

she complained of pain in the back between the shoulder blades, to the right of the spine. These symptoms had their onset some three years earlier, when, meeting the unexpected advances of an old acquaintance, she jerked her head and body violently backwards to avoid being kissed. At this moment something "snapped" in her back, audible to both of them, and local pain was felt at once. On waking next morning her face was twitching. The gentleman in question had a tic of one side of his face.

A diagnosis of co-genetic hysterical facial tic and local spinal lesion was made, and, as the patient was convinced of the organic nature of her tic, which she adamantly regarded as a physical consequence of the pain in her back, psychotherapy was postponed and the spinal condition treated first.

Examination showed that the patient was twitching all over, but principally on the left side of her face. Her replies when the moving parts of the neck, scapulae, upper limbs, and thorax were tested were perfectly consistent, and pointed to a thoracic disk lesion at the fifth level. Manipulative reduction was carried out, and when she attended two days later all movements were of full range and painless. This somatic relief had not affected her tic.

Thus the first response to treatment was loss of all symptoms in the back, but some months later a throbbing backache, synchronous with the pulse, developed. This, however, did not interfere with physical activity such as gardening and golf, as had the original symptoms. Psychotherapy, initially by means of narco-analysis and later by means of hypnosis, brought about subjective improvement only.

The patient, whose mother and sister were psychotic, had herself experienced a psychotic episode (for which she was treated by electroplexy in a mental hospital) one year or so after the traumatic incident. In spite of this history, but cautiously in view of it, hypnosis was undertaken in an attempt to suppress the facial tic. After some difficulty she was put into full trance and the facial tic was reduced and then abolished by direct suggestion. (Narcoanalysis had already afforded an adequate review of her problem, with apparently sufficient abreaction.) The improvement was transient, being followed by worsening and change in character of the spinal symptoms, which now included sensations of vibration, together with a return and spread of the facial tic. Psychotherapy was terminated.

Comment.—It would appear in this case that, not only did physical and psychoneurotic symptoms follow the same trauma, but when the later developing psychosis was relieved by electroplexy the neurotic symptoms served as channels of expression of residual psychic tension. Interference proved not devoid of danger, for, although physical treatment could relieve the local physical lesion, this was reactivated psychogenically.

Conclusions and Summary

Patients suffering from psychiatric illness may also suffer from local lesions in the moving parts of the body. Owing to the prominence of the psychogenic symptoms, the existence of the organic lesion may be overlooked or ignored. We have considered the problem of pain in the back as illustrative of this general thesis.

A system of examination is described which permits satisfactory differentiation of local lesions from psychogenic dysfunction.

The relationship between the physical lesion and the psychiatric state may be adventitious; but it may, as in one case cited, be caused by the physical aspect of the situation, which also provided the psychic trauma (Case 6).

The symptoms due to organic lesions can be differentiated from the rest of the symptom picture and treatment of the local lesion is often successful.

Patients suffering from psychiatric illness alone may present with symptoms relating to the moving parts of the body. They may respond to treatment directed to the psychiatric disability.

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PYRIMETHAMINE (DARAPRIM) AS A PROPHYLACTIC AGENT AGAINST A WEST AFRICAN STRAIN OF P. FALCIPARUM

BY

Sir GORDON COVELL, M.D., D.P.H., D.T.M.&H.

P. G. SHUTE

AND

M. MARYON

(From the Malaria Laboratory, Horton Hospital, Epsom)

Goodwin (1952) recorded his personal experience of pyrimethamine in the prophylaxis of malaria during a visit to equatorial Africa extending over a period of one year. Towards the close of the tour, while taking 5 mg. of the drug daily, he allowed himself to be bitten by four *Anopheles gambiae* which had fed on patients with gametocytes of *Plasmodium falciparum* in the peripheral blood, and in which sporozoites were subsequently demonstrated in the salivary glands. He concluded that in his case a daily dose of 5 mg. of pyrimethamine had proved a satisfactory suppressant of this strain of the parasite. So far as we are aware, there is no other published record relating to the prophylaxis of falciparum malaria by this drug in non-immune subjects.

Present Investigation

The object of the investigations here recorded was to ascertain whether a weekly dose of 25 mg. of pyrimethamine is sufficient to prevent an attack of falciparum malaria in a non-immune subject. The strain of parasite used was obtained in January, 1953, from an African child resident in Ilaro, a township about 50 miles distant from Lagos, Nigeria. Blood from this child was inoculated intramuscularly into a patient suffering from neurosyphilis. Subinoculations were later made into two other neurosyphilitic patients. All three developed overt malarial attacks, but in only one case were gametocytes produced in sufficient numbers in the peripheral blood for satisfactory infection of a batch of mosquitoes.

The mosquitoes used for transmission were *A. stephensi* (Type), a colony of which was established at Horton during the winter of 1947-8 from specimens imported by air from the Malaria Institute of India, Delhi. A batch of about 700 insects was allowed to feed on the gametocyte carrier.

The subjects of the prophylactic trial were 14 patients in Horton Hospital, two of whom had previously undergone malaria therapy for neurosyphilis with *P. vivax*. None of the others had any history of malarial infection.

They were arranged in seven pairs, each pair receiving the weekly dose of 25 mg. of pyrimethamine on a different day of the week (see Table). The first pair (A and H) took

their first dose on Day 1, the last (G and N) on Day 7. Throughout the trial every dose of the drug was personally administered by one of us.

The first infection was on Day 8, when 10 to 12 mosquitoes from the infective batch were applied to each subject. It was planned to examine the salivary glands of the mosquitoes which had fed on each subject serially until one was found positive. As it turned out, the first mosquito dissected was found infected in 12 cases, and the second in the two others. All infections were heavy. It was thus established that each subject actually received a dose of sporozoites.

During the trial each subject was exposed to the bites of 10 to 12 mosquitoes from the same batch on five occasions at intervals of three or four days. Routine dissections showed that salivary-gland infections continued to be heavy during the first three feedings, after which they began to diminish in intensity.

The Table shows that under this schedule the infections were distributed in such a manner as to cover all possible intervals between the taking of the drug and the infective bite on each occasion of feeding.

It was unfortunately not possible to infect a further batch of mosquitoes, and therefore the experiment was terminated after the fifth feeding. At this stage the seven pairs of subjects were split up, one of each pair receiving a single dose of pyrimethamine after his last exposure to infection, the others two doses.

A "control" was provided by a patient awaiting malaria therapy for neurosyphilis, who was infected from the same batch of mosquitoes on Day 9. Parasites were found in the peripheral blood on the seventh day after infection, and a febrile attack developed two days later.

Result

One of the subjects developed an abscess in the region of the right knee early in the trial, and had a temperature of 102° F. (38.9° C.) on the fourth day after the first feeding. He was treated with penicillin and the abscess was opened and drained, after which the temperature fell to normal. His blood was examined repeatedly, but no parasites were found. In any case, a temperature of 102° F. (38.9° C.) on the fourth day after exposure to infection could scarcely have been due to malaria.

One other subject had a temperature of 99° F. (37.2° C.) on the eleventh day after the first feed. The temperature

had fallen to normal four hours later and there was no further rise. No parasites were found at any time in the peripheral blood.

There were no other incidents during the trial, and there was no evidence of any injurious side-effects. Protection against malarial attack under the conditions of the experiment was thus complete.

Discussion

The results recorded above indicate that pyrimethamine in a weekly dosage of 25 mg. is highly effective in preventing an overt malarial attack in subjects exposed to repeated infection with this strain of *P. falciparum*.

As to the mechanism by which this effect is brought about, the work of Archibald (1951), McGregor and Smith (1952), Vincke (1952) in West Africa, of Avery Jones (1952) in East Africa, and of Wilson and Edeson (1953) in Malaya has shown that this drug has a definite action against the asexual erythrocytic forms of *P. falciparum*, although in some instances, notably in Malaya, this action was considered too slow to warrant its use for routine therapeutic purposes.

From a study of the Table summarizing our results, it appears that pyrimethamine acts also on the pre-erythrocytic forms of the parasite and that it is therefore a true causal prophylactic of falciparum malaria.

As to the practical application of the findings recorded, pyrimethamine in this dosage seems likely to prove an effective and economical agent for the prevention of malaria among populations under disciplinary control, provided it can be ensured that the weekly dose is actually taken with unflinching regularity; for instance, in the case of a labour force paid on a weekly basis, where the drug can conveniently be administered at the time when wages are distributed.

For private individuals and officials or for populations not under disciplinary control, we do not consider that a weekly dose of any antimalarial drug offers a sufficient margin of safety. Experience has shown how easy it is for those on a daily dose regime to miss taking the drug, particularly in times of stress, and the risk is all the greater when the prescribed interval is as long as seven days.

We believe that in such circumstances the daily dose of 5 mg. of pyrimethamine adopted by Goodwin (1952) for his personal protection offers a better prospect of success, provided that its efficacy is confirmed by more extended field trials.

Schedule of Dosing with Pyrimethamine and Infection by Mosquito Bite

Days:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
A							x				x				x			x				x															
B		p						p				x				x			x				x														
C									x			x				x				x				x													
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p=Pyrimethamine 25 mg. x=Infected by mosquito bite.

Summary

Pyrimethamine administered weekly in a dosage of 25 mg. afforded complete protection against overt malarial attack in a group of 14 non-immune subjects repeatedly exposed to mosquito infection by a West African strain of *Plasmodium falciparum*.

The action appears to be that of a true causal prophylactic against this species of parasite.

We wish to express our thanks to Dr. J. H. Watkin, physician-superintendent, and the staff of Horton Hospital for their co-operation, and to Dr. L. J. Bruce-Chwatt for kindly supplying the strain of *P. falciparum* used in this investigation.

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PROCTALGIA FUGAX

BY

M. R. EWING, F.R.C.S.

Senior Lecturer in Surgery, Postgraduate Medical School of London

From time to time mention is made, commonly in the correspondence columns of the weekly journals, of a symptom-complex which is becoming increasingly more widely known as "proctalgia fugax." This was the name given to it by Thaysen (1935). The condition had been earlier, although not so completely, documented, but his happy choice of a new, neat, apt, and usefully non-committal label seems likely to win for him an enduring place as its real discoverer. It should be admitted, however, that at least one English etymological purist of high repute quarrels with "proctalgia fugax" as an unacceptable Greek-Latin hybrid, and many persist in calling it "nocturnal proctalgia." However, more careful inquirers usually award pride of place in the history of the complaint to MacLennan, of Glasgow, who described it very adequately in 1917. Professor F. C. Pybus, however, drew my attention to a short but practical article by Dr. Myrtle, of Harrogate, in 1883. He was obviously fully aware of the existence of this symptomatic disorder, and had encountered it several times in what was, presumably, a well-to-do spa practice.

Sir Frederick Wallis (1909), a proctologist on the staff of Charing Cross and St. Mark's Hospitals at the beginning of the century, also recorded what must surely have been another example, as it occurred in a highly nervous young man who had gone off round the world to seek relief from the bouts of distressing rectal pain. Wallis claimed, however, that he found a local cause for the paroxysms in the existence of a submucous recess leading up from the crypts of Morgagni. It is true that he relieved the condition by excision of the track, but further perusal of his writings on rectal diseases makes it obvious that he had something of a bee in his bonnet concerning the significance of similar submucous tracks in the causation of obscure rectal and anal pain.

Professor Pybus, as a young house-surgeon in the Gordon Hospital in 1909, was several times confronted with this condition, and in 1910 he submitted for publi-

cation in the *British Medical Journal* the typescript of a most informative communication of what he elected to call "nocturnal rectalgia." Unfortunately it did not find editorial acceptance, and it has spent 40 years fading in an unremembered corner. I was privileged to study this article, as well as a large and most interesting correspondence on this topic with doctors up and down this country. It was the long interest which Professor Pybus has had in this complaint that led to my writing this paper.

Incidence

It is, I believe, significant that of the increasing number of letters on this subject in the weekly journals (for proctalgia fugax threatens to become almost a perennial) the majority describe the personal experience of doctors who are themselves unhappy sufferers. (No fewer than six out of Thaysen's (1936) ten patients were physicians.) This apparently high incidence in our profession can be explained in two different ways: (1) that doctors are in fact peculiarly subject to it, or (2) that the ailment is much more common than we suspect, but that as it causes no great disability it imposes a burden inconsequent enough to be endured in secret without seeking medical advice. I suspect that the second of these explanations is the more reasonable one, for the pain which is its most prominent feature is of short duration and commonly recurs only at widely spaced intervals. If the frequency with which we are consulted about this complaint is really an indication of its true incidence it must be rare indeed, for an eminent consultant like Ryle (1948) encountered only 25 cases in 22 years' experience as a gastro-enterologist in hospital and private practice. There may, however, be some justification for the first contention. It is certainly true that it seems to occur more often in the brain-worker, although whether we as a profession pretend to excel in or even to belong to such a group I should hesitate to decide. These considerations are dealt with under the heading of aetiology.

First, however, let me describe the features of this symptom (for it is no more than a symptom) as related partly by the relatively few sufferers encountered in my own experience, but mainly as now recorded so adequately and so graphically in the testimony of many doctor patients.

All are agreed that the male seems to suffer more commonly than does the female. The maximum incidence is in adult life, from 20 to 50, but many reports suggest that the trouble may begin even in early childhood ("Biologist," 1952). I know of no patient who was first afflicted in the later decades of life. It often is familial in its distribution, father or mother and several children being affected (C.G.E., 1931; Lynch, 1931; M.c.P.F., 1935; Hurst, 1943). That the cause may be other than genetic is suggested by the fact that it occurs equally often in father and mother as well as in one or more of their offspring (MacLennan, 1917; "Neuralgia," 1931). The possible significance of its occurrence in several members of the same family is commented on below.

Clinical Features

The condition is characterized by recurring paroxysms of rectal pain which have one very characteristic feature—namely, their curious predilection to occur in the early hours of the morning. They also occur by day, commonly in the late afternoon or evening, when they may be initiated by vague ill-defined premonitory symptoms such as cool perspiration ("Biologist," 1952). The pain at the outset, and that is most often on waking, is no more than a mild discomfort. During the next few minutes, however, it increases steadily in intensity, persists for some time unchanged, and then gradually passes off to be succeeded by a feeling of great weariness which usually leads to a restful sleep. The whole cycle lasts for from only a few minutes to half an hour or even more. The period between attacks