unduly tender, but if the pain be a referred one the tenderness on pressure will be greatly intensified. As the stomach is not in relation with intercostal nerves lower than the seventh, referred pain felt in the region of the umbilicus—namely, in an area supplied by the eighth and ninth intercostal nerves—cannot be of gastric origin, and is probably due to the colon. In this way pain after meals may be proved to be due to "static" hardening of the colon and not to gastric disturbance.

A Clinical Problem

A case seen as recently as May 11th, 1935, raises a very interesting point as to the connexion between fibrositis and persistent contraction of the fingers.

A manual worker four years ago had a very severe attack of rheumatism, which confined him to bed for many weeks and prevented him from working for fifteen months. It left him not only with troublesome pain in both shoulders on movement, but also with contraction of the fingers, more especially of the third and fourth, which, while not materially interfering with his daily work, prevented him from bringing the ulnar aspect of the palm within three-quarters of an inch of any flat surface. He gained so much relief from the pain by manipulative treatment of the upper border of the scapula and the supraspinous fossa on the right side that he desired similar treatment to the left shoulder. As the fibrositic cords were very hard owing to the long time they had been in existence, I began the treatment with extremely forcible manipulation. He was so anxious to be free from pain that he at once requested a repetition of the treatment, as the first had not given full relief, and on this occasion he exclaimed that it "has loosened something and the pain has shot down the arm into the third and fourth fingers." After he had dressed I found that the contraction of the fingers of the left hand was completely cured, and no trace of it remained. Moreover, on fully extending his fingers and flexing them, as he could now do with perfect ease and without any pain, there was a very loud and low-toned grating in the joints of the hand as well as one or two bony clicks. In the course of four or five days the condition of the joints had nearly returned to normal, for the grating on movement had ceased and there were only a few clicks.

This was a most extraordinary and unexpected result of the treatment, and perhaps the most remarkable thing was that in spite of four years' deformity of the hand there was no trace of fibrous fixation of the joints, and perfect mobility was restored immediately when the muscular contraction, to which the deformity had clearly been due, suddenly ceased.

The correct solution of this problem is no doubt of clinical importance, for it will throw much light on the question of similar contractures. I state what seems to be the possible solution, in the expectation that someone with more experience than myself will give the correct one. There is the possibility of further experiment in this case, for the man's right hand is still contracted, and I have not yet had an opportunity of trying to cure it also by manipulation of the scapular region.

1. In the first place, what was the nature of the deformity of the hand? The fact that sudden and complete cessation of the contraction resulted from manipulation of the shoulder without anything whatever being done to the hand shows that the contraction must have been entirely due to involuntary muscular action, in spite of its persistence for four years.

2. The muscular contraction may have been of the nature of a protective muscular fixation of the joints, which was originated when the rheumatic attack gave rise to pain on movement. The muscular fixation must have persisted as a habit phenomenon after recovery from the rheumatic attack, as is liable to occur when protective involuntary muscular fixation of a joint is once originated. Lasting fixation of intervertebral joints after some slight strain or injury is a well-known instance of this.

3. The involuntary muscular contraction may, however, have been due to disturbance of some controlling mechanism by a fibrositic nodule, which could irritate one of the cords of the brachial plexus or some sympathetic nervous structure. Such a nodule might have been broken up by direct pressure of the fingers just above the upper margin of the scapula, or it may have been broken up when the scapula was forcibly pressed against the subjacent ribs. These are some of the problems raised by this interesting case.

This whole subject of the symptoms due to fibrositic nodules and their relief by forcible breaking up of the nodules is one of much clinical importance, and will repay fuller study and observation.

A NEW TREATMENT OF FIBROSITIS

BY

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Fibrositis is the commonest of those chronic conditions which we call rheumatic. Throughout the world its incidence is widespread, and in such a climate as our own it is rare to find the man who lives to old age without some temporary disablement and far from temporary discomfort from this cause. Yet only in the last twenty years has its existence been at all commonly recognized, and even now it is far too readily accepted as an inevitable accompaniment of advancing years.

Pathogenesis

Fibrositis denotes the swelling and proliferation of white fibrous tissue in response to injury and toxic influences of all kinds, with the secondary effects of pressure on arterioles and nerve filaments. In rheumatic cases it is generally recognized that the condition must have its prime origin in some focus of infection, which it is the first principle of sound therapy to treat or to remove. Often the extraction of an offending tooth will cause the local inflammation to subside, but with long-standing cases it is common to meet those which are unbenefited by the most careful elimination of suspected sources of infection. Those who find in the focal theory the complete explanation of rheumatic problems will argue that, when cure does not result in any given case, the focus removed was not the right focus and others must be sought and dealt with. But how frequently in really inveterate cases is the final result disappointing!

The physician who remembers his failures will be able to match from his own experience the case of a young woman under my care some years ago, who made an apparently complete recovery from crippling fibrositis after the removal of all her more than doubtful teeth. Six months afterwards the pain and disability returned in full force, and no efforts to help her were of any avail, nor did the most exhaustive search reveal any further focus. Later treatment at other hands proved equally unprofitable.

Inadequacy of the Focal Theory

So distressing a failure must tend to raise in the physician's mind some doubt of his own methods, and perhaps even the suspicion that the focal theory leaves something unexplained. It did not explain, for instance, a phenomenon observed in this case—namely, that the application of deep massage was always followed by malaise and a slight rise of the evening temperature,

which disappeared when massage was discontinued. Having discovered this in one case, it was natural to look for it in others, and I found that evidence of systemic reaction was quite common when an acute fibrositic area was thus mechanically irritated. The same result may also be observed if the irritation is of a chemical nature, as when lipiodol is injected into the fibrositic patch, after the manner of Forestier. The therapeutic benefits of such measures have been shown by Forestier, but I can trace no reference in his works to this fairly constant systemic disturbance.

The finding that under certain conditions of irritation the fibrositic nodule apparently introduces toxic material into the circulation when the original focus of infection has long been removed must suggest that it has itself become a focus, secondary to the infecting focus, but needing no reinforcement for its effective existence. It can hardly be a case of its storing up the toxins of the original focus for long periods of time; it must be making its own toxins and, in fact, be harbouring low-grade organisms capable of independent saprophytic life. This resembles the state of things described by the theory of subinfection which, however, postulates the continual arrival of organisms from a distance and not their self-sufficient life within an affected tissue.

Lipovaccine Therapy

If such a conception be dismissed as mere conjecture, it may be found difficult to explain a phenomenon which appeared when local treatment was instituted to raise the local resistance of the attacked muscle and to eliminate the fibrositic mass. An oil-suspended vaccine, prepared by the addition of dried streptococcal substance to olive oil, was injected into the inflamed tissue. Within a few hours the area became hot and tender, and the same malaise and evening pyrexia, but both more marked, occurred as when massage was applied or lipiodol injected. At the end of a few days all symptoms abruptly subsided, leaving the fibrositic area comparatively painless and no longer obvious to the fingers. Accompanying this local change a most marked gain in general health was often observed. Persons who had been in poor condition for years regained their normal colour and appearance in a week or two, and recovered a vigour and activity they had been resigned to losing. Not all were so fortunate, for the marked general—as distinct from the local—improvement was only seen in patients under the age of 50, and only when the fibrositis was of great severity and long standing. When it did occur, as in perhaps half the cases, the change was exceedingly remarkable. It was not forthcoming when the oil was injected into healthy muscle, or into a fibrositic area in which the inflammation was slight.

The lipovaccine, prepared by the Pickett-Thomson Research Laboratories, St. Paul's Hospital, London, was made up in two strengths, representing one and ten million organisms (polyvalent streptococci isolated from rheumatic cases) suspended in sterile olive oil. A mild antiseptic action was secured by the addition of an oil-soluble antiseptic (1 per cent. gomelhol proving satisfactory). The oil was injected deep into the fibrositic area, and was distributed throughout it by moving the needle from place to place. As much as 10 c.cm. of the stronger concentration was used at one sitting.

The following cases merit description.

1. A woman, aged 41, had for many years suffered from intense occipital headaches, so severe that cerebral tumour had been suspected. The general health was very low. There were large intensely painful fibrositic masses below each occiput, and the whole neck was involved. She had had discontinuous treatment for some years, massage, dia-

thermy, and strict dietary for three months having been without benefit. On two successive days lipovaccine was injected suboccipitally and elsewhere. A week later the headaches had disappeared, the colour was much better, and very soon she resumed her full activities. Six weeks later the general improvement was most remarkable, and after nearly three years she remains in all respects well.

2. A man, aged 48, was treated by me in 1919 for nervous debility and "exhaustion in the back." This symptom never yielded, and in 1933 there was extensive lumbar and gluteal fibrositis with some neurasthenia. After four injections at weekly intervals he became completely well, though the first two injections caused no general benefit. After the third one the colour improved, and he became much more active; though always highly strung, his nervous condition was greatly ameliorated. Six months later he reported that the improvement had been maintained.

3. A man, aged 62, developed lumbago three years ago. A very thorough search for septic foci seems to have been made with negative findings other than several doubtful teeth, which were removed. A year ago he had a protracted course of treatment by protein shock, which benefited him, but he could not move without pain and had to give up golf. There was marked fibrositis in the lumbar region and in both buttocks. Injection treatment was only undertaken on the understanding that he should undergo a strict dietetic regime, for it was obvious that marked abdominal toxæmia was present. After seven injections he was able to play golf freely without pain, and six weeks after the first one he reported as his only symptom "feeling a little stiff after a day's exercise, but this passes off in the night." The patient was so pleased with the result that he refused dietetic treatment. Although at the end of six months he remains well, the injection treatment should not have been undertaken if it had meant the neglect of obviously necessary dietetic measures.

These three cases are selected from a series of twenty-five of intractable fibrositis treated during the last three years to exemplify the phenomenon of marked and sometimes dramatic benefit to the general health. It is puzzling to account for this last feature, unless one admits that the fibrositic mass may eventually itself become a source of infection, the removal of which eliminates an actual cause of ill-health as well as a cause of local pain. One would have to assume that the local reaction to the lipovaccine produces a specific local immunity sufficient, in successful cases, to destroy the invader *in situ*.

Apart from systemic benefit and from conjectures as to its meaning, the injection of lipovaccine caused a more or less complete disappearance of the local disability in eighteen cases out of twenty-five, a partial improvement in three, and no result in four cases. The last group contained two persons over the age of 60, and two in whom very chronic lumbago was associated with old scoliosis. Almost every patient had suffered for more than ten years.

The second International Congress of Microbiology will be held in London from July 25th to August 1st, under the presidency of Professor J. C. G. Ledingham. The congress will be officially opened on Saturday evening, July 25th, at University College, Gower Street, London, the headquarters of the congress. The programme, as provisionally arranged, is divided into eight sections as follows: general biology of micro-organisms; viruses and virus diseases in animals and plants; bacteria and fungi in relation to disease in man, animal, and plants; economic bacteriology, soil, dairying, and industrial microbiology; medical, veterinary, and agricultural zoology and parasitology; serology and immunochemistry; microbiological chemistry; specific immunization in the control of human and animal disease. The hon. general secretary of the congress is Dr. R. St. John-Brooks (Lister Institute of Preventive Medicine, Chelsea Bridge Road, London, S.W.1).