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Nathaniel S. Zeitlin

THE COMMON CAUSES OF LOW BACK PAIN AND THE QUESTION OF TRAUMATIC AGGRAVATION

NATHANIEL S. ZEITLIN*

IN LOOKING back through the many years of my medico-legal practice, I am truly fascinated by the change in the subject matter of medico-legal controversy in the courtrooms. These problems have completely changed in the last twenty years. Previously, the courts were filled with medico-legal arguments over such questions as: (1) possible skull fractures; (2) controversial fractures of the transverse processes of the lumbar spine; (3) subluxation of the sacro-iliac joints; (4) fractures of the coccyx; and (5) traumatic menstrual disturbances. These were the arguments of twenty years ago. In fact, I have not been involved in any of these areas to any significant extent in the courtoom in the past decade.

Why have these areas of controversy disappeared? Undoubtedly, this disappearance is due to the nearly complete takeover of X ray diagnosis by competent roentgenologists. Well-trained roentgenologists seldom disagree on the question of fracture. When there is a controversy as to bone trauma, it is vital for the attorney to know accurately just what the roentgenologist said in his report, since his report may be very important in evaluating the nature of a bone injury. The report from the orthopedic surgeon is also important, but one must keep in mind that his ultimate diagnosis is partially influenced by the patient's subjective complaints, whereas the roentgenologist is influenced primarily by objective X ray findings.

Today there is often a delay of five years before the trial. Why such a delay, if we no longer have these same arguments? The answer is that we now have completely new controversies. Among these new issues are: (1) whiplash injury; (2) disc pathology; (3) the dorsal wedged vertebra, so frequently misdiagnosed as fracture;

* DR. ZEITLIN *received his B.A. and M.D. degrees at the University of Illinois College of Medicine. He is presently the Director of the Zeitlin X-Ray and Clinical Laboratory, Chicago, Illinois, and has authored numerous articles pertaining to medicine and forensic medicine.*

and (4) the question of traumatic aggravation. Since some of these newer controversial subjects have already been discussed in a previous article, this paper will be concerned with the extremely controversial subject of traumatic aggravation, which is the most frequent source of medico-legal debate in the courtroom today.

It is agreed that, of all the cases of traumatic aggravation, the patient with low back pain causes the most legal controversy. For this reason, before centering on the question of traumatic aggravation, a review of some of the various common causes of low back pain would be helpful.

Nobody has to be convinced of the high frequency of low back pain. Look around you—there is almost always somebody suffering from pain in the back, with or without sciatic nerve distribution. It is one of man's most frequent disabling conditions, and no one is immune. Why is this malady so frequent? There is some difference of opinion, but it seems surely to be related to the upright position of man. You see, we rested on all fours not so long ago, and nature had developed a spine adapted to a horizontal distribution of the weight of the body. Although our ability to understand the troubles of the lower animals is limited, we do not believe that they suffer from low back pain. If natural selection continues, nature may develop in the man of the far-distant future a spine that will function more adequately in an upright position. What are the actual accepted causes of low back pain today? They are divided into seven categories.

THE DECOMPENSATED BACK

The decompensated back occurs most often when the patient has a sedentary vocation after a fairly active life as a young man. Graduation to a desk job allows his back muscles to lose tone through simple lack of exercise. After several years he suddenly becomes interested in golf or gardening, or in shifting the furniture. Suddenly, one morning he awakens and can barely roll out of bed because of the pain. The condition usually lasts for a week or two, but may return after a mild physical indiscretion. It is significant that X rays are usually negative for any specific cause of the pain. The answer to this problem is to keep your back muscles in good tonic condition at all times. Beware of sudden, unusual back exertions

if the back muscles are not in tonic condition. Keep in mind that one's back is like the arm of a baseball pitcher. In spite of his superb physical conditioning, a pitcher never goes into a game without first warming up for several minutes. This is what I mean by toning up one's muscles. Thus, decompensation of the back muscles is a possible cause of low back pain.

CONGENITAL ANOMALIES

A cogenital anomaly is caused by defective construction of the bone structures. The whole lumbosacral region is relatively loose and poorly constructed to carry out the function of weight bearing. There are many such conditions but the two most important for medicolegal problems are known as spondylolysis and spondylolisthesis.

The vertebral bodies are held in place by bony projections which are locked together so that one vertebral body is joined to the adjacent vertebral body. These bony locks are called the interarticular areas and the facet joints. When these processes are not bony but are made of soft fibrous tissue, due to congenital lack of bone formation, the vertebral bodies are not tightly locked together and, thus, tend to slip away from each other. This unstable, loose condition can sometimes make weight bearing painful and difficult. It is known as spondylolysis. When the vertebral bodies have actually slipped away from each other to a measurable degree, the condition is termed spondylolisthesis. Spondylolisthesis is extremely sensitive to injury, and prolonged disability may result after an otherwise insignificant injury. Ultimately, a fusion operation, which attempts to join the loose bodies, is the best means of treatment.

DISC PATHOLOGY

Disc pathology is a very common cause of low back pain, frequently associated with sciatic radiation down either leg. It is hard to believe that any permanent relief for back ache and nerve root pinching could have been obtained before we discovered the ruptured disc. Ever since this has been learned, genuine cures in some back ache cases have been achieved.

To understand this pathology, we must appreciate that a disc lying between two vertebral bodies is made up of two structures. First, there is the relatively rigid cartilage; second, there is the elastic

nucleus, or center. When a disc has ruptured, causing pain, the elastic center or nucleus has herniated out of the confines of the hard cartilage and the fibrous ligaments surrounding it and is pressing against the adjacent spinal nerve. The cartilage itself remains fixed between the vertebral bodies with only the center, or nucleus, protruding backward against the spinal nerve. Very frequently when such a nucleus is herniated out of place, the whole disc space narrows. It is this narrowing of the disc space that indicates that something is wrong with the disc itself. When a disc operation is performed, only the small portion of the nucleus that is protruding against the nerve is removed. The cartilage of the disc is not removed unless it is actually separated. It must not be forgotten that not all pathological or flattened discs are ruptured and dislocated. A ruptured and dislocated disc may be diagnosed by certain findings. These are: (1) the special myelogram films showing the space around the otherwise invisible spinal nerve, seen by injecting a dye into the spinal canal; (2) the presence of referred pain along the sciatic nerve (known as sciatica) causing pain down the thighs, the leg, and the foot; (3) the presence of pathological neurological reflexes are extremely significant. These are objective signs and not dependent upon the patient's subjective complaints. The absence of pathological reflexes may not rule out nerve root pinching, but the presence of such abnormal reflexes certainly rules it in. The flattened disc is only an indicator, showing that the disc is damaged and readily susceptible to further injury.

ARTHRITIS

The fourth cause of low back pain is arthritis. There are a number of different types of arthritis, the most common being hypertrophic arthritis, or as it is sometimes called, osteoarthritis. This is the arthritis that occurs in elderly patients. It results from an aging body, and every adult will have hypertrophic arthritis to some degree. Although it is not disabling for any prolonged period unless there are some complications, it is frequently prevalent each morning, the sympton being relieved as one moves about. However, when low back pain is chronic, frequently recurrent, prolonged, or severely disabling, a more adequate cause for the disability than simple arthritis often will be found.

METASTASES

A fifth cause for low back pain is the dread finding of metastases. Here we find the evidence of the spread of an original cancer from some other organ, even after the original cancer has been removed. When present in an X ray, it means that the death of the patient is near. Certain cancers are particularly prone to spread to the spine. These are: (1) cancer of the breast in the female; (2) cancer of the prostate in the male; and (3) cancer of the kidney from either male or female.

PSYCHOGENIC CAUSE

Another cause of low back pain is one which may affect all of us at times, and perhaps females in particular—psychogenic cause. I do not mean to say that the pain is really in the head and not in the back. On the contrary, the pain is in the back and can be quite disabling, often with negative X-ray findings. The psychogenic back is far too complicated a problem to analyze in detail here. It should be sufficient merely to state that it is frequent, troublesome, difficult to treat, and a source of deep frustration to the orthopedic surgeon. Someday when we have learned how better to manage our modern tensions and anxieties, the psychogenic back along with all the other symptoms resulting from anxiety states will be eliminated as a major source of difficulty.

THE QUESTION OF TRAUMA

The next frequent cause for prolonged low back pain is trauma, *i.e.*, an accident. Naturally, this is where those involved in medicolegal litigation find the greatest controversy. Trauma produces pain in the low back region because of the presence of: (1) a fracture; (2) a sprain, with or without some tearing of the ligaments and muscles and subsequent hemorrhage; and (3) traumatic aggravation of previously quiescent existing conditions.

THE QUESTION OF TRAUMATIC AGGRAVATION

Traumatic aggravation is the area which one finds most frequently in the courtroom. For this reason, this very controversial subject should be explored in some detail.

OBJECTIVE TRAUMATIC AGGRAVATION

This relates to changes in the X ray which occur sometime after the injury. For example, the original films taken at the time of the injury show a certain degree of arthritis, spur formation, or disc pathology. These are naturally old, antedating the injury. Now what can be concluded if subsequent films taken, three to four years later, show a definite increase in the chronic pathology? Shall it be concluded that the injury is the primary cause of the admitted increase in pathology, or can it be said that the increase in pathology is definitely the result of normal progression of the disc pathology? The problem is filled with tremendous controversy; doctors for both plaintiff and defendant have something to say for their cause. Many of their conclusions would have to be based on the severity of the injury, the immediate symptoms, the course of the patient's history, and comparative films of other parts of the body available for study. Since so many factors are involved, traumatic aggravation following an automobile collision injury is always a heavily contested matter.

SUBJECTIVE TRAUMATIC AGGRAVATION

This is the most common type of traumatic aggravation. In this case the pathology definitely antedates the accident. The history of the patient indicates no symptoms previous to the accident. The pathology seen in the X rays was, therefore, dormant or quiescent. Such pathology is frequently sensitive to injury. Traumatic aggravation simply precipitates symptoms that were not noticeable before the injury. Subsequent X-ray films taken years later will not show any significant change in the pathology, and, yet, the patient claims disability throughout this long period. Within reasonable medical certainty, what should be the position of an honest physician in such a case? It is truly difficult. The controversy is compounded, because, for the most part, the case is based upon the subjective complaints of the patient; therefore, the veracity of the patient in such a medico-legal case would always be questioned.

The severity of the injury must be carefully considered; the immediate symptoms of the patient are extremely important. If a joint had been involved, was there swelling, was a cast used, and was it necessary to remove a hemorrhage from the joint? Traumatic

aggravation of uncomplicated arthritis is not prolonged. The only true types of aggravation that could be serious are, first, congenital spondylolysis and spondylolisthesis, and, second, old, relatively dormant disc pathology.

THE MEDICAL HIATUS

Lack of the sensations of pain for a time after the injury is also a quite important factor. If an appreciable period of time, *e.g.*, two weeks, go by without the need for a doctor, it is reasonable to conclude that traumatic aggravation has not been a significant occurrence. However, this extensive period of two weeks is not conclusive, and could be the subject of legal controversy. In my experience, however, this is an adequate test period. Only when considering gross disc pathology, will this test period for traumatic aggravation need to be lengthened. When a period of many months passes, it then must be concluded that a medical hiatus is occurring, and that traumatic aggravation cannot be seriously considered.

In controversial cases, one other factor must be considered—the question of obscuring symptoms. When a patient has a fracture in an extremity, or when a patient has to lie in bed some length of time due to other complications, we can understand why the patient may perhaps not immediately complain of low back pain. It is a question of priorities of the patient's attention. As of now the medical profession, unfortunately, has not been able to solve this problem.

PATHOLOGIES PARTICULARLY SENSITIVE TO SERIOUS TRAUMATIC AGGRAVATION

Two conditions are specifically included in this area: congenital anomalies (such as spondylolysis and spondylolisthesis) and disc pathology. Spondylolysis could be dormant in a patient and first begin to cause symptoms only after an injury. In general, it is agreed that trauma is the factor that brings these patients to the orthopedic surgeon. The only question in controversy in these cases is: Did the trauma cause the need for the fusion operation, or was the operation inevitable, judging from the X rays? This cannot be answered with complete certainty in every case. We must take the word of a competent orthopedic surgeon. It is the history of the patient's complaints

and the X-ray findings which are most important. For this reason, the roentgenologist also should give an opinion on this matter.

Traumatic aggravation of old disc pathology is, of course, an old subject, but is perhaps the greatest source of controversy in this area in courtrooms today. However, a flattened disc in an X ray does not mean that there are significant symptoms; many such disc pathologies are dormant, but can be very sensitive to injury. It is truly distressing to the defense to be told that a minimal back injury can produce serious symptoms in a case of old disc pathology. The question, "Did the injury make the operation necessary, or was the operation inevitable?" is always hotly contested. Only the actions of the patient before and after the injury can help to answer this question. Doctors often disagree, and the same hypothetical question can bring out entirely different answers.

THE QUESTION OF "PERMANENCY"

There is one question from a plaintiff's attorney that is personally quite abhorrent. I simply do not believe in permanent pain as a result of traumatic aggravation due to minimal visible injury. I do, however, believe that a minimal injury can bring on an attack of sciatica which will continue for some time. If the pain is prolonged, surgery will be considered to be the most sensible cure. Permanent pain is simply not seriously considered. There is yet another aspect to the question of permanency that will stand up even before a medical jury—the question of "permanent sensitivity." Once a disc has been injured and there is a precipitation of a sciatic syndrome, then one can speak of "permanent sensitivity." This terminology refers to, not permanent pain, but a continued sensitivity to further minimal injury with precipitation of the old sciatic syndrome. This by itself is serious enough to cause the patient considerable discomfort, without considering the additional factor of permanent pain.

CONCLUSION

The common causes of low back pain would include the decompensated back; certain congenital anomalies, such as spondylolysis and spondylolisthesis; disc pathology; arthritis; metastases; psychogenic causes; and trauma. One of the most common cause of

courtroom medico-legal controversy today is the question of "traumatic aggravation." This subject has been considered under the headings of objective traumatic aggravation; subjective traumatic aggravation; the significance of the medical hiatus; pathologies particularly sensitive to traumatic aggravation, such as spondylolysis and spondylolisthesis, and chronic disc pathology; and, finally, the question of "permanency."