when the growth is confined to the bladder. The infiltrating type, on the other hand, is more radio-resistant, and operable cases of this type should, I think, be treated by resection. Inoperable cases must be carefully considered. If they are extensive within the bladder their extravascular spread probably renders them incurable by any means, and widespread interstitial irradiation runs the danger of making the patient more miserable than he was before. Experience with these sixty cases at the Radium Institute seems to show that cystoscopic implantation of seeds should be limited to those cases of papillary carcinoma where the growth or growths are not more than 2 to 3 cm. in diameter, and that larger growths should be dealt with by the suprapubic route; that operable infiltrating carcinoma should be resected; and that great care must be taken in selecting inoperable cases suitable for radium treatment.

ALLERGIC FACTORS IN RHINORRHOEA AND NASAL CATARRH*

BY

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The term "allergic disease" has been introduced into medical literature by American investigators (Cooke and others), to designate a number of conditions which show one common aetiological characteristic—namely, hypersensitiveness to proteins or other substances that are innocuous to normal people. For the most part the patients suffer from acute attacks, while in the interval between two attacks they are in good health. Often, however, especially in the more severe cases, they present symptoms of their illness continuously, and suffer from acute exacerbations.¹

I do not propose to deal with bronchial asthma, skin conditions, or true hay fever, since these are already clinical entities, but I shall restrict myself to allergy as seen by the rhinologist in a rather indefinite form, either complicated or uncomplicated by catarrh of bacterial origin. The following headings may be mentioned: hypersensitiveness to (1) drugs; (2) various pollens; (3) so-called animal proteins; (4) foodstuffs; (5) bacterial products; (6) colloidal substances of unknown composition, the presence of which in the air is due to climatic influences (miasma).²

It is a well-known fact that certain people are hypersensitive to certain drugs, but in one important respect they differ from allergics: the symptoms they exhibit with a small dose of the particular drug are the same symptoms exhibited by normal people with an excessive dose. The true allergic exhibits symptoms which are totally different from any that might occur in persons non-sensitive even on really excessive dosage. I propose to pass over hypersensitiveness to various pollens, to animal proteins, and to foodstuffs, but would like you particularly to bear in mind hypersensitiveness to bacterial products.

It has been thought that there was an anaphylactic element in allergic diseases, but the main arguments against this theory are: (1) Allergic disease is often inherited; anaphylaxis is not. (2) Allergic symptoms are sometimes shown the first time the person comes in contact with the incriminated substance. (3) Allergy cannot be transmitted passively to animals; in anaphylaxis this experiment usually succeeds. (4) The symptoms

of allergy differ largely from those of anaphylaxis, but show resemblance to those of drug idiosyncrasy.

You are all familiar with the typical case of vasomotor rhinitis or paroxysmal rhinorrhoea associated with violent sneezing attacks, and a pouring of clear watery fluid from the nose to such an extent that patients are compelled to use towels instead of handkerchiefs for relief. But I believe, though in many cases I have no definite proof of the statement, that in a large number of so-called chronic catarrhs there is a very definite allergic factor; and I am sure that it is concerning the latter type of case that we should attempt to increase our knowledge.

Factors Operating in Vasomotor Rhinitis

The factors generally found in cases of vasomotor rhinitis are: (1) some personal idiosyncrasy; (2) a sensitive condition of the nasal mucous membrane; (3) some outside irritation; and (4) a supposed nervous element. Of these I consider the first all-important, and the last almost negligible.

As regards personal idiosyncrasy, we know that allergics, whether they be hay fever patients, asthmatics, or persons sensitive to animal emanations, on cutaneous testing, do not only react to their own usually specific protein, but also to numerous others, and that their sensitivity to these various proteins may vary from day to day. According to van Leeuwen, all allergics are sensitive to human dandruff, though varying in their reaction to other proteins. With this fact I will deal in greater detail later.

Our reasons for suspecting increased sensitivity of the nasal mucosa are rather empirical. The nasal mucosa either appears normal, pale, velvety, and slightly congested, or there may be whitish patches on it. This condition may apparently be rendered less liable to irritation by either cauterization or ionization. In certain patients this treatment affords either relief or cure, but it should be borne in mind that the sensitivity is often only to some specific irritant in the allergic person.

It is fully granted that the external irritation, acting on the mucous membrane of the allergic, is the trigger which sets off the attack. The nervous element is, in my opinion, the one most open to doubt. With most patients I consider that the discomfort, nuisance, and distress of repeated attacks of severe rhinorrhoea, which come on at least expected and most inopportune moments, are the cause of the patient's neurosis rather than the result.

Some Causes of Simple Vasomotor Rhinitis

Let us now consider simple uncomplicated vasomotor rhinitis, which is a condition with which we are all familiar. I am not going to deal with its pathology or clinical manifestations, but I would like to suggest one or two causes of the condition. StClair Thomson, in the 1916 edition of his book *Diseases of the Nose and Throat*, stated that vasomotor rhinitis was more common in the young male than in the young female. I am sure you will all agree with me that in these days the disease is much more common in the young woman. I think the reason is, not that there are more allergics, or that the young women are more neurotic, but that practically all women do use face-powder. We are all familiar with the white sheen that is seen on the septum and turbinates of the more heavily made-up woman. Many women are particularly susceptible to orris root, and I am told on good authority that orris root is to be found in certain makes of powder. In fact, one patient of mine told me that she could not use a powder in which orris root was known to be present, as it "was death to her." Quite often the changing of the make of powder is a valuable aid to treatment; it is more than the physician can do to stop its use.

* Read in opening a discussion in the Section of Oto-rhinolaryngology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Sensitivity to Staphylococcal Infection

I mentioned at the beginning of this paper that patients could be sensitive to a specific bacterial protein. Many patients suffering from typical vasomotor rhinitis have cracks in the skin about the anterior nares, and these cracks have been looked upon as a necessary adjunct to the disease. We all know that unless these cracks are cleared up there is little hope of alleviating the vasomotor rhinitis, whatever treatment to the nasal mucous membrane may be employed. But we see, in our specialty, many cases of vasomotor rhinitis without any obvious cracks; and we have numerous cases of vestibulitis, a condition that is most certainly of staphylococcal origin, which, after persisting for weeks, months, or even years, have no vasomotor symptoms. (The infection of the cracks is always staphylococcal.)

I would suggest, therefore, that the cracks occasionally seen in the nares of patients suffering from vasomotor rhinitis are not necessarily due to the allergic condition of the nose, but that the patient may have had a very mild and unnoticeable staphylococcal infection of the anterior nares, and, being sensitive to the specific staphylococcus protein, the subsequent vasomotor symptoms were caused by the patient's allergy to that particular protein. At any rate we do know, however far-fetched the idea may seem, that vasomotor rhinitis associated with cracks will not clear up until the latter are cured. I have no definite proof that sensitivity to staphylococcal protein is the cause of many cases of vasomotor rhinitis.

In some cases of rhinitis, or, as the patient expresses it, chronic catarrh, there is evidence that the condition may be due to the patient's sensitivity to the protein of a specific organism. It must be in everybody's experience that in many patients complaining of chronic catarrh there is apparently no abnormality in the nose, sinuses, or nasopharynx. On careful questioning these patients give histories of mild stuffiness of the nose with a slight or negligible watery discharge, while at other times they have symptoms of the typical bacterial cold, with a thick muco-purulent discharge. I believe that these patients are really allergics who are sensitive to the specific proteins of one or other of the bacteria which may cause rhinitis, and that the acute exacerbations of the catarrh are due to the bacterial infection, and the intermittent slight catarrh to the allergic reactions of the patient to the specific bacterial protein.

Again, it is a common fact that in many cases of vasomotor rhinitis, especially of the unilateral type, on careful examination, a latent and unsuspected antral infection is found on the homolateral side, and that on clearing up the infection the vasomotor symptoms subside. In these cases I believe that the running from the nose is a local condition, caused by intermittent leakage of the specific protein from the infected antrum.

Nasal polypi are often found in conjunction with asthma, much less commonly with simple vasomotor rhinitis, and it is known that in asthmatics who have this condition local removal of even small polypi causes a diminution of the symptoms. The polypi have been regarded by certain physicians as part of the allergic swelling of the nasal mucosa, but I believe that, however small, they are evidence of a local ethmoiditis, and that their removal allows the secretion in the cells to be either washed out or blown clear, thus reducing the chance of affection of the sensitive mucous membrane of the nose by that specific bacterial protein.

A patient of mine suffered from very severe asthma, which completely incapacitated her. When I first saw her she had a mild ethmoiditis, which I treated by an anterior middle turbinectomy and curetting of the ethmoid cells. This treatment was followed by a series of minute doses of an autogenous vaccine, with improvement. Small polypi then began

forming with recurrence of the asthma, which was temporarily relieved by removal of the small polypi and with continuance of the vaccine therapy. However, in spite of several local removals of the polypi, spread over many months, her asthmatic condition became very much worse. She had, I should have mentioned, an intercurrent antral infection which increased the symptoms, but on opening and washing out the antrum the symptoms improved, and she was back at her old level. This antral infection was purely an intercurrent event in my opinion, but, as I have said, the continuance of the ethmoiditis caused her to be completely incapacitated by her asthma. I therefore decided to perform an external ethmoidectomy, with a view to exenterating all the ethmoid cells. Since then her asthmatic condition has been wonderfully improved. She still has her ups and downs, and has pocketed pus behind the scar or in the nose on occasion, when her symptoms are always more pronounced but are almost immediately alleviated by drainage of the cooped-up secretion. That she has these recrudescences is probably due to faulty technique of my own. She has continued with intermittent courses of autogenous vaccine in minute doses; any large increase in the dose immediately brings on an exacerbation of the asthmatic symptoms and nasal discharge.

I must apologize for quoting a case of asthma as illustrative of some of my points, but it was one of the most severe cases I have had to deal with, and the results, though not dramatic, were satisfactory, and, I think, have a bearing on my point concerning specific bacterial protein sensitivity.

Autogenous Vaccines in the Allergic

Out of the case I have just quoted there emerges another question, that of giving minute doses of vaccine to asthma patients with apparent improvement, whereas the ordinary minimum dose of vaccine given to patients suffering from any form of bacterial rhinitis causes an exacerbation of the symptoms in the allergic. It is known that one can immunize people sensitive to a specific protein by injecting infinitesimal doses of that protein at frequent intervals, say every other day or twice a week, whereas larger doses of the same protein cause increased sensitivity. Ipecacuanha is a case in point.

We know that certain bacteriologists in cases of chronic catarrh are accustomed to give infinitesimal doses of autogenous vaccines over a long period of time, with improvement, the doses being minute in comparison with the ordinary doses of vaccine given, either for treatment or for prophylaxis, in bacterial catarrhs. I would suggest that the results are obtained, not by an immunization of the patient against these organisms, but by the desensitization of an allergic patient to specific protein of the bacteria in his nose. Further, we have all seen patients who complain bitterly of catarrh when in theatres, cinemas, and close warm rooms where people are assembled, whereas they are completely free from it when out of doors, whether in hot, still weather or whether walking over wind-swept moors. One would naturally conclude, I think, that people suffering from a bacterial catarrh would be worse under the conditions of cold and wind. Even the normal person experiences running from, and stuffiness of, the nose under these conditions.

As I have mentioned, van Leeuwen states that all allergics are sensitive to human dandruff. He is also the pioneer of the "miasma theory" of allergic irritation. This theory presumes that allergic patients may be sensitive to foreign proteins in the air, which are in such infinitesimal quantities that their presence cannot be proved. It is not hard to visualize the fact that human dandruff may be present in sufficient quantity in the air of crowded rooms and theatres to satisfy these postulates in the case of allergic people. This may be an explanation of this type of catarrh, for in most cases when the patients arrive in the cool quiet of the consulting room their upper air passages appear normal.

I apologize for being so unscientific and for having stated so many unproven opinions, but I believe that the study of allergy in connexion with our specialty is still in its infancy, and that several aural conditions, which are now tentatively supposed in some cases to be partly allergic, will in the future be definitely established as such. Out of my ignorance of the subject I fear I have been provocative to those who know more. My only hope is that I may have stimulated the more knowledgeable to a good discussion from which some of us may learn something for the future.

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THE ADVANTAGES OF INTRAVENOUS (EVIPAN) ANAESTHESIA IN OPHTHALMIC SURGERY

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Although intravenous anaesthesia with evipan is used on quite a large scale in many hospitals to-day for various types of cases it is perhaps not fully realized that it is of particular value in ophthalmic surgery. This article is designed not to introduce the authors as authorities on evipan anaesthesia, but to set down their experiences with a small series of some eighty-six cases at the Royal Westminster Ophthalmic Hospital and their conclusions therefrom, as we feel certain that our findings may be of interest and of practical value to many persons engaged in ophthalmic practice who may not have used this type of anaesthesia in their operative work.

As only a minority of ophthalmic operations are performed under general anaesthesia our series is necessarily small, but so superior have been our results with evipan in comparison with other forms of general anaesthesia in our operative work at this hospital, both from the ease and speed of induction, the saving of time, the simplicity of apparatus, the optimum conditions for the surgeon, patient, and anaesthetist, and the apparent great margin of safety, that we have adopted evipan as the routine anaesthetic for practically all cases requiring general anaesthesia. In every case in our series evipan gave more or less complete satisfaction to the surgeon, and we have not had any worry, from the anaesthetist's point of view, in any patient. Our observations will be presented under the following headings: technique of injection, dosage, etc.; general advantages of evipan; special advantages in ophthalmic surgery; and an analysis of our series.

Technique of Injection, Dosage, etc.

With a little experience the optimum dosage can be very accurately calculated after a rapid consideration of the length of anaesthesia required, of the patient's approximate body weight and age, and whether of a robust, frail, or toxic constitution. Our dosage varied from 4.5 c.cm.* in the case of old toxic patients to a full 10 c.cm. in strong, healthy adults. In a few of the latter we found it necessary to give as much as 12 c.cm. to

produce the requisite degree of relaxation. Healthy children required a relatively much larger dose than adults, a healthy average child of 4 years taking 5 c.cm., while children of 10 years and upwards generally required a full 10 c.cm. Old, feeble persons required very little more than 4 c.cm.

Having roughly estimated the required dosage for the individual case, a 10 c.cm. syringe is fully charged with a previously mixed solution of evipan, and the needle introduced into a vein in the arm, the patient being instructed to count slowly aloud. When consciousness is lost, as indicated by the cessation of counting, the amount already injected is noted and the injection continued until as much again has been given, in accordance with the practice of the German school. The needle is kept in the vein, and the surgeon then grasps the conjunctiva with forceps. If the dosage is insufficient, as indicated by movements of the patient's limbs, a small additional injection is made until the patient relaxes, the anaesthetist being careful not to exceed his original estimated dose by more than 1 to 2 c.cm. unless the movements of the patient indicate a further dosage. After consciousness is lost the jaw is kept supported to keep a clear airway. *No preliminary medication is required or should be given.*

Carbon dioxide and oxygen for inhalation is kept at hand in case of respiratory failure, but we have not found the use of this emergency treatment necessary in any of our cases. In many of the older cases a severe sneezing reflex, several times repeated, occurs during early manipulations of the conjunctiva. This does not, however, seriously interfere with the course of the operation. A delay of one or two minutes before commencing the operation frequently eliminates this phenomenon. It has not occurred in any of the children in the series. With children, the arm must be kept rigid during the injection, as otherwise the needle may be dislodged by a sudden movement as the patient loses consciousness.

In the average case under the above technique the duration of anaesthesia suitable for ophthalmic surgery is from fifteen to twenty-five minutes. In very short operations a reduced dosage is given, and when more prolonged anaesthesia is required a further injection may be given when the effects of the original dose show signs of wearing off. This appears to act very satisfactorily. Our longest case was on the operating table for one hour and fifteen minutes, during which time a total of 14.5 c.cm. was given in two separate injections, the anaesthesia being satisfactory throughout.

General Advantages of Evipan

Evipan may be given with safety to patients of any age, provided a very small palpable vein can be found. We had no difficulty in this respect even in very young children. The youngest patient in our series was 4 years of age and the oldest 85.

The contraindications are very few—mainly severe disease of the liver and of the kidneys—and it appears to be safe to use the method even in severe diseases of the cardiovascular and respiratory systems, where inhalation anaesthesia may involve grave risks. The induction is very rapid. The material is inexpensive, requires an absolute minimum of apparatus, and does not need any special skill on the part of the anaesthetist. The period of recovery is very rapid, several of our cases being able to talk rationally within fifteen minutes of leaving the operating table. In the majority of our cases there were practically no after-effects attributable to the anaesthetic. The adult patients were in all cases very pleased with the anaesthesia.

In this connexion it is interesting to note that one of the authors had an evipan injection for the removal of some teeth, having previously at one time or another taken most

* Strength of solution is 1 gram of sodium evipan per 10 c.cm. of distilled water.