SOME POINTS ON THE NERVOUS AND PSYCHOLOGICAL ÆTIOLOGY OF SKIN DISORDER.*

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To what extent and in what proportion of cases is disorder of the mind or of the nervous system responsible for disorder of the skin?

Naturally in the time available we can only just touch on certain points: I chiefly want to discuss with you my experiences at the West End Hospital for Nervous Diseases. But before doing so I must refer to certain fundamental mechanisms by which the mind and the nervous system can react upon the skin.

When Foerster was working on his operation of division of the posterior roots to relieve pain, he noticed that stimulation of the distal end of the divided sensory nerves caused reddening of the skin in the areas supplied by them. This conforms with the clinical experience that in irritative injuries to the peripheral nerves one meets with redness and sometimes even blistering in the areas supplied. Not only does this happen when the trunk of a sensory nerve is stimulated, but reddening also occurs reflexly when the skin itself is irritated. Thus Lewis⁽¹⁾ showed that the flare, which constitutes the third component of his triple response, is due to dilatation of the arterioles and that this depends on the sensory nerve supply being intact. This reflex can be obtained even after the sensory nerve has been cut, as long as it has not degenerated. How does this reflex happen? How far up the sensory nerve does the stimulus go before it comes down again? Does it come down by the same fibres by which it went up? If the sensory fibres are themselves responsible for the efferent impulse, there is an obvious difficulty about its anti-dromic nature. These difficulties would be removed if the observations of Kuré⁽²⁾ are right, namely, that there are efferent parasympathetic fibres in the sensory nerves. We know that the sympathetic contracts the skin vessels and we would therefore expect the parasympathetic to dilate them. Moreover, according to Dale, symptoms of inflammation are produced not necessarily by histamine but also by acetylcholine, and it is known that the activity of the parasympathetic sets free acetylcholine. But there is another reason why this mechanism would be of great importance, and perhaps explain many phenomena. It gives us a direct path from the mind to the skin for it is well known that the mind acts conspicuously on the activity of the sympathetic or the parasympathetic according to the kind of emotion.

Now a few words on *pruritus*. There is no time to go into details as to its mechanism. Apart from abnormal mental conditions, which we will come to later, pruritus seems to depend on the peripheral receptors both for pain and touch being intact. The peripheral stimulus has to be subliminal, that is to say below the intensity which causes pain, and generally it is moving, intermittent or fluc-

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tuating in intensity. It is perceived centrally in the thalamus, the cortex apparently having little or nothing to do with it. In some cases of thalamic tumour central pruritus has been observed.

We will now pass straight on to *mental influences*. We are told by the psychiatrists that normally the vegetative processes are not deliberately influenced by the conscious mind. But conflicts, if they are not made conscious and thus rationally disposed of, are repressed into the unconscious and the energy there "bottled-up" may lead either to abnormal manifestations in the mind (psycho-neuroses) or affective disturbances in the body (Freud's "conversion"). A particular organ may be chosen for the affection either because it is constitutionally inferior, or because it has some association of idea with the original conflict, providing a symbolic equivalent. It is for such disturbances of bodily processes caused through conflict that the term "psychogenic" should be used. This is a very important general law to which I shall have to come back later. There are no psychogenic skin lesions, *sui generis*, which can be recognised as such at sight.

Now a few points about *pruritus as a sensory neurosis*. Pruritus itself can represent a genuine hallucination. At any rate that it can be purely psychogenic and independent of the specific excitement of peripheral end-organs is shown by the experiment of Sack⁽³⁾. He made the right forefinger anæsthetic by local infiltration and in hypnosis suggested intense itching. This suggestion was realised just as vividly in the anæsthetic part as in the opposite untreated forefinger.

There constantly occur in the normal skin little itching or pricking sensations. The degree of attention available for them is generally so slight that they pass unnoticed, and they need to be greatly intensified in order to enter consciousness. This relationship is sometimes reversed, that is to say, it is not the sensations that are intensified but the attention. For instance when one has to stand still on parade or in a photographic studio, the attention is directed to such causes of disturbance, which owing to their unimportance under ordinary circumstances have hitherto passed unnoticed. Now with a still greater increase of attention these sensations grow in intensity very rapidly and change their quality, spreading and becoming pruriginous. If the pruriginous mechanism has by repetition become engrained, then these slight pruritic states, which normally could be abolished by conscious opposing impulses without scratching, grow into genuine radiating itching attacks. Such an itching and scratching attack so easily evoked is sometimes used to dull the emotion produced by a conflict, that is to say the hysterical mechanism is used. The reactive scratching may not only represent the purpose of a hysteric but also may represent a true compulsion. Psychogenic pruritus vulvæ sometimes persists from earlier irritations from other causes. Such paræsthesiæ as itching and burning often start from a fear of disease or infection, or anxiety about some dangerous situation such as childbirth. The skin is an important sexual organ: there is hardly any sensation of the skin which cannot under certain circumstances be erogenous. It is therefore natural that the sensation of itching, which is so closely related to the sexual voluptuous sensation, should especially readily be drawn upon by neurotics as an equivalent.

Can a skin lesion be directly produced by an affection of the mind? Sack⁽³⁾ thinks that a mechanism is provided by "the antidromic" impulse, which, by a coordination of the various systems, allows emotional impulses to be conducted directly to the skin and there set up redness, wheals, blisters or necroses. Diehl

and Heinichen, in 1931, were able in hypnosis to increase or diminish by appropriate suggestion allergic urticarial wheals produced experimentally. The psychogenic causation of allergic reactions is explained as follows: In an anaphylactic or allergic reaction the antigen-antibody interaction sets free histamine. This local reaction is by chance or through some effect of the reaction itself associated with a certain emotional general reaction. Through a single or repeated coincidence of the local allergic and the emotional general reaction there develops a conditioned reflex. As a result of this the specific physiological action, in this case the setting free of histamine, still occurs even though the specific stimulus, the allergen, is replaced by the conditioned "signal" symptom (subordinate emotion). After a time even these emotional stimuli may lose their specific character, so that any strong impression can evoke the allergic mechanism.

Stokes⁽⁴⁾ has also been working on the connection between psychogenic and allergic factors. He thinks that the allergic reaction is in most cases due to the actual presence of allergen but that this only acts in certain emotional states. But he considers that psychical influences also act very frequently through the gastro-intestinal mechanism and that sometimes histamine is produced there and absorbed into the circulation. Emotional or nervous stress, depression or fatigue, cause a diminution of secretion of hydrochloric acid in the stomach. This leads to an increase of Welch bacilli in the intestine, the activity of which produce a histamine-like substance. This, if absorbed in adequate quantity, can bring about the triple response. At the same time the local cutaneous defence mechanism is impaired through prevention of calcium absorption from the food. Emotionally induced insufficiency of pancreatic and intestinal secretion may also lead to a reduction of proteolysing power, resulting in absorption of abnormal protein split-products. The subject may thus become sensitized to food and perhaps bacterial proteins. This would be further favoured by reduced motility, a common result of the same emotion. Thus an eruption which starts as the sequel of a train of emotional influences may end with the outward semblance of a purely allergic phenomenon.

It appears to be possible by hypnotic suggestion to produce a blister on an apparently healthy skin at a particular spot. The patient is given the idea of a definite circumscribed shape, and is able to achieve a functional realization of this at the part of the skin suggested. Schindler⁽⁵⁾ has carried out such experiments with all possible controls. *Case I.* In deep hypnosis a spot was marked on the inner side of the right lower leg. At the same time the suggestion was given that at that spot an ecchymosis would occur. Both legs were now encased in firm plaster of Paris in the presence of Professor Neubauer and Dr. Adler. After two days the bandages were removed in the presence of Prof. Neubauer. At the prescribed spot and in the prescribed shape an ecchymosis had occurred. A new ecchymosis then continued to occur every day for months, but a single hypnosis was enough to bring this to an end. *Case II.* The patient had suffered for many years from bleeding in the cutis and subcutis and swelling of the joints, that is to say, purpura rheumatica. In hypnosis hæmorrhages were produced by suggestion at prescribed spots. The same controls were used as in Case I. On one occasion the suggestion that it would burn severely resulted in a flat blister. After this every day, without suggestion, spontaneous blisters appeared at various spots on the body. It soon became possible to cause the appearance of a blister exactly at the prescribed time under the eyes of the doctor. It took 5 minutes to develop fully. As the result of prolonged hypnosis and alteration of her domestic milieu the patient was cured, and six years later was still well.

But such ideas do not always have to be presented in hypnosis or from the outside at all. Thus, Kronfeld, in 1925, told of a girl of 21, who periodically developed blisters on the back of the hands and between the fingers. The eruption was accompanied by a strong pleasurable sensation. From time to time she entered a state of raised expectation that such blisters would appear. She chose beforehand places where she felt she could most easily produce blisters. If she now concentrated her mind on these spots blisters appeared. She then experienced a strong itching, which gave her sensual pleasure, and she scratched till bleeding was produced. She was therefore, herself, fully aware of the psychical character of their production. The whole process was observed by her doctors on an area of skin chosen by them. It only required three minutes. Psycho-analysis revealed a complicated neurosis with sexual repressions.

We now have to consider a few typical clinical dermatoses suspected of being closely related to mental troubles. *Urticaria*. Sack⁽³⁾ describes severe urticaria in a young married woman. Analysis revealed an experience in childhood which led to an intense aversion to small children. This became identified with the fear of pregnancy. The married life was therefore a cause of uninterrupted anxiety and excitement. Soon after marriage urticaria broke out. After the appearance of each eagerly awaited menstruation the urticaria disappeared. She was instructed, without being given the reason, to refuse coitus till after the next two menstruations. During the whole of that period she remained free from the eruption. Psychotherapeutic efforts succeeded in resolving the complex and the urticaria disappeared. She became pregnant, and regarded it in a perfectly normal manner.

Eczema. Whitfield⁽⁶⁾ tells of a woman in poor financial circumstances who developed weeping eczema on her fingers every time one of her sons was about to compete for a scholarship. It subsided after the results were known. This happened on three occasions: in the intervals her skin was perfectly normal.

Herpes simplex. Heilig and Hoff⁽⁷⁾ established that in certain cases unpleasant emotions were regularly accompanied by herpes labialis. Analysis of three cases, in which the presence of the specific herpes virus was demonstrated by rabbit inoculation, revealed a trauma coloured with intense emotion. Reconstruction of this trauma in hypnosis together with suggestion of itching in the region of the lip led in all to the appearance of herpes labialis. An equally detailed suggestion of the herpes but without touching on the emotional motive was without result. The authors explain the cases by the lowering of the natural resistance of the body by the depressive emotion, whereby the virus becomes more effective. These observations may have a very important bearing on the susceptibility to other infections, too.

We have now studied various ways in which the mind and the nervous system *can* influence the skin and its disorders. Taking advantage of my position of Dermatologist to the West End Hospital for Nervous Diseases (which deals extensively with psychological and functional as well as organic nervous disorders), I have made an attempt to get some idea as to the frequency with which certain dermatoses can in fact be attributed to their influence. Over a period of seven years all the patients attending there for nervous or mental trouble who have had anything wrong with their skin have been referred to me and the neurologist's diagnosis and my diagnosis have been recorded. Many of the skin conditions were, of course, obviously incidental. None of them was found to be predominantly associated with any particular nervous or mental disorder, except

perhaps neurodermatitis in which half the cases were associated with menopausal disturbances. In order to determine whether certain skin disorders occurred with greater frequency among "nervous" patients than among the general population I have compared their relative incidence in proportion to the total number of new patients attending the West End Nerve Hospital with their relative incidence in proportion to the total number of new patients attending University College Hospital (*i.e.*, not merely the Skin Department).

The following skin diseases have been chosen for this comparison: psychogenic excoriations, lichen planus, neurodermitis, pruritus, urticaria, psoriasis and alopecia areata. None of these proved to be relatively commoner among the nervous patients than the general hospital population, except psychogenic excoriations of which there were altogether extremely few. These were not true artefacts but rather scratch effects which I attributed to psychological causes. But curiously just in these cases the neurologist had made no diagnosis of mental disorder. Psoriasis proved about equally common at the two hospitals: so did neurodermitis and pruritus. With regard to the latter it was very striking that at the Nerve Hospital in the whole seven years there was only one case of pruritus vulvæ, the neurologist's diagnosis in that instance being ulnar paralysis. Lichen planus and urticaria were only half as common at the Nerve Hospital. Alopecia areata was less common by a third than at the General Hospital. This is especially surprising in view of the fact that many patients with alopecia areata went direct to the West End Hospital because they themselves thought it was due to nerves. In the In-patient Department, where severer cases of all kinds were observed, I never saw any dermatosis which I could link up with the neurological condition, except perhaps one case of rosacea in a depression state.

The figures for urticaria may be a little misleading as I gather that some cases in which it appeared to be part of a symptom complex including acute anxiety, lenteric diarrhoea, mucous colitis and easily dilatable pupils were not referred to me.

This experience has certainly led me to the conclusion that though we must keep in mind the possible effects of disturbances of the mind and nervous system on the skin, we must be careful not to exaggerate their importance at the expense of other factors. On the other hand, the psychologists might remind us that, "Conflicts, if they are not made conscious and thus rationally disposed of, are repressed into the unconscious and the energy there "bottled-up" may lead *either* to abnormal manifestations in the mind (psychoneurosis) *or* affective disturbances in the body (Freud's conversion)". In other words a skin disturbance resulting from a mental conflict should not be expected to be accompanied by a psychoneurosis. But if we accept that, then we must attach little importance to the opposite argument that a skin trouble is likely to be of mental origin if it is accompanied by a psychoneurosis. We cannot argue both ways.

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