Review Article

Psychodermatology: A comprehensive review

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ABSTRACT

Psychodermatology is an interesting domain of dermatology that overlaps with psychiatry. This arena in dermatology has received limited diligence, partly due to lack of training in this realm. We present here a comprehensive review of salient features and treatment updates in primary psychiatric dermatoses and have also discussed the role of psyche in psychophysiological cutaneous disorders. Secondary psychiatric morbidity is relatively common among patients visiting the dermatologists but often overlooked and uncared for. Dermatologist should be able to initiate basic pharmacotherapy, should be knowledgeable about various non-pharmacological treatments and know the right time to refer the patient to the psychiatrist. Awareness and pertinent treatment of psychodermatological disorders among dermatologists will lead to a more holistic treatment approach and better prognosis in this unique group of patients.

Key words: Dermatitis artefacta, depression, psychodermatology, psychopharmacotherapy, primary psychodermatological disorders

INTRODUCTION

Psychodermatology or psychocutaneous medicine encompasses disorders prevailing on the boundary between psychiatry and dermatology. This domain of dermatology is not new, but has often received limited attention. A survey done via mail to assess the level of training regarding awareness and attitude about this condition among dermatologists revealed a clear understanding of psychodermatology in only 18%, and 39% expressed their interest and willingness to attend any kind of continuing medical education activity on psychodermatologic disorders.[1]

Approximately 30–40% patients seeking treatment for skin disorders have an underlying psychiatric or a psychological problem that either causes or exacerbates a skin complaint.[2] Ample evidence in literature suggests that the course of many skin disorders is affected by stress and psychological events.[3,4] Disfiguring dermatological conditions often run a chronic course, resulting in profound psychological morbidity, leading to secondary psychiatric disorders (SPsD).[5] These patients need to be addressed with a special approach assisting their psychological need, pharmacotherapy for their psychiatric morbidity, and skin disease; hence, a complete holistic treatment approach to the patient.

The aim of this review was as follows:

- The dermatologist should be able to identify a primary psychiatric disorder (PPsD) with its cutaneous manifestations, assess the extent of role of psychological state influencing the psychophysiologic disorders, and be able to gauge the secondary psychological morbidity in chronic dermatoses.
- Dermatologist should be able to initiate non-pharmacological as well as basic pharmacological treatment for various psychodermatological disorders and must know the ideal time to refer the patient to psychiatrists and the importance of counseling the patient prior to referral.

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PATHOGENESIS

The complex interrelationship between mind and skin has been investigated at both molecular and cellular levels and has been studied extensively. It has been recorded that patients with depression suffer more from physical illness and patients with chronic illness suffer more often from major depressive illness, suggesting that the state of mind has a marked bearing not only on how an illness is perceived but also on its severity and content.[6,7]

Brain, nerve, and skin are embryologically derived from the neural plate in the ectoderm. The neuro-immuno-cutaneous-endocrine model was proposed by O'Sullivan *et al.*,[8] to explain the mind and body relationship. It forms the basis of many inflammatory cutaneous dermatoses that are triggered or exacerbated by psychological factors. These organs share a complex language of neuropeptides, cytokines, glucocorticoids, and other effecter molecules [Figure 1].[8-11] Hypothalamic pituitary axis (HPA) responds to psychological stress with upregulation of stress hormones (corticotrophin-releasing hormone, adrenocorticotropin releasing hormone, cortisol, and prolactin), sympathetic nervous system activation leading to elevated catecholamine levels, and the release of neuropeptides and neuromediators (substance P and calcitonin gene-related peptide). Skin mast cells are an important target of key stress hormones and mediators, and their activation leads to immune dysregulation and various skin disorders. Arc *et al.*,[11] suggested that skin is exquisitely well innervated and has its own neuro-endocrine system equivalent of the HPA axis local stress response system, which is tightly linked to systemic neuro-endocrine axis. Suarez *et al.*,[12] described in detail the role of psychoneuroimmunology of stress in the pathogenesis of atopic dermatitis.

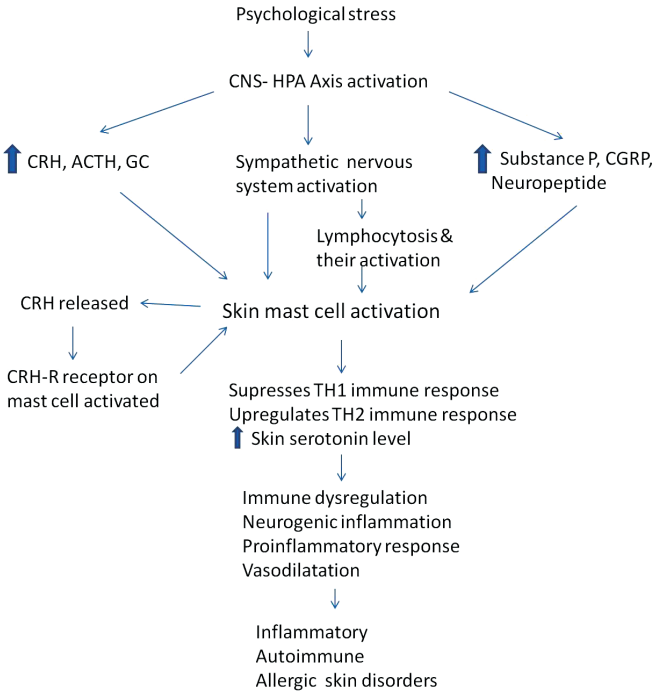

Figure 1: Flow-chart describing interplay of various factors leading to skin disorders originating from psychological stress

The term and concept of alexithymia introduced by Nemiah and Sifneos[13] is characterized by reduced symbolic thinking, a poor fantasy life, and a limited ability to identify and verbally express emotions, which results in altered physiologic and immune body responses.[14] Various studies have reported a high incidence of alexithymia in alopecia areata (58%),[15] psoriasis (35%),[16] chronic urticaria (50%),[17] and vitiligo (35.5%).[18]

Epigenetics is a new concept in the arena of psychiatry that suggests novel pathophysiology and entirely new approach to prevention and treatment of various psychosomatic disorders.[19] Epigenetics suggests that there is a regulation of gene expression via molecular mechanisms (DNA methylation, histone modification, and microRNA dysregulation) in response to environmental stimuli, drugs, and chemicals and that epigenomes reside at the interface between genome and the environment. This field is still in its infancy, but has added newer dimension to our understanding of comorbidity and multimorbidity in psychosomatic medicine. It has great potential to explain how external factors can affect our genes and possibly lead to various diseases.

CLASSIFICATION

Psychodermatologic disorders can be classified under three broad categories[20]: Psychophysiologic disorders, PPsD, and SPsDs.

PSYCHOPHYSIOLOGIC DISORDER

Psychophysiological disorders are those in which the course of a given skin disease is affected by the psychological state of a patient. These disorders are often precipitated or exacerbated by emotional stress and/or anxiety in a significant number of cases [Table 1].[21-28] Other skin disorders exacerbated by stress are atopic dermatitis, mucocutaneous herpes

simples infection, hyperhidrosis, and chronic telogen effluvium.

While dealing with these patients, dermatologists should always try to ascertain the extent of role played by psychosocial and occupational stress in a given case to prevent the vicious cycle of stress-disease exacerbation and, finally, deterioration of the primary disease.

These patients generally have a good insight into their diseases, but most are unable to decipher the role of psychological factors on their skin disease. Non-pharmacological as well as pharmacologic therapy such as with benzodiazepines (BDZ) and selective serotonin reuptake inhibitors (SSRIs) are helpful. In non-responders, a psychiatric referral is required and the goal and expected benefit must be discussed with the patient before the referral.

PRIMARY PSYCHIATRIC DISORDERS

PPsD are uncommon, the primary pathology is in psyche, and skin complaints are self-induced and secondary. Dermatologist plays an important role in these disorders, initially to suspect and establish the diagnosis and later to provide appropriate management. Table 2 lists the main group's of PPsDs. Sometimes diagnosis is easy and straight forward, but few PPsD's may mimic cutaneous disorders; hence, a high degree of suspicion is required to arrive at a proper diagnosis. These patients often have an underlying psychological functional problem such as delusion, obsessive compulsive disorder (OCD), anxiety, depression, impulse control disorder, and personality disorder, which is essential to be identified and managed accordingly. In addition, the supportive skin therapy must be given.

Table 1: Percentage of patients reporting exacerbation with stress

Disease	% of patients
Psoriasis[21,22]	54–60
Acne[23]	50
Alopecia areata[24]	60
Rosacea[25]	58
Urticaria[26]	16
Pompholyx[27]	17
Vitiligo vulgaris[28]	47

Table 2: List of primary psychiatric disorders

Disorder of dermatological beliefs	Delusion of parasitosis
Disorder of body awareness	Body dysmorphic disorder, anorexia nervosa
Impulse control disorder	Trichotileomania, neurotic excoriations, acne excoriee, neurodermatitis, onychotillomania, prurigo nodularis
Factitious skin diseases	Dermatitis artefacta, dermatitis simulata, dermatitis passivata
Psychogenic pruritus	
Cutaneous phobias	Mole phobia, venereophobia, wart phobia, and steroid phobia
Atypical pain disorder	Glossodynia, vulvodynia, scrotodynia, anodynia

DISORDER OF DERMATOLOGICAL BELIEFS

Delusion of parasitosis

Delusion of parasitosis (DP), also known as Ekbom's Syndrome, is a rare disorder whose exact prevalence is unknown. DSM-IV-TR defines it as a delusional disorder of somatic type. Hebbar *et al.*,[29] found it to be the most common subtype of delusional disorders. Among 4234 psychiatry outpatients, 1% and 0.5% had delusional disorders and delusional parasitosis, respectively. Here, the patient develops an impervious delusional belief that their bodies are infested with parasites. The underlying psychiatric problem is a "monosymptomatic hypochondriacal psychosis."

Characteristic profile is a middle aged/elderly females presenting in anxious, ruminative, and overwhelmed state after having visited several doctors without satisfaction. The patients narrated about visual and tactile hallucinations of the parasites crawling, burrowing, and biting all over their body. Excoriations are usual and, sometimes, extensively produced in an attempt to extricate the organism. They often presented an evidence of parasite infection in the form of clothing lint, skin crust, or debris, which were misinterpreted as parasite parts, larva, ova, or the entire organism. Morgellons disease has drawn a lot of media attention, but it is largely considered a manifestation of DP by both the dermatologists and psychiatrists.

At the outset, actual infestation must be ruled out first. The differential diagnosis includes psychiatric disorders such as schizophrenia, psychotic depression, psychosis episode in a maniac patient, formication without delusion, organic causes such as withdrawal from cocaine, amphetamines or alcohol, vitamin B12 deficiency, multiple sclerosis, syphilis, and cerebrovascular disease.

These are difficult patients and the dermatologists must express concern, lend a sympathetic ear, and examine the material brought by the patient to establish a good relationship with the patient. Then, the attendants/family of the patient should be counseled regarding the patients illness. Antipsychotic medication can be started by the dermatologist in consultation with psychiatrist before referral.

DISORDER OF BODY IMAGE

Body dysmorphic disorder

Body dysmorphic disorder (BDD), also known as dysmorphophobia or dermatological non-disease, is a disorder characterized by distortion of psychological body image. A patient is preoccupied and distressed with an imagined defect in appearance or an excessive concern over a trivial defect. BDD is defined in DSM-IV and classified as a somatoform disorder. There is an underlying co-morbid mental disorder including mood disorders such as depression, OCD, social phobia, and/or avoidant personality disorder. The intensity with which the patients hold on to their abnormal beliefs is variable. In some patients, the belief is of delusional intensity, then it is classified under psychotic disorders.[30]

Recent evidence suggests that BDD is not very uncommon, having prevalence in many studies varying from 0.75% to 12%.[31,32] Most patients are females in their 30's.[31] These patients are rich in symptoms, while poor in signs of organic skin disease. Women present with complaints related to mainly face, breast, hair, nose, and stomach, while men presented with concern related to hair, nose, ear, genitals, and body build.[33] Their thoughts dominated the mind, leading to distress, poor self esteem, and impairment in social, occupational, and domestic functioning. They often perform repetitive compulsive behavior to hide their imaginary/trivial defect. BDD patients are doctor shoppers, they repeatedly undergo procedures to find solution for their flaws and majority are dissatisfied with results and consultation.[34,35] Suicidal ideation and suicide attempts are common in BDD patients, with studies showing a rate of attempted suicide to the tune of thirty percent.[36] There are two types of patient with BDD: those with insight and those without. Often, those without insight are also diagnosed with delusional disorder, somatic type.

Management of BDD is extremely difficult, every attempt to explain the trivial nature of skin complaints is futile.[37] Most difficult task is to shift the focus from the primary dermatological illness to the one that requires psychiatric treatment. The approach to patients with insight is much like those with trichotillomania, and these patients are relatively easy to manage; they are open to discussion, continue with their medications, and have behavioral modifications unlike those without insight and who are difficult to manage and are treated on the lines of DP.

IMPULSE CONTROL DISORDERS

Trichotillomania

The term trichotileomania (TM) literally means a morbid craving/impulsivity to pull out hairs. It is one of the types of traumatic alopecia. The revised DSM-IV diagnostic criteria suggested for TM are:[38] (A) Recurrent pulling out of one's own hair resulting in hair loss, (B) an increasing sense of tension immediately before pulling out the hair or when attempting to resist the behavior, (C) pleasure, gratification, or relief when pulling out the hair, (D) the disturbance is not better accounted for by another mental disorder, and (E) the disturbance provokes clinically marked distress and/or impairment in occupational, social, or other areas of functioning.

The exact incidence in the general population is not known. In a questionnaire-based survey among college students, incidence was found to be 0.6% among male and female students.[39] There is evidence of bimodal age distribution. Two distinct populations include childhood cases presenting between 5–15 years with a good prognosis and adult cases presenting in later life with a relatively poorer outcome.[40,41] TM is seven times more common in children as compared to adults.[42] Childhood cases are habitual disorders with no serious psychopathology, sometimes associated with nail biting and thumb sucking.[43] In adults, there is female preponderance, more diversely associated with depression, anxiety disorder, and OCD.[44,45]

Hair plucking is most common from the scalp and rarely from eyebrows, eyelashes, pubic hair, and torso hair.[44-46] Hair loss may be minimal to extensive. Typically, hairs are short, broken, irregular in length, distorted, and feel like stubble. The patterns of plucked hair are varied [Figures 2 and 3]. In adults, especially, the loss of hair has psychosocial effects and patients devise means to disguise this defect. Plucked hairs may be stroked, licked, and sometimes swallowed (trichophagia), leading to trichobezoar.[47]

Diagnosis is primarily clinical, but scalp biopsy can be done in ambiguous cases.[48] There will be normally growing hairs amongst the empty anagen hair follicles in a non-inflamed dermis. Trichomalacia (distorted and curled hair bulb), bizarre fractured hair shafts, pigment casts, and perifollicular hematoma are fairly specific for TM.

Management in these cases is directed by the age of the patient.[49,50] Childhood cases have good prognosis. Identification of the stressor, parent education, behavior modification help pre-schoolers to eventually "grow out" of this condition.[51] In adolescents and young adults unaware of their hair pulling, information/awareness of the diagnosis helps in persuading them to seeing a psychiatrist/psychologist and engaging in non-pharmacological management such as cognitive behavioral therapy (CBT). Reassurance that normal hair regrowth is possible if the hair is left alone is also important. Pharmacological management is discussed under the section on treatment.[52,53]

NEUROTIC EXCORIATIONS

Neurotic excoriations or pathological skin picking is characterized by an unfounded, untamable urge to scratch the skin accompanied by visible tissue damage and functional impairment.[54] There is female preponderance and average age of onset varies between 30 and 50 years.[55] The exact pathophysiology is elusive; however, psychosocial stress precedes exacerbation in around 30–90% cases.[56,57] There is a compulsive quality and the associated psychological co-morbidity commonly is depression.[54-56]

The picking can target real blemishes or imaginary flaws. It can involve picking, pulling, poking, prodding, squeezing, or tearing of the skin. It can be episodic, irregular, or constant. Patients pick at areas until they can pull the material out of the skin, also referred as "pulling a thread from the skin." Patients admit to an urge to pick and gouge (unconscious or deliberate) at their skin unlike patients with dermatitis artefacta.

The lesions are polymorphic. Newer lesions are angulated excoriated crusted erosions, while older lesions have depigmented scarred center and hyperpigmented periphery [Figure 4]. Lesion number vary from few to hundred and are in all stages of development. Prurigo nodularis is an extreme variant of this entity. Distribution of the lesions reflects their self-inflicted nature with lesions concentrated over the most accessible sites.

Neurotic excoriation is differentiated from dermatitis artefacta by its conscious and compulsive nature. However, patient should be evaluated for all cutaneous and systemic causes of pruritus before making this diagnosis. Supportive psychotherapy, CBT, and habit reversal programs along with anti-depressants help all patients.[57-59]

ACNE EXCORIEE

Acne excoriee is a variant of neurotic excoriation where patients either have only facial or predominant facial involvement. Few patients develop lesions after picking acne lesions while majority did not have acne at any time.[60] It is commoner in females with a mean age of 30 years.[60,61] Psychiatric comorbidity includes BDD, depression, anxiety, OCD, delusional disorder, personality disorder, and social phobias.

Lesions morphologically resemble chronic excoriation or neurotic excoriations and are found predominantly distributed around the hairline, forehead, preauricular cheek, and chin areas [Figure 5]. If the patient has concomitant acne, aggressive treatment with systemic antibiotic and or systemic retinoids must be considered. Topical non-irritating anti-acne drugs should be prescribed. Rest of the treatment is on the lines of treatment of neurotic excoriation.

FACTITIOUS SKIN DISEASES

Factitious disorders (ICD-10: F 68.1, L98.1; DSM-IV, 300.16/300.19) are defined as self-harming behaviors that directly or indirectly cause subjective, clinically-relevant harm without being directly linked to suicidal intent. The current classification differentiates between four groups:

1. Dermatitis artefacta syndrome — as unconscious/dissociated self-injury,
2. Dermatitis paraartefacta syndrome: Disorders of impulse control, often as manipulation of an existing specific dermatoses (often semi-conscious, admitted self-injury),
3. Malingering: Consciously simulated injuries and diseases to obtain material gain,
4. Special forms, such as the Gardner Diamond syndrome, Münchausen syndrome, and Münchhausen by Proxy syndrome.

DERMATITIS ARTEFACTA

Dermatitis artefacta (DA) is a skin disease caused by the deliberate action of a fully aware patient on skin, hair, nails, or the mucosa. The DSM-IV-TR criteria for factitious disorder include:[38]
a) Intentional feigning of physical or psychological signs or symptoms, b) The motivation is to assume the sick role, c) External incentives for the behavior (such as economic gain, avoiding legal responsibility, or improving physical well-being, as in malingering) are absent.

Onset in majority is during adolescence or in adults <30 years of age.[62-65] The female to male ratio varies between 20:1 to 4:1, while in children, there is equal sex incidence.[62-65] Although reported to be more common in health care workers and their families, recent studies do not suggest the same.[62-64]

The pathophysiology of DA is poorly understood, but may be multifactorial including complex interplay by genetics, psychosocial factors, and personal/family history of psychiatric illness.[62,63] The underlying psychopathology is assuming a sick role. Affected children have anxiety disorder or immaturity of coping styles in response to dysfunctional parent-child relationship, bullying, sexual, and substance abuse.[65] Adults may be neurotic, depressed, hysterical, or paranoid personality disorder patients.

The two characteristics of DA are the physical signs and the fabrication. The most common site of involvement is face, followed by dorsum of hands and forearm.[63-65] The lesions are polymorphic, bizarre, clearly demarcated from the surrounding normal skin and can resemble many inflammatory reactions in the skin. They are crude, angulated, and have the tendency for linear configuration. They are produced by every known means of damaging the skin.

Self-inflicted chemical burn may show a "drip sign." Punched-out necrotic areas or uniform circular blisters or erosions are typical of cigarette burns. Oedema of limbs from tied bands is described as Secretan's syndrome.[66] Dramatic dermal induration and necrosis occur from foreign body injection of milk, oil, or grease into breasts, thighs, abdomen [Figure 6], and penis[67] The other common presentation is chronic, non-healing infected wounds.[68] Infectious complications are of serious nature and sometime supervene.[69]

A patient is unable to provide clear history of evolution of the lesions and typically denies any role in the production of the lesions.[70] Lesions evolve overnight without prior signs and symptoms.

In dermatitis simulata, the patient uses external disguise to simulate a disease, and there is no significant damage to the skin. Make-up has been used to simulate a rash or a birthmark,[71] and topical printing dyes has been used to produce a discolored sweat.[72]

Bizarre crude presentations are easy to diagnose. At times, lesions mimic specific dermatosis, where a skin biopsy must be considered. DA lesions histopathology is usually non-specific, but can sometimes provide supportive information.[73]

Doctor should avoid immediate confrontation regarding the suspicion that the lesions are self-inflicted.[74,75] This can be counter-productive and the patient may flee from the treatment. Clinician needs to build-up a relationship with the patient by frequent visits, symptomatic treatment, and gradually explore the complex personality and behavioral derangement that underlies this condition.

Munchhausen syndrome is a special form of factitious disorder in which the affected person feigns disease or illness to draw attention or sympathy. Dermatological complaints are uncommon in this syndrome.

PSYCHOGENIC PRURITUS

Psychogenic pruritus (PP) is a poorly defined entity in which the patient has intractable or persistant itch, not ascribed to any physical or dermatological illness. Misery *et al.*,[76] have proposed diagnostic criteria [Table 3]. There are three subtypes of PP [Table 4].

Pruritic episodes are unpredictable with abrupt onset and termination, predominantly occurring at the time of relaxation. PP can be generalized or localized. The commonest sites of predilection are legs, arms, back, and genitals. Often there is history of a major psychological stress preceding the onset of PP.[77] A significant number of patients have associated anxiety and or depression.[78] Detailed cutaneous and systemic examination and routine baseline investigation should

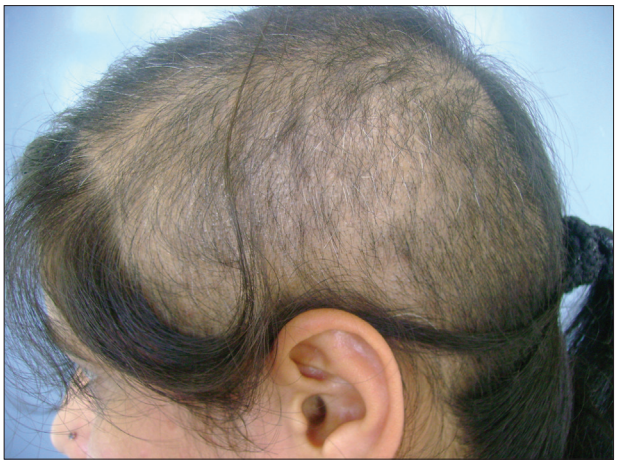

Figure 2: Extensive scalp involvement in trichotillomania

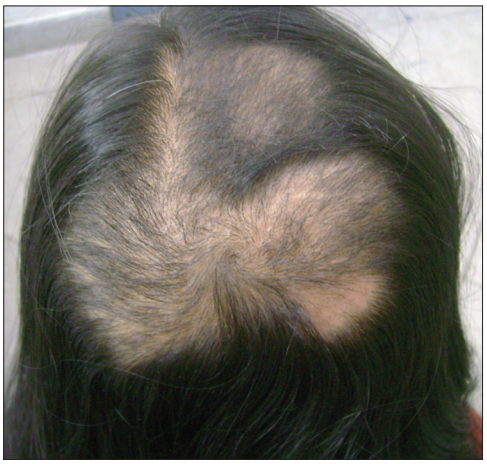

Figure 3: Bizzare pattern of trichotillomania

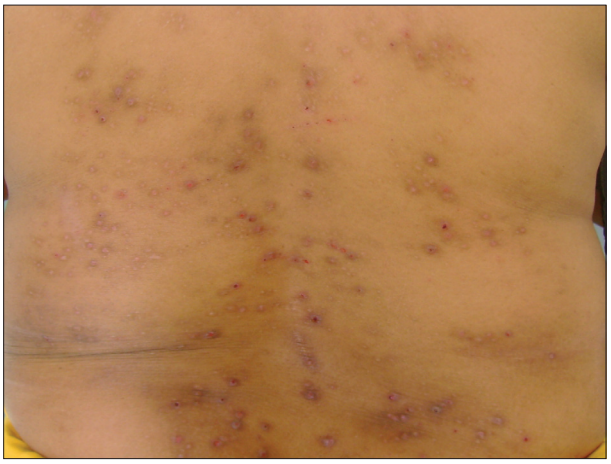

Figure 4: Neurotic excoriation over back with depigmented center and hyperpigmented periphery

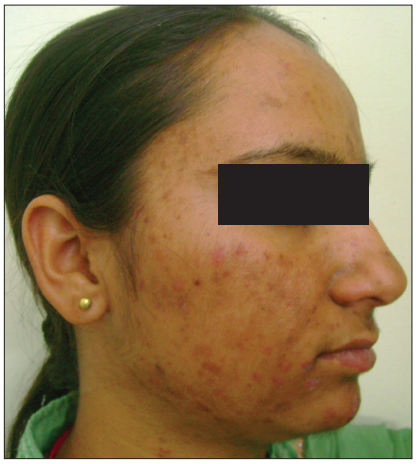

Figure 5: Acne excoriee

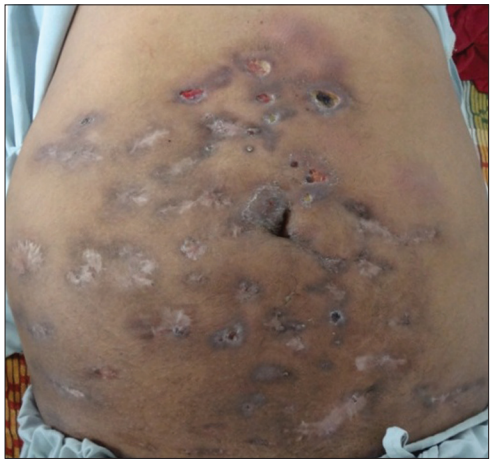

Figure 6: Dermatitis artefacta following subcutaneous injections with pentazocin mimicking atypical mycobacterial infection

be performed to rule out cutaneous and systemic causes of pruritus before diagnosing PP.

Brief salient features of other PPsD are summarized in Table 5.

Table 3: Diagnostic criteria for psychogenic pruritus[76]

Three compulsory criteria are as follows:
1 Localized or generalized pruritus sine material
2 Chronic pruritus (>6 weeks)
3 The absence of a somatic cause
Three additional criteria from following seven
1 A chronological relationship of pruritus with one or several life events that could have psychological repercussions
2 Variations of intensity associated with stress
3 Nocturnal variation
4 Predominance during rest or inaction
5 Associated psychological disorders
6 Pruritus that is improved by psychogenic drugs
7 Pruritus that is improved by psychotherapy

DISSOCIATIVE SOMATIZATION

Symptoms with no explainable underlying physical pathology are commonly encountered in clinical practice such as unexplained cutaneous sensory

syndromes, body memories in post-traumatic stress syndrome that manifest as pruritus, urticaria, or angioedema, self-induced dermatoses such as dermatitis artefacta and trichotillomania associated with dissociative states, and BDD, when the patient has a somatic preoccupation involving the skin or hair.[79] About 20% patients of acne, have aspects of BDD. These patients are more responsive to active non-pharmacological treatments such as exercise and psychotherapy as compared with pharmacological treatment. Drugs with central nervous system action generally are more effective than those that affect peripheral physiologic function.[80]

It should be emphasized that psychiatric referral and consultation should be attempted whenever feasible. Yet, for a significant proportion of patients who refuse psychiatric referral, the judicious use of psychotropic medications by dermatologists may provide much needed assistance in the recovery. However, frequent and regular follow-ups of these patients are required to evaluate clinical response or worsening and adverse effects.

Table 4: Subtypes of psychogenic pruritus

Compulsive type	Impulsive type	Mixed type
Skin excoriation performed to avoid anxiety or to prevent a dreaded event elicited by obsession	Skin excoriation linked with arousal, pleasure, or reduction of tension	Features of both the other types are present
Executed in full awareness	Executed at times with minimal awareness (automatically)	–
Associated with some resistance to behavior	Resistance is lesser	–

SECONDARY PSYCHIATRIC DISORDERS

Skin disorders are rarely life threatening, but are associated with significant morbidity and bearing on the quality of life. Overall prevalence of psychological disorders among patients with skin disease is 30–60%.[2] Skin problems, especially chronic skin diseases, affecting exposed body parts because of the visibility and resultant disfigurement lead to embarrassment, depression, anxiety, poor self image, low self esteem, and suicidal ideation in the patients.[81-83] Also, patients have to commonly face social isolation and discrimination and, at times, have difficulty getting jobs.[84] Many patients are able to cope up with the disease while few develop secondary psychiatric morbidity.

When skin patients were screened for depression, the prevalence of major depressive disorder was found to be 8.4%.[5] The study by Gupta and Gupta showed the prevalence of suicidal ideation as 5.5% and 5.6% in severe psoriasis and acne patients, respectively.[85] Alcohol abuse is more common in psoriasis patients and the amount of daily intake correlates with the severity of psoriasis and its poor response to treatment.[86,87]

Table 5: Salient features of other primary psychiatric dermatoses

PPsD	Underlying psychiatric problem	Clinical feature	Main treatment
Anorexia nervosa	Body image distortion with dread of fatness and refusal to maintain a healthy body weight	Two types: restrictive type and purging type. Weight and height less for age, BMI <17.5 kg/m^2, Xerosis, angular cheilitis, hair loss, nail fragility, acneiform eruption, aphthae, generalized pruritus, follicular hyperkeratosis, hyperpigmentation, cutaneous signs of vitamin deficiencies, amenorrhoea	Refer to psychiatrist
Neurodermatitis	Anxious individuals with itch-scratch cycles	Nape and sides of neck, elbow, thigh, knees; lichenified papules and nodules forming plaque	Antihistamines, TCI antidepressants
Onychotillomania	Abnormal stress response or developmental problem in children; in adults, isolated self destructive habit	Children and adolescents common, compulsive nail biting, tearing and picking, nail dystrophy, paronychia, damaged cuticles	Same as TM
Dermatitis passivata	Self neglect as patient are paranoid or mood disorder or temporofrontal dementia	Elderly patient; accumulation of keratin and debris over chest, back that form thick carapace with time	Specialist psychological therapy is required
Cutaneous phobias	Irrational obsessional fear which causes anxiety	Fear of contamination (wart, germ phobia), fear of malignancy, fear of emotional display (flushing, sweating)	Psychotherapy
Atypical chronic pain/burn syndrome	Comorbid affective disorder, personality vulnerability, anxiety, depression	Pain/burning/dysesthesias in skin or mucous membrane with no identifiable pathology	SNRI milnacipran is DOC, antipsychotics, gabapentin

DOC: Drug of choice

Mattoo *et al.*,[88] found 25% of vitiligo patients to have psychiatric morbidity. Majority of the cases had a diagnosis of adjustment disorder. In another study, General Health Questionnaire (GHQ) assessed psychiatric morbidity rates at 33.63% and 24.7% for vitiligo and psoriasis, respectively.[89] Adjustment disorder (56% vs 62%), depressive episode (22% vs 29%), and dysthymia (9% vs 4%) were the most common psychiatric disorders in vitiligo and psoriasis patients, respectively.

Dermatologist should look into this aspect of chronic disfiguring dermatoses. Most of the time, patients do not discuss the psychological effects of their disease with the treating physician. If the dermatologist suspects significant secondary psychological morbidity then interrogation, counseling, psychiatric referral, and help of dermatologic support group [Table 6] should be sought.

MANAGEMENT OF PSYCHOCUTANEOUS PATIENTS

Most of the patients with psychocutaneous disorders can be broadly categorized under four diagnoses: (a) Anxiety, (b) depression, (c) psychosis, and (d) OCD.

The choice of a psychotropic medication is based primarily on the nature of the underlying psychopathology. The initial and the most important step in successful management of these patients are to establish rapport. It is important to recognize that the patient expects the clinician to treat him or her as having a bona fide skin disease, rather than a psychiatric condition. Patients with psychophysiological disorders or SPsDs usually welcome an opportunity to discuss their psychological status, but patients with PPsDs are extremely resistant to it.[90] It is necessary to start both somatic (i.e., dermatologic) and psychotropic treatment simultaneously in these patients. In PPsD, psychotropic therapy is the mainline of treatment and somatic modalities are supportive. For secondary psychiatric cases, the approach is treating the dermatoses by using a potent therapeutic option because of the great emotional distress suffered by the patient such as the use of isotretinoin for borderline acne with severe psychosocial or occupational impact although there is much debate over the potential psychiatric side-effects of oral isotretinoin as a recent systemic review did not find any conclusive evidence for such an association.[90]

Table 6: Various international groups on psychodermatology

International and national groups and societies	Website
Association for Psychocutaneous Medicine of North America APMNA	
German Working Group on Psychodermatology (APD = Arbeitskreis Psychosomatische Dermatologie)	http://www.akpsychderm.de
European Society of Dermatology and Psychiatry	http://www.psychodermatology.net/index.asp
Societè Francophone de Dermatologique Psychosomatique,	http://www.ifts.be/index.php
Japanese Society of Psychosomatic Dermatology	
National Psoriasis Foundation	http://www.psoriasis.org
National Alopecia Areata Foundation	http://www.alopeciaareata.com
National Vitiligo Foundation	http://www.vitiligofoundation.org
Obsessive-Compulsive Foundation	http://www.ocfoundation.org
National Eczema Association for Science and Education	http://www.eczema-assn.org

Management includes standard psychotropic drugs, placebo effect, suggestion, cognitive-behavioral methods, biofeedback, and hypnosis. Whenever simple measures fail to produce the results desired, combination of drugs or an addition of non-pharmacological therapy may be required. Psychophysiological skin disorders respond to non-pharmacological therapies that counteract stress, supplemented by anxiolytics, or antidepressants when indicated. Treatment of PPsDs that affects the skin often results in improvement of the associated skin disorders.[90,91]

ANXIETY

Therapeutic modalities for anxiety include BDZ, non-BDZ, and CBT. Risk of dependence on BDZ is quite high; hence, they are indicated only for short-term treatment (2–4 weeks) for severe and disabling symptoms and should be avoided in milder forms. Diazepam, alprazolam, chlordiazepoxide, and clobazam are longer-acting drugs. Lorazepam and oxazepam are shorter-acting compounds with a greater risk of withdrawal symptoms and addiction.

Non-BDZ used in the treatment of anxiety are selective SSRIs (citalopram escitalopram, paroxetine), serotonin–norepinephrine reuptake inhibitors (SNRIs) (venlafaxine XL, duloxetine), antihistamines (hydroxyzine), beta-blockers (propranolol), and the antiepileptic pregabalin [Table 7]. Antidepressants

and pregabalin are non-addictive, but those with a short half-life (paroxetine) may cause discontinuation symptoms when they are stopped abruptly. In the treatment of anxiety, SSRIs may have to be used in a

Table 7: Psychopharmacology: Commonly used medicines in treating patients with psychocutaneous disorders

Category	Drug	Dose	Common side effects	Comments
Benzodiazapines	Lorazepam Diazepam	0.5–2 mg/day 15–30 mg/day in divided doses	Sedation, physical dependency, potential risk of addiction with long-term use, try to limit the duration to 3–4 weeks Do not stop suddenly and without titrating to avoid the recurrence of anxiety or even rebound anxiety	Oxazepam should be considered in patients with hepatic impairment at 15–30 mg, daily, in divided doses
Buspirone	Acts on 5HT1a receptors	5 mg, 2–3 times daily, increased to maximum 45 mg daily	Nausea, dizziness, headache, nervousness, excitement, chest pain, confusion, seizures, fatigue, and sweating	Slow onset of action, not appropriate for the treatment of acute situational stress performance of skilled tasks may be affected. Short term use
Propranolol	Beta-blocker	40 mg, once daily, increased to 40 mg, three times, daily	Bradycardia, GI disturbances, hypotension, bronchospasm, fatigue, purpura, exacerbation of psoriasis, alopecia, rarely rashes and, dry eyes	Does not affect psychological symptoms of anxiety. Only reduces autonomic arousal such as palpitations and tremor
Hydroxyzine	Antihistamine	50–100 mg, daily, 4 times, daily	Drowsiness, paradoxical stimulation, headache, psychomotor impairment, antimuscarinic effects such as urinary retention, dry mouth	Urinary retention, angle closure glaucoma, acute porphyria
Gabapentin	Antiepileptic	Start at 300 mg at bedtime for 1 week, titrate to 300 mg b.i.d. for a week, titrating up as indicated		More rapid onset of action than buspirone and less rapid than benzodiazepines and also has a lower potential for abuse
Pregabalin	Antiepileptic	200–450 mg daily with a maximum of 600 mg daily	Dry mouth, constipation, nausea, vomiting, flatulence, oedema, dizziness, drowsiness, and memory impairment. Rarely Stevens–Johnson syndrome and pruritus	Avoid abrupt withdrawal, caution in congestive heart failure, renal impairment and pregnancy. Often shows a rapid onset of effect
Antidepressants				
SSRI	Escitalopram	10 mg once daily increased to a maximum 20 mg daily	Nausea, vomiting, dyspepsia, abdominal pain, diarrhea, increased agitation, insomnia, hyponatraemia	Abrupt withdrawal can lead to discontinuation symptoms such as headache, anxiety, dizziness, paraesthesias, sleep disturbance, influenza-like
	Paroxetine	20 mg once daily to a maximum of 50 mg daily	Same as above	Same as above, particularly prone to discontinuation symptoms because of short half-life
	Fluoxetine	20 mg daily, increased after an interval of 3–4 weeks to a maximum of 60 mg daily.	Same as above	More likely to produce anxiety and insomnia than the other SSRIs
	Sertraline 50–200 mg daily	50–200 mg daily	Same as above	
SNRI	Venlafaxine XL	Two formulations: immediate release and extended release.75–150 mg once daily, higher doses have not been proven to be more effective	Gastrointestinal, palpitations, nausea, sweating, increased BP	Discontinue if no response in 8–12 weeks
SNRI	Duloxetine	Starting from 30 mg once daily up to a maximum of 120 mg/day	Same as in venlafaxine, but nausea is very common	
NaSSa	Mirtazapine	15 mg at night, increased within 2–4 weeks according to response; maximum 45 mg daily as a single dose at night or 2 divided doses	Increased appetite and weight gain, oedema, sedation	Sedation occurs from 15 mg onwards and, being a strong side effect, it may be helpful in nocturnal pruritus

Table 7: *Continued*

Category	Drug	Dose	Common side effects	Comments
TCA and related medications	Amitriptyline	75 mg at night to 150–200 mg daily	Cardiac conduction disturbances (prolong the QT interval), weight gain, orthostatic hypotension, and anticholinergic adverse effects	
	Imipramine	75 mg daily to be increased to 150–200 mg daily		TCA overdose can be fatal. Caution in patients with a history of seizure disorder or manic-depressive disorder because it can lower the seizure threshold and precipitate a manic episode. Possibility of suicide with an overdose of TCA, it is good practice to see these patients frequently, on a weekly basis
	Doxepin	Start with 25 mg at bed time and titrate to 75 mg daily (usual maintenance dose 30–300 mg daily).		Doxepin is very useful in agitated depression esp due to its sedating, calming and antipruritis effects
Antipsychotics				
	Risperidone	Start with 0.25–0.5 mg bed time and increased up to 4 mg/day	Sedation, anxiety, dizziness, and rhinitis. fatigue, accommodation disturbance, prolongation of QT interval	Safe in elderly as it is the only currently available atypical antipsychotic with minimal anticholinergic effects (e.g., dry mouth, blurry vision, urinary hesitation, and constipation)
	Olanzapine	Start with 5–10 mg/ day. Titrate the dose to 10–15 mg/day; effective dose for treatment of psychosis.	sedation, anticholinergic effects, and weight gain. Development of metabolic syndrome, onset of diabetes type II, significant weight gain, and hyperlipidemia	Although very effective in delusions of parasitosis, not the first line agent due to side effect profile
	Quetiapine	Start at 25 mg twice daily. The usual effective dose is 150– 750 mg/day for treatment of psychosis.	Minimum side effects as compared to other antipsychotics	
	Aripiprazole	10 mg/hs	Least incidence of EPS, weight gain/metabolic syndrome and no anticholinergic properties	
	Ziprasidone	40 mg bd	Least incidence of EPS, weight gain and, no anticholinergic properties	

BP: Blood pressure, GI: Gastrointestinal, SNRI: Serotonin and norepinephrine reuptake inhibitor, SSRI: Selective serotonin specific reuptake inhibitor

dose higher than that used in depression. Occasionally, an increase in anxiety symptoms may be observed for 1 week when the SSRIs are initiated.[90,92]

DEPRESSION

Depression can be a PPsD or secondary to dermatological condition. Treatment depends on the severity of symptoms; in cases with mild symptoms, if a patient does not wish treatment then watchful waiting or CBT is recommended. Moderate symptoms can be managed with SSRI and CBT. But in cases with severe symptoms and suicidal ideation admission, antidepressants with possibly electroconvulsive therapy (ECT) are recommended.[93]

Currently available antidepressants are equally effective. The clinical response is gradual and usually begins 2–3 weeks after the therapeutic dosage is reached, but for complete therapeutic effectiveness minimum of 6 weeks of full-dose treatment is required. Side-effect profiles and toxicity vary substantially, thus the choice of antidepressant medication depends primarily on tolerability and safety.[90,92] The antidepressants can be broadly classified as in Table 7.

ANTIPSYCHOTICS

Antipsychotics are used in the therapy of psychocutaneous disorders such as delusions of parasitosis, dermatitis artefacta, and monosymptomatic

hypochondriasis [Table 7]. Compliance is the most challenging aspect in the management of these patients, as they lack insight. It is difficult to convince them to participate in a behavioral modification or to seek psychiatric advice. Therefore, the goal of the dermatologist is not to relieve the patients of their delusion, but to help them function better with the delusion.

Second-generation antipsychotics are considered the treatment of choice for patients with psychosis, because of a better side effect profile and compliance. The main side-effects of these agents are sedation and weight gain; however, aripiprazole and ziprasidone are least likely to cause these effects. Risperidone and olanzapine are useful in patients who are rapidly deteriorating or have a severe negative effect on the quality of life.[90,92,94]

OBSESSIVE COMPULSIVE DISORDER

Disorders like BDD and impulse control disorder (acne excoree, trichotillomania, onychotillomania, neurodermatitis) are treated on the lines of OCD.

The approach to these patients is different from that of the delusional patient, and one may directly confront these patients about their activities. However, we should avoid exacerbating the existing embarrassment in patients. Initially, we should try to build a rapport with them and start by saying "many people develop a habit during stress,… some start smoking, others bite their nails,… and others pull their hair. Have you also been in any kind of stress…?" Once patients develop insight into the etiology of their problem, they are more amenable to see a psychiatrist and engage in non-pharmacological management (CBT). For patients who are unwilling or unable to initiate behavioral modification, pharmacological therapy can be helpful.[95]

Currently, three SSRIs—fluoxetine, paroxetine, and sertraline—are the first-line therapy for the management of OCD. Patients here often require higher doses and more time to respond than those with depression. Initial response to SSRI may require up to 4–8 weeks, and maximal response may take as long as 20 weeks. The response should be assessed after 6 weeks and then the dose is increased for patients with partial response. If the patient does not respond to 10–12 week at therapeutic dosage, a psychiatric referral is required. If it is not feasible then it is advisable to switch to another SSRI. Therapy should be continued for at least 6 months to 1 year once a therapeutic response is achieved.[90,92] Medications require slow tapering during discontinuation and restarted if symptoms reappear.

Behavioral modification is the cornerstone in the management of OCD, therefore, the most effective treatment is a combination of medication and CBT. However, if patients are resistant to psychiatric referral, they should be encouraged to pursue other resources such as self-help books on habit reversal training and/or self-help groups for OCD.[95]

NON-PHARMACOLOGICAL TREATMENTS

There is a significant psychosomatic/behavioral component in many dermatologic conditions hence complementary non-pharmacological psychotherapeutic interventions like biofeedback, CBT, hypnosis, placebo, and suggestion have positive impacts on many dermatologic disorders. These psychocutaneous modalities cause beneficial modification of immune, autonomic, and endocrine function leading to a decreased release of catecholamines and modification of numerous cytokines and neuropeptides. Moreover, these interventions are reported to enhance compliance with therapeutic regimens, which is a big advantage.[91]

BIOFEEDBACK

Biofeedback is a non-invasive conditioning technique with wide applications in the field of medicine. Electromyography (EMG, muscle tension) and blood flow (temperature) training are the most commonly used modalities. Patients are taught relaxation techniques and their effects can be directly observed by the patients in terms of changes in muscle tension, blood flow, heart rate, or other parameters paralleling desired improvements. Patients are often enthusiastic about this modality because the monitoring and feedback displays suggest that they are receiving a high-tech intervention. Besides the auditory or visual feedback endpoints, the patients also experience/observe enhanced feelings of relaxation, well-being, symptom reduction, and an increased patient's sense of bodily control.

Biofeedback training encompasses a wide variety of progressive muscle-relaxing techniques, autogenic training, imagery techniques, transcendental, and other meditation techniques as well as other relaxation-directed programs (i.e., breathing techniques, self-talk,

and others). Relaxation training is primarily directed at minimizing sympathetic reactivity and enhancing parasympathetic function.

Biofeedback is useful in skin disorders that have an autonomic nervous system component, [Table 8] such as biofeedback of galvanic skin resistance (GSR) for hyperhidrosis and biofeedback of skin temperature for Raynaud's syndrome. Using biofeedback, individuals may learn consciously how to alter the autonomic response and with enough repetition (20–40 sessions) may establish new habit patterns. Hypnosis or autogenic training may enhance the effects obtained by biofeedback.[91] An example of autogenic imagery training in a patient of psoriasis can be imagery focused on slowing the hyperproliferating keratinocytes by using guided imagery of a calm, serene, beachside/hill station, and the warm, sun gently soothing, and slowing his racing skin cells.

COGNITIVE BEHAVIORAL THERAPY

CBT deals with dysfunctional thought patterns (cognitive) or actions (behavioral) that damage the skin or interfere with dermatologic therapy [Table 8]. In addition to hypnosis, CBT can facilitate aversive therapy and enhance desensitization.

The various steps involved are as follows:

- First identify specific problems by listening to the patient's verbalization of thoughts and feelings or by observing behaviors
- Determine the goals of CBT such as reduction in anxiety or stop a harmful action
- Develop a hypothesis about the underlying beliefs or environmental events that precede (stimulate), maintain (reinforce), or minimize (extinguish) these thought patterns and behaviors.
- Test the hypothesis of cause and effect by altering the underlying cognitions, the behavior, the environment, or all three, and observe and document the effects on the patient's dysfunctional thoughts, feelings, and actions.
- Revise the hypothesis if the desired results are not obtained or to continue the treatment if the desired results are obtained until the goals of therapy are reached (modified from Levenson and colleagues[96]).

HYPNOSIS

Hypnosis is an intentional induction, deepening, maintenance, and termination of a trance state for a specific purpose. Hypnotic trance can be defined as a heightened state of focus that can be helpful in reducing unpleasant sensations (i.e., pain, pruritus, dysesthesias), while simultaneously inducing favorable physiologic changes. Hypnosis may improve or clear many skin disorders.[97] There are many myths about hypnosis; however, the main purpose of medical hypnotherapy is to reduce suffering, promote healing, or help the person alter a destructive behavior. Although the exact mechanism is unknown, it can help to regulate blood flow and other autonomic functions that are usually not under conscious control. The relaxation response during

Table 8: Non-pharmacological treatment modalities for psychocutaneous disorders

Biofeedback	Cognitive behavioral methods	Hypnosis
Hyperhidrosis	Atopic dermatitis	Atopic dermatitis
Raynauds phenomenon	Acne excoree	Acne excoree
Psoriasis	Factitious cheilitis	Urticaria
Atopic dermatitis	Hyperhidrosis	Onychotillomania
Lichen planus	Lichen simplex	Trichotillomania
Urticaria	Prurigo nodularis	Alopecia areata
Post herpetic neuralgia	Urticaria	Erythroderma
	Onychotillomania	Congenital ichthyosiform erythroderma of Brocq
	Trichotillomania	Pompholyx
	Body dysmorphic disorder	Hyperhidrosis
	Neurotic excoriation	Pruritus
	Needle phobia	Herpes simplex
		Warts
		Vitiligo
		Glossodynia
		Post herpetic neuralgia
		Rosacea
		Erythromelalgia
		Recurrent furunculosis

hypnosis alters the neurohormonal systems that in turn regulate many body functions. Hypnosis may be used to help control harmful habits such as scratching. It also can be used to provide immediate and long-term analgesia, reduce pruritus, improve recovery from surgery, and facilitate the mind-body connection to promote healing.

Although psychotherapeutic interventions have come of age and are being incorporated in all spheres of medicine. These non-pharmacological approaches are currently underused and underpromoted in dermatology especially in our country. Selection of patients is very important as there are subsets who are a more resistant and difficult population such as patients with personality disorders including borderline, narcissistic, and schizotypal disorders and patients with any active psychotic process. Therapeutic success in these patients is not as good as expected; however, they are often the ones in the greatest subjective distress and certainly can profit from any of the described interventions. A multipronged approach to the problem is more effective than using only one mode of treatment. While psychoactive drugs have reasonable efficacy in the areas of anxiety, depression, and psychosis, they also have significant side effects. Use of non-pharmacological therapies can often reduce the amount of conventional drugs required, thereby reducing side effects while synergistically contributing to effectiveness. All these interventions require more commitment and lifestyle changes than just swallowing a drug, but the side effects are far less and the benefits often are greater than with a drug.

COMPLEMENTARY PSYCHOCUTANEOUS THERAPIES

These include herbs and supplements, lavender oil aromatherapy, passion flower, St. John's wort, S-adenosyl-L-methionine (SAM), and melatonin [Table 9].[90,91,98,99] The role of these interventions is rather ill defined and vague. They have been used as anxiolytics, antidepressants, soporifics, and few studies have compared these with standard therapies; however, it is difficult to interpret these studies due to variable results, heterogenous designs, and end points.

Table 9: Pharmacological complementary psychocutaneous therapies

Therapy	Indications
Lavender oil aromatherapy/ magnolia bark	Anxiety
Lemon balm/passion flower	Nervousness and insomnia
St. John's wort	Depression
S-adenosyl-L-methionine (SAM)	Depression
Melatonin/valerian	Insomnia due to nervousness

An analysis of 29 clinical trials with more than 5000 patients was conducted by Cochrane Collaboration.[100] The review concluded that extracts of St. John's wort were superior to placebo in patients with major depression. St. John's wort had similar efficacy to standard antidepressants. The rate of side-effects was half that of newer SSRI antidepressants and one-fifth that of older tricyclic antidepressants.[6] The exact mechanism by which St. John's wort functions is unclear and subject to conjecture. It's mechanism is believed to involve inhibition of serotonin (5-HT) reuptake, much like the conventional SSRI's. The major active antidepressive constituents in St. John's wort are believed to be hyperforin and hypericin. Standardized extracts are available in the form of tablets, capsules, teabags, and tinctures. Most studies of St. John's wort for treating depression used doses varying from 300–1,800 mg daily. Similarly, a meta-analysis of studies that compared SAM with controls showed significant clinical improvement with SAM similar to that of the standard SSRI treatment with fewer side effects.

CONCLUSION

We need to broaden our conception of psychocutaneous medicine. It is not just a collection of specific diagnoses, such as DP and BDD, its main concern is how we relate to our patients. The practical clinical experience in dealing with a delusional or a depressed patient teaches us volumes about these complex and difficult situations and the learning acquired in these difficult cases also extends into the daily and mundane dimensions of our practice. The more we know about psychocutaneous medicine, the better physicians we are. It is important to incorporate a psychological approach to treatment of patients with conditions like psoriasis, vitiligo, acne, or recalcitrant dermatoses.

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Multiple Choice Questions

1. The following dermatological conditions have reported high incidence of alexythymia except___
   a. Alopecia areata b. Psoriasis
   c. Chronic urticaria d. Acne

2. Which of the following is not a primary psychodermatogic disorder?
   a. Delusion of parasitosis b. Trichotillomania
   c. Post herpetic neuralgia d. Acne excoree

3. The major underlying psychiatric problem in delusions of parasitosis is___
   a. Monosymptomatic hypochondriacal psychosis b. Depression
   c. Impulse control d. Personality defect

4. Somatoform disorders related to the skin include___
   a. Unexplained cutaneous sensory syndromes b. Psoriasis
   c. Lichen planus d. Urticaria

5. Which of the following is not true for trichotillomania?
   a. Somatoform disorder b. Seven times more common in children
   c. More common in adolescents/adults d. Prognosis is poor in children

6. The DSM-IV-TR criteria for factitious disorder include___
   a. External incentives such as economic gain, avoiding legal responsibility, or improving physical well-being
   b. Intentional feigning of physical or psychological signs or symptoms
   c. Motivation is to assume a sick role
   d. b and c
   e. a and b

7. Which of the following is SNRIs?
   a. Mirtazapine b. Duloxetine
   c. Escitalopram d. Fluvoxamine

8. Olanzapine treatment carries a high risk of ___
   a. Tardive dyskinesia b. Weight gain and diabetes
   c. Sedation d. Neuroleptic malignant syndrome

9. Three compulsory criteria for psychogenic pruritus are all except ___
   a. Localized or generalized pruritus sine material b. Chronic pruritus (>6 weeks)
   c. Associated psychological disorders d. Absence of a somatic cause

10. The antipsychotic with minimum incidence of sedation and weight gain is ___
    a. Olanzapine b. Aripiprazole
    c. Resperidone d. Clozapine

Answers
1. d, 2. c, 3. a, 4. a, 5. d, 6. d, 7. b, 8. b, 9. c, 10. b