

is now a matter of public concern. Furthermore there is also an increased incidence of pleural and peritoneal mesotheliomas, bronchogenic carcinomas, and gastrointestinal neoplasms occurring from 24 to 53 years after the initial exposure to asbestos dusts.

When diaphragmatic pleural calcifications are found, particularly bilaterally, with no other evidence of pleural thickening or interstitial disease, and no evidence or history of trauma or infection, exposure to asbestos dust should be considered the etiologic factor. It is incumbent upon the radiologist to suggest the diagnosis of pulmonary asbestosis and to press for a detailed occupational history.

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### Hodgkin's Lymphomas Revisited

Gilbert, and later Peters, realized the advantage of radiating contiguous, clinically uninvolved lymph nodes as prophylactic therapy in Hodgkin's disease management. Recently, "contiguity" has been extended to include spread via the thoracic duct in either direction. Megavoltage radiation therapy units paved the way for use of large radiation fields because these units could deliver a uniform flat field of radiation exposure with precise cutoff at the margins and with minimal skin and systemic reactions. A total-nodal approach to radiation therapy of Hodgkin's disease paralleled the development of megavoltage equipment. In this technique, all major lymphoid pathways of dissemination are prophylactically treated. Treatment fields are carefully shaped to include all primary node systems, while excluding normal uninvolved tissue. Bone marrow in the axial skeleton is shielded whenever possible to preserve production of blood-forming elements. Preservation of a small percent of bone marrow reserve may become crucial if the patient must receive subsequent chemotherapy. Randomized clinical trials at Stanford, under Dr. Henry Kap-

lan, have demonstrated increased survivals for each stage of disease following total-nodal radiation therapy. The overall five-year survival for all stages of disease as of October 1971, was 78 percent. The five-year relapse-free survival rate for Stage I and IIA was 90 percent.

Abdominal exploration with splenectomy and biopsy of liver and para-aortic nodes gives accurate staging as well as valuable prognosis. Evidently lack of splenic involvement means lack of liver involvement. Splenectomy plus multiple liver and node biopsy helps the radiotherapist to establish radiation ports and assists the hematologist in determining the advisability of chemotherapy. Splenectomy also helps the radiotherapist avoid complicating radiation nephritis in the left kidney.

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### Physiology and Significance of the Prolonged Nephrogram

The nephrogram phase during intravenous urography refers to the radioopacity of the renal tissue exclusive of the calyces and renal pelvis. The nephrogram is usually most intense during the first five minutes following injection of the contrast material, with subsequent progressive decrease in intensity over the next several hours.

An abnormally prolonged intense nephrogram is frequently observed in patients with obstructive uropathy. Recent experimental evidence suggests that glomerular filtration continues at a reduced rate, even in the presence of complete obstruction. Continued filtration of contrast material in the face of tubular resorption of salt and water probably accounts for the prolonged intensified nephrogram that is observed.

A prolonged nephrogram is also obtained when intravenous urography is performed in a patient with systemic hypotension. The mechanisms involved may be similar to those postulated for the obstructive nephrogram; a decidedly reduced

glomerular filtration combined with excessive salt and water resorption leads to a progressive accumulation of contrast material within the tubules.

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### Hypertension Caused by Constricting Renal Lesions ("Page Kidney")

Hypertension can be produced by lesions which externally compress the kidney (Page kidney) without associated major renal artery narrowing (Goldblatt kidney). The mechanism for producing the hypertension is probably renal ischemia since abnormal split function studies, radionuclide renograms, and renal vein renin ratios have been found.

Sub-capsular and peri-renal hematomas, or scars, presumed due to previous trauma, are the most frequent cause of this entity. Excretory urography and renal arteriography can demonstrate compression of the collecting system and intrarenal arteries by an avascular intrarenal mass, without renal arterial narrowing. Diagnosis is suspected by an appropriate history of trauma (in some, but not all, cases) and abnormal radiographic findings; and substantiated by appropriate function studies. Surgical intervention (nephrectomy, hematoma evacuation) provides opportunity for cure of the hypertension in some patients.

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### Vascular Changes Associated With Drug Abuse

Arteriographically demonstrable changes in the arteries supplying several organs have been described as a more than casual accompaniment of drug abuse. These arteriographic changes consist of microaneurysms, indistinctness of vessel outlines, irregular segmental narrowing, and partial or complete occlusion. The kidneys and abdominal viscera have demonstrated these changes, at times in patients without symptoms referable to these organ systems; and similar changes in the brain have been noted in patients with neurological abnormalities. Histologic material in some cases has shown a necrotizing angiitis such as is found in polyarteritis nodosa. It is theorized that drug abuse causes a necrotizing angiitis although the specific causative drug(s) is not definitely known.

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### Diagnostic Ultrasound in the Diagnosis of Renal Masses

Ultrasonic B-scanning, which produces a two-dimensional tomographic display of the internal body structures, is capable of radically altering the conventional approach to renal mass lesions. If the excretory urogram indicates a mass, utilizing this method will show the size, position, and consistency of the lesion with 95 percent accuracy. Cysts as small as 2 cm in diameter are readily recognizable. If a typical cyst pattern is observed, direct puncture is employed, using the skin coordinate obtained from the ultrasonic scan. Transducers with central holes for needle insertion are now available to further insure accurate insertion. The cyst fluid may then be analyzed for malignant cells and fat content, and at the same time contrast is injected into the cyst to demonstrate its smooth inner lining. Cyst puncture may be performed as an outpatient procedure.