EXHIBIT

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CT Quantification of Interstitial Fibrosis in Patients with Asbestosis: A Comparison of Two Methods

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OBJECTIVE. The likelihood of interstitial lung disease being detected on high-resolution CT scans and having functional significance is often related to the severity of the disease. The extent and severity of the abnormalities seen on high-resolution CT are usually assessed subjectively. This study was undertaken to investigate whether a subjective semiquantitative scoring method or a method using a cumulation of the different high-resolution CT features of asbestosis were comparable in suggesting asbestosis in a group of patients with histopathologic confirmation of disease. A secondary objective was to compare the results of these two high-resolution CT methods with chest radiographs in the same population.

MATERIALS AND METHODS. This study group consisted of 24 patients and six lungs obtained at autopsy. Histopathologic asbestosis was present in 25 of the 30 patients or lungs. The patients or lungs were imaged using selected high-resolution CT scans. The high-resolution CT scans were assessed in two ways. One used a subjective semiquantitative extent and severity score consisting of four levels of severity, while the other was a cumulative score adding the different types of high-resolution abnormalities in asbestosis. The commonest high-resolution CT abnormalities in the cases with confirmed asbestosis were interstitial lines (84%), parenchymal bands (76%), and architectural distortion of secondary pulmonary lobules (56%). Subpleural lines and honeycombing were less frequent. The histopathologic severity of asbestosis was independently graded on a four-point scale. Chest radiographs, when available, were classified according to the International Labor Organization (ILO) classification of pneumoconioses.

RESULTS. With the subjective semiquantitative high-resolution CT severity score, asbestosis was suggested in 16 (64%) instances, all with disease. With the cumulative method, any one type of abnormality was present in 88% of cases with asbestosis, two types in 78%, and three in 56%. However, to include only cases with asbestosis, three different abnormalities had to be present. The high-resolution CT scans were normal or near normal in five instances of asbestosis. Chest radiographs using the ILO classification predicted asbestosis with a lesser frequency than high-resolution CT in this selected population.

CONCLUSION. We conclude that a subjective semiquantitative grading system of the extent and severity of asbestosis and a method using a cumulative addition of the different findings in asbestosis give similar results in suggesting the presence of disease. Thus, for the high-resolution CT detection of asbestosis, a combination of the cumulative number of different findings and an assessment of the extent and severity of the abnormalities could be complimentary. We also conclude that asbestosis can be present histopathologically with a normal or near normal high-resolution CT scan.

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Imaging for detection of asbestos-related pleural and parenchymal lung disease has relied mainly on the chest radiograph, even though it has been demonstrated that the sensitivity for the detection of pathologically documented asbestos-related pleural plaques or asbestosis is only 40–60% [1–5]. CT and high-resolution CT have been used for the detection and characterization of interstitial lung disease, including abnormalities in the pneumoconioses [6–8]. In diffuse lung diseases, high-resolution CT is more precise than chest radiographs for detecting interstitial abnormalities, and more able to suggest a specific diagnosis [9–11]. Several small studies have correlated specific high-resolution CT features of asbestosis with his-

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topathologically established disease [12–14]. These studies have validated different high-resolution CT findings in clinical asbestosis, although some of these features can occur in individuals without interstitial disease [15–17]. The frequency of these different CT findings or their value in being able to suggest a diagnosis have not been established.

We examined whether a subjective semiquantitative scoring method of the severity and extent of the interstitial disease is comparable to a scoring method based on the cumulative presence of the different high-resolution CT abnormalities of asbestosis in suggesting the diagnosis in patients or lungs with histologically confirmed disease. We also compared these two CT methods with chest radiographs in the same population.

Materials and Methods

Study Population

The study group consisted of 30 patients, all with asbestos exposure in shipyards or construction. Patients were being evaluated for pulmonary symptoms, referred for evaluation for medicolegal purposes, or had died with a documented history of asbestos exposure. There were six women and 24 men, with a mean age of 67 years (range, 50–92 years). Their mean length of occupational asbestos exposure was 21 years (range, 1–44 years), and mean latency (time between first exposure and time of study) was 53.5 years (range, 19–59 years). Four of the 30 patients (13%) had never smoked. Sixteen of the 30 (53%) had a malignant neoplasm (bronchogenic carcinoma in 12, mesothelioma in three, gastric carcinoma in one) at the time of death, lobectomy, or biopsy. In six instances, the lung was obtained from the coroner's office and studied postmortem. Limited clinical data were available in this group.

Our criteria for study entry were the availability of (1) a high-resolution CT of the lungs and (2) adequate noncancerous lung tissue for pathologic examination. If interstitial fibrosis was present, it had to be accompanied by sufficient asbestos bodies to fulfill our criteria for asbestosis. We did not include cases where only tumor was present on the biopsy specimen, or cases with interstitial fibrosis that was histopathologically inconsistent with asbestosis. Twenty-one other cases referred over the same time period did not fulfill all the study entry criteria, including five cases with fibrosis that did not meet our strict criteria for being asbestos related.

Imaging Studies

In six of the 30 patients, high-resolution CT scans were obtained on the fresh excised lung obtained at autopsy. In these cases, the lung was kept continuously inflated with air to 20 cm of water pressure measured with a water manometer. Six to eight spaced scans were obtained on a 9800 GE CT scanner using high-resolution techniques modified for specimen studies and an appropriately small field of view [18]. In 24 patients imaged during life, high-resolution CT was done with the patients in prone and supine positions, using a 9800 GE CT or a Picker 1200XS CT scanner. Scans were 1.0- or 1.5-mm thick and obtained at six to eight spaced intervals through the thorax. The in vivo CT was performed between 3 days and 1 year before biopsy or autopsy. In patients who had lung tumors, the high-resolution CT scans were obtained at a time when the tumor was focal and did not interfere with the interpretation of the high-resolution CT scans for the presence of interstitial fibrosis.

Each CT examination was viewed simultaneously by two radiologists who had no clinical or pathologic information, except for the history of occupational asbestos exposure. The findings from the high-resolution CT were agreed on by consensus of the two radiologists. The subjective semiquantitative method of determining the probability of interstitial fibrosis being present and its severity was with a 4-point scale incorporating extent and severity and was as follows: 0 = normal, without interstitial lung disease; 1 = a few sites (one to four) of interstitial abnormality unlikely to represent diffuse interstitial fibrosis; 2 = multifocal abnormalities limited in extent, but in both hemithoraces, or at least two levels in one hemithorax and consistent with asbestosis; 3 = profuse bilateral interstitial abnormalities visible at multiple sites and on at least several CT scans. In the interpretation of the in vivo high-resolution CT scans, a basal predominance of the abnormalities was uniformly present, making the interstitial findings consistent with the distribution found in asbestosis [6].

The second method used different high-resolution CT abnormalities described in the interstitial fibrosis found with asbestosis. These had to be bilateral or on several scans in one hemithorax to be considered present and were as follows: (1) thickening of the interlobular septa and centrilobular core structures, grouped together as interstitial lines; (2) parenchymal bands (long scars); (3) subpleural curvilinear opacities (subpleural lines); (4) honeycombing; (5) subpleural nodules; and (6) architectural distortion (Figs. 1–4). The high-resolution CT finding of architectural distortion in interstitial lung disease is not readily defined [19], and we used a conservative

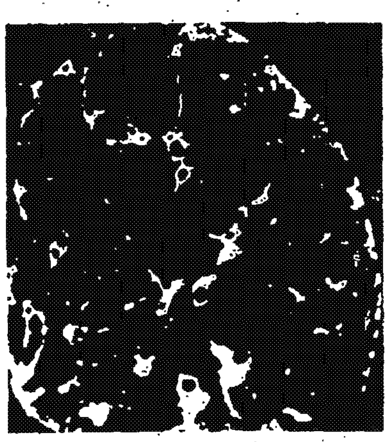


Fig. 1.—Patient with advanced asbestosis. High-resolution CT scan of an isolated lobe shows centrilobular (*curved arrow*) and interlobular (*straight solid arrows*) interstitial thickening. Subpleural nodules (*open arrows*) and architectural distortion are seen at multiple sites. Histopathologic diagnosis was severe fibrosis.

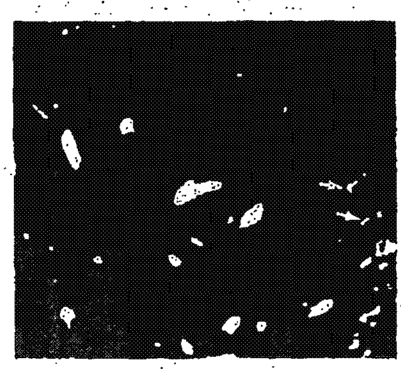


Fig. 2.—Patient with minimal asbestosis. High-resolution CT scan of an isolated lobe shows only focal interstitial thickening (*arrows*). The high-resolution CT was judged as mildly abnormal and unlikely to represent asbestosis.

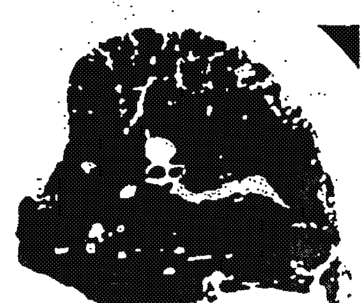


Fig. 3.—Patient with severe asbestosis. High-resolution CT scan through the lower lobes demonstrates extensive interstitial disease, including honeycombing, architectural distortion, thickening of interlobular septa and centrilobular cores, and long scars (parenchymal bands).

...ation of distorted secondary pulmonary lobules within peripheral ...eas of the lung parenchyma. All of the high-resolution CT abnor-...alities used were consistent with the previous descriptions of the ...erstitial fibrosis of asbestosis [12–17].

The 24 in vivo high-resolution CT scans were also observed for ...e presence of asbestos-related pleural disease (Table 1). The ...tent and severity of pleural plaques were ranked on a 4-point ...ale from 0 for no plaques to 3 for the most extensive pleural ...aques. Pleural calcification was noted as present or absent.

Chest radiographs were available for 25 patients: 23 of the 24 ...th in vivo studies and two from the six in vitro autopsy excised ...ngs (Table 1). All chest radiographs were obtained within 6 months ...f the high-resolution CT examinations. The chest radiographs were ...terpreted by consensus by two observers (one a B-reader) using ...e ILO classification for lung disease consistent with asbestosis (small irregular opacities) [20].

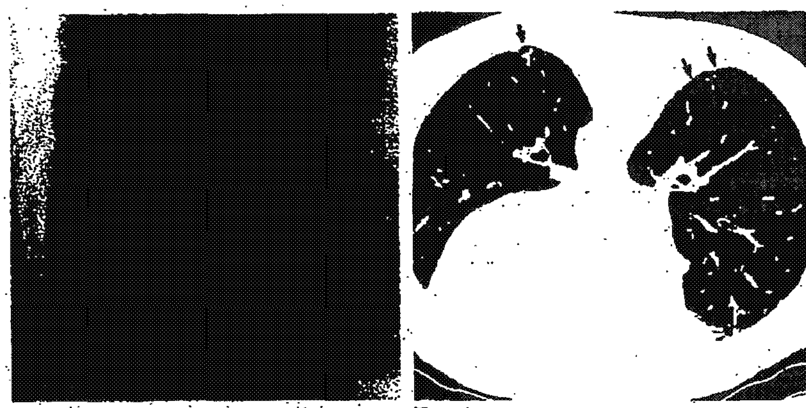
Pathologic Examination

The pathologic material was examined without knowledge of the results of the clinical or radiologic studies by a pathologist experienced in occupational lung diseases. The material examined comprised autopsy specimens (16 patients/lungs), open lung biopsy specimens (six patients), and lobes excised at thoracotomy (eight patients). Histologic specimens obtained from transbronchial biopsies were not used for histopathologic diagnosis in this study. Blocks of pulmonary parenchyma away from sites of tumor were prepared from each specimen. Sections were stained with hematoxylin and eosin, or in those instances where paraffin blocks were available, for connective tissue with van Gieson or trichrome stains. Several slides (mean ± standard deviation, 4 ± 3; range, 1–15) were examined from each specimen. The presence and severity of interstitial fibrosis were ranked on a semiquantitative 4-point severity scale: 0 = no interstitial fibrosis; 1 = mild patchy peribronchiolar and interstitial fibrosis (Fig. 5); 2 = moderate peribronchiolar and interstitial fibrosis, without architectural distortion (Fig. 6); and 3 = extensive interstitial fibrosis with architectural distortion or honeycombing (Fig. 7). In this study, the histopathologic diagnosis of asbestosis required the presence of peribronchiolar or interstitial pulmonary fibrosis (severity scale of 1 or greater) and visible asbestos bodies [21, 22]. Specimens with interstitial fibrosis were thus additionally stained with a Prussian blue stain for iron, and ferruginous bodies were counted by scanning the sections serially magnified 100 times. In the context of asbestos exposure, ferruginous bodies with a typical appearance were considered asbestos bodies [22]. The surface area of the section was measured by laying the slide on graph paper ruled at 100 lines per square centimeter and counting the squares covered by

TABLE 1: HRCT and Histology in Asbestosis

Histologic Asbestosis Score (0–3)	HRCT Asbestosis Score (0–3)	HRCT Findings						Plaques		X-Ray ILO Score
		IL (+/-)	PB (+/-)	HC (+/-)	AD (+/-)	SL (+/-)	SN (+/-)	Score (0–3)	Ca (+/-)	
0	0	-	-	-	-	-	-	1	-	0/0
0	0	-	-	-	-	-	-	2	+	0/1
0	0	-	-	-	-	-	-	*		0/0
0	0	-	+	-	-	-	-	*		NA
2	0	-	+	-	-	+	-	0	-	0/0
2	0	-	-	-	+	-	-	1	-	0/0
2	0	-	-	-	-	-	-	0	-	0/1
2	0	-	-	-	-	-	-	1	-	0/1
1	0	-	-	-	-	-	-	1	-	0/0
1	1	+	+	-	-	-	-	1	-	0/0
1	1	+	-	-	-	-	+	*		NA
1	1	+	+	-	-	-	-	*		0/0
0	1	+	+	-	-	-	-	0	-	0/0
1	1	+	-	-	+	-	-	0	-	0/1
3	2	+	-	-	-	-	-	2	-	0/1
3	2	+	-	-	-	+	-	3	+	1/0
2	2	+	+	-	+	+	-	2	+	1/1
3	3	+	+	+	-	+	+	1	-	2/2
3	3	+	+	+	+	-	+	1	-	2/3
3	3	+	+	+	+	+	+	1	+	2/2
2	3	+	+	+	+	-	+	3		2/3
2	3	+	+	+	+	-	+	*		NA
3	3	+	+	-	-	-	+	*		NA
3	3	+	+	+	+	+	+	1	-	0/0
3	3	+	+	+	+	+	-	2	-	3/3
3	3	+	+	+	+	+	+	3	+	3/3
3	3	+	+	-	+	+	+	3	+	NA
2	3	+	+	-	+	-	+	2	+	1/2
3	3	+	+	-	+	+	-	1	-	1/1
3	3	+	+	-	+	+	-	2		2/2

(0–3) = 4 point scale, (+/-) = present or absent, NA = not available, * = ex vivo scans, IL = interstitial lines, PB = parenchymal bands, HC = honeycombing, AD = architectural distortion, SL = subpleural lines, SN = subpleural nodules, Ca = calcification, ILO = International Labor Organization.



A B

Fig. 4.—Patient with asbestosis with a normal chest radiograph and abnormal CT scan.
A, Coned-down view from the radiograph of the lower lobe of the right lung has a normal appearance.
B, High-resolution CT scan through lung bases shows bilateral multifocal areas of interstitial thickening *(arrows)*. The CT scan was judged as being moderately abnormal, whereas histopathologic examination showed advanced fibrosis.

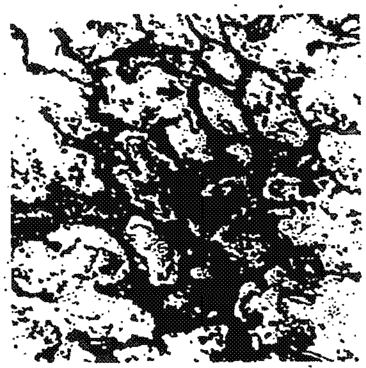


Fig. 5.—Asbestosis with mild interstitial fibrosis. Photomicrograph of a histologic section shows peribronchiolar *(open arrow)* and interstitial *(closed arrow)* fibrosis.

Fig. 6.—Asbestosis with moderate interstitial fibrosis. Photomicrograph of a histologic specimen shows moderate peribronchiolar *(open arrows)* and interstitial *(closed arrows)* fibrosis without architectural distortion.

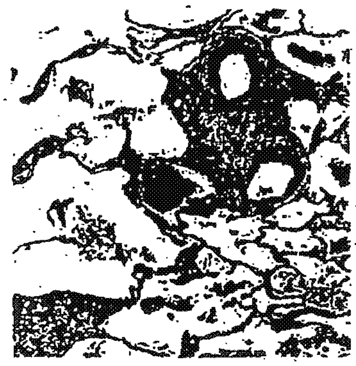


Fig. 7.—Asbestosis with marked interstitial fibrosis. Photomicrograph of histologic specimen shows architectural distortion and honeycombing (enlarged fibrotic spaces).

the section. A minimum of 2 cm^2 of lung parenchyma was examined. Results were expressed as number of asbestos bodies per square centimeter. Interstitial fibrosis with a count of greater than 0.5 asbestos bodies per square centimeter was required for the diagnosis of asbestosis [21]. Histopathologic peribronchiolar and interstitial fibrosis together with asbestos bodies sufficient for a diagnosis of asbestosis were found in 25 of the 30 cases (83%) (Table 1).

Analysis

We first tested the relationships between the two high-resolution CT methods of assessing asbestosis and the histologic presence of this disease. We tested the correlation between the first method using the subjective semiquantitative severity score and the histopathologic score using Spearman's rank correlation or, when applicable, Fisher's exact test. Statistical relationship between the histopathological fibrosis score and the second method that used the cumulative CT features was established with chi-square analysis. We used a standard computerized statistical package (SAS). Statistical comparisons accepted significance at the 0.05 level.

Results

Of the 25 cases with histopathologic asbestosis, the semiquantitative high-resolution CT score was severely abnormal (grade 3) in 13; moderately abnormal (grade 2) in three; and mildly abnormal but judged unlikely to represent diffuse fibrosis (grade 1) in four (Table 1). The high-resolution CT showed insufficient findings to suggest fibrosis (grade 0) in five of the 25 cases with asbestosis. The semiquantitative grade of asbestosis on high-resolution CT was significantly associated with the histopathologic fibrosis severity score ($r = .78$, $p = .0001$).

When we dichotomized these semiquantitative high-resolution CT results by combining high-resolution CT grades 0 and 1 (no or unlikely asbestosis) and grades 2 and 3 (consistent with or probable asbestosis), there were 14 grade 0 or 1 cases and 16 grade 2 or 3 cases. Of the 14 patients with high-resolution CT scans graded 0 or 1, five did not have histologic asbestosis and nine did, whereas all 16 of the patients with high-resolution CT scans graded 2 or 3 had histopathologic asbestosis ($p = .007$).

The high-resolution CT abnormalities involving the interstitium most commonly associated with the presence of histologic asbestosis were interstitial lines (interlobular and centrilobular thickening), parenchymal bands, and architectural distortion of pulmonary lobules. Interstitial lines were seen in 21 (84%) and parenchymal bands were seen in 19 (76%) of the 25 cases of asbestosis. Among the five cases without histologic asbestosis, nterstitial lines were found in one and parenchymal bands in two. Architectural distortion was present in 14 of the 25 asbestosis cases (56%) and was not seen in any of the five cases without histopathologic interstitial lung fibrosis. Thirteen of the 14 cases with architectural distortion fell within the histopathologic fibrosis severity categories 2 or 3. Honeycombing seen on high-resolution CT in patients with asbestosis has a prevalence of less than 10% [16]. In this selected population, honeycombing was found in eight cases (32%), all of which had severe histopathological asbestosis and the highest scores with the semiquantitative CT scoring method. A subpleural line or band has been described with diffuse interstitial fibrosis [12]. This finding was observed in 11 cases (44%), all with asbestosis in histopathologic severity categories 2 or 3, and in 10 of the 11 with the highest high-resolution CT severity score using the semiquantitative method. When these five CT abnormal findings were analyzed separately, interstitial lines and architectural distortion occurred with sufficient frequency to have an association with histopathologic asbestosis that independently achieved statistical significance. Subpleural nodules have been described as a manifestation of interstitial lung disease [23]. This finding was present in 11 of the 25 cases with asbestosis and none without asbestosis (Table 1).

For high-resolution CT to suggest a diagnosis, we tested the postulate that a combination of features could be more useful than a single finding. Therefore, we evaluated whether a cumulative number of high-resolution CT findings would facilitate the diagnosis (Table 2). Because of an increasing number of high-resolution CT features, the frequency with which the diagnosis of asbestosis was identified decreased. One of the selected five abnormalities was found in 88% in patients with asbestosis, two abnormalities in 78%, three in 56%, four in 53%, and all five in 22%. However, with an increasing number of different types of high-resolution CT abnormalities, the likelihood of asbestosis being present histopathologically increased from 60% with one abnormality to 100% with three or more abnormalities. Because the most common CT features of asbestosis were also present in patients without interstitial fibrosis, a cumulative number of CT abnormalities eliminated potential false-positive cases and increased the likelihood of asbestosis being present. When honeycombing, architectural distortion, or subpleural lines were seen on high-resolution CT, asbestosis was invariably present histopathologically in this group.

Pleural plaques were found on CT in 20 of the 24 in vivo studies. Calcification was present in plaques on CT scans in seven (35%) of these 20. All 14 living patients who were in high-resolution CT grades 2 or 3 (likely asbestosis) had visible pleural plaques. In contrast, six of the 10 patients with high-resolution CT grades 0 or 1 (unlikely asbestosis) demonstrated plaques ($p = .02$). Among the 24 in vivo studies, there were three cases in which histopathologic asbestosis was present, but no pleural plaques were visible on CT scans. In none of these three was asbestosis suggested from the high-resolution CT scans.

Chest radiographs were available in 25 cases, two from cases in which the in vitro excised lungs were studied, and 23 from the in vivo high-resolution CT studies (Table 1). Findings on the chest radiographs were abnormal and consistent with asbestosis (ILO profusion $\geq$ 1/0) in 11 of the 25 patients, all with asbestosis in the highest two histopathologic fibrosis categories. However, 10 of the 14 patients with an ILO profusion score of 0/1 or less had histopathologic asbestosis, and four did not have asbestosis ($p = .10$). Overall concordance between histopathologically confirmed asbestosis and chest radiographs defined by an ILO grade of 1/0 or greater was 11/21 (48%).

TABLE 2: Cumulative High-Resolution CT Findings in Asbestosis

No. of CT Findings	Proportion of Cases of Asbestosis with Findings (%)	Proportion of Cases with Asbestosis (%)
1	88	60
2	78	80
3	56	100
4	53	100
5	22	100

Note.—Findings used are interstitial lines, parenchymal bands, honeycombing, architectural distortion, and subpleural lines.

Discussion

In this study, we confirmed a significant correlation between the abnormal high-resolution CT findings described in asbestosis and the histopathologic presence of disease.

Conventional CT and high-resolution CT have been widely accepted for their diagnostic advantages, both for focal and diffuse lung diseases. The abnormalities seen in patients with asbestosis have been described, and their correlation with the presence of clinical asbestosis established [12–17]. In general, patients with clinical asbestosis (exposure, abnormal findings on radiographs, abnormal results of pulmonary function studies) have a high probability of having abnormal findings on high-resolution CT scans. The extent of functional impairment in these cases also correlates with the severity and extent of CT abnormalities [16]. In patients occupationally exposed to asbestos and with normal findings on chest radiograph, high-resolution CT can define a subgroup of patients with reduced lung function compared with those with normal high-resolution CT findings [5].

The distribution and types of high-resolution CT interstitial abnormalities found in asbestosis tend to differ from those seen in idiopathic interstitial fibrosis [24]. Ground-glass opacities are common in idiopathic interstitial fibrosis and uncommon with asbestosis. The reverse is true for parenchymal bands (long scars) and subpleural lines. We found that limited interstitial lines and parenchymal bands could be present without indicating the diffuse or multifocal interstitial fibrosis of asbestosis. Thus, either or both of these abnormalities, if not accompanied by additional findings, could be deceptive in suggesting a diagnosis of asbestosis. Only by having three abnormal features were all cases without fibrosis excluded. The inflammatory response and fibrosis produced in the lung by the inhalation of asbestos fibers result in various types of high-resolution CT findings. These are dependent on the stage and severity of the interstitial fibrosis. Our results agree with the study by Al-Jarad and colleagues [24] that, in asbestosis, the variety of abnormalities on high-resolution CT scans can have diagnostic significance. In fact, this cumulative scoring system gave comparable results to the usual subjective, semiquantitative assessment based on the extent and severity of the interstitial disease.

We also found that the subjective semiquantitative scoring system showed a higher detection rate for asbestosis than did chest radiographs classified with the ILO classification (62% vs 48%). The case mix in our series is most likely skewed by containing a disproportionate number of patients with minimal asbestosis undergoing lung resection for cancer and patients with severe asbestosis from which they died. Only six patients had mild asbestosis (ILO categories 0/1 or 1/0) in which high-resolution CT may be expected to show diffuse lung disease not apparent from chest radiographs (Table 1). Asbestosis was present in five of these six patients and was shown by high-resolution CT in two. The high-resolution CT sampling technique used in this study could have missed focal areas of interstitial fibrosis, even though we used standard high-resolution CT techniques. Given the slow progression of asbestosis, the time between the CT scans and histopathologic confirmation is unlikely to account for the missed cases.

We also found that asbestosis could be present histopathologically with limited and focal high-resolution CT abnormalities or with completely normal findings on high-resolution CT scans (nine of 25 cases of asbestosis). Cases of interstitial fibrosis unrelated to asbestosis were not included in this study, and we cannot comment on the radiographic or high-resolution CT distinction between asbestosis and other forms of interstitial lung disease. Our cases preclude collation of the clinical information such as pulmonary function studies with the results of the imaging studies, or the effects of smoking.

For high-resolution CT to be more effective than chest radiographs in the diagnosis of asbestosis, as with other interstitial fibrotic lung diseases, the detection of abnormalities too small or too limited to be visible on radiographs becomes important. However, a threshold or lower limit of the extent or severity of abnormality must be considered. With either the semiquantitative scoring system or the cumulative number of high-resolution CT features, limited abnormalities were not indicative of diffuse or multifocal interstitial fibrosis.

About 15% of occupationally exposed individuals who demonstrate radiographic abnormalities consistent with asbestosis do not have radiographically visible pleural plaques. Autopsy studies, however, have shown that pleural plaques are much more common than asbestosis and in most instances of asbestosis plaques are present but may be too small to be seen radiographically [5]. Because CT is highly sensitive for detecting plaques, lung parenchymal abnormalities consistent with asbestosis in occupationally exposed individuals are distinctly unusual without demonstrating these plaques [16]. The 14 patients with asbestosis who were in high-resolution CT semiquantitative categories 2 or 3 demonstrated plaques on CT. Of the ten patients in semiquantitative categories 0 and 1, six showed pleural plaques and four did not. Although asbestosis was present in seven of these 10, the diagnosis would not have been suggested from high-resolution CT scans. This supports the idea that plaques will usually be present when the high-resolution CT scans show multifocal features consistent with asbestosis.

In summary, using asbestosis as a model of a specific type of interstitial pulmonary fibrosis, we have made several observations. In suggesting the diagnosis, usually limited and unilateral interstitial lines or parenchymal bands can be seen in individuals without histopathological asbestosis and should not be considered by themselves as suggestive of the diagnosis. Abnormalities need to be bilateral or multifocal. High-resolution CT methods of assessment that used either a cumulative number of types of abnormalities or a semiquantitative score of extent and severity showed equivalency with the histologic confirmation of asbestosis. Thus, we propose that the various types of high-resolution CT abnormalities could be used in conjunction with a subjective assessment of extent and severity for sugges‑‑g a diagnosis in this type of interstitial fibrosis. In this study, albeit a skewed population, high-resolution CT was slightly superior to ILO classified chest radiographs for detection of abnormalities consistent with asbestosis. Finally, histopathologically proved asbestosis can be present in patients with high-resolution CT scans that show normal or nearly normal findings.

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The reader's attention is directed to the commentary on this article, which appears on the following pages.