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

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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

may be long enough to make the sufferer believe that each succeeding episode must surely be his last. Usually they return at intervals of many weeks or of several months. They may occur during a lifetime (Bett, 1952), but generally seem to diminish in frequency as the years roll on and even to abate completely in late middle or old age (Tidy, 1952).

As to the quality of the pain, sufferers have variously described it, but perhaps it is most often said to be cramping, gnawing, or even grinding, and always unremitting. But there are many more vivid accounts: "Like a sharp object held up at the recto-sigmoid"; "As if the rectum were being squeezed in a vice"; "Like a wire tied tightly round the bowel"; "Like a small ball expanding slowly." Perhaps none described it with more feeling than did the doctor who wrote of the "dull, throbbing, riving, tearing, sickening pain comparable to nothing in earth—one feels as though a big hard stone in the rectum was wanting to get out." Or maybe even he is outdone by the patient who feels that he "is being held very tightly by his rectum and is unable to escape" (Murray, 1951). However, it is only the severest bouts which merit such descriptions, and the attacks vary greatly in their intensity, from a slight discomfort, which can, by day, be endured with activity unimpaired, to the most gripping paroxysms culminating in a cold perspiration and often in syncope. On one point, however, all agree—namely, that the pain seems to originate not in the anus or in the anal canal but at a much higher level, deeply inside the pelvis. Although the exact site of the pain varies from one patient to the next, it tends to recur in any one individual always in precisely the same place; in different attacks it may be constant neither in its intensity nor in its duration.

There are few, if any, associated symptoms, apart from a not uncommon desire, but often a distressing inability, to empty the bowel or to pass flatus. During the height of the severer paroxysms the patient feels quite unable even to move in bed, and any desire to leave it is often suppressed for fear of inducing thereby a syncopal attack.

Of physical signs there are none, and the condition occurs usually in people who are otherwise apparently healthy. I can find only one record of a sigmoidoscopic examination having been carried out during a spasm. This must have been a unique experience, not as yet enjoyed by the many afflicted among our colleagues who have done their best to discover the truth by self-examination of the rectum. Spasm of the external sphincter has seldom been reported, and, although muscular contraction at a higher level is said to have been found on some occasions, one questions the ability of even the most dextrous accurately to assess the degree of muscle tone of his own ano-rectal ring. In any event, it is difficult for the patient himself to reach with his own finger as high as the point where sensation suggests the pain to be.

Bolen (1943), who passed the sigmoidoscope during an attack in a man of 60, reported a reddened swollen mucosa with prominent vessels. Pressure with the beak of the instrument at the central point of the levator caused mild spasm. Difficulty was had in negotiating the recto-sigmoid junction, and gas escaped as soon as the corner had been turned. But then none of these is really an uncommon sigmoidoscopic finding, and as an isolated observation it is doubtful if they merit more than to be noticed in passing. The evidence of most patients does, however, suggest that the discomfort is caused by a sustained spasm of the musculature of the rectum, although which component is mainly affected is a matter of guess-work.

Diagnosis

One should always show a natural reluctance to make a symptomatic diagnosis, and that of proctalgia fugax must be hazarded only with the greatest caution. Even when the story is unfolded, typical in its completeness, the most searching local examination should be made to ensure that

there is no other cause for the pain. The spasmodic and often deep-seated and unremitting pain of a fissure is well known: of all the causes of rectal pain this is the one which most urgently requires careful exclusion. Other less common causes of pain, such as submucous abscess and vesiculitis, must also be borne in mind.

There is scant evidence to support the belief that rectal crises occur in tabs (Ryle, 1942), but, in spite of any scepticism there may be on this score, the pupils and the knee reflexes should be examined in every case.

Aetiology

As to the causation of this complaint there is no reliable evidence and for the most part speculation is rife. Many different happenings are alleged to precipitate attacks, exposure to cold, as in so many conditions, being blamed very often (Myrtle, 1883; "Septuagenarian," 1935). Constipation or the failure adequately to empty the bowel of small scybala before retiring may also be held responsible, but the pain seldom occurs with a full rectum (Pybus, 1952, personal communication). More often it seems to be precipitated by sexual intercourse, by masturbation (Blyth, 1935), or by nocturnal emission. Cessation of the practice of coitus interruptus was followed by complete remission in at least one instance (McEwan, 1935). The attacks are commonly associated with priapism.

The disorder is no doubt primarily a psychosomatic disturbance, a psychoneurosis of which it is the sole physical manifestation (Abrahams, 1935; Murray, 1951). The occurrence by day is, on the admission of many, largely determined by times of stress and anxiety, when things will not go right, when the mind is very weary, when work is irksome, or when, try as he will, the worrying patient cannot forget life's problems and injustices and seeks in vain some relieving relaxation. The malady afflicts those whom the layman would label "highly strung." When work is congenial and interesting, when the patient is at peace with himself and the world, that is no time for the paroxysms of proctalgia ("Biologist," 1952). Extreme physical tiredness may also often seem to be responsible (Sheppard, 1952), as may sexual excess.

The nocturnal attacks are similarly precipitated by a worrying, unsettling, and profoundly frustrating dream or nightmare, the moment of waking being associated with considerable mental distress; alternatively, the content of the dream may be erotic in character.

Not every patient will admit to an association with times of tension and worry, and more ordinary alleged precipitating causes include straining at stool, the taking of a hot bath, infestation by threadworms (Lynch, 1931), or erythromelalgia (Carter, 1935). It is doubtful, however, if any of these is important as a primary factor in the causation of this somewhat obscure malady. Proctalgia seems to increase in frequency as the social scale is ascended, always accepting that the number of patients who seek advice is an index of its real incidence. But that is no more than one might reasonably expect from a trouble which is in some way related to fatigue, mental as well as physical; and this is surely where one must look, at least in part, for the high incidence in medical men.

As Gabriel (1948) points out, the condition, again as it occurs among the more responsible and intelligent citizens, is aggravated by a fear of cancer.

The vague premonitory signs sometimes reported suggest an aura, followed as it is by a "seizure" and by a phase of tiredness, and these have led some to believe the condition to be an epileptic manifestation, a belief to which the frequency of a family history lends some support. Only MacLennan (1917) and Carlill (1935) have put this forward as a really serious suggestion. The high incidence of this symptom in several members of a family (father, mother, and children alike) is more reasonably explained as being the result of identification with other people who have had similar, or even dissimilar, rectal disease (Murray, 1951).

Treatment

The most effective method of treatment is the taking of food. Immediate relief is the rule (Pybus, 1946; Bett, 1952), and even the drinking of a glass of cold water may be enough to do the trick (Hughes, 1952). It is reasonable to assume that the initiation of the gastro-colic reflex inhibits the painful muscle spasm. No doubt the same result can be achieved in other ways, but the use of volatile antispasmodics, of which chloroform and amyl nitrite have been most popular, has been in my experience uniformly unsuccessful. Perhaps the spasm can be relieved by the conscious search for mental relaxation, but this is a process which even at the best of times is exceeding difficult to initiate: it would seem more reasonable to seek a solution below the conscious level, by simply taking a biscuit and a glass of milk.

The variety of the measures which have afforded relief in this complaint gives further support to the belief that it is a visceral neurosis, although it is admitted that this is a common enough happening in any complaint which is naturally self-resolving and of short duration. Each sufferer has learned from his own experience some manoeuvre which seems to help. For some the application of warmth, whether by clothing or by a hot-water bottle, may be enough; others get respite from a change in position, to the genu-pectoral (Bull, 1952), or to the squatting (Smith, 1935), or to sitting on the very edge of a chair, or even to a sitting-up position in bed. The passage of flatus may ease the pain almost immediately, as will the discharge of any particulate faecal material, however small in amount: it is likely that each only signals the relaxation of muscle spasm and the end of an attack. Commonly, the patient can expel nothing at all from the rectum, and the effort of ineffectual straining may only intensify and prolong the spasm.

Most of the other lines of treatment are largely impracticable—such as the passing of a rectal catheter, or even the giving of a small enema, warm or cold, water or oil, or even air alone. It seems likely that any success in such manoeuvres results from engaging the attention and by arousing interest, curiosity, or expectation.

Summary

Proctalgia fugax is a condition characterized by recurring attacks of pain deeply inside the rectum. The pain follows a definite pattern, and no local cause can be found to account for it. It has certain features which suggest that it is due to a sustained muscle spasm. It can be relieved most effectively by the immediate taking of food or drink.

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ADRENALINE CREAM

AN ASSESSMENT OF ITS VALUE IN THE RHEUMATIC DISORDERS

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Adrenaline cream seems to have been used first in the treatment of rheumatic conditions by Moss in 1949 on the grounds that it might be absorbed sufficiently to cause vasodilatation in muscle and thus aid massage in patients suffering from fibrositis for which a causal "vasomotor disequilibrium" had been postulated. He claimed that all patients except those with early osteoarthritis improved, and that most were symptom-free after a few treatments. As no comparison was made with patients receiving simple massage or massage with an unmedicated cream it is not possible to assess the effect of the adrenaline component from Moss's results.

The effect of adrenaline cream was further studied by Howell (1950) in 90 patients with "fibrositis secondary to rheumatoid or osteoarthritis." In comparable groups of 20 patients there was relief of pain for more than four hours in 77% of patients massaged with adrenaline cream and in 20% of those receiving a simple cream—an apparently significant difference.

Bywaters (1951) studied 39 patients suffering from conditions associated with deep pain of symmetrical distribution. Adrenaline cream was rubbed into one side and a plain cream into the other. Improvement occurred in 29% of trials with adrenaline cream and 25% of controls. Relief was complete in 17% of 283 trials with adrenaline cream and 13% of 289 with plain cream. These differences are not significant, nor was there any significant difference in the duration of relief; it was therefore concluded that there was little difference between the effects of the two creams when administered in this way.

Present Study

The present trial was undertaken as part of a study of the value of physiotherapeutic procedures in the rheumatic diseases, and was carried out at a clinic for the treatment of rheumatism in miners. The distribution of rheumatic disorders in patients used in this study is indicated in Table II.

Two separate investigations were made: (1) a study of palliation, and (2) an investigation of recovery times.

Palliation was studied in two stages. In the first stage, carried out on a group of 65 patients, comparison was made between two creams—one containing 0.1% adrenaline, the other a simple cream base. These were so labelled that the identity of the adrenaline-containing cream was unknown either to the physician or to the physiotherapy staff, and were assigned alternatively to new patients attending. When the patient had received treatment thrice weekly for two weeks the palliative effect was assessed, and he was then transferred to the other treatment, which in turn was assessed on completion of the sixth treatment. In the second stage of the investigation, carried out on another group of 60 patients, adrenaline cream was compared with dry massage and with no massage, each patient being thus studied for three consecutive periods, the initial treatment being decided as before by a rota. As in the first stage, these treatments were given over a period of two weeks