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Delusional Infestation

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The skin is by far the largest organ of the body and it performs a variety of important functions. In both a concrete and symbolic sense the skin serves as a boundary separating the inner person from the outer world, self from non-self. It is evident therefore that cutaneous awareness is a central part of overall body image. It should be no surprise to learn how frequently real, imaginary or factitious dermal-pathology may occur in association with psychiatric disorder. The false idea that something is alive and moving in the skin has been presented to dermatologists and, to a lesser extent, psychiatrists for many years. It has attracted a ready psychodynamic explanation based on the concept of somatisation of emotional experience, and taking into account the symbolic function of the target organ.

In 1938, Ekbom reported upon seven patients mistakenly convinced that small animals were alive and moving in their skin – *Dermatozoenwahn*. Although scattered reports of similar disorders had previously appeared, Ekbom's study emphasised their aetiological, behavioural and prognostic heterogeneity, in contrast to the pre-existing unitary model. The term 'delusional parasitosis' (or 'delusional infestation') came to replace earlier misnomers such as 'acarophobia' (Myerson, 1921) and 'parasitophobia' (Eller, 1929).

Publications subsequent to Ekbom largely propounded a syndromal model, regarding the infestation delusion as one possible manifestation of several different patterns of psychiatric presentation. The schema of Liebaldt & Klages (1961), for example, suggested that delusional infestation could occur in association with either an affective disorder, as a *folie communiquée*, or as part of a drug-induced psychosis, cerebral degenerative disorder or specific organic brain syndrome.

Several reports point to an association between the occurrence of affective psychosis and the presentation of delusional infestation. A few isolated case reports (Schwarz, 1929) identify mania as the associated disorder but most patients categorised in this way have exhibited a depressive psychosis (Harbauer, 1949; Hopkinson, 1970).

The second major area of associated primary pathology appears to be that of organic psychosis. Many patients have been described with various forms of cerebral degenerative disorder, particularly senile and presenile dementias (Bauer & Mosler, 1970; Böttcher, 1954). Other forms of cerebral pathology, too, are sporadically cited, for example neoplastic (Liebaldt & Klages, 1961) or infective (Ekbom, 1938). Furthermore, acute confusional states related to alcohol- and/or drug abuse are not uncommonly reported in association with delusional infestation (Liebaldt & Klages, 1961). In relation to alcoholism the more chronic organic disorder of Korsakoff's psychosis in particular has been reported (Munro, 1982). In respect of drugs, amphetamine, methylphenidate and cocaine, particularly the latter, have been found to have a particular association and the term 'cocaine bug' has in fact appeared in the non-medical literature (Kirk, 1975; Tullett, 1965).

The third major group of associations with delusional infestation relate to the concept of Kraepelinian paranoia, alternatively referred to as 'delusional disorder' (Kendler, 1984) or, in Munro's terms, 'monosymptomatic hypochondriacal psychosis' (MHP). Induced psychosis or 'shared madness', as Munro indicates, is common in patients with MHP but appears to be even more common in the specific context of delusional infestation. One large series observed that one-third of patients seen by the reporting dermatologist had induced delusions from an affected primary source.

The association between schizophrenia and delusional infestation has historically received scant attention perhaps largely because the course and pathological extent of each disorder is on the whole quite dissimilar. If delusional infestation ever occurs as a symptom of schizophrenia it is very rare (Ziese, 1967).

In contrast to this definitional syndromal approach Skott (1978) published a meticulous analysis of data from 57 patients presenting with a false attribution of cutaneous infestation. The considerable variation of clinical presentation prompted the conclusion that a false complaint of infestation should be conceptualised merely as a non-specific symptom, not necessarily held with unshakeable conviction, which can occur in an almost infinite variety of individual bio-psycho-social contexts.

From Skott's work it appears that there are four basic areas of concern when assessing the patient with delusional infestation.

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(a) Environmental factors might include factors such as: occupational experience; the existence of squalor; or social isolation.
(b) Personality factors relate to the existence of abnormal personality traits, particularly obsessional and paranoid types, with the obsessional predominating in frequency.
(c) Biological factors relate to the existence in the present or in the past of physical and psychiatric illness.
(d) Psychological factors relate to aspects such as the existence of a particular psychological precipitant antedating the onset of symptoms or the symbolic meaning of the experience. However, there could be a potentially wide range of individual factors in each subgroup.

British dermatologists nevertheless appear to encounter a more uniform pattern of presentation in their patients, as evidenced by two recent postal questionnaire surveys (Lyell, 1983; Reilly & Batchelor 1986). A sizeable minority of these patients demonstrate considerable consistency in the following respects: their disorder appears to exist in pure culture, not secondary to any underlying psychiatric or physical illness, and in the absence of significant extrinsic pathogenic factors such as alcohol abuse or drug abuse; they are truly deluded, with complete and consistent conviction; the disorder is persistent, unvarying and enduring; there is limited progression, elaboration, psychotic deterioration, decompensation or functional impairment; it is refractory to most standard treatments; associated abnormal behaviour is common, especially self-inflicted skin lesions, decontamination rituals and the production of spurious 'evidence', most typically normal skin scrapings contained in matchboxes or twists of paper; sufferers are socially isolated, often displaying abnormal personality traits (particularly obsessional); they have frequently sought non-psychiatric, non-medical, assistance with an unhelpful or counter-productive outcome; they resist psychiatric referral.

Other contemporary workers, for example Munro (1982*a*,*b*), who recognise the above pattern in their patients with delusional infestation, have stressed the descriptive similarity to classical Kraepelinian paranoia, recently rehabilitated in the concept of 'delusional disorder' (Kendler, 1984). Munro now views this presentation of delusional infestation as one form of delusional disorder, akin to similar conditions such as the nuclear forms of delusional jealousy (Munro, 1984) or de Clérambault's syndrome, or, more obviously, the varied manifestations of the monodelusional hypochondriacal disorder referred to as monosymptomatic hypochondriacal psychosis (Munro, 1980).

In order to reconcile these differing notions of the nature of delusional infestation, a two-tier aetiological hypothesis is worthy of consideration. In many instances the disorder occurs as a non-specific symptom, the understanding and appropriate management of which depends upon an individual, comprehensive, multi-dimensional diagnostic formulation. In some of these instances the symptom will be but one manifestation of a primary disorder, sometimes psychiatric (especially depressive illness and various forms of organic psychosis) and very occasionally physical. In the latter context vitamin B_{12}- and folate-deficiency states (Pope, 1970) and various endocrine and metabolic disorders, such as renal failure, hypothyroidism and diabetes mellitus have been implicated (Helmchen, 1961; Busch, 1960). The association here between pruritic and paraesthetic phenomena and the subsequent development of the delusional belief seems worthy of note. Often, however, the disorder exists as an essentially unitary syndrome, appropriately subsumed under the rubric MHP, or in the earlier terminology of Schwarz (1929) 'Zircumskripte Hypochondrien'.

Further support for the frequent identification of delusional infestation with MHP in general derives from the suggestion that both disorders, commonly resistant to other treatments, respond well to the diphenylbutylpiperidine pimozide (Hamann & Avnstorp, 1982; Ungvari & Vladar, 1984; Munro, 1983; Lyell, 1983; Reilly & Batchelor, 1986). Hamann & Avnstorp in 1982 conducted a double-blind placebo-controlled cross-over trial employing pimozide in 11 patients with delusional infestation. Their criteria for improvement were fairly rigorous and they considered at the end of the trial that 10 out of 11 patients had derived significant benefit from the use of pimozide. The placebo response was virtually nil. A replication of that study by Ungvari & Vladar (1984) found very similar results with 9 out of 10 patients improving and a very low level of placebo response. In 1979 Frithz employed depot neuroleptics in 15 patients with delusional infestation. In 10 he used flupenthixol decanoate and in five, fluphenazine decanoate. Although this was an open study and the criteria in many ways for evaluation of the study were less rigorous, he found that 14 out of his 15 patients improved significantly when treated with depot neuroleptics. In the two recent postal surveys, Lyell (1983) reported 44 of 66 patients responding to pimozide, and Reilly & Batchelor (1986) reported improvement in 17 of 21 patients receiving pimozide. In the latter study 34 patients in total received psychopharmacotherapy, of whom 20 improved (17 on pimozide). Twelve of the remaining 14 received other neuroleptics.

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The apparent efficacy of pimozide strengthens the conceptualisation of delusional infestation as a paranoid psychosis or delusional disorder. If pimozide is differentially effective in this disorder, several speculative explanations beckon (Reilly & Batchelor, 1986). First there is the question of compliance. These are difficult patients to convince of the need for treatment and difficult patients to maintain in therapy once established. A possible advantage of pimozide is that it can be given in a once-daily dosage rather than in a divided-dose schedule, and some patients may find it easier and more acceptable to take one tablet a day rather than several.

Secondly there is the question of subjective side-effects. As Munro has pointed out in relation to MHP in general, when these patients experience side-effects, treatment becomes much more difficult and a major wedge is driven between therapist and patient. Because pimozide has very little effect on central noradrenergic transmitter systems it may be significantly less sedative than other neuroleptics and the diminution or abolition of unwanted sedative effects may improve tolerance and in turn compliance with treatment.

Thirdly, and highly speculatively, if the neurochemical pathology of schizophrenia involves a complex breakdown of the interactive functions of several neurotransmitter systems, perhaps dopaminergic, noradrenergic, serotoninergic and even others, is it possible that in a circumscribed delusional disorder such as delusional infestation there may be a circumscribed neurotransmitter dysfunction affecting perhaps only the dopaminergic system? This could explain the effectiveness of a neuroleptic agent which has very limited and specific effects on central neurotransmitter function. Pimozide is essentially a dopamine antagonist with very little effect on other neurotransmitter systems.

The fourth and most intriguing possibility relates to pimozide's selective competitive antagonism to endogenous opiates at opiate receptor sites (Johnson & Anton, 1983). It is known that the opiate antagonist naloxone may be effective in abolishing the often intractable pruritis which results from biliary cirrhosis. It is possible to speculate that pimozide, by virtue of its own opiate antagonism, not only affects the cognitive aspect of delusional thinking but may also suppress the central recognition of an abnormal peripheral sensation in the same way as naloxone appears to be able to block pruritic sensations which occur in biliary cirrhosis.

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