Special Article

Medicolegal Aspects of Asbestos for Pathologists

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• The two principal legal remedies available to victims of asbestos-related disease are (1) claims for benefits under workers' compensation laws and (2) suits for damages under the laws of products liability. The medicolegal issues and the part of the consulting pathologist as medicolegal consultant and expert witness in each of these legal proceedings are essentially the same.

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The legal remedies available to victims of asbestos-related disease are chiefly of two types: claims for benefits under workers' compensation laws and suits for damages under the laws of products liability. This report will examine both remedial systems of law, as well as the role of the pathologist as expert consultant and witness within them.

CLAIMS FOR BENEFITS UNDER WORKERS' COMPENSATION LAWS

Workers' compensation is the system of laws by which employees are compensated by their employers for occupationally caused injury or disease. Traditionally, workers' compensation for asbestos-related disease has been the independent function of the individual states. Now, however, several bills pending before Congress would establish an important position for the federal government within the system.[1]

Before the 1930s, occupational lung disease as a cause of disability or death had been ignored by the nation's workers' compensation system. In 1922, the building of a tunnel through a mountain of quartz at Gauley Bridge, WVa, brought death to hundreds of workers from massive exposure to silica dust. Public shock over the Gauley Bridge disaster motivated state legislatures to extend workers' compensation coverage to include total disability and death due to silicosis and other specific types of occupational lung disease, including asbestosis. In 1968, another West Virginia disaster, the mining explosion at Farmington, precipitated the Federal Black Lung Program. By 1978, every state had provided workers' compensation for disability or death due to occupational lung disease. Coverage has so expanded that, according to Selikoff,[2] "[nearly] all of the survivors of the asbestos insulators who filed workers' compensation death claims ultimately received benefits."

Underlying workers' compensation is the concept of a "no-fault" liability insurance system by which employees trade off their common-law right to sue their employers for damages in exchange for income and medical benefits and rehabilitation services. The defenses of contributory negligence, assumption of risk, and the fellow-servant rule (which often blocked employees' claims whenever a worker's injury had resulted from his own negligence, from his voluntary taking a known risk, or from the actions of fellow workers) were abolished under workers' compensation as part of the trade-off.[3] Importantly for asbestos-related diseases, because of their long and latent periods of incubation, time limitations on institution of suit, called *statutes of limitation*, do not apply until there is reason to know that the employee's disability or death had in fact been due to occupational disease.

In workers' compensation law the claimant is required to prove that the employee's disability or death arose out of his employment. Legal definitions of "disability" may vary, but, with important exceptions, it usually means loss of earning power due to occupationally related injury or disease.[4] In most states, workers' compensation equals two thirds of workers' preinjury wages. By providing for less than complete compensation for wage loss, the system in theory creates incentives for healthy workers to avoid injury, and for injured workers to return to work. However, it is doubtful that these socioeconomic objectives are attained in occupational lung disease cases, because the population of occupational lung disease claimants disproportionately comprises retired workers or their survivors and avoidance of toxic exposures would be difficult when the toxicity risked involves either unperceived exposure to long-term conditions or unanticipated episodes of short-term exposure.[5,6] The average value of disability benefits for occupational lung disease under Pennsylvania's workers' compensation law is reportedly $200,000.[7] However, in asbestos-related cases, because calculation of the preinjury wage is often based on the wage received by the worker at the time of exposure to asbestos, many years before disease appeared clinically,[8] the benefit rate may prove to be low by current standards. Thus,

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a World War II shipbuilder, presently facing many asbestos-related claims attributable to employment during the 1940s, has computed $12,000 as the average value for them.

In the United States, disputed questions, including formidable ones of diagnosis, etiology, and cause of death or disability, are tried and decided by litigation in an adversary proceeding. Evidence from lay and expert witnesses is presented, subject to cross-examination, to adjudicators employed by the compensation agency. Because respiratory problems in particular are often unrelated etiologically to toxic exposures and frequently result from "ordinary diseases of life," social habits, or the aging process, [illegible]% of respiratory disease claims are litigated.[7] In over 75% of the litigated cases, causation is a controverted issue, often involving complex scientific testimony and a costly battle of experts.[8]

SUITS FOR DAMAGES UNDER PRODUCTS LIABILITY LAWS

The chief means by which victims are compensated by the seller (or manufacturer) of a defective and unreasonably dangerous product is a civil suit for damages based on the law of products liability. If the harm had befallen the victim because of his employment and if the seller (or manufacturer) had not been the victim's employer, the seller (or manufacturer) is sometimes called a *third party*, and the suit against it is sometimes referred to as a *third-party claim*.

The law of products liability is grounded on a codification of the common law of torts as reported in section 402A of the *Restatement (Second) of Torts*. By it, "strict liability" attaches to the person who markets a product that, though useful and desirable, is inherently unsafe if its user or consumer is not given proper warning of the product's dangers. The "strict" liability of the seller-manufacturer to the victim is justified by the public policy belief that the burden of harm caused by the product should be placed on those who market it and should be treated as a cost of doing business against which liability insurance can be obtained.[9]

Under the law of products liability, a manufacturer (or seller) of asbestos materials is required to warn of dangers involved in handling the materials, and the failure to give adequate warning renders the material *unreasonably dangerous* and its manufacturer (or seller) liable in damages to the unwarned victim harmed by the material.[10] In asbestos-related lawsuits, most plaintiffs allege that the manufacturer (or seller) had failed in this duty to warn of the hazards from inhalation of asbestos fiber originating from asbestos-containing products.[11] In cases against Manville Corp, a leading producer of asbestos, it has been conclusively determined in the courts that asbestos materials are unreasonably dangerous as a matter of law because asbestos fibers cause asbestosis and mesothelioma and because adequate warning had not been given by Manville Corp.[12-15]

The asbestos-related products liability claim is usually adjudicated at a trial in which the issues are decided by a judge and jury. Once the products liability issue of adequate warning is reached and passed, the remaining disputed questions are the same as those tried and decided in the workers' compensation proceeding: the formidable ones of diagnosis, etiology, and cause of death or disability. As previously stated, these issues involve complex scientific testimony and a costly battle of experts.

The nationwide asbestos products liability caseload was recently estimated to be 16,000 pending suits and growing by 400 to 500 cases per month.[16] Manville Corp reported that 16,500 lawsuits related to the health effects of asbestos have been brought against it.[17] According to a Manville Corp official, the majority of cases have been brought by former insulation workers employed in World War II shipyards.[18,19] During 1980, the average amount of damages paid by Manville Corp, as the result of settlement or judgment in an asbestos products liability case, had been $23,000.[18,20] Through the first half of 1982, Manville Corp had settled approximately 3,500 asbestos-related claims for an average payment of $16,600 per claim.[18]

THE PATHOLOGIST'S ROLE AS MEDICOLEGAL CONSULTANT

The pathologist's involvement with either a workers' compensation claim or a products liability lawsuit may originate because he has examined biopsy specimens or because he has performed autopsies. One interested pathologist has said that since as many as 10[illegible]% of all lung cancer deaths may be related to asbestos exposure, failure of the autopsy prosecutor or surgical pathologist to take and retain adequate histologic sections for exclusion or establishment of asbestos exposure may be professional negligence, that is, malpractice (M. R. Hales, MD, written communication, Aug 18, 1982).

The pathologist's involvement in a law case may also originate because of an attorney's request for consultation as to pathologic studies done by another pathologist.

Regardless of type of legal proceeding or origin of case involvement, the principal role of the pathologist, as a medicolegal consultant, is (1) to describe and diagnose all important pathologic findings, (2) to prove or disprove a causal relationship between the important findings and impairment or death, and (3) to identify and explain the etiology of the pathologic findings.

To perform with competence his function as medicolegal consultant, the pathologist should be more than prosector and histologist. He *must* study and evaluate the available evidence of clinical history, occupational history, environmental history, and the history of smoking and other social habits.[7,18]

It is the pathologist's duty to make the referring attorney aware of his information requirements. It is the duty of the referring attorney, who has access to legal processes for gathering facts, to furnish to his pathologic consultant all needed data. Stating opinions as to the causes of death or disability and as to etiology without acquiring knowledge of a victim's clinical, occupational, social, and environmental history is, by my personal observations, a frequent and unfortunate practice followed by some pathologists who, notwithstanding

their obligations as medicolegal consultants, ignore available vital data and base their opinions exclusively on the pathologic materials.

In his study of the clinical history, the pathologist should include the reported interpretations of chest roentgenograms, ECG records, tests of pulmonary function, and other relevant laboratory data. If he considers his knowledge of these matters wanting, the pathologist should candidly acknowledge his limitations to the referring attorney and request additional consultations with appropriate medical specialists (eg, in radiology, cardiology, or pulmonology). In cases of survivors' claims brought under the Federal Black Lung Law,[1] where entitlement may be based on either death or disability due to pneumoconiosis, my own law firm retains as medicolegal consultants both a pathologist and a pulmonologist, and we request their mutual consultation. If the pathologist is asked to render an opinion as to disability, additional consultation may indeed be obligatory to allow the pathologist to feel qualified and comfortable with the principles of physiology required for competent expressions of opinion on impairment and disability. In performing his investigation, the pathologist should acquire familiarity with the reported studies that correlate pathologic findings, radiologic appearances, and measured pulmonary function. He should also become informed about the prevalences and etiologic associations of diseases established by epidemiology.

In his study of the occupational and environmental history, the pathologist should identify and comprehend the importance of relevant exposures to toxic substance pollution. For such knowledge, consultation with a chemist, toxicologist, or industrial hygienist may be required, and the pathologist should make the need known to the referring attorney.

From *all* of the collected information, the pathologist prepares his opinions as to diagnosis, etiology, and causation. In formulating his opinions, the pathologist must take into account *legal* definitions and standards, which are provided to him by the referring attorney. These may conflict with accepted medical definitions and standards. For example, because "anthracosis" is a disease of the lung according to Federal Black Lung Regulation,[2] if the pathologist intends only to describe a condition of carbonaceous pigmentation and *not* to diagnose a *disease*, he should avoid the term *anthracosis* and instead provide a verbal description of the condition of anthracosis. In one of the asbestos statutes introduced in Congress, "bronchogenic cancer" and "gastrointestinal cancer" are both defined to be "asbestos-related disease"[3]; thus, if the pathologist intends a pathologic diagnosis of cancer that is not asbestos related, he should, on enactment of this statute, choose another term.

Assuming that "bronchogenic carcinoma" is the correct pathologic diagnosis in the case of a person who had been both a heavy smoker and exposed to asbestos products as well as other carcinogens, unresolved scientific questions may preclude the expression of opinion as to etiology with reasonable medical certainty.[4] Some contend that, in such cases, *any* asbestos exposure (no matter how trivial) should by law be etiologically *presumed* unless a contrary cause is proven with reasonable medical certainty. A legal presumption of this type is proposed in another of the asbestos statutes introduced in Congress.[3] According to Weill,[4] "[it] is not possible... to conclude that any... [asbestos] exposure, no matter how trivial, is causally associated with the development of [bronchogenic carcinoma]..."[4] Because of scientific uncertainty regarding the etiology of bronchogenic carcinoma, the proposed statute's enactment could result in unfairly blaming asbestos for bronchogenic carcinoma even when asbestos exposure had been insignificant relative to exposure to other known carcinogens.

The consulting pathologist might be asked his opinion as to cause of death when multiple diseases are present concomitantly. Consider, for example, the extremely dyspneic, cigarette-smoking insulator whose diagnoses at necropsy included bronchogenic carcinoma, centrilobular emphysema, asbestosis, and severe coronary artery disease with congestive heart failure. In formulating his opinion, should the pathologist merely list all of the pathologic diagnoses as identified causes of death and thereby ignore the relative fatal contribution of each? Or should he rank the conditions according to their order of contributing importance, and perhaps even quantify by estimate the contribution made by each? The medicolegal consultant must be made aware of and conform to the applicable legal standard of causation. In workers' compensation proceedings, it has been held that the identification of a disease as the "most significant cause" or "primary cause" of death or disability *does* meet the required legal standard of causation, but expressions such as "major contributing factor" or "contributed in a substantial or significant manner" or "contributed to and accelerated" are insufficient and do *not* meet the legal standard required for proof of causation.[5] (However, another case[6] indicates that the occupational disease need only be causally related to death without specifying the degree of contribution or cause. A Petition for Allowance of Appeal to the Supreme Court of Pennsylvania is presently pending.) In a products liability lawsuit, however, the legal standard of causation is whether the identified pathologic finding had been "a substantial factor" in causing death or disability[7,8] or is a competent producing cause of death or disability.[7,9] One questionable way of setting the legal standard of causation is embodied in the Federal Black Lung Law. In the case of a person who had worked ten years as a coal miner and who had a respiratory disease when he died of multiple causes, the Federal Black Lung Law *presumes* that death had been due to pneumoconiosis if it is not medically feasible to distinguish which disease caused death or how much each disease had contributed to causing death.[1]

After completing all consultations and studying all records and materials, the pathologist is able to compose his report. The report should identify all in vivo and postmortem records and materials that were stud-

ied or considered. It should describe histologic findings with measured preciseness and in detail. Photomicrographs, especially when a standard or control photograph is available for comparison, can be an effective way to present pathologic findings and conclusions. The report might cite appropriate references of authorities to support the conclusions reached. The ultimate conclusions as to diagnosis, etiology, and cause of death or disability should be opinions expressed with *reasonable medical certainty*, which must include *logical* deduction from the data available and a comparison with the known literature on the subject. This important point is illustrated by N. L. Lapp, MD, who has written in criticism: "You and I have both seen pathologists who... have described minimal, if any, changes typical of coal workers' pneumoconiosis and from that have made an extraordinary leap of logic to a totally disabling disease..." (written communication, Aug 18, 1982). Where disagreement exists between the reporting pathologist and another physician, that disagreement should be forthrightly stated and the reason for it supported.

The report is not confidential and is available to all parties to the proceeding. It may become admitted into evidence and, unsupplemented by oral testimony, constitute the plenary statement of the physician. If the author of the report does give oral testimony at deposition or hearing, any ambiguities or errors in the report will be used to discredit its author's opinions. Therefore, special attention must be given to preparation of the report. Requests from the referring attorney for amplification are common and should not be regarded as slighting or offensive. The importance of completeness, accuracy, and unequivocality in a report intended for use in a legal proceeding is absolutely essential.

THE PATHOLOGIST'S ROLE AS EXPERT WITNESS

In workers' compensation and in products liability cases, much of the scientific evidence is greatly beyond the ken of most adjudicators. Therefore, litigants must employ expert witnesses who know and who are able to explain the case in an understandable way. Under the Federal Rules of Evidence, "If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion or otherwise."[8] The "battle of experts" has in consequence become a standard part of asbestos litigation. Only through expert testimony can a litigant successfully present his contention with respect to the issues of diagnosis, etiology, or causation.

The testimony of the pathologist, as expert witness, will be presented orally under oath. The opposing party will have a full right to cross-examine the expert witness as to all matters covered in direct examination. The setting for testimony may be the courtroom in the presence of judge and jury, or it may be the pathologist's own office by way of stenographic or videotape deposition which is later read or shown to the judge and jury in the courtroom.

Because a decision in a case is often reached by adopting a particular expert's opinion, it is important that the trier of fact be informed as to the professional qualifications of the expert. According to Belli,[9] a famous trial lawyer, one must impress the jury with and by the witness' credentials: "The more experience the expert has and the more widely recognized he or she is as an authority in the field, the more impressed the members of the jury will be; they will then accord such testimony more weight." Therefore, the expert witness should be prepared to provide, without modesty or exaggeration, an accurate and complete description of his professional qualifications.

The opinion expressed by an expert witness may be based on any source, including hearsay sources such as hospital records, reports of other physicians, statements elicited from the disease's victim, and acknowledged scientific treatises, provided the source is inherently reliable and of the kind customarily relied on by experts in forming their opinions.[10,11] Either in his preparation for trial or during the presentation of his testimony at trial, the expert witness may desire to review the information on which his opinions were based. He is permitted to refer to any matters, including pathologic materials or even his own report, to refresh his memory. However, once referenced, the information becomes subject to the cross-examiner's full right to examine and use it. Occasionally, embarrassment occurs when inspection at trial of the expert's file discloses forgotten contents that the witness would have preferred to keep private.

References to learned treatises are often invoked to corroborate or to impeach the expert's attested opinions. The Federal Rules of Evidence provide: "To the extent called to the attention of an expert witness upon cross-examination or relied upon by him in direct examination, statements contained in published treatises, periodicals, or pamphlets on a subject of history, medicine or other science or art, established as a reliable authority by the testimony or admission of the witness... may be read into evidence...."[10]

The expert should, if he can, declare that he holds his opinion with *a reasonable degree of medical certainty*.[11] "I think" and "I believe" are acceptable as shorthand recitals of the "reasonable medical certainty" standard.[12] However, opinions given as "probably," "might be," or "could be" are *not* competent expressions because they are too equivocal and conjectural.[11,13] An opinion based on mere possibility is clearly improper.[11]

The traditional legal formulations may not harmonize with the new formulations of epidemiology. The point is well illustrated in a smoking asbestos worker with lung cancer who had been exposed to other carcinogens. According to Enterline,[14] an opinion about the tumor's etiology cannot be stated with certainty, because to attribute lung cancer *with certainty* to asbestos would falsely imply that the asbestos exposure somehow blocked the possible effects of all other cancer-causing agents. However, an

opinion can be expressed *relatively* as a mathematic probability for each carcinogenic agent to which the worker had been exposed.[23-26] At what point medicine's *probability* becomes equivalent to law's *reasonable medical certainty* is yet to be addressed by the courts. Until it is, the problem will certainly perplex the knowing and conscientious medical expert.

When his opinions are informed, honest, and forthright, the pathologist who has properly prepared should not be apprehensive about serving as expert witness and giving oral testimony. Nor should he be timid in his criticism of other physicians when he knows that their opinions are not informed, honest, or forthright.

A prominent pulmonologist, with wide experience as an expert witness, has offered some advice that I will pass on: On cross-examination, do not be misled by hypotheticals: stick to what is known medically; be not persuaded by "what might be" or "what could be"; stay with "what is"; avoid the fate of the unwary physician led by the cunning cross-examiner down the path to an improbable disease state (C. L. Anderson, MD, written communication, July 21, 1982). Keeping in mind the specific medicolegal issues about which he has been consulted, the pathologist, in giving testimony, should avoid digression, remain relevant, and explicate his points comprehensibly—and be convincing! "However learned and honest the person may be, it must always be remembered that it is not just what the expert knows, it is also what the [referee, judge, or] jury understands and believes the expert knows."[29(p37)]

CONCLUSIONS

The outcome of asbestos-related litigation is determined more by medical points than legal points. The attorney who is an experienced and successful litigator of asbestos cases will know generally the medical facts of asbestos and be particularly familiar with the medical aspects of the case with which he is immediately involved. Because the role of the expert witness is so important to the result, the pathologist who would be medical consultant should anticipate cross-examination by an informed attorney. For the pathologist who is himself informed about the subject of his testimony, being an expert witness should not create concern because the training of a pathologist gives him enormous advantage over an adversary trained in law.

Asbestos-related disease is a significant public health concern. At the 1982 annual meeting of the American Thoracic Society, the extent of this concern was manifested by the many scientific papers devoted to asbestos and other occupational lung diseases, and by the exclusive dedication of an entire evening to a "public policy forum" that discussed the medicolegal problems of compensation for occupational lung disease. The full morning's program of the College of American Pathologists/American Society of Clinical Pathologists, at their 1982 annual meeting, further underscored the special relevance of asbestos-related disease. The pathologist who becomes medicolegal consultant enters into a very topical, socially sensitive, and intellectually stimulating professional activity.

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