Case II

A healthy Class A infantryman, 22 years old, stated that a week previously he had developed discomfort in the outer part of the front of his left foot, and that within two hours the pain caused by walking was so great that he had to report sick. Though his training included route-marching he had done none, nor any other violent exercise, within thirty-six hours of the onset of the trouble. There was nothing to see at the time, but the medical officer discovered a tender point in the dorsal part of the fourth interosseous space and ordered him to rest. In spite of this the pain continued on any attempt at walking, and he was therefore sent to this hospital. On examination tenderness was found on deep pressure on the dorsal aspect of the fourth interosseous space, tenderness on the plantar aspect of the third metatarsal bone, pain on pushing the third toe backwards on to the tarsus but none on pulling it away from the tarsus, and moderate oedema of the dorsum of the foot hiding the extensor tendons of the toes. The patient was kept in bed and given massage treatment, but as the latter caused pain it was withheld for a fortnight and then restarted. The case was so exactly parallel with the first one that a second radiograph was taken at the end of two weeks from the onset, but still no unmistakable lesion was shown. Progress continued to be satisfactory, and by the end of three weeks he was put on massage again, and this no longer caused pain. Still having in mind the first case, a third radiograph was taken, and this revealed a tiny crack of the neck of the third metatarsal bone surrounded by a collar of callus. The patient was allowed to walk about the building at the end of five weeks, and returned to his unit at the end of seven. The general oedema of the dorsum had disappeared, and the last evidence of the lesion was slight thickening corresponding to the callus.

Case III

This patient was also a healthy infantryman 22 years old. His story was that towards the end of a session of physical training he felt discomfort in the anterior part of the right forefoot which rapidly developed into real pain on any attempt to walk. He reported to the medical officer and was taken off duty, but as no improvement ensued he was sent to this hospital. On examination there was tenderness in the fourth interosseous space and over the third interosseous bone. Pulling the third toe away from the tarsus caused pain. There was slight oedema of the dorsum of the right foot as compared with the left, but this was not so marked as in the first and second cases. A radiograph showed an oblique fracture of the shaft of the third metatarsal bone with no displacement. The foot was put in plaster-of-Paris with a Böhler iron for one month, and after massage for a further fortnight the patient returned to full duty.

Comments

If march-foot is defined as a spontaneous fracture of a metatarsal bone during prolonged marching two of these cases would have been missed, for it was not until the second x-ray pictures were taken three weeks after the first that the tell-tale callus declared the true diagnosis of a condition that up till then had been most puzzling; and it is almost certain that these second radiographs would never have been taken had not I myself been Case I, and been stimulated constantly by the annoyance of the disability to believe that no stretching of ligaments could possibly account for all the symptoms. From the radiographic appearances in Cases I and II at the third week the lesion seems to be a subperiosteal transverse crack of the neck of a metatarsal bone. The site of tenderness in the interosseous space rather than over the bone in these two cases is difficult to explain, unless it be that tearing of a periosteal nerve is referred back to the interosseous nerve, which it joins.

Conclusion

The case showing an oblique fracture at the first x-ray examination offers no problem. Where the history is that of spontaneous discomfort in the forepart of the foot, developing within an hour or so into frank pain with any attempt at weight-bearing; local tenderness in the interosseous space, followed within a day or so by puffiness of the space which spreads to involve the whole dorsum, so burying the extensor tendons; and complete freedom from pain on resting the foot—these signs and symptoms, even in the absence of immediate x-ray evidence, should make one very suspicious of a subperiosteal crack of one of the metatarsal bones, and the radiograph should be repeated in three weeks. In the meantime complete rest in bed is the quickest method of restoring the patient to normal.

AEROPHAGY

BY

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The habit of swallowing atmospheric air by gulping so as to distend the stomach becomes noticeably commoner in the nervous individual in times of personal anxiety or of national stress like the present, particularly in women during the climacteric—and sometimes, though seldom, in men about the same period of life—and can excite much discomfort, even pain, with more or less constant complaint of ailing. The condition occurs in those given to worry and anxiety of an imaginary or trifling kind, being an actual gastric neurosis. Such persons readily suffer from nausea, the sialorrhoea thereby provoked causing the frequently repeated act of swallowing saliva with atmospheric air into an empty stomach so as to distend it. In its turn this distension forbids the taking of food. As a rule, however, such patients are never anorexic but well nourished and stout.

Once the habit is established air-gulping is often practised almost paroxysmally for half an hour or so at a time, or until the patient tires of the physical efforts at swallowing and produces a comforting sensation of gastric repletion akin to that of a full meal, this feeling becoming one of discomfort only when the distension of the stomach is excessive.

Complaints of "wind" or flatulence seem to be more often than not due to this habit. To diagnose the condition, apart from the usual physical signs of an over-distended stomach with occasional borborygmi to be heard as air rattles on through the pylorus, all one need do is to ask the patient: "Let me hear the wind." The process can then be observed. What the patient does is to crane the neck; then she proceeds to gulp air, at the same time complaining of tightness and pain across the epigastrium. She then straightens the neck and eructates noisily, so obtaining relief. A similar phenomenon can be witnessed in the mentally deficient child given to the practice of "rumination," or in the ruminating cow that "chews the cud." But not all women who practise aerophagy suffer from that neurosis alone. Some few are reflexly dyspeptic: they may suffer from chronic cholecystitis or gall-stones, this constituting the underlying disposing cause of the habit.

The treatment of air-gulping is simple: to stop or prevent the actual process of gulping, a small rubber

gag or cork should be placed between the back teeth on one side and secured by an attached silk thread wound round the pinna of the same side. Few of those afflicted relish this cork cure, preferring the sympathy excited by their complaint and the gastric comfort—or discomfort—of air-gulping. Preventive treatment is simple: if the trick and habit are explained to the patient, and advice is given as to correct and regular feeding, no meal being missed so as to create an empty stomach, this may then be all that is required. It will be well, however, to look carefully for gall-bladder mischief, which, if found, should be corrected.

Dilatation of Stomach

In a few cases it seems pretty certain that the habit of air-swallowing is learned during convalescence in bed after confinement or illness or operation. A fluid diet is usual at this time, swallowed in gulps while recumbent. In this way the habit may be quickly discovered by the neurotic. However, not all "aerophagists" are neurotic. In a class apart are those patients after laparotomy—at any age, male or female—who, because of nausea, extreme thirst, or dry tongue and mouth, repeatedly go through the act of swallowing saliva and air together so as to obtain some relief. Thirst is assuaged by the nurse giving to the supine patient sips of water out of a teaspoon or mug, or pills of ice to suck, so encouraging chance air-swallowing. Much air may thus find its way into the silent, perhaps passive, stomach, which then becomes distended, being unable, because atonic, to empty itself by the act of eructation or else by peristalsis driving the atmospheric air on through the pylorus.

Where such a state of affairs occurs an acute dilatation of the stomach may ensue. Indeed, I am convinced that such is the dire consequence of the unwitting swallowing of atmospheric air which cannot be given vent to readily by the patient because recumbent. This being so, it may not be advisable as a first effort to attempt to recover gastric tonus by the hypodermic use of such substances as pituitary extract, or acetylcholine, eserine, or doryl, until an attempt is made to empty the stomach of air by means of a retained Lyon tube, which, being passed, will evacuate what air is in the stomach as well as prevent further air entering. At the same time the patient should be placed in the Fowler position and over on to the left side so as to give vent to air pocketed in the cardiac end of the stomach.

Conclusions as to aerophagy conclude nothing. It is merely a symptom—an effect rather than a cause; one type, embracing the majority of cases, being harmless, the other harmful—maybe desperately so—in the result; these two types of similar mechanism of production—namely, in the first case by air-gulping into an actively contractile stomach possessing the power to expel swallowed air upwards by way of the oesophagus or downwards through the intermittently relaxed pyloric sphincter; and in the other case by air-swallowing into a passive, dangerously atonic stomach—often leads on to a fatal issue by an uncontrolled acute gastric dilatation.

Intra-laryngo-tracheal Goitre.—Different views as to the causation of goitre appearing in the submucous tissues of the larynx and trachea are reviewed, with the relevant evidence from histological examination of human and rat (experimental) goitres. A connexion with the ordinary extra-laryngeal thyroid tissue is usual.—Pathogenesis of Intra-laryngo-tracheal Goitre. C. Wegelin.—*Schweiz. med. Wschr.*, July 1, 1939, 69, 593.

THE WEAK "A" REACTION FOUND IN SOME CASES OF THE BLOOD GROUP "AB"

BY

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It is well known that the reactions of the agglutinin A with anti-A serum are often markedly weaker when that antigen occurs with B in Group AB than when it occurs alone in Group A. Thomsen (1929) and Thomsen, Friedenreich, and Worsaae (1930) have shown that in some AB cases the factor B is partially dominant to and obscures the A antigen. While there tends to be some weakening of the B reaction in Group AB, it is nothing like so marked or so important as is the suppression of A. As there are two types of A antigen— A_1 and A_2 , a stronger and a weaker—the suppression of B by an already weak A_2 in the Group A_2B may result in it only being possible to detect the A factor with powerful anti-A serum; weaker sera of only moderate strength will often fail completely to reveal this A factor, and the cells will be diagnosed as belonging to Group B. Cases diagnosed as B have been found on re-examination to belong to Group AB, and an inspection of published figures from all parts of the world shows that in a large proportion of the series there is a real deficiency of the numbers in Group AB.

In the accompanying table are given in full the results of titrating against standard cells of the types A_1 , A_2 , A_1B , and A_2B , consecutive anti-A (α) sera from fifteen persons, bled because their sera had been found to contain the antibody in amount sufficient to satisfy the minimum requirements of this Unit—a titre of at least 64 with standard A_1 cells. The technique used for these titrations has been described by Taylor and Ikin (1939). Although we feel that the use of an anti-A serum with a titre of 64 would be justified if a stronger one were not available, we prefer a higher titre; and, while anti-A sera with titres of 64 are being stored in case they are needed at a time when the demand may be very great, stronger ones are being sent to those who apply to us for grouping serum.

Of the sera from 378 persons of Group B, 111 (29.37 per cent.) had titres of at least 64. Only 31 (8.2 per cent.) had titres of 128 or more, and, as Group B forms about 9 per cent. of the English population, it has been necessary to explore some 4,200 people to get thirty-one adequate sera—that is, only 0.74 per cent. of the population provided really good anti-A serum.

As the factor B does not occur in strong and weak forms, anti-B (β) serum with a titre of at least 64 with standard B cells seems to be adequate; 1,347 persons of Group A yielded sixty-seven satisfactory sera—that is, 4.97 per cent. of all A's, or 2.19 per cent. of the whole population, assuming that Group A is 44 per cent. thereof.

Apart from the A_1B cells used with serum 13 the four donors of the control cells were always the same persons, and the table shows that the order of decreasing strength of reaction is A_1 , A_1B , A_2 , A_2B . This same gradation in strength, A_1 , A_1B , A_2 , A_2B , was also evident in the comparative reactions given by cells from large numbers of