

FIBROSITIS.

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In the course of a lecture delivered at the National Hospital, Queen's Square, and published at the beginning of 1904, Sir William Gowers⁽¹⁾ postulated that lumbago, a form of chronic rheumatism, was a peculiar inflammation of the fibrous tissue in the lumbar muscles and their insertions, not of a suppurative nature, and that conditions of this order, wherever situate, deserved a special word to designate them. He chose the word "fibrositis" and described with a good deal of detail the spread of fibrositis from the interfascial planes of the lumbar and shoulder muscles to the sheaths of the sciatic nerve and the brachial plexus respectively.

The word is now used in this sense and denotes inflammation of white fibrous tissue wherever situated, so that panniculitis, interstitial neuritis, some forms of myositis, bursitis and capsulitis are varieties of fibrositis, and in this sense these terms merely indicate the position of the fibrous tissue which is implicated. It is true that this is not an ideal state of affairs, and it would seem more logical to indicate the site of the lesion in the ordinary way, i.e., intramuscular fibrositis, bursal fibrositis, capsular fibrositis and so on. Nevertheless, the nomenclature now in use is generally understood, and it might be unwise to introduce fresh terms into a branch of medicine where some confusion already exists.

It is not intended to enter here into the relationship of fibrositis to rheumatic fever, except to say that although a closely analagous process certainly exists in connection with the acute rheumatic manifestations of children, it is not as a rule included under the disease term "fibrositis." "The whole subject is confusing and bound up with the close relationship between fibrosis and fibrositis, fibrosis being the end result of a chronic fibrositis" (Poynton and Schlesinger, 1937)⁽²⁾. In the present circumstances, therefore, it is best to say that fibrositis is one of the sequelæ of rheumatic fever, and that where it is accessible it should be treated in the same way as fibrositis having other ætiological factors.

As, however, this state of affairs appears to depend to some extent on the relative histological structure of Aschoff's nodes, the subcutaneous nodules seen in true rheumatism⁽³⁾, and the "fibrositic nodule" about to be described, it would contribute very largely to the solution of this problem (as well as to that of others closely related), if the structure of these fibrositic nodules and thickenings could be determined in a large number of cases. But the nodule is not easy to dissect out, being closely adherent to the muscle bundles surrounding it. Its structure, so far as my experience goes, is not typical, and apparently consists of fibrous tissue showing evidence of inflammation and degeneration, although other authors have described a more exact formation.

Pathology.

There appear to be two stages in the pathology of fibrositis, acute and chronic.

In the acute stage a low grade œdema appears with a sero-fibrinous exudation into the affected area. Some cells leave the blood vessels but very few of the polymorphonuclear variety. Stockman found newly formed proliferating fibrous tissue with œdema, and many fibroblasts and numerous blood vessels with new capillaries, with an entire absence of any leucocytic reaction.

In the chronic stage Stockman⁽¹⁾ found new fibrous tissue lying in an amorphous sero-fibrinous matrix, few fibroblasts, and no congregation of leucocytes. The small blood vessels shewed thickening of all their coats and Poynton found peri-vascular fibrosis.

This is the stage in which nodules can be found in the muscles and ligaments, and in many cases the nerve twigs round the affected part shew evidence of chronic inflammation of an interstitial variety.

Although these indurations often have a nodular shape and are known as "fibrositic nodules," it stands to reason from the extent and distribution of the fibrous tissue that large or small areas may be affected and that these areas may be either superficial or deep. The shape and area of the indurations will depend on the site and extent of the fibrous tissue involved, so that we have nodules, large thickened areas, circumscribed indurations, and long thick bands situated in the fascia. When situated in ligaments, they tend to be very small, sometimes as small as a split pea, and excruciatingly tender. When the ligaments are intimately connected with a joint, these cases are sometimes diagnosed as arthritis, and this is a serious error, for with adequate treatment much may be done to alleviate them.

Ætiological Factors.

Acute rheumatism has already been mentioned and briefly discussed.

Tonsillitis appears at any rate to be antecedent, and infected tonsils certainly to be a factor as a focus of infection.

Influenza may possibly be a precursor of fibrositis. Cases of pyrexia acute in onset with a pulse rate raised in proportion to the temperature, and aching of the whole body, are usually labelled influenza. Some of these, at any rate, are cases of acute fibrositis, and during the period of convalescence, the second or chronic stage of induration sets in, and nodules and band-like thickenings can be felt over the body. The majority clear up without treatment, nearly always, however, leaving some behind.

Stockman states that **rheumatoid arthritis**, **gonorrhœal septicæmia**, and **mucous colitis** are causes of fibrositis.

Focal Infection. There is no reasonable doubt to-day that focal infection is a frequent ætiological factor.

Dental abscesses, infected tonsils, upper and lower respiratory infections, cholecystitis, gastro-intestinal stasis, salpingitis, leucorrhœa and prostatitis all play a part in the causation of fibrositis. Different authors ascribe varying importance to these foci, but it has always seemed that teeth occupy the position of premier importance.

It is very unfortunate that even when the focus has been correctly located and properly dealt with, it does not follow that a cure will result, for it appears that a state of affairs has been set up in the tissues which needs no further toxin from the focus for its continuance. There is a great temptation to use the word allergy in this connection, but it must be resisted at present, because allergy and anaphylaxis have so many points of difference. Nevertheless, many cases of fibrositis are cured by the removal of foci of infection, and the younger the patient the greater the chance of success. This does not justify in any way the wholesale extraction of teeth and tonsils which took place a few years ago, and to which there is some inclination even to-day.

It is thought that fibrositis may be a tissue reaction not only to bacteria but to their toxins as well, and if the original focus is removed, secondary stores of toxin may have occurred in other parts of the body.

Precipitating Factors. *Physical.* It is well known that changes of temperature, sudden cold especially, and barometric changes are antecedent to an attack of fibrositis. A sudden wrench or fall, injury in any form, damp or wet clothes, may start an attack.

On the other hand, these things are not necessary, merely stretching a muscle beyond its usual limit is quite sufficient, as witness the attack of lumbago after doing up one's boots.

Symptomatology.

The symptoms of fibrositis are so manifold and distributed so widely that no useful purpose will be served by enumerating them. It may be advisable, however, to mention the characteristics of the more important symptoms, which will be essentially the same wherever the lesion is situated.

Pain occupies a prominent place, but the situation of the pain is of little value in determining the site of the lesion unless the question of referred pain and the nerve supply involved are kept constantly in mind. For instance, pain down the arm becomes significant only when the distribution of the brachial plexus, and its relations are appreciated.

With the pain generally comes aching and stiffness and a general feeling of malaise. In the early acute stages pyrexia may be noticed and those constitutional symptoms which accompany a mild pyrexia. It is at this stage that a diagnosis of "influenza" is usually made.

After two or three days the pyrexia passes off and the pain tends to become more localized, and in cases where nerve twigs pass through or near the indurations numbness, hyperæsthesia, and burning sensations may be experienced. Occasionally it is possible to map out these areas, but more often they are too indefinite.

Rarely a true neuritis ensues with loss of reflexes, anæsthesia and wasting, and in these cases the pain becomes extremely severe.

Generally, the pain of fibrositis is better at rest, and becomes exaggerated when the muscles are used, but even at rest there is an ache which is always present. The pain of fibrositic headache tends also to be alleviated at rest when the neck muscles are relaxed, but the pain of intercostal fibrositis may be continuous on account of the movements of respiration.

Diagnosis. The diagnosis of fibrositis may appear at first sight to be a comparatively easy matter, but in no condition is a more complete general knowledge of medicine required, or a more general awareness of the possibilities. Fibrositis is such a universal complaint, that the mere finding of pain associated with indurations is not a complete answer to a diagnostic problem, until all other possibilities have been excluded. When this has been done, however, it will be found that fibrositis is the diagnosis in a very large number of conditions which were previously undiagnosed.

The most careful examination is required in each case, and it is only after some considerable experience that the nodules and indurations can be easily felt,

and it is as well to start with those situations where the indurations can be compressed and defined against bone, such as the supraspinous fossa and certain parts of the lumbar aponeurosis.

Although the diagnosis of fibrositis comprehends the whole realm of medicine, there are certain points which are particularly important and which one is apt to overlook and these will be briefly mentioned.

General fibrositis and its possible relationship to influenza has already been mentioned.

There are other conditions with which it may be confused, and a recent case of acute anterior pyomyelitis was diagnosed as fibrositis.

It should be remembered that many diseases and syndromes commence with aching pains in the limbs and some slight pyrexia.

Another point is that fibrositis frequently accompanies arteriosclerosis and obesity, and that in *Dercum's disease* localized parts of fat are laid down in the subcutaneous tissue which are often painful, and must not be confused with the rather harder and more brawny indurations of panniculitis.

Intercostal fibrositis may shew no indurations in the intercostal muscles, but small bead-like nodules apparently attached to the periosteum of the ribs and which are very difficult to locate. These patients may complain of "heart-trouble" or may consider they have indigestion; and a correct conclusion may be impossible unless very careful search is made for the nodules. Very much the same symptom-complex is produced by herpes zoster of the lower intercostal nerves, and pleurisy can be excluded by the absence of signs in the lung.

Gonococcal rheumatism is not very uncommon and this possibility should always be considered.

With *pain in the back* even in the presence of nodules, the question of renal calculus should be thought of and enquiry made for attacks of renal colic, though these are, as a rule, so severe that the information is volunteered. Oxaluria is a possibility and the urine should be examined for crystals and red blood cells.

The sacro-iliac joints should be examined and nodules should be searched for round them, as they are sometimes the real cause of the backache.

In any case of doubt an X-ray picture of the lumbar spine and pelvis should be taken, although it should be remembered that most spines shew some osteoarthritis over the age of 50, and that this does not necessarily produce symptoms.

Occasionally nodules in the back seem to be accompanied by an unusual degree of muscle spasm. The application of heat relieves this spasm and the nodules seem to stand out much more clearly afterwards, and are more easy to treat.

Panniculitis deserves a special word, because it very often occurs in the subcutaneous tissue over the abdomen and, being painful, a diagnosis of appendicitis or other internal inflammation may be made. Provided the possibility is borne in mind, such a mistake should not occur as it is the swelling itself which is tender and it can generally be raised from the underlying tissue.

Brachial neuritis and sciatica are naturally not all of fibrositic origin. True peripheral neuritis is not very common, and is associated with certain poisons. Cases due to arsenic and lead are rarely seen, and present special features. The

nodules should be looked for in cases of brachial neuritis in the supraspinous fossa, in the sterno-mastoid and in the deltoid muscle, the insertion of which is occasionally very tender.

Alcoholic peripheral neuritis is generally symmetrical in its distribution and the history of alcohol with the peripheral distribution of the lesion should make the diagnosis easy. Diphtheria is not easily confused and generally leads to a motor palsy.

Treatment.

In the acute stage rest in bed, with the affected part relaxed as far as possible, a light diet, and saline purges are indicated. Sodium salicylate or aspirin may be given in fairly large doses. Fifteen grains of aspirin four hourly is not too much. The application of heat either as hot baths, hot packs or warm electric pads is useful, and hot drinks also help. Locally, any of the usual liniments are good counter-irritants, and lin. methyl. sal. is particularly good.

Passive movements of joints and muscles should be commenced from the outset, and it is a good plan to put muscles as well as joints through as complete a range of movement as possible once each day. This can be done very gently and will not cause a great deal of pain provided the patient can relax.

In the sub-acute and chronic stages treatment varies so much that only general principles can be considered.

From the point of view of treatment fibrositic conditions can be divided into two, those in which nerves are principally involved, and those in which muscles ligaments and aponeuroses are the chief consideration.

Fibrositic Conditions in which Interstitial Neuritis Predominates. These tend to run a more lengthy and protracted course. The principles laid down for treatment in the acute stage must be followed for a longer period.

The principal considerations are relief of pain, absolute rest for the part involved, and warmth. Special attention should be paid to searching for foci of infection, because neuritis of this type is apt to recur in other nerves if a focus is present.

Warm electric pads are of especial value here, but passive movements must be applied with great care.

X-ray examination of the spine should be the rule in these cases, as compression of the nerve trunks in the inter-vertebral foramina is very common, and it is sometimes not easy to decide in an early case whether the lesion is situated in the nerve roots or more peripherally. These are matters which should be settled early in the course of the complaint, for if adhesions form between the nerves and their sheaths the cases begin to fall into the "intractable" variety.

Hyperthermia produced by baths, foam baths or general radiant heat is useful, as also is general massage, but local massage must be employed with the greatest care, and the best local treatment is ultra-violet light. A sufficient dose should be given to produce an erythema.

In the later stages more may be done, but it should be borne in mind that over-treatment may lead to a relapse.

Fibrositis in which Muscles, Ligaments, and Aponeuroses are principally Involved. In this type the acute stage is of much shorter duration, and more energetic treatment can be commenced early.

Local massage is essential and should be commenced before fibrosis has spread through the indurations, if its effect is to be permanent. It is certainly a painful treatment, and unfortunately is not likely to be of much avail unless it is. Each nodule must be thoroughly massaged with some force, and the treatment must be persisted in progressively. Some exhaustion follows the effective treatment of these nodules, and it is as well only to treat a few at a time, but to make sure that those which are chosen are effectively dealt with.

Radiant heat and diathermy are useful, but the proper application of such measures is best left to the specialist, and cannot be dealt with here.

Occasionally the nodules are injected with various medicaments, usually combined with a local anæsthetic, and "lipo-vaccines," which consist of streptococcal substance dissolved in olive oil, have been used recently⁽⁴⁾.

Potassium iodide in ten grain doses with sodium salicylate is usually given but without, it would seem, any very great effect. Various other drugs are under trial, but it is too early to make any dogmatic statements about them.

Passive movements and exercises should be continued for some time after all trace of the fibrositis has disappeared.

Finally, it is as well to bear in mind that fibrositis is not just "rheumatism," but that knowledge and skill of a very high order are necessary in the diagnosis and treatment of this condition.

REFERENCES.

- (1) Gowers, Sir William, *Brit. Med. Jour.*, 1904, i, 118.
- (2) Poynton, F. J. & Schlesinger, B. *Recent Advances in the Study of Rheumatism.* J. & A. Churchill, London, 1937.
- (3) Stockman, R. *Rheumatism and Arthritis.* W. Green & Son, Edinburgh, 1920.
- (4) Scott, G. Laughton, *Brit. Med. Jour.*, 1936, i, 302.