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THE TREATMENT OF SCIATICA

AN ESSAY IN DEBUNKING

BY

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"The best time to be called to a case of sciatica is when the patient is beginning to get well."—HALE-WHITE, 1917.

"Heaven help the unsuspecting individual who wanders into orthopaedic out-patients these days and admits having sciatica."—ANONYMOUS SURGEON, quoted by Campbell Golding, 1939.

What is Sciatica?

By sciatica is meant pain in the distribution of the sciatic nerve. It was formerly thought to be almost invariably caused by inflammation of the perineural sheath and interstitial tissue of the sciatic nerve, except for a small number of cases of referred pain from disease of the hip-joint. Later, inflammation of the nerve roots was regarded as equally common. Many neurologists still believe neuritis and radiculitis to be the most frequent cause. Since Love in 1939 described how protrusion of the nucleus pulposus of the fourth and fifth lumbar intervertebral disk causes sciatica by exerting pressure on the fifth lumbar or first sacral nerve root, all neurosurgeons and some neurologists consider this to be a common condition and true neuritis and radiculitis to be rare. Symonds (1942, 1943), for example, recently stated that his experience with Service patients has convinced him that prolapsed disk is by far the most frequent cause, and he is unaware of any pathological evidence that true sciatic neuritis ever gives rise to sciatica. "The vision of an inflamed and swollen sciatic nerve so confidently stated to be the cause of the syndrome in question has never yet been granted to human eyes." It is somewhat surprising to read in an Army Medical Bulletin published in Oct., 1942, that fibrositis is the commonest cause of sciatica. According to Good (1942) the pain in the vast majority of cases, both in soldiers and in civilians, is referred from disease of the quadratus lumborum, glutei, and tensor fasciae latae muscles; it very rarely arises in the roots or trunks of the sciatic nerve.

The most recent theory concerning the pathogenesis of sciatica is that of an ex-president of the British Orthopaedic Association, who has expressed his conviction that spinal arthritis is by far the commonest cause (Bankart, 1943). Like Good, he does not even mention intervertebral disk prolapse as a possible alternative. He believes that the inflammation spreads from the joints to the spinal nerves in the intervertebral foramina and so causes neuritis. In his experience most cases respond to heat, massage, and exercises with or without manipulation, but persistent or recurrent pain calls for removal of the lateral intervertebral joints, an operation which "rarely, if ever, fails to cure the sciatica."

It is difficult to reconcile these divergent views, but a review of some of the many forms of treatment which have in turn been popular during the last 50 years suggests the likely explanation.

Treatment of Sciatica, 1901 to 1943

"For immediate relief the deep injection of morphine over the nerve is the most effectual treatment. Not infrequently we see suffering which has been almost intolerable thus removed, as by magic, within a few minutes" (Fagge and Pye-Smith, 1901). After mentioning this treatment, and also the injection of chloroform into the nerve, Osler (1912) adds: "It is remarkable how promptly, in some cases, the injection of distilled water will relieve the pain." Osler also advised a trial of acupuncture: "the needle should be thrust deeply into the most painful spot for a distance of about two inches, and left for from 15 to 20 minutes." This treatment is still sometimes used. Walshe (1941) writes that "acupuncture of the nerve with a series of specially designed needles is a useful and ancient remedy which acts by puncturing the sheath of the nerve and allowing the escape of inflammatory exudation."

A popular treatment in the early 'twenties was injection into the nerve trunk of 50 to 80 c.cm. of normal saline solution. The effect of this, according to Wilfred Harris (1926), was "to cause it to swell up in an egg-shaped form, separating the nerve bundles and bursting asunder laterally any adhesions that have been formed." Soon it became apparent that equally good results were obtained when the nerve root was missed and the saline solution was injected somewhere in its neighbourhood, when there could be no question of breaking down adhesions.

I do not know who first suggested substituting oxygen for saline solution, but this treatment was widely practised for a few years. Kinnier Wilson in his *Neurology* (1940) ascribed the benefit which followed to the provision of "a sort of air cushion for the inflamed nerve"—a quaint variation from the earlier notions about breaking down adhesions.

In 1930 William Evans reported the results of treating 40 cases of "primary, idiopathic, essential sciatica" by the intrasacral injection of about 80 c.cm. of fluid into the epidural space. As normal saline solution was as effective as novocain, and as pain was often experienced in the course of the nerve during the injection, it was presumed that it acted by stretching the nerve roots; and this was found to occur by experiment on the cadaver. Complete relief was obtained in 60% of cases and considerable benefit in 13%. For a time this method was widely used, but as it was more difficult to carry out without being any more effective, it was gradually replaced to a great extent by the older methods of injecting in or near the nerve trunk.

Good (1942), believing that the origin of the pain in sciatica is almost always muscular, states that he obtained permanent relief almost instantaneously by injecting procaine into each "myalgic area" in all but one of 65 cases, the one exception being not unnaturally assumed to be a malingerer. In striking contrast with Good's claims of permanent recovery following injection, Hyndman, Steindler, and Wolkin (1943), who were apparently unaware of his work, published results which seem to prove that his success must have been the effect of

suggestion and of nothing else. "Out of the fog of ignorance which has hung for so long over the subject," they write, it has become clear that all cases are due either to direct pressure by a herniated intervertebral disk or to a reflex neuralgia from a small well-localized painful area in the fibrous tissue of the lower part of the back. Apparently every case of disk pressure was subjected to operation, as there is no mention of any alternative treatment, and the possibility of spontaneous recovery with rest is not mentioned. In the fibrositic cases injection of procaine into the tender focus completely abolished both local and radiating pain. *"The patient was warned that with the wearing off of the procaine effect in from several hours to several days the pain, both local and radiating, would return worse than ever. Having enjoyed a brief spell of complete relief, he keenly resented the return of his complaint."* Treatment by immobilization (traction, plaster, brace, cast, and occasionally operative), hot packs, massage, cathartics, and aspirin then led to gradual recovery.

Soldiers are even more easily suggestible than ordinary people, so that when they are sent to "the man who cures sciatica" they have their minds well prepared for his particular form of suggestion therapy. As Good finds myalgic points in 100% of soldiers with sciatica it is obvious that he must produce them by unconscious suggestion in at least 50%—a minimum estimate of the proportion caused by pressure on the roots or inflammation of the trunk of the sciatic nerve. Having suggested a myalgic point it is immaterial how he suggests it away, and an injection of novocain is as good a method as any other, although no doubt an injection of morphine, saline solution, air, or nothing at all would do equally well so long as there is a prick, as with the older forms of unconscious suggestion therapy by injection into or near the trunk or roots of the sciatic nerve. It is inconceivable that the analgesic effect of novocain could have any direct action, because the anaesthesia it produces is very evanescent, as Hyndman and his colleagues' patients found to their cost, and it could not influence the inflammation or other changes in the tissues which are supposed to produce the myalgic spots. The whole story is reminiscent of Babinski's method of curing hysterical paralysis. He had proved by a long series of investigations that hysterical anaesthesia is always the result of unconscious suggestion by the observer, and had no difficulty in inducing cutaneous anaesthesia in the paralysed limb by gross suggestion. He then cured the hysterical anaesthesia by painful faradism, at the same time suggesting that the associated paralysis would disappear, which it invariably did.

Hugh Wingfield, who had a great reputation for his success as a hypnotist about 25 years ago, invented a treatment of sciatica, a description of which was published in 1917 by Sainsbury, as Wingfield was too modest to do so himself. The treatment consisted in painting the skin over the course of the sciatic nerve with fuming hydrochloric acid; the skin was left uncovered till the fluid had completely evaporated. Although it would burn a hole in linen, it produced little or no irritation of the skin, so did not act by counterirritation. Wingfield obtained uniformly satisfactory results even in the most chronic cases, and Sainsbury also was much impressed with its value. I used it a number of times myself, and there was no doubt that it often led to the rapid disappearance of the pain. The fumes were so unpleasant that one had to protect one's eyes and nose during the application, and I have little doubt that the psychological effect of having the fuming fluid applied to the painful area was the cause of the success of the treatment.

Rational Treatment of Sciatica

Civilians engaged in hard manual labour and soldiers ought to be particularly easy to cure, because they are unable to carry on with their duties from the first day of an acute attack and so seek medical help at the earliest possible moment, just when treatment by rest gives the best results. Rest in bed from the onset of symptoms leads to rapid improvement, and often to complete recovery in two, three, or four weeks. Complete immobilization by splint or plaster is not often required, as the patient keeps sufficiently quiet and is far more comfortable if allowed to choose his position and vary it slightly from time to time. In exceptionally severe cases, however, fixation by means of a plaster spica, as "advocated

30 years ago by Hurst, is more successful than any other method" (Symonds, 1943). The patient should throughout be encouraged to expect rapid recovery, complete enough to allow a return to full duty within a fortnight of getting up. It will then be unnecessary to employ any of the forms of suggestion hitherto in use—injection into the nerve by the neurologist, the intervertebral space by the expert, or as near the nerve as he can get by the less expert, into the myalgic spots by those who believe in them, manipulation or a plaster case by two rival schools of orthopaedic surgeons, removal of herniated intervertebral disk by the neurosurgeon and of the lateral intervertebral joints by Bankart, or the application of fuming hydrochloric acid by the magician. Complete rest should be maintained until there has been no spontaneous pain for five days. The patient should then be given active movements in bed and should be allowed up a day or two later. At the same time any abnormality in his posture on standing and in his gait on walking should be promptly corrected by explanation, persuasion, and re-education. With such treatment very few patients will be unable to return to full duty within two months from the onset of symptoms. Without the simple psychotherapy involved in promoting the expectation of rapid recovery, followed by rapid rehabilitation, there is a great tendency for the pain and disability with the abnormal gait and posture to be perpetuated and exaggerated as a hysterical symptom. This is especially likely to occur in the Services, where a man may subconsciously see in his illness a way of escape from an uncongenial life to the comparative comfort and safety of home, and among civilian manual workers, who subconsciously see in it a holiday and possible financial benefit.

Hysterical sciatica, with the associated hysterical posture and gait, may last for weeks or months until it is ultimately cured by the gross suggestion unwittingly given by the believers in the various forms of treatment I have already discussed, helped in the soldier by discharge from the Army and in the civilian worker by a successful claim for compensation. It can also be cured by simple psychotherapy in the form of explanation, persuasion, and re-education when its hysterical nature is recognized—often with great rapidity, even in very long-standing cases, as we found in the many cases of the kind in soldiers which we treated at Seale Hayne Hospital during the last war.

It is important to remember that a diminished or lost ankle-jerk and wasting may persist long after the complete disappearance of active disease. Their presence does not therefore indicate that persistent pain is due to organic disease, although it shows that organic disease must have at one time been present.

The few patients who do not get well after a month of complete rest in bed are among those who give a history and show physical signs of root pressure. A further period of complete rest may still lead to recovery, but if there has been little or no improvement they should be referred without further delay to a neurosurgeon, who will cure them by removal of the herniated intervertebral disk. Pennybacker (1942, 1943), who has verified the lesion at operation in over 150 cases in the past three and a half years, believes that the clinical syndrome of prolapsed disk is characteristic enough for a diagnosis to be made without recourse to lipiodol injections, which may set up a troublesome irritant reaction in the theca. All cases are probably traumatic in origin, but the injury may be trivial and no more than a strain. This is followed by low back pain, often diagnosed as lumbago, which may be severe or nothing more than slight discomfort. The incident is often forgotten, and not related by the patient to the subsequent sciatica; and, as Pennybacker points out, even in cases in which the sciatica follows close on the lumbago, the memory of the latter may be swamped in the more severe existing sciatic pain.

Symonds is convinced that, so far as Service patients are concerned, operation, even in the best hands, has proved so unsuccessful in getting men back to duty that a prolonged period of immobility should be advised, and when this fails to render a man fit for duty within a reasonable time he should be invalided. On the other hand, from my limited experience I have no doubt that, in severe cases in which complete rest has failed to cure, the results of operation are very satisfactory, as the patient obtains immediate relief from pain and is soon able to return to full activity. It is, however, just as important after operation as during treatment by rest to encourage the

patient to believe that his recovery will be rapid and complete, as there is a considerable tendency for a minor degree of pain or weakness to persist as a hysterical condition after the organic cause has been removed. This is especially likely to occur in patients who have already been disappointed at the failure to gain relief from prolonged treatment by rest, physiotherapy, and perhaps injections of one kind or another.

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EFFECT OF PREGNANCY AND PARTURITION ON PULMONARY TUBERCULOSIS

BY

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A voluminous literature has not provided any clear decision on the vital question of the effect of pregnancy and parturition on the phthisical woman. From the middle of the nineteenth century there was an increasing tendency to regard pulmonary tuberculosis, even when quiescent or arrested, as an indication for therapeutic abortion, and, though more recently the pendulum has tended to adopt a neutral position, the fear of the effect of pregnancy on the tuberculous still leads to many such operations. Surely it is time our ideas on this subject should have crystallized out? Moreover, in the last 20 to 25 years improved methods of treatment, and the hard-won skill medicine has gained in applying them, call for reconsideration of therapy which was in danger of being decided by custom. I have had the opportunity of studying this problem from personal experience, and this paper records the results of pregnancy and labour in 100 consecutive cases which have been confined in Black Notley.

The Maternity Unit at Black Notley Sanatorium

In July, 1937, the Essex County Council, in building additional wards at their sanatorium at Black Notley, provided a small maternity unit attached to one of the pulmonary wards. This was designed for the supervision and treatment of pregnant tuberculous women. Much of the success of this novel venture has been due to the advice and guidance of the late Dr. W. Burton Wood, consultant physician to the Essex County Council, whose clinical experience, and help in the solution of problems new to sanatorium administration, have been invaluable.

Any woman resident in the county of Essex who suffers or has suffered from pulmonary tuberculosis is eligible for admission. A number of cases of non-pulmonary tuberculosis have also been confined in this unit, but they are not included in this paper. As a general rule, quiescent cases are admitted 6 to 8 weeks before confinement, but a woman suffering from active disease would of course be admitted as soon as possible after the diagnosis of tuberculosis was made, and retained for treatment as indicated after the labour. A follow-up has not yet been made of the babies born, and this paper is concerned only with the effect on the mother; but it may be said here

that none of the offspring revealed any evidence of tuberculous infection; neither has it yet been reported that any child subsequently developed tuberculosis, with the exception of one who was admitted to the sanatorium at the age of 2½ years suffering from tuberculous cervical glands.

Management of Cases

As regards the management of the expectant mothers, quiescent cases are encouraged to live what one may term an active sanatorium life—i.e., to walk up to two miles daily and perform the little daily tasks which form part of the normal life of such cases in a sanatorium. Progressive cases are managed in accordance with the extent and activity of their pulmonary disease, and on the usual sanatorium lines, including, where necessary, active treatment such as collapse therapy. During labour forceps are not applied as a routine in the second stage, as has been advocated, but only when a definite indication exists. As a general rule, however, no woman was allowed to go more than two hours in the second stage without their use being considered, and if there were signs of maternal fatigue without satisfactory advance of the head they would be applied. For anaesthesia, Minnitt's gas-and-oxygen apparatus is used for normal labours, and chloroform or gas-and-oxygen for any manipulation.

It was found that an artificial pneumothorax did not cause any embarrassment to the mother during labour; neither was it ever necessary to give a refill immediately after labour in order to compensate for the alleged fall in intrapleural pressures which has been thought to occur as a result of the descent of the diaphragm.

It must be emphasized that the results here reported are obtained under sanatorium conditions and only the immediate effects of the pregnancy and labour are available, but it is these which have so often been cited as the dangerous results of pregnancy.

The cases have been divided into three groups: (1) *arrested and recovered cases*—those in which there has been no clinical or radiological evidence of active disease for over two years; (2) *quiescent cases*—those in which the disease appeared to be quiescent on their admission to hospital for confinement; (3) *progressive cases*—those in which there was clinical or radiological evidence of active disease on admission to hospital for confinement.

Results

Any sign of retrogression, however slight, revealed by laboratory or x-ray examination has been accepted for the present purpose as being due to the pregnancy and labour, and, including all such cases, the results may be summarized thus:

TABLE I

Class of Case	No. of Cases	No. showing Retrogression
Arrested and recovered ..	46	3
Quiescent	29	2
Progressive	25	7
Totals	100	12

Increased pulmonary disease was observed in 7 out of 25 progressive cases, but only in 5 out of 75 quiescent, arrested, or recovered cases. The latter is probably no higher a proportion of breakdowns than might be expected to occur in 75 women of similar phthisical history and age group. Further, it would be misleading to assume that these figures indicate that the actively tuberculous show a significantly worse effect than the quiescent cases, as there is no reason to assume that the disease in the former would not pursue its steady and relentless course.

The following points were also brought out by study of the case histories:

1. Of the 3 "arrested and recovered" cases which retrogressed 2 subsequently improved; of the 2 "quiescent" cases 1 improved; and of the 7 "progressive" cases 2 improved.

2. The 12 cases which appeared to suffer as a result of pregnancy and labour all had normal labours. On the other hand the 23 cases which had forceps applied or other intra-uterine manipulations did not appear to suffer as a result.