

the table shows that the percentage of animals becoming pseudo-pregnant when nitrous oxide and ethylene were used is higher than those anesthetized with ether. This difference may be due to the difficulty of producing an anesthesia with nitrous oxide and ethylene which lasts long enough adequately to carry out the procedure of stimulating the cervical canals under the conditions described above. Nevertheless the important point is that the data do show that the percentage of pseudopregnancy for the anesthetized animals is far less than that for the normals.

We are fully aware of the influence of anesthetics on cellular activities as well as nervous, but if pseudopregnancy is due to substances released from the mucous membrane of the cervical canals as a result of mechanical injury during copulation or artificial stimulation, as has been suggested,³ it seems that this injury would be equally as pronounced whether or not the animal is anesthetized. The writers are inclined to think that the initial stimulus which leads to pseudopregnancy may be nervous rather than hormonal. This idea is also given support by the fact that rats stimulated under spinal anesthesia do not become pseudopregnant but whether or not this suggestion is correct must be decided by further study.

4755

Sensitization to Saprophytic Fungi in a Case of Eczema.

J. G. HOPKINS, B. M. KESTEN AND R. W. BENHAM.

In a communication now in press we have described a case of asthma due to a saprophytic fungus. This patient's attacks occurred in damp houses or other places where molds and similar fungi flourish. On testing his skin for its reaction to extracts of fungi isolated from places where he had had severe attacks, we found a consistently positive reaction to a species of *Altenaria* (mali?). His serum also gave a positive Kustner-Prausnitz reaction to *Altenaria* in the skin of 3 out of 4 individuals. Inhalation of a spray of extract of this fungus produced characteristic paroxysms of asthma. Other saprophytes produced milder reactions. We concluded that his spontaneous attacks were caused by the spores of these fungi which abound in the air.

This patient also has a chronic eczema involving the hands and feet and to a lesser extent the forearms and legs. The lesions begin

as groups of minute papules and vesicles on red patches of skin. The areas slowly enlarge and become infiltrated and desquamating. Their appearance resembles that of the eczematous lesions which frequently follow dermatophytosis of the feet—lesions which Jadasohn and Peck have recently shown to be due to sensitization to trichophyta. In our case cultures from the lesions have never yielded pathogenic fungi, though a common saprophyte, *Aspergillus nidulans*, has been repeatedly isolated from a lesion on the leg.

Some years ago Hilgermann and Niethe reported that certain patients with eczema were sensitized to saprophytic fungi which grew on their lesions. In this patient we could obtain immediate intradermal reactions to extracts of the *altenaria* which produced asthma, of the *aspergillus* which we obtained from his skin, and of a number of other fungi obtained from house dust. Reactions resembling a mild transient localized eczema also developed several days after an intracutaneous or surface test with fungus extracts. This type of reaction has been found, however, in patients who have no eczema and their significance is obscure. We could not produce convincing immediate reactions by applying any of these extracts to the surface of his normal skin (patch tests) and attempts on eczematous skin were also inconclusive. For example, one area which had been the site of a previous eczema but had apparently returned to normal, gave a typical reaction consisting of a group of papules and vesicles on an erythematous base. This was produced by the application of the filtrate of a broth culture of *altenaria* for 48 hours. A simultaneous control test with uninoculated broth on the adjoining skin had no effect. This seemed conclusive. However, after the reaction had subsided somewhat, a control test with broth was applied to the same spot and after 72 hours there was a reappearance of the reaction so that it was impossible to exclude non-specific irritation as a cause of the first response.

Further evidence as to his sensitization was obtained following inhalation tests. On several occasions following the production of asthma by *altenaria* spray a patch of eczema became acutely inflamed. On another occasion in a series of intradermal tests an undiluted filtrate of *altenaria* broth was used which was followed by intense swelling of the arm and a severe paroxysm of asthma. In the following few days, patches of apparently normal but previously eczematous skin became suddenly inflamed. This was apparently a focal reaction in sensitized areas of skin to the injected antigen, but the possibility of a non-specific reaction or mere coincidence cannot be excluded.

The known sensibility of eczematous skin to non-specific irritation throws an uncertainty about the significance of these reactions. The patient was, however, sensitive to certain fungus extracts introduced intradermally. One area was found sensitive to an extract applied to the surface, but was subsequently non-specifically irritable. Other areas became inflamed after injection or inhalation of the antigen. The observations seem to us worth reporting because they suggest that we are dealing with an eczema due to sensitization to saprophytic fungi growing in the patient's environment.