



Ekbom's Syndrome or Real Ectoparasitosis? An Unexpected Outcome of Hidden Springtails

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Author Contributions: Dr(s) Desoubieux, Saada, Bailly, Guiguen, Chandenier had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Desoubieux.

Acquisition of data: Desoubieux, Saada, Chandenier.

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This short clinical note focuses on the medical risk of diagnostic confusion arising from the accidental discover of bugs in human environment, especially when skin troubles are strongly reported. The importance of a right entomological identification avoids misdiagnosis and enables a better medical care.

Key words: delusional ectoparasitosis – Ekbom syndrome – arthropods – springtails – Collembola

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54 An elderly couple had complained of skin disorders for a few months. The symptoms, described as
55 intensive pruritus, had never been explained despite multiple medical visits. None particular lesions
56 had been noticed during these specialist examinations but individuals reported sensations of
57 formication like bugs crawling on skin. They had already undergone many antihistaminic, anti-scabies
58 or anxiolytic treatments, without convincing results. Both patients correlated the beginning of their
59 troubles with the purchase of a new mattress. This latter had stayed in their cellar for many months
60 before usage. One morning, the husband accidentally found a few bugs around his wife’s body. He
61 sent them to the department of Parasitology of Tours hospital for identification. This observation is
62 obviously coherent with Collembolan specimens or springtails (*Figure 1 and 2*).

63 Springtails are ubiquitous saprophyte arthropods. They mainly feed on decaying vegetables or
64 proliferating fungi like molds. They use to inhabit preferentially wet locals like fallen leafs, grass tufts,
65 rotten wood, caves. As they participate to control microflora, they are indirectly involved in
66 processing the organic matter in soil.

67 Springtails are usually considered as occasional pests of agricultural crops. However, they can
68 exceptionally invade indoors where humidity rates are excessively high. Although this is totally
69 inconsistent with their biological way of life, a few publications have suggested that springtails may
70 become ectoparasites for humans (1). Unfortunately, such proofs haven’t been scientifically provided
71 yet (2) (3), in spite of their hairy body that may potentially cause pruritus in contact with skin (4). In
72 our case, springtails were probably discovered by chance, close to the lady’s person after she had
73 spent the night sleeping on the new mattress. Previously, this one had been surely colonized during
74 its long stay in the dark and wet cellar. So, this accidental finding should be rather considered as an
75 authentic coincidence than the main cause of the skin disorders reported by the elderly couple.

76 Nevertheless, since they discovered the springtails, the patients became regrettably convinced of
77 their responsibility, in spite of their saprophytic metabolism. In this context, recurrent complaints
78 about skin disorders due to small bugs creeping under the skin should be preferentially considered as
79 symptoms signing a psychiatric disease rather than a real entomological issue. These delusional
80 parasitoses are described as Ekbom syndrome, a kind of psychosis related to a strong belief of being
81 infested (5). Like in our case, such entities are not well known to non-specialists and consequently
82 represent a risk of misdiagnosis, involving general practitioners, dermatologists, entomologists,
83 pharmacists... Furthermore, ill people often express an insistent need of assistance. So, inadequate
84 treatments are possibly overprescribed.

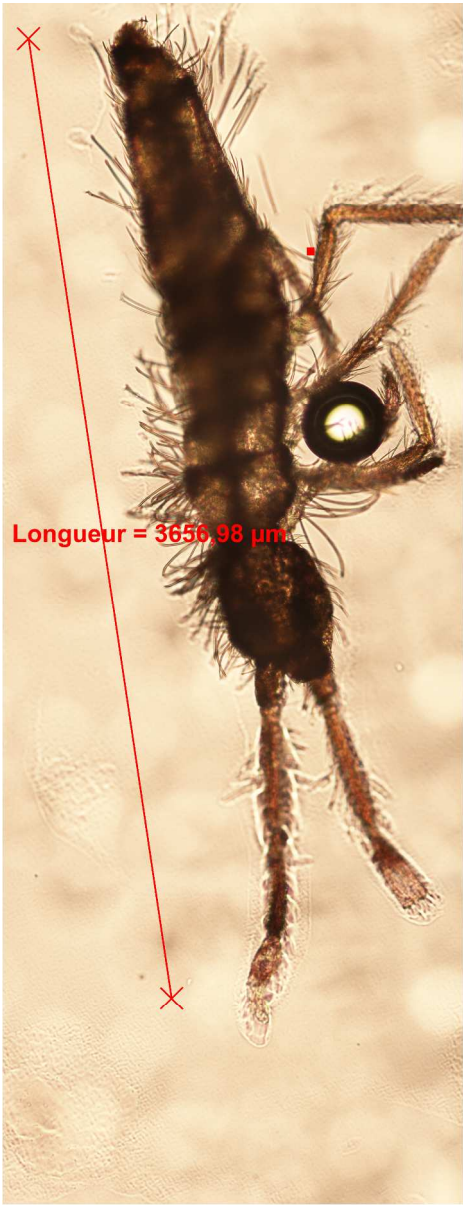
85 Springtails are highly sensitive to desiccation: the best way to get rid of them consists in aerating
86 invaded rooms. Indeed, insecticides usage is thought to worsen the situation, because it enables
87 springtails proliferation due to excessive punctual consuming of other dead bugs. Finally, in our case,
88 we suggested to open all shutters of windows to dry up the indoor atmosphere. In theory, these
89 recommended measures could eradicate springtails, but herein they especially allow appeasing the
90 elderly psychotic patients.

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Figure 1: Example of a springtail specimen. This well-conserved arthropod is less than 0.14 inches long (nearly 3.5 mm). It has a hairy-brown body with six legs inserted in the thorax. At the top of the head begins a couple of four-item segmented antenna (magnificence X25).

Figure 2: Another springtail specimen. This side view enables especially to observe the large ventral appendage called furcula, in the lowest part of the arthropod. Despite the rest of the specimen is quite altered, the different components of the body are easily recognizable (magnificence X25).

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417x1088mm (96 x 96 DPI)



363x749mm (96 x 96 DPI)