caecal tumours had ulcers in the rectum or the pelvic colon. This experience is in contrast with that of Payne (1945). Sigmoidoscopy would appear to be of great value in effecting a diagnosis in the dysenteric case in the shortest time but to have limitations in latent cases.

Conclusions and Summary

The prevalent attitude to amoebiasis is concerned with the difficulties of treatment, the liability to infection being regarded as an unavoidable risk. As a feasible and practicable laboratory diagnosis can be made, it is felt that attention should be directed to the prevention of its spread by the removal of cyst-passers from the handling of food, the diagnosis of latent cases in permanent residents in the Tropics, and the elimination of unsuspected infection among members of the Services on repatriation.

The pathological findings of 300 cases of amoebiasis in which the *Entamoeba histolytica* has been identified are described. The difficulties of laboratory diagnosis are discussed. Routine examinations, to reduce the incidence of the disease, are suggested.

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ACROPARAESTHESIA IN THE LOWER LIMBS UNEXPLAINED PAINS IN THE LEGS AT NIGHT

BY

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For simplicity I have used the word "pains" in the subtitle of this note, but the sensation which is experienced in the cases I refer to is not actually pain but a peculiar tingling discomfort which, when intense, becomes painful. I believe the sensation is the same as in the condition called acroparaesthesia, which commonly occurs in the arms at night and is of far more frequent incidence in women than in men. Among the early descriptions of it were those of Putnam in 1880 and of Ormerod in 1883, and, following the lead of the former, it is still usual to regard it as a vasomotor neurosis; but Behrman (1945) in his recent paper regarded it as due to slight pressure on the brachial plexus at the thoracic inlet, and, while insisting that it was not necessarily nocturnal, attributed its frequent occurrence at night to the influence of the recumbent posture and the hypotonia of sleep in bringing about such pressure. Walshe (1945) has taken a similar view. Acroparaesthesia in the lower limbs has been mentioned by some of those who have written on the subject, but in recent times its occurrence seems to have been insufficiently recognized. All the sufferers from it whom I have encountered have been in men, but one patient said that his mother had suffered from "pains" in the legs which he thought were similar to his own.

The following cases provide good examples of this condition.

Case I

An architect aged 68 complained that he had pains in his legs at night, which he had been subject to for more than forty years. They had gradually grown worse as he got older, and now they kept him awake a great deal. The pains used to come on after he had gone to sleep and wakened him up, but recently they had occurred about half an hour after he had got into bed. Formerly he used to move his legs to a cooler part of the bed or put them out from under the blankets, but in recent times these measures have been insufficient, and he has had to get out of bed and walk about the room for a little. He may have to do this several times in one night. If he gets out of bed in this way while the pain is present he may feel "groggy about the ankles," and in the mornings he sometimes feels similarly "groggy." When he came to see me he

said he was getting practically no sleep till three or four o'clock in the morning.

The sensation in his legs began as a tingling in the calves, and gradually, as it became worse, it became more like pain. He called it "neuritis." The discomfort was always below the knees. In answer to my inquiry he said he had some burning sensation in his feet, but evidently this was not an important feature in his condition. The "pains" were limited to the night, except that very occasionally in winter, when sitting in front of the fire, he had felt some tingling in his calves. Even when he had to stay in bed because of illness the pains were limited to the night, and they had been very troublesome when he had pneumonia, and also after he had had his prostate removed nine or ten years ago. He did not think that his position in bed made any difference to the occurrence of the pains. As an architect he was in the habit of standing all day at his work, but he did not believe that exercise during the day had any influence on the nocturnal pains, because the latter had occurred as usual when he was kept in bed by illness. He was inclined to think that mental strain had more effect in aggravating them than physical exercise. He said he was not a rheumatic person and had no pains elsewhere.

The patient was a thin man of medium height and generally of light build. I found no abnormal physical signs in any part of his nervous system or elsewhere in his body. In particular the knee-jerks and ankle-jerks were normal and the plantar reflexes "flexor." He had no loss of appreciation of light touch, pain, temperature, position of his toes, or vibration. The muscles of his legs were all of normal size and were not tender. He walked normally, and Romberg's sign was negative. His blood pressure was 140/90 mm. Hg and his arteries felt normal for his age. There was good pulsation in the dorsalis pedis artery in each foot, and his toes showed no cyanosis or pallor. He had no varicose veins. His heart was normal. His spine seemed normal and he stood in a normal posture. There were no signs of arthritis in his knees or hip-joints, or elsewhere. In his abdomen I found no abnormality. His Wassermann reaction had previously been done, and was negative.

He had had various kinds of physiotherapy to his legs and different types of antirheumatic treatment without any benefit resulting. He had also been treated with vitamins B₁ and B₂ over a long period, and had been given phenobarbitone at bedtime to make him sleep.

I advised that he should cease standing at his work and prescribed a combination of aspirin 10 gr. (0.65 g.) with phenobarbitone 1 gr. (65 mg.) to be taken at bedtime, and these measures brought about a dramatic improvement. After ten days he gave up the phenobarbitone, and he has continued to have restful nights.

Case II

A doctor of my acquaintance, now aged about 50, has suffered from paraesthesiae and pains in his legs at night off and on for about fifteen years. If mild the sensation is an uncomfortable tingling, but if severe it is painful and is associated with some tenderness in his calves. At first the discomfort occurred only after playing tennis, and in recent years it has usually been associated with other forms of physical exercise such as gardening or driving his car long distances. He has long intervals of freedom from his symptoms, and at other times the pain or discomfort may be troublesome every night for weeks. It has gradually become more frequent; its intensity is very variable; but during the war, when he was working very hard and driving about a great deal, there was a period during which it was worse than he had ever experienced before. The discomfort wakens him up about half an hour after he has gone to sleep, and it may awaken him two or three times in a night. If it is not severe he merely puts his legs in a cooler part of the bed, but ordinarily he puts them out from under the bedclothes, and sometimes he lies on his face and holds his feet up in the air and moves them at the ankles so as to exercise his calf muscles. In recent times he has had a mild burning sensation in his feet associated with the "pains," but this burning sensation also occurs independently of them. So far as he has been able to determine, the posture in which he sleeps does not make any difference to the incidence or severity of the symptoms, which occur every night for a time and then remit for weeks or months. He has not observed any influence of psychological factors on the pains, and has been through periods of mental stress without suffering from them. In contrast to the previous patient, he was free from these pains during a period of illness. He never has any active discomfort in the daytime, but when the pains are troublesome he says that he can feel a little tingling in his calves during the day "if he thinks about it," and there may even be a little deep tenderness in his calves.

His ankle-jerks and knee-jerks are quite normal. There has been no wasting of his calf muscles or other musculature, and no loss of sensation or change in the appearance of the skin. The arteries of his feet seem normal and there is no indication of impaired circulation, but when the burning sensation is present some redness is seen along the outer borders of his feet and outer parts of the soles. He has no varicose veins.

He is a tall thin man. Though generally healthy he is somewhat rheumatic, has had nodules on his fingers since his student days, and is liable to occasional pains in his shoulders and hip-joints. His blood pressure is normal. When the pains are troublesome this patient takes 10 gr. of aspirin at bedtime, with invariable relief.

Case III

In another patient whom I saw recently paraesthesiae affected all four limbs; they were not related to exercise and they occurred during the day as well as during the night. He was a butler, aged 57, and had been liable to these abnormal sensations for three years at least. They occurred when he got warm, and affected his hands and forearms and his feet and calves. They were worse if he sat long in one position, unless he was in the cold. During the day he relieved them by avoiding warmth so far as he could and by muscular movements. During the night he "kept looking for a cold spot" for his feet in the bed, or put his feet out from under the bedclothes, and in the summer he was accustomed to lie on top of the bedclothes.

Except that he had some varicose veins I found no abnormal physical signs. His pulse was not abolished at either wrist by putting his shoulders back and taking a deep breath. He had had prolonged treatment with vitamin B without effect on his symptoms.

Other Cases

During the war, while acting as neurologist to the Eastern Command (Home Forces), I saw several cases of this kind in soldiers. I recall two instances in officers, whose symptoms began while they were serving in the Army. They were both men in the middle forties, whose military duties had required them to undergo more strenuous physical exercise than they had been accustomed to in civil life. Both of them attributed the occurrence of the pains to marching, and one said quite definitely that if he did no marching he had no pains. Both had been greatly relieved during periods of sick leave. One had been treated with applications of radiant heat to the legs during the day, but it seemed to me probable that rest was the more important factor in bringing about the improvement. Both of these patients were of stouter build than either of those in the first two cases, and one would undoubtedly be classified as stout. I do not recall details in regard to their liability to rheumatic symptoms or whether they had any varicose veins.

Comments

I do not propose to discuss the differential diagnosis of this condition, which is in general not difficult. It is obvious that it is necessary to make sure that there are no signs of any organic disease of the nervous or vascular system and to exclude pains due to arthritis and sciatica.

The tingling is usually described as being in the muscles, and is relieved by muscular activity, but the burning sensation in the feet, if present, is superficial and is relieved by putting the foot against something cold. Ekholm (1945a, 1945b) considers that there are two varieties—pain and paraesthesia. My own experience does not bear this out. Paraesthesia if sufficiently intense may become painful, and the same subject may suffer at one time from tingling and at another from a painful sensation.

These paraesthesiae or "pains" occurring in the legs at night raise several interesting questions: Are they of the same nature as the acroparaesthesia which is frequent in the upper limbs? Have they an organic cause? What, if any, is the influence of physical exercise in bringing them about, and, if it does, by what mechanism is this delayed effect of exercise produced? Why do they occur during sleep?

There can be little doubt that the sensation is the same as that of acroparaesthesia in the upper limbs, and, in fact, I see no reason why these cases should not be included under the heading of acroparaesthesia, which is one applicable to all the extremities. Schultz (1893), who first used the word "acroparaesthesia," intended it to have this wider application. Not only is the quality of the sensation the same, but both in the upper and in the lower limbs the sensation occurs above all in sleep; if at all severe it awakens the sufferer, and it is relieved by the same means—viz., putting the affected parts out into the cold, holding them up, and exercising them. Furthermore, in very many cases the apparent effect of physical exercise taken during the day in bringing about this peculiar discomfort at night is similar in both instances. Sleep and physical exercise are the most constant associates of acroparaesthesia in the upper limbs, as they are of these paraesthesiae in the lower. Rheu-

matic conditions (arthritis, fibrositis, Heberden's nodes) are also frequently associated (Parkes Weber, 1945), and similar conditions have been present in some of these cases of "pains" in the lower limbs. Behrman (1945) has stressed the association of the former with pregnancy, but I have not yet observed this association with the discomfort in the legs.

All the cases of acroparaesthesia in the lower limbs that I have seen so far have been in men, and yet acroparaesthesia in general is much more common in women. This contrast can hardly be due to differences of habits and varieties of work between the two sexes. It may conceivably be accounted for by differences of posture and structure in the body, but, if so, no adequate explanation on this basis has yet been put forward. Both Behrman (1945) and Walshe (1945) have attributed the discomfort in the upper limbs in women to a minimal degree of pressure on the structures at the thoracic inlet, but in the cases referred to here I have been unable to discover any mechanical factor to which the paraesthesiae in the lower limbs could be attributed. Posture in bed seems to make little difference, and I have not observed any constant peculiarities of bodily configuration in the individuals concerned. I understand that this variety of discomfort was not uncommon among the officers of our Army in the Middle East, and there was a tendency there to attribute it to sleeping on hard beds. The intermittent character of the symptoms in patients who sleep constantly under the same conditions seems to render a constantly present mechanical cause unlikely, and when paraesthesiae occur in all four limbs it is particularly difficult to suggest any physical mechanism that would account for them.

Similar paraesthesiae in the legs have been one of the most frequent features of the early stages of organic nervous diseases due to dietary deficiencies among prisoners of war, and they occur also in subacute combined degeneration of the spinal cord, polyneuritis, and other organic nervous diseases. Paraesthesiae are also a feature of some cases of vascular occlusion, and they occur in cases of "immersion feet" where there is a combined nervous and vascular effect. But even after forty years of paraesthesiae at night my patient in Case I showed no sign of organic nervous or vascular disease that I could discover, nor have there been such signs in any of my other patients. There is consequently little justification for supposing that in these cases the symptoms represent a minimal degree of some serious organic disease.

The association of these paraesthesiae with exercise seems in many instances to be fairly close; but if they depend in any way upon exercise, why do they occur after such a long interval, and what is the influence of sleep in precipitating their onset? To these questions I am unable to offer any satisfactory answers. With muscular stiffness and other occasional delayed effects of exercise, such as cramps, they do not seem to have any connexion.

The association with sleep is equally puzzling. Acroparaesthesia is one of those conditions which are brought on by sleep and yet terminate sleep or interrupt it. Its dependence on sleep in so many cases seems to be due more to an association with warmth and vasodilatation than with the recumbent posture; but none of these influences is ordinarily effective in the absence of sleep, though in Case III warmth was an adequate exciting cause whether the patient was asleep or awake. It is possible that immobility during sleep is also an important factor. If at all severe the paraesthesiae awaken the sufferer, but if mild they may not do so, and he only becomes conscious of them on waking at about the usual time in the morning.

I have found aspirin (10 gr. (0.65 g.) given at night and/or in the early morning) most serviceable for relieving these paraesthesiae. This is peculiar, because aspirin itself causes vasodilatation and a sensation of warmth and by making him sleep more soundly may increase the patient's immobility; but even if the practice is "homoeopathic" it is justified by the results.

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