DISCUSSION OF THE PAPER BY RALPH HERZ *

HERNIATION OF SUBFASCIAL FAT AS A CAUSE OF LOW BACK PAIN

BY

PHILIP S. HENCH

Rochester, Minnesota, U.S.A.

Surgeons, physicians, and orthopaedists should all have an understanding of the subject of the preceding paper by Dr. Herz, to whom belongs the credit of presenting the first public confirmation of the recent important work of Copeman and Ackerman (1944). I have had the opportunity of reading the manuscript of further work, to be published soon in the *Annals of Internal Medicine*, in which Copeman and Ackerman have extended their views on the possible relationships and distinctions between these fat herniations, fibrositis, and panniculitis, and I shall, therefore, discuss these relationships briefly.

If you ask a senior medical student, "What is the pathology of acute muscular rheumatism, of acute lumbago or of acute wry neck?" you will generally see a puzzled look come over his face and you can almost hear him saying to himself, "What is it, anyway? Why haven't I been taught the pathology of such a common condition?" In his confusion he has plenty of company, including that of many rheumatologists. Is there an intense inflammatory hyperaemia or engorgement? Is there an acute cellular reaction? If so, is it in the muscle cells themselves or in the fibrous supporting tissue? What is the pathology of chronic muscular rheumatism or chronic lumbago? We are pretty vague on that, too, even though for the past hundred and thirty years some physicians have been supplying certain answers.

Early Work

In 1816 an Edinburgh physician, William Balfour, first described in cases of chronic muscular rheumatism definite fibrous thickenings, painful on pressure, and from which pain shot to neighbouring parts. Although they were later described by others, they did not gain much attention until 1904 when Sir William Gowers, considering the underlying pathology of muscular rheumatism, coined the term "fibrositis", believing that it was more appropriate than "myositis" since the muscle cells themselves showed no notable pathological alteration. These fibrous thickenings were described by Stöckman in 1904, and particularly in 1920, so that in Great Britain for at least twenty-five years the concept of fibrositis has been widely accepted. Since 1923 my colleague, Dr. Slocumb, and I have tried to interest American physicians at least in the clinical syndrome of fibrositis. We have frankly recognized our limited knowledge of its pathology, and have not

been surprised to find considerable scepticism even among certain American rheumatologists. This scepticism arises from the simple fact that in many cases of muscular rheumatism or supposed fibrositis many physicians have been unable to feel, much less to isolate surgically, any fibrous thickenings. Indeed, some writers have dismissed fibrositic nodules as being "accessible only to the fingers of faith", and have called fibrositis a disease which English physicians talk about but which American surgeons and orthopaedists cannot confirm.

Fibrous indurations have been described as non-nodular (bands, tracts, sheaths) or nodular. Of the latter there are presumably three kinds: large nodules (generally in fibrous aponeuroses), small nodules (generally in muscle) and "myogeloses", small, sharply localized regions of hardening in muscles which are "negative" on biopsy, presumably because they merely represent small localized muscle contractures related to chemical (not inflammatory) changes not visible under the microscope.

Personal Work

Through the years I have had my full share of disappointments when trying to find the "classical fibrositic nodules", especially in cases of painful backs with negative radiographs. Often I could feel no nodules; sometimes I felt one or many "nodules" but on biopsy found nothing very impressive. But on innumerable occasions I have easily felt in the lower back, especially in the pre-sacro-iliac region, nodules singly or in clusters, small, or even large enough to push out the overlying skin. Sometimes they were fairly fixed; many times they were quite movable. Some were tender; many were quite painless, at least for the time being. Assuming that here at last I had found large subcutaneous fibrous nodules, I asked Dr. Ghormley and other orthopaedic colleagues to remove some that were tender. All we found were lumps of normal-looking fat. Sometimes the patients' symptoms were relieved, sometimes not. We remained puzzled, because our dissections were too limited to reveal the true nature of the nodules and their relation to underlying fascia and fat.

Recent Investigations

In 1935 Sutro, then an orthopaedic research fellow in New York, explored the subject more thoroughly, but he also "missed the boat". Among 170 unselected hospital patients suffering from various complaints, he found subcutaneous fatty

* Read before a meeting of the American Medical Association, San Francisco, California, July 1-5, 1946.

nodes in the sacro-iliac region in 94 patients (55 per cent). One third (33) of these 94 patients had low back pain. In some the nodules were tender; in others they were not. Sutro removed some of the nodules but found no pathological alteration. Because of this, and because the removal of the nodules failed to cure some of the patients, Sutro concluded (despite the relief in some cases) that the fatty nodules were unrelated to the symptoms. He passed them off as merely protective buffer pads. Now, at last, thanks to the careful dissections of Copeman and Ackerman and to the confirmatory work of Herz, we know much more about the significance of these fibro-fatty nodules. They are quite common. When they are tender, when pressure thereon reproduces the patient's complaints, treatment is indicated and may relieve many heretofore misunderstood and unrelieved backaches.

Copeman and Ackerman described three types of fat herniations: non-pedunculated, pedunculated, and foraminal. In their two papers they described twelve cases with non-pedunculated herniae, three of the pedunculated type, and three of the foraminal type. But in their second (unpublished) paper they described three cases in which they relieved symptoms by removing painful fat nodules which were not herniated. Apparently fat lobules may at times become quite painful and tender because of oedema or other pressure, without herniation. Copeman and Ackerman dissected lobules of fat divided, by firm fibrous septa, into small compartments, each containing a few lobules. Subfascial fat may exist under tension (without herniation) either as a result of "positive swelling" in the fatty tissue, such as from oedema, or by the contracture of investing fibrous tissue. It was concluded that such fatty lobules under tension may be related to painful panniculitis, and in certain situations may represent the first stage of a process of which the subfascial herniations represent a later, comparatively advanced stage.

As stated before, one will often find fairly large painless fatty nodules in patients without concurrent backache; in such cases the nodules may be the harmless residues of old, unremembered occurrences. When one finds tender nodules in the lower back of patients with "backache" or painful back muscles, if the nodules are small one may wonder whether they are small fat herniations, non-herniated fat lobules under tension, or "true subcutaneous fibrous nodules". If the nodules are fairly large and movable, they are probably fat herniations. Even so, one must not conclude hastily that they are the sole cause of the patient's complaint. The tender herniation may be coincidentally associated with some other condition, such as sacro-iliac arthritis (as in one of Sutro's cases), or intramuscular fibrositis (as in one of the cases of Copeman and Ackerman). Pressure on some of the tender nodules produces only localized, not radiating, pain, and does not fully reproduce the patient's complaint. If pressure on the nodule reproduces the patient's full complaint, one may hope that its treatment will

cure the patient. To confirm the diagnosis before giving further treatment, one may do as did Copeman, Ackerman, and Herz, apply the therapeutic test of an injection of novocaine. Temporary relief of the patient's symptoms represents a positive test, but a negative test may represent merely an injection inaccurately placed.

The treatment of such tender fat nodules need not necessarily be surgical. Copeman and Ackerman admittedly removed the nodules surgically for purposes of clinical demonstration. Note that Herz operated on only 37 of his 109 cases. In their unreported paper Copeman and Ackerman state their belief that surgery is not indicated in most cases and that "relief may be afforded by other less drastic measures". They believe that for the first time the use of heat, massage, and motion in such cases has been rationalized. Heat may increase the blood supply and reduce the congestion, oedema, and tension in the fatty lobules. Massage may reduce the oedema or even break up investing, pressure-producing fibrous tissue. In a case of acute lumbago presumably due to a sudden herniation of a fat lobule, an injection of novocaine may disrupt the fatty nodule by hydrostatic pressure, or may, by relieving pain, allow the resumption of normal muscular movement which may reduce the protrusion "spontaneously". Physicians, patient souls, will, therefore, probably treat such cases conservatively, but the realistic, impatient surgeons will probably decide, "out with it", and treat them surgically. Indeed, in selected or stubborn cases prompt surgical treatment of the nodules may save time and money. Interesting in this connexion is the new technique of Copeman and Ackerman, whereby the nodules are not actually removed but are "teased" surgically with a special cutting needle by which the nodule is separated from its pedicle of encircling fibrous tissue and disintegrated and the tension relieved.

An interesting parallelism exists between the development of our knowledge about herniated fat, and herniated intervertebral discs, as a cause of low back pain. In both instances the ectopic material was removed by early workers who were quite unaware of its exact source or the mechanism whereby it produced symptoms. After the usual phases, in which herniated discs were over-enthusiastically accepted as the cause of most backaches and were later regarded with disillusionment and undue scepticism, we now regard herniated discs as one definite but statistically minor cause of backache. Is it too much to hope that these "new" fat herniations will be handled temperately from the beginning and not removed uselessly and over-enthusiastically? It is certainly premature for us to conclude now that all tender subcutaneous nodules are fatty herniations, or that such fatty (not fibrous) nodules explain most cases of "fibrositis".

REFERENCE

- Copeman, W. S. C., and Ackerman, W. L. (1944). *Quart. J. Med.*, 13, 37.