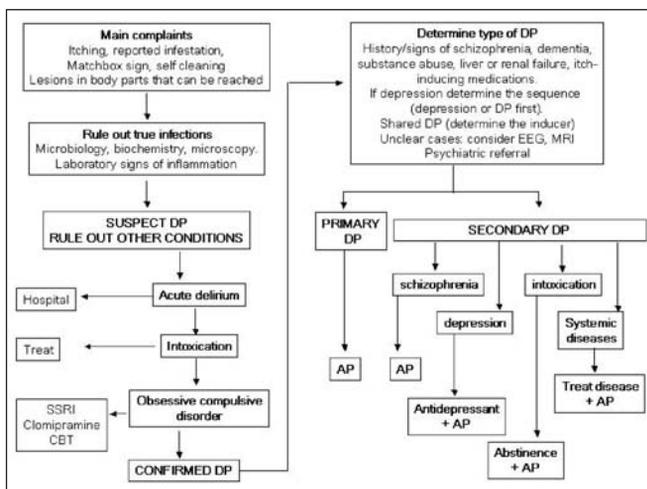
The annual incidence has been estimated at 20 cases per million, but a dermatologist sees two or three DP patients every 5 years (14, 15). The female to male ratio is equal under 50 years of age, whereas in the elderly the ratio increases to 2:1. There is a bimodal distribution with a peak between 20–30 years and another at > 50 years. An useful diagnostic flow chart was proposed by Lepping and Freudenmann (7), and is detailed in figure 2. The body of observations about DP supports the change from the term “delusional parasitosis” to the more inclusive “delusional infestation” (DI)(15). This term better reflects the growing number of patients who do not believe they are infested by ‘parasites’, covers any species blamed by patients for their symptoms, and includes the so-called “Morgellons syndrome” (15–17).

Treatments of choice are atypical or second-generation antipsychotics, such as amisulpride, risperidone or olanzapine (18–20). Pimozide is no longer used, due to the high risk of adverse drug reactions. In some cases, depot antipsychotics can be considered (Figure 2).

In conclusion, we believe that DP (or DI), for its clinical features and pathological characteristics and profile, must be known by the allergist, and taken into account when patients with unexplained itching are seen. Finally, because of its complexity, DP requires a multi-disciplinary approach.

**Figure 2** – Diagnostic and therapeutic flowchart for DP (modified from 7).

Legend: CBT, cognitive behavioural therapy; SSRI, selective serotonin reuptake; EEG, electroencephalography; MRI, magnetic resonance imaging; AP, atypical antipsychotic.



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