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Original Article

Delusional parasitosis as a tactile hallucination handled by dermatologists

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ABSTRACT

Background: Delusional parasitosis (DP) is a false, unshakable belief that pathogens have infested one's own skin or body. **Objective:** The objective was to record all patients with DP, a rare presentation of monosymptomatic delusion, in Iraq. **Patients and Methods:** This was a descriptive study of 21 cases diagnosed with DP in Medical City Teaching Hospital in Baghdad, Iraq, between 2013 and 2021. A detailed history and clinical examination were conducted to exclude actual organic disease. **Results:** All patients were females with a mean age of 65 years. They believed strongly to have pathogens in their skin or scalp, carrying containers with samples of skin debris, fibers, dead insects, hair waste, and small stones as proofs of their infestation. Careful psychiatric assessment ruled out schizophrenia, substance use disorders, and dementia, and proved the psychiatric diagnosis of monosymptomatic delusion. The patients described their symptoms as something crawling, stinging, and biting sensations. On examination, we often saw shaved scalp hair with injured skin in the form of excoriations, ulcerations, scarring, and pyogenic infections in a localized area. **Conclusion:** DP is a single symptom-sign complex manifestation in a person with a well-preserved personality apart from a single tactile hallucination of some sort of pathogens infesting their skin. It is commonly a disease of the scalp of elderly females that run a chronic course and rarely remits in a short time. Proper liaison between dermatologists and psychiatrists assisted by laboratory facilities is required for diagnosis and follow-up. Empathetic rapport, psychiatric referral, and early treatment by atypical anti-psychotics significantly improve such conditions.

Key words: parasites; delusion; tactile hallucination; dermatologists

INTRODUCTION

Delusion is a false, fixed belief strongly held by a person in contradiction to a logical conversation. It may be bizarre or rational and primary or secondary to numerous physical and mental disorders or substance abuse. Delusions presented solely or associated with perceptual disorders of any sensory modality are hallucinations, which may be presented without delusions in functional and organic psychosis and substance abuse. Auditory hallucinations are the most common type of functional psychotic disorders, particularly schizophrenia, while others, visual, gustatory, olfactory, and tactile, are often associated with organic disorders, including substance intake [1]. Singular types of delusions are not commonly encountered in psychiatric consultation clinics; however, eliciting these is a pivotal step for proper management, being chronic with medical and psychiatric complications. Among those is delusion of parasitosis (DP) or delusion of infestation (DI), wherein patients have a fixed belief of harboring inmates, namely, insects, worms, larvae, mites, bugs, lice, flea, or parasitic organisms on or beneath their skin or infesting muscles, joints, or internal organs [2]. The tactile hallucinatory experience of crawling, itching, and biting reinforces the patient's belief, leading to skin lesions by scratching and/or excoriation in desperate trials to eradicate them. Such patients seek dermatologists for medical help and unusually refrain from psychiatric consultation when advised to do so [3]. The current psychiatric classificatory systems (ICD-

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10 and DSM-IV) conceptualize DP as a delusional disorder [4].

Historical background

It has been four centuries since Thomas Browne first described a case of psycho-cutaneous dermatosis, naming it Morgellons disease [5]. Later, A French dermatologist, Thibierge, introduced the term *acarophobie* into modern psychiatric terminology by describing a delusional skin infestation in 1894 [6]. In 1938, Karl Axel Ekbom described the principal features of DP under the German term of *Praseniler Dermatozoenwahn*. In 1970, *Ekbom syndrome* was coined as an idiom for DP and sometimes to refer to restless leg syndrome [3,6]. Wilson and Miler used the term *delusion of parasitosis* [7], while Munro considered DP a presentation of monosymptomatic hypochondriacal psychosis [6]. Delusion of infestation (DI) was employed by Hopkinson as a synonym for DP [2].

Clinical Features

DP is an uncommon primary psychiatric disorder characterized by the presence of an unshakable belief of being infested by pathogens, usually associated with congruent tactile hallucination leading to induced skin lesions. Tactile hallucinations of variable presentations may be secondary to some neurological and medical conditions such as neurosyphilis, encephalitis, senile dementia, cerebrovascular disease, particularly stroke involving the right temporoparietal cortex, encephalopathy caused by uremia, hepatic failure, severe vitamin B_{12} deficiency, and coronary bypass surgery [8]. The sensation of small animals crawling over or under the skin and sometimes internal organs, so-called *formication*, may occur without concomitant delusion as a manifestation of acute withdrawal symptoms in alcohol dependence delirium tremens and some illicit drug consumption, specifically cocaine, *cocaine bugs* [7]. The unaccompanied presentation of formication, occasionally called *invisible bugs*, runs a chronic course and is consolidated into delusion as the primary pathology. Additional facultative psychotic and non-psychotic such as visual illusions and hallucinations may be present [9]. DP is also present in mood disorders or schizophrenia, especially in young patients as an early manifestation of a major psychotic disorder. Many authors prefer the term *delusion of infestation* (DI). Both terms, however, are synonymous. The management of DP, primary types in particular, is challenging for the treating dermatologist because of the patient's negative attitudes toward psychiatric consultation, leading to an inadequate treatment strategy and a poor outcome. DP becomes intractable with or without treatment and becomes fortified against further measures. Some authors categorized DP and DI within the delusions of hypochondriasis or paranoid hypochondriasis based on the somatic description, yet such terminology has not been employed in dermatologic and psychiatric practice [1,9]. The ambiguous nosology was clarified and agreed upon by the ICD-10 and DSM-IV classification manuals, declaring that DP and DI are considered a monosymptomatic delusion [4,9]. A multidisciplinary approach between dermatologists, psychiatrists, laboratory workers, and infectious medicine specialists to oversee the related medical aspects of DP is needed. Building efficient rapport with patients with DP is an important step in psychiatric and psychosomatic therapy to improve the outcome. To diagnose DP with certainty, actual skin diseases such as scabies and body lice should be excluded first by history taking, physical examination, and relevant investigations. The triad of skin lesions, the unshakable belief of being infested, and the classic "specimen" should be watched carefully in the absence of any kind of cognitive impairment. Most patients with DP bring different samples of bits of dried skin, textile fibers, hair, scabs, specks, dried blood, and occasionally living ants or flies as evidence for their alleged parasites; these should be submitted for microbiological laboratory examination. This has been referred to as the matchbox sign or the specimen sign; such specimens indicate the classical presentation, but its absence does not exclude the diagnosis of DP [10]. With persistent cleansing and disinfecting, patients with DP induce further damages to their existing skin lesions, leading to serious dermatological complications. Moreover, they may destroy clothing and furniture or even change their residency once the delusion extends to their surroundings. DP is most often seen in middle-aged females (with an age ranging from 45 to 55 years), with a female-to-male ratio falling between 2:1 and 3:1 in those aged over 50 and a ratio of 1:1 in those aged under 50. It has an insidious onset and runs a chronic course of continuous symptoms or in-between periods of remissions. Most often, there is a time delay before the patient's first presentation to the dermatologist but not to a psychiatrist. The patient's reluctance to psychiatric referral is the leading cause of inadequate treatment or, sometimes, quitting the treatment procedure altogether. Such behavior is predicted by healthcare workers worldwide and may predispose

them to significant dermatological and psychiatric consequences [8,9]. Dermatologists are entitled to establish liaisons with psychiatrists, preferably in the form of a multidisciplinary clinic. If psychiatric services are unavailable, dermatologists should be familiar with the relevant psychopharmacology, keeping in mind the importance of empathetic patient rapport and skilled communication [8,9]. Systematic studies on DP and DI are scarce and lack either dermatological or psychiatric details and laboratory analysis of the alleged pathogens. The dearth of large-scale field research and epidemiological studies created a data gap about its prevalence and morbidity, as in case reports, small case series, or review articles. In Iraq, no elaborate study on DP is available apart from one study by Sharquie et al. [11] a study on a patient's psycho-cutaneous referral to a psychiatry clinic [12].

MATERIALS AND METHODS

This was a case-series, descriptive study in which all patients with delusion of parasites were recorded from 2013 through 2021. Full demographic information was registered and history taking and clinical examination were conducted. A dermatological examination regarding the presence of parasites such as pediculosis, insects, or larva was performed. Also, a careful examination of rash was performed. Psychiatric assessments, including indicative investigations, were done to exclude any actual psychiatric problem or organic disease. Laboratory testing for the presence of insects or other microbes was done for the patient specimens. Written consent was obtained from each patient after carefully explaining the study. Permission for photographing was received and shown to assure anonymity. The patients were reluctant to abide by the psychiatric referral suggested by the consultant dermatologist (first author) and refused the possibility of having a mental illness. To overcome this obstacle, the consultant psychiatrist (second author) attended the dermatological setting and tactfully conducted the psychiatric assessment for each patient in the form of a small multi-disciplinary team.

Ethics Statement

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

Statement of Informed Consent

Informed consent for participation in this study was obtained from all patients.

RESULTS

Twenty-one female patients were seen with delusion of parasites, with their age ranging from 50 to 88 years, with a mean of 65 years. All patients had only one complaint, as they believed strongly to have pathogens in their skin, most commonly in the scalp hair. Otherwise, they had an intact personality as confirmed by psychological evaluation, with no other features of psychiatric diseases such as schizophrenia or dementia. All patients resisted any argument against their strong conviction of being infested by parasites; consequently, they refused any referral to the psychiatrist. The patients were often carrying containers with samples of skin, hair, waste, skin debris, mixed up with dried blood, dust, stones, and insects. The patients described their symptoms as something crawling and stinging and biting sensations. A significant number of the patients had a long history of insect-like bites of the scalp hair and other parts of the body before they had an actual skin rash, especially of the scalp region. Some patients tried to remove these insects with different antiseptics or even insecticides, and these measures had induced chemical skin irritation and, consequently, more complaints and more itching or burning. One patient was carrying microscope slides filling them with debris and asking the doctor to examine it under a microscope. On examination, we often saw shaved scalp hair with damaged skin in the form of excoriations and erosions, ulcerations, scarring, thickened skin, and even pyogenic infections in some patients; and this rash was usually observed in a localized area (Figs. 1–3).

DISCUSSION

Many types of parasitic and helminthic infestations are endemic in Iraq, especially in rural areas and crowded settings with poor hygiene: prisons, residences of incumbents, dormitories, and military and refugee camps. Such patients are distributed among health care settings of different medical specialties, primarily dermatology, or they may seek traditional healers for herb remedies [13]. Among all the attendees of the dermatology and venerology outpatient clinic, twenty middle-aged female patients were diagnosed with DP during the last eight years and another case at the

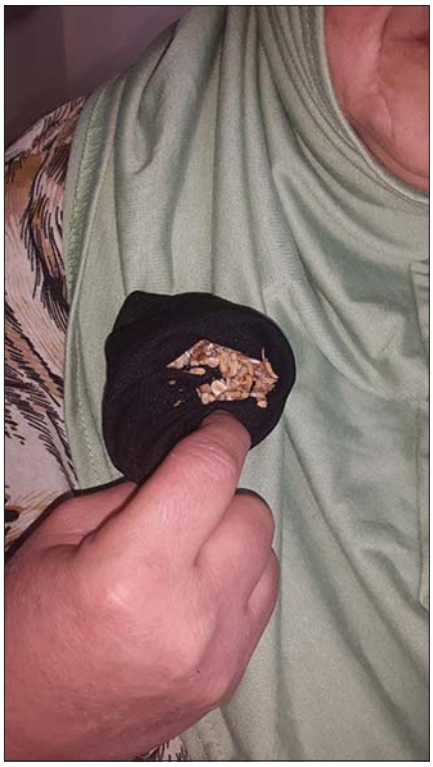

Figure 1: A 57-year-old female with DP carrying the assumed insects.

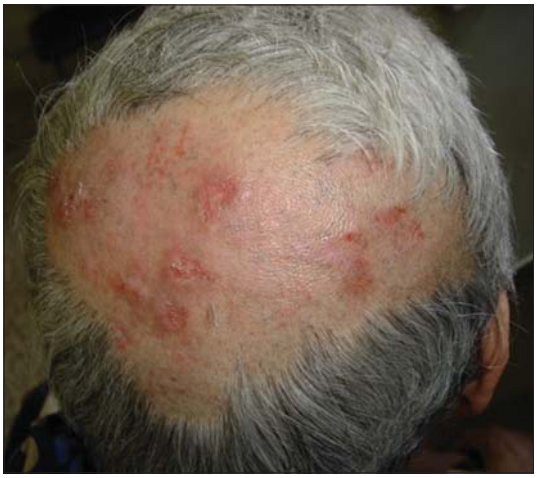

Figure 2: A 58-year-old female with DP showing shaved scalp with multiple excoriated, ulcerative areas.

psychiatric clinic. They complied with the diagnostic criteria of DP and DI according to a semi-structured DSM-IV interview [4]. Each patient was examined by the consultant dermatologist and psychiatrist (first and second author). Some of the patients studied offered recorded photographs on their mobile phones as evidence of their infestation resembling the old "specimens sign." Dementia, hypochondriasis, and schizophrenia were excluded by a psychiatric assessment. Numerous common concepts are found in our case series to the ones available in the literature: age, gender,

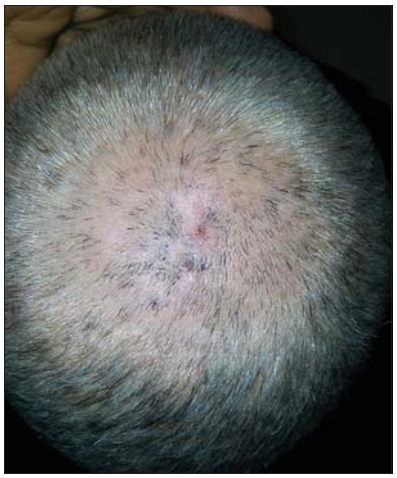

Figure 3: A 60-year-old female with DP showing excoriation of the scalp.

irreducible beliefs against logical persuasion, their descriptions of the alleged pathogens, and reluctance to psychiatric management. [2,8,9,10,14]. It seems that DP has the same matching psychopathology as the core symptom, despite sociocultural differences [15]. Our patients' common description of pathogens and beliefs in traditional remedies may be considered cultural variations of Western studies. Moreover, some patients with DP attribute their infestation to the act of black magic or evil eyes, following their cultural beliefs. Consequently, they may develop a secondary paranoid delusion against the presumed enemy or it may evoke an intractable mixture of paranoid and hypochondriacal delusions [15,16]. Also, they may attribute their infestation to the possession of Jinn (invisible beings) from the Tenets of Islam or, sometimes, the "work" of an evil spirit. [17]. On the other hand, some mentally ill patients are liable to be infested by variable types of pathogens, most commonly scabies and pediculosis as reported by Atiyah et al., observing that 13.46% out of 1300 inpatients in an Al-Rashad long-stay mental hospital in Baghdad had a parasitic infestation, among which scabies affected 7.67%; others had human pediculosis, and the authors could not confirm the presence of DP among these patients [18]. Our findings are consistent with what Freudenmann et al. found in their retrospective study on 148 patients with suspected DP, in which was no evidence of a genuine infestation; 48% presented with the specimen sign, among which only 35% believed themselves to be infested by parasites; the majority reported other living or inanimate pathogens, inconsistently with our patients' complains, hence they preferred the term *delusional infestation* [19]. The perplexity of diagnosing and treating DP and DI lies in convincing the

patient that their condition is psychiatric [12,14,16]. Therefore, starting with a doctor–patient rapport is essential to facilitate the patient's motivation for follow-up and compliance with psychiatric and psychosomatic therapy, as important as watching for secondary or induced skin lesions: cellulitis, bruising, neurodermatitis, and scarring. Decades ago, pimozide (first-generation antipsychotic) was the treatment of choice, and proved its efficacy in 90% of cases as other monosymptomatic delusional disorders, but was substituted by risperidone, olanzapine, and aripiprazole (second-generation antipsychotics). Nowadays, because of its cardiac toxicity, a professional and empathetic approach should be employed in the treatment strategy to encourage follow-up and drug adherence [20,21].

CONCLUSION

DP is a rare psychocutaneous disease usually encountered in dermatological settings, classified within the monosymptomatic delusional disorders. Its primary type commonly affects middle-aged and elderly females. The secondary type follows numerous physical, mental, or substance-use disorders. This case series on DP is the first detailed report on DP in Iraq. It is vital to bring the awareness of dermatologists and psychiatrists to elicit and treat such cases at the first onset. DP is annoying to the patient and their family and, if untreated, may lead to dermatological and psychiatric complications. A multi-disciplinary team with a good doctor–patient rapport is the most effective way of management. This paper calls for further case reports and epidemiological studies to confirm these findings and cover the data gaps.

Statement of Human and Animal Rights

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

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