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## Positive Handling of the "Negative" X-Ray

Lawrence V. Hastings\*

**D**E FENSE COUNSEL usually pounce on "negative" x-rays, i.e., ones which show little or no change from before to after the accident. They triumphantly parade admissions from medical witnesses that "the x-rays in the case are totally negative," before a jury which is enormously impressed through abysmal ignorance of what x-rays can and do show.

Thus, the problem facing counsel for the injured party is how most persuasively to acquaint the jury with means of properly evaluating x-rays in view of their significant attributes and their deficiencies. Plaintiff's counsel must somehow explain the purpose of x-rays, augment their limited information, and/or present in a different manner maladies or structures which are invisible on x-rays.

### Analysis

For purposes of discussion, we shall consider the negative x-ray in connection with arthritis, sprains and strains of the upper and lower spine, and other related conditions.

The common ailment of a sprain, as all of us are aware, may be a simple matter which is somewhat painful and slightly incapacitating but which disappears within a short time without leaving any residual pain or disability. On the other hand, in certain instances a sprain may be a severe injury causing considerable pain as well as permanent disability. The difference between the simple and the severe sprain depends entirely upon the specific structures involved and the degree of injury to them.

A severe sprain is defined as follows in *Gray's Attorneys' Textbook of Medicine*, Volume I, edited by Roscoe N. Gray, M. D., Surgical Director of the Aetna Casualty Company, on page 368, Section 25.27:

In severe sprain, the *ligaments are torn*. The *synovial membranes are contused*, or *bruised*. *Cartilage may be loosened from bone*. There may be *hemorrhage into and about the joint*. The *muscles are stretched or torn*. *Tendons are stretched, torn, or displaced*. *Blood vessels are contused*.

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*Nerves are damaged. The skin is contused.* (Emphasis supplied.)

Obviously, the above-described injury is a serious one. Further, we all know that some of the results mentioned can occur *without external evidence of violence or abrasions.*

Witness the fact that even a more severe injury, such as a rupture of an intervertebral disc, may take place without external evidence of bruising at the time of its occurrence. This disorder may have its inception when a person is lifting or straining or receives a severe blow to the lumbar area.

It is well known that soft tissues such as ligaments, muscles, etc., do not generally heal, after being torn, by the replacement of normal ligamentous tissues between the torn tissues; instead the healing between the torn ends is afforded by scar tissue. If nerves are in the area where this scar tissue forms, there may be impingement by this scar tissue. Or if the ligament, by reason of the contraction of the formed scar tissue, presses on adjacent nerves, some pain and disability may result due to this pressure. Moreover, this scar tissue cannot be removed by surgical intervention, since to incise the area would only serve to cause more laceration and the eventual formation of further scar tissue. It is also known that there is no drug which will "dissolve" the scar tissue once it has formed.

Assuming we are dealing with a severe sprain, one the physician has treated for a long time and about which he has concluded that it presents a permanent disability, the problem of the plaintiff's trial advocate is how to present this in a manner which is understandable to a jury. The x-ray, as we are aware, will show fractures and dislocations of the bones, but will most likely not show the several items noted above in the definition of a severe sprain, *i.e.*, "torn ligaments," "displaced tendons," "contused blood vessels," and "damaged nerves." For this reason, the "negative" x-rays in these soft tissue injury cases may be a bugaboo to the plaintiff's counsel and a delight for a defense counsel.

Similarly, the ambiguous term "arthritis" may clinically cause severe pain and limitation in motion. This may be so despite comparatively uninvolved bony changes which therefore give rise to a "negative" x-ray. In *Comroe's "Arthritis and Allied Conditions,"* 4th Edition, page 855, in speaking of traumatic joint disease, there is stated:

Pain and limitation of motion may persist for years following a single strain or contusion, even without obvious *anatomical change*. (Emphasis supplied.)

Conversely, it is of importance to further note in the trying of cases involving arthritis that bony arthritic changes may be present and yet there may be little or no symptoms or disability. This is well stated in Comroe's text, noted above, on page 536, where there it is stated:

On the basis of roentgenographic observation of articular lipping and spur formation (osteophytes) on the bodies of spinal vertebrae, the spine has been cited as the most common site of degenerative joint disease in men (and second to "Heberden's nodes" in women). It is now recognized, however, that *such findings may be entirely asymptomatic and of no particular clinical significance*. (Emphasis in italics in text.)

This well-known text also contains the further interesting observation, on page 853:

Also, any form of joint disease (but especially degenerative joint disease) may be aggravated following trauma.

A third medical illustration of legal misuse of x-rays is offered by the herniated intervertebral disc. There is sometimes courtroom dispute as to the correctness of this diagnosis. Unfortunately, the normal x-ray will not demonstrate a herniated disc unless a radiopaque medium is used, such as in a myelogram or discogram. Nevertheless, since it is suggested by many doctors that myelogram should not be done except immediately before surgery, no objective x-ray evidence to prove the presence of a ruptured disc may be present at the time of trial. Defense counsel may again delightedly announce that with what x-ray evidence *is* available there is no evidence of a herniated disc. He is referring, of course, to the normal x-ray, which cannot demonstrate a herniated disc.

### Solution

An attempt will be made to show how explanatory expert testimony and medical illustrations may be used to solve the problem of the negative x-ray. When defense counsel seizes on the negative x-ray, it becomes incumbent upon plaintiff's counsel to present testimony to the effect that x-rays will not show the above-described soft tissues. It is often difficult to explain the

medical terms, which have been bandied about, to a lay audience who may have little idea as to what constitutes a "ligament." Consequently, if the physician finds that a true and anatomically correct illustration would enable him to best show these soft tissues, *which do not appear on the x-ray*, these illustrations may then be used as an exhibit or actually introduced in evidence. They then become part of the record for further study in the jury room or for appellate review.

The Ciba Pharmaceutical Company publishes several manuals in which the drawings were done by a Dr. F. Netter, who is both a medical doctor and a medical illustrator. These illustrations are done in color and they have been used by this writer when conducting the examination or cross examination of many witnesses. Similar illustrations may be found in the many anatomical and surgical texts found at medical book stores.

The writer, in conducting an examination of a medical witness, has usually found it most effective to have the illustration identified as a true and correct anatomical medical picture which would be of assistance to him in explanation to the jury of the malady or injury involved. At this point the document is offered into evidence and then referred to by the witness, with each and every one of the soft tissues pointed out as they may be relevant to the case. To emphasize the fact that "negative" x-rays do not mean there has been no soft tissue damage, we have found it helpful to have the x-ray placed side by side with the corresponding medical drawing on a board before the jury. Then, frequently *on cross examination*, the medical witness is asked to show where the ligaments are on the illustration and next show where they could be if they could be seen on the x-ray. Since they cannot be seen on the x-ray, we hand the doctor a color crayon and ask that they be drawn in. Similarly, the nerves are identified in the medical illustration and then drawn in on the "negative" x-ray with another color crayon. Other soft tissues which may have been injured, according to the testimony, are likewise drawn in on the "negative" x-ray. When this has been completed the contrast is evident between what is actually present anatomically and what is not seen on x-ray.

In the same way the use of medical illustrations may be of aid in having a true picture of arthritis shown to the jury, since it will show the *soft tissues* involved in this malady. Also, a medical illustration showing a herniated intervertebral disc, fol-

lowed by the disc being drawn *into the x-ray*, can be of inestimable value in proving why a normal x-ray will not show a herniated disc.

### Conclusion

The advantageous results of such positive handling of negative x-rays in soft tissue cases as is described above was brought strikingly home to my partner and myself in July of 1964. We had a problem case where the injury consisted wholly of an aggravation of a pre-existing arthritis. This condition had caused our client considerable pain and disability. The x-rays, however, were of no objective assistance in the trial since they showed little or no change from before to after the accident. Nevertheless, the clear exposition and judicious use of medical illustrations on the part of the doctors who had treated our client resulted in a clear understanding of the pain and disability in this affliction and, incidentally, in a \$50,000.00 recovery.

The art of good advocacy requires, among other attributes, accuracy, brevity and clarity. Judicious use of the medical illustration supplies this in many instances. To once again belabor a cliché, "one picture is worth a thousand words."