

ABSTRACTS OF CURRENT LITERATURE

"Single Photon" Emission Computed Tomography of the Brain with a Rotating Gamma Camera—Results of 471 Patients. H. J. Bier-sack, R. Knopp, J. Wappenschmidt, C. Winkler; Bonn, Germany. *Nucl Compact* 12: 130–134, 1981

The authors compared conventional brain scintigraphy with single-photon emission computed tomography (SPECT) in 471 patients. One-second sequential scintigrams were obtained with a conventional gamma camera for a duration of 1 min following injection of 15 mCi of Tc-99m. The flow study was evaluated visually and with time-activity curves generated over the right and left hemispheres. Following this, four standard early images, each containing 800,000 counts, were obtained in anterior, posterior, and right and left lateral positions. Late images (1 hr after radiotracer injection) in the same projections, each containing 600,000 counts, were obtained. SPECT followed early conventional scanning. A single gamma camera rotating around the patient was used. It was equipped with a high-resolution, parallel-hole collimator. A total of 4 million counts were collected during the examination with SPECT. Of the 471 patients, circumscribed lesions were excluded in 422; in 310 patients, lesions were excluded with transmission computed tomography (TCT); and in 122 patients, lesions were considered improbable because of results of neurological examinations combined with an observation period of at least 3 mo. TCT identified brain metastases in 23 patients and vascular lesions in 26. The authors report that conventional scintigraphy had 12 (2.5%) false positives. In comparison, eight (1.7%) SPECT examinations resulted in a false-positive result. Twelve vascular lesions were missed with both scintigraphic procedures (false negatives). SPECT and standard scintigraphy identified six vascular lesions. Five vascular lesions were seen with SPECT only, whereas three lesions were seen on the conventional scan only. All brain metastases were identified when both scintigraphic procedures were used. Five of the 23 metastases were identified only with SPECT and 18 tumors were seen with both procedures. The authors conclude that the combination of conventional scintigraphy and SPECT will improve sensitivity and specificity of radioisotope brain scanning.

Digital Angiography: A Perspective. C. A. Mistretta, A. B. Crummy, C. M. Strother. University of Wisconsin Clinical Science Center. Madison, WI. *Radiology* 139: 273–276, 1981

In the last five years considerable effort has been invested in the development of digital videoangiography. A number of systems are now commercially available. The basic elements of a clinical system are a high-quality cesium iodide image intensifier, a video camera with a wide dynamic range, and a computer. Plumbicon cameras with logarithmic amplification provide the dynamic range that is needed. The logarithmically amplified signal is digitized and stored in one of the two digital memories. Various schemes for subtracting pre- and postopacification images have been developed. To provide sufficient amounts of contrast material, 55-cm catheters are often used and positioned in the superior vena cava. When compared with other radiographic methods, digital subtraction techniques offer improved contrast resolution at the expense of spatial resolution. The digital form of the data opens up the possibility of quantitating certain physiological functions such as left ventricular ejection fraction or renal perfusion. Such an endeavor

is complicated by x-ray scattering, veiling glare in the intensifier, and variations in signal size throughout the video field, but attempts are being made to correct for these problems. The authors conclude that there will be some improvement in image quality as the field develops, but that large improvements are unlikely because image intensifier-television technology has already reached a very high degree of refinement. Interested readers are referred to a series of articles on digital angiography in the same issue.

Radionuclide-Imaging Shuntography for the Evaluation of Shunt Patency. B. N. French, M. Swanson; University of California, Davis, Davis, CA. *Surg Neurol* 16: 173–182, 1981

Seventy-eight radionuclide shuntograms (70 on ventriculo-peritoneal systems and eight on ventriculo-atrial systems) were performed over a 4-yr period in 43 hydrocephalic children (age 2 mo–16 yr). The shuntogram results were correlated with the known dynamics of shunt function as determined by the clinical presentation, other investigative procedures, and operative findings when available. Technetium-99m was used in 74 shuntograms and indium-111 DTPA was used in four. Doses of 0.5–3.0 mCi in volumes of less than 1 ml of either radiopharmaceutical were injected into the shunt reservoir (76 studies) or by ventricular puncture (two studies), and sequential 100,000 count images were obtained by gamma camera following rapid imaging of the abdomen to rule out direct injection of the isotope. The shuntogram results were classified according to supine patency (complete, incomplete, failed), erect patency (immediate, delayed, failed), and pump patency (present or absent). In 57 studies demonstrating shunt patency by any means, 23 (40%) showed deceptive patency in that there was intermittent obstruction or partial obstruction causing the clinical symptoms. Two patients had developed other intracranial lesions despite adequate functioning shunts. Nineteen shuntograms showed complete shunt obstruction with no case in which obstruction was falsely diagnosed. Plain roentgenograms should always be performed to detect shunt disconnection, and computed tomography may be useful in the evaluation of shunt function.

Dynamic Myocardial Scintigraphy with ¹²³I-Labeled Free Fatty Acids in Patients with Myocardial Infarction. E. E. van der Wall, W. den Hollander, G. A. K. Heidendal, G. Westera, P. A. Majid, J. P. Roos; Amsterdam, The Netherlands. *Eur J Nucl Med* 6: 383–389, 1981

The authors evaluated the turnover rates of radioiodinated, long-chain, free fatty acids (I-123 FFA) following myocardial infarction in 30 patients. The diagnosis, acute myocardial infarction (AMI), was based on a history of chest pain, pathological Q waves of the ECG, and characteristic enzyme patterns. Tl-201 scintigraphy in 40° LAO, anterior, and left lateral views began 10 min after i.v. injection of the radiotracer, and scintigraphic defects were recorded. Multiple view selective coronary angiograms were obtained 6–12 wk after AMI. Six normals served as controls. I-123 FFA scintigraphy was carried out 2–5 days after AMI. Gamma camera imaging in left anterior oblique position followed immediately after the i.v. injection of 3–5 mCi of I-123

FFA. The camera was equipped with a low-energy, all-purpose, parallel-hole collimator. The FFA used in 20 patients was ^{123}I -16-HA, and in 10 patients and in controls it was ^{123}I -17-H $^{\text{A}}$. Thirty minutes after radiotracer injection, 0.4–0.8 mCi unlabeled I-123 was injected. Background (BG) due to free circulating I-123, not bound to myocardial cells, was subtracted and the I-123 FFA images were read by two observers. These images were also compared with the TI-201 scans and with the results of angiography. The I-123 FFA perfusion defects were noted. Regions of interest (ROI) were placed over normally perfused areas and over areas of obviously decreased radioactivity. BG-corrected time-activity curves were generated. The FFA turnover rate was expressed in terms of half-time, calculated from the best-fit, monoexponential-corrected time-activity curve. The authors found that the I-123 FFA scintigrams had the same radiotracer distribution pattern as the TI-201 images. Images obtained with ^{123}I -16-HA and ^{123}I -17-H $^{\text{A}}$ were of comparable quality. I-123 FFA turnover rates were faster in infarcted areas, compared with those in normal myocardium—infarcted areas had a ^{123}I -17-H $^{\text{A}}$ turnover rate of 16.8 ± 3.5 min, whereas noninfarcted myocardium had a turnover rate of 34.8 ± 7.7 min. Control values were similar to results observed in noninfarcted tissue. The results suggest that I-123 FFA turnover is increased in infarcted areas of the myocardium. The authors point out that prolonged clearance times for FFA have repeatedly been demonstrated in noninfarcted ischemic zones and conclude that the differential clearance of I-123 FFA in reversible ischemia and irreversible ischemia provides a means of rapidly assessing ischemic injury.

A Method for the Estimation of Right Ventricular Volume by Equilibrium Radionuclide Angiography. R. Slutsky, W. Ashburn, J. Kariner; Univ. San Diego Hosp, San Diego, CA. *Chest* 80: 471–480, 1981

Using 15–20 mCi Tc-99m-labeled human albumin, the authors studied 45 persons (15 normal control subjects and 30 patients with coronary heart disease) with both first-pass and equilibrium radionuclide right ventricular ejection fraction (RVEF) and right ventricular volume (RVV), using a single crystal, mobile scintillation camera. The equilibrium RVEF and RVV were obtained by generation of right ventricular curves using the counts at end-diastolic, corrected for frame time, the total number of processed heart beats, and blood radioactivity to derive right ventricular end-diastolic volume units. All coronary patients and five control subjects had both right and left heart catheterization studies with intracardiac pressure measurement within 24 hr of the radionuclide study. The RVEF of equilibrium technique and first-pass studies show very good correlation in all 45 subjects. All normal subjects (Group I) had a RVEF of 40%, with a RVV index ≥ 5.8 . The coronary patients consisted of two subgroups: Group II (N = 20) and Group III (N = 10), with right ventricular end-diastolic pressures < 10 mm Hg and ≥ 10 mm Hg, respectively. In Group II, 19 of 20 had a normal RVEF, and 18 had a normal end-diastolic volume. In group III, four of ten patients had RVEF less than 0.4 and nine of ten an increased end-diastolic volume. It was concluded that right ventricular volume can be estimated with radionuclide angiography and that dilatation may precede depression of the RVEF in some patients with coronary heart disease.

Effect of Cardiac Drugs on Imaging Studies with Thallous Chloride TI-201. J. Waschek, G. Hinkle, G. Basradjian, E. W. Allen, R. Ice; University of Oklahoma Health Sciences Center, Oklahoma City, OK. *Am J Hosp Pharm* 38: 1726–1728, 1981

In this study, 62 male patients (age 37–70 yr) received 1.5 mCi of TI-201 either at rest or after peak treadmill exercise for myo-

cardial imaging for evaluation of known or suspected coronary disease. Myocardial images at rest by gamma camera were made in 40° left anterior oblique projection. A myocardial (left ventricle) to background (closely adjacent area around myocardium) (M/Bk) ratio on image was generated by computer. In the four patients receiving no “cardiac” medication(s), the M/Bk ratio was 1.51 ± 0.08 (mean \pm s.d.). A retrospective review of “cardiac” medications being taken by the patients revealed the following: propranolol (33 patients), nitroglycerin ointment (22), isosorbide dinitrate (18), digoxin (15), hydrochlorothiazide (15), potassium chloride (12), and quinidine (8). A small but fairly consistent inverse relationship appeared to exist between the number of medications being taken and the M/Bk ratio. The most common number of medications being taken by the patients was three (multiple-drug therapy of cardiac disease is the usual clinical situation). No drug appeared to affect the M/Bk ratio in a consistent manner. In the patients receiving propranolol, no dose (0–60 mg)–response (M/Bk ratio) relationship was seen. These authors conclude that the commonly used drugs studied do not alter myocardial TI-201 uptake to an extent that would cause erroneous image assessment or poor images.

Thallium Myocardial Perfusion Scans for the Assessment of Right Ventricular Hypertrophy in Patients with Cystic Fibrosis. C. J. L. Newth, M. L. Corey, R. S. Fowler, D. L. Gilday, D. Gross, I. Mitchell; The Hospital for Sick Children, Toronto, Ontario, Canada. *Am Rev Respir Dis* 124: 463–468, 1981

Right ventricular failure (RVF) in cor pulmonale is preceded by right ventricular hypertrophy (RVH). Therefore, the early detection of RVH could be of considerable clinical importance. To determine the best method for establishing the diagnosis of RVH, 32 patients with cystic fibrosis (7–33 yr of age) were studied by thallium-201 scintigraphy, as well as by other methods, including vectorcardiography and M-mode echocardiography. The thallium-201 scan predicted RVH in 43.8% of the patients, and the vectorcardiogram predicted RVH in 58.4%. The results of M-mode echocardiography were dependent upon the criteria used for the determination of RVH. If right ventricular anterior wall thickness was used as a criterion, only 21.9% of patients had RVH. If right ventricular end-diastolic dimension was used, 40.6% had RVH. There was poor correlation among these three methods of study in their prediction of RVH. When these studies were compared with each other, agreement on absence or presence of RVH in these patients was found in only 47%. Vectorcardiography was determined to be the method of choice for the detection of RVH in that the sensitivity is greater, and exposure of young patients to a substantial radiation dose is avoided.

Radionuclide Angiographic Correlation of the R-Wave, Ejection Fraction, and Volume Response to Upright Bicycle Exercise. R. S. Greenberg, M. H. Ellestad, R. Berge, K. Johnson, M. Haynes, M. Bible, H. Moralesballejo; Long Beach Mem. Hosp., Long Beach, CA. *Chest* 80: 459–464, 1981

To correlate the R wave, left ventricular ejection fraction (LVEF), the left ventricular diastolic and systolic volumes in response to upright bicycle exercise, gated cardiac blood-pool imaging was performed in 18 control subjects and 29 patients with coronary arterial disease (70% or more stenosis). All control subjects had a decrease in the R wave, an increase in LVEF from $64.8 \pm 7.7\%$ to $75.7 \pm 9.4\%$, and a decrease in the systolic volume with exercise. In the group with coronary disease most patients had a decrease in the EF from 63.5 ± 10.9 to $58.6 \pm 12.6\%$. Twenty-three of 29 patients had either a decrease in R wave and an increase in LVEF or an increase in R wave and a decrease in LVEF (ap-

propriate response). In response to stress, systolic volume increased in most of the group with coronary arterial disease. Ninety-four percent of the patients with an increase in R wave had multiple vessel disease, while 55% of the patients with a decrease in the R wave had multivessel disease. There were 20 of 29 patients with either an increase in R wave and systolic volume or a decrease in both (appropriate response). The change in the R wave did not correlate with the change in the diastolic volume with stress. The authors concluded that changes in the R wave with exercise correlate with changes in EF and the left systolic volume, and changes in the R wave are related to changes in contractibility. Increase in the R wave with stress suggests multivessel coronary arterial disease.

Patterns of Pulmonary Perfusion Scans in Normal Subjects. J. M. Wallace, K. M. Moser, M. T. Hartman, W. L. Ashburn; Univ. of California, San Diego, CA. *Am Rev Respir Dis* 124: 480-484, 1981

Eighty healthy nonsmoking subjects, ages 18-29, underwent a perfusion scan (Q scan) of the chest following the intravenous injection of approximately 350,000 particles of technetium-99m human albumin macroaggregates. Known abnormal perfusion scans were interspersed with the study scans, and all studies were read independently by two observers. A scan was read as abnormal if lobar, segmental, or subsegmental perfusion defects were seen on a minimum of two views, and a Xe-133 ventilation study was tailored to assess the area. Of the 80 Q scans, 79 were interpreted as normal. The abnormal scan revealed a subsegmental defect in the left upper lobe. This patient, who had a pectus excavatum, had a normal ventilation study. Six subjects had an area of decreased perfusion anteriorly seen on the right and left lateral views, due to attenuation caused by the patients' arms being brought across to rest on the opposite shoulder during imaging. This artifact was easily corrected by positioning the arm over the head. In five subjects, a subtle, subapical defect was seen on the anterior view, which disappeared when the patient was slightly rotated. Upon statistical analysis it was concluded that no more than 3.68% of normal nonsmoking young adults will have a segmental or lobar defect and no more than 6.77% will have a subsegmental defect (95% confidence limits).

The Value of Liver Scintigraphy in the Management of Patients with Suspected Gastric Cancer. A Prospective, Consecutive Study. M. Christensen, P. Moll Jakobsen, P. Johansen; Aalborg, Denmark. *Acta Chir Scand* 147: 269-270, 1981

The authors performed liver scintigraphy 1-7 days before radical surgery for gastric cancer. Forty-three patients had gamma camera liver scans following i.v. injection of 3 mCi Tc-99m stannic chloride. Images, each containing 500,000 counts, were made in anterior, right lateral, and posterior views. Scintigrams classified as definitely demonstrating space-occupying lesions were designated A and others, including doubtful cases, were classified as N. At surgery the liver was carefully examined for metastases. Biopsy material was obtained from all macroscopically suspect areas, and fine-needle biopsy was also taken from lesions visualized on the scan, irrespective of the results of the surgical examination. The authors found that six of seven patients with hepatic involvement in malignant disease were correctly identified with scintigraphy. Results were verified in four patients with aspiration biopsy and in two during surgical exploration. One false-positive scintigraphic result was noted among 36 patients. The authors suggest that patients with gastric carcinoma should have liver scans supplemented by scan-guided preoperative biopsy to help determine whether to proceed with radical surgery.

Isolated Retained Antrum-Diagnosis by Gastrin Challenge Tests Radiocintillation Scanning. A. Cortot, C. R. Fleming, M. L. Brown, V. L. W. Go, J. R. Malagelada; Mayo Clinic and Mayo Foundation, Rochester, MN. *Digest Dis Sci* 26: 748-751, 1981

This case report describes a 42-yr-old man presenting with recurrent gastrointestinal bleeding. He had earlier undergone: (a) truncal vagotomy and pyloroplasty and then (b) partial gastric resection and gastroenterostomy. At presentation, serum gastrin fell following intravenous secretin challenge suggesting normal antral G-cell response. Following intravenous calcium infusion, serum gastrin rose slightly as occurs in normal subjects. Following a 458-kcal solid and liquid meal (incorporating protein, carbohydrate, and fat), there was no appreciable change in serum gastrin as occurs often in patients with gastrinoma. The abdomen was then imaged by gamma camera following i.v. injection of 5 mCi Tc-99m, which outlined the Billroth II gastric pouch and showed a smaller area of intense uptake just to the right of the midline. At exploratory laparotomy, it was seen that a generous wedge of gastric antrum had been removed, but the antrum was not completely separated from the stomach, and a mucosal bridge without patent lumen remained. In addition, a segment of distal antrum was still in continuity with the duodenum. The retained antrum was resected, and a new gastrojejunal anastomosis was fashioned. The patient recovered uneventfully and is in good health. These authors feel that differential diagnosis of isolated retained antrum (IRA) and gastrinoma is feasible with gastrin challenge tests and with abdominal imaging by pertechnetate.

Radioimmunoassay—A Sensitive Screening Test for Histoplasmosis and Blastomycosis. R. B. George, R. S. Lambert, M. J. Bruce, J. W. Pickering, R. M. Wolcott; Louisiana State Univ Med Ctr, Shreveport, LA. *Am Rev Respir Dis* 124: 407-410, 1981

A method for the radioimmunoassay (RIA) of serum antibodies to Blastomyces yeast antigen (BY), Histoplasma yeast antigen (HY), and Histoplasma mycelial antigen (HM) is described in detail. The RIA results were compared with complement fixation (CF) methods in four groups of subjects. Group I comprised 104 consecutive blood donors from an endemic area; Group II consisted of eight patients who had culture-proven active histoplasmosis; Group III contained 12 patients with active culture-proven blastomycosis; and Group IV was made up of 30 patients with chronic lung diseases from an endemic area, their diseases being such that they might mimic the clinical presentation of either histoplasmosis or blastomycosis.

Thirteen percent of subjects in Group I had elevated titers to at least one of the three antigens by RIA compared with 21% by CF. All but one of the patients with histoplasmosis had a positive RIA to HY and HN antigens. This false-negative patient also had marked hypogammaglobulinemia. CF was less sensitive than RIA in this group. All of the patients in Group III had a positive titer to the Blastomyces antigen by RIA and half of these had positive CF reactions. Twenty-eight percent of the patients in Group IV had positive CF tests, and 36.7% had a positive RIA.

Although the RIA method was very sensitive, its specificity was low. All of the patients with blastomycosis had positive RIA titers to HY antigen, as did 11 of 12 to HM antigen, and 75% of patients with histoplasmosis had positive RIA titers to BY antigen.

A Simple Physical Two-Component Model for the Simulation of Dynamic Studies with Radionuclides. K. E. Chackett, A. B. G. Mostafa; Dudley Rd. Hospital, Birmingham, U.K. *Inst J Appl Radiat Isot* 32: 243-245, 1981

A physical implementation of a two-compartment model suitable for use with a gamma camera or a probe simulation of biological sit-

uations is presented. The model consists of two flasks of different sizes connected in series with a peristaltic pump. Radioactive fluid circulates from the pump through the flasks to a collection point. Glass stirrers powered by 24-V DC motors ensure complete mixing in the flasks.

The authors develop the differential equations required for analysis of the kinetics both with and without complete return of the fluid. The uses of such a system include physician and technician training and assessing the effectiveness of the measurement and computational techniques in giving correct results.

Radiation Decontamination Unit for the Community Hospital. R. L. Waldron II, R. A. Danielson, H. E. Schultz, D. E. Eckert, K. O. Hendricks; French Hospital, San Luis Obispo, CA. *Am J Roentgenol* 136: 977-981, 1981

The Joint Commission on Accreditation of Hospitals requires hospitals to have provisions for the management of individuals who have inadvertently been exposed to radiation and may be contaminated with radioactivity. Because many of the mishaps that have occurred were related to the transportation of radionuclides, decontamination units are needed even in those hospitals not near nuclear reactors or in laboratories that use radioactivity. It is important to provide a facility that can be readily converted from its normal use to a "free-standing" radiation decontamination unit in a very short period of time. Such a facility is described, including an estimate of the costs involved. Access to the unit is restricted and monitoring teams are present at all entrances. A separate air filtration system and holding tank for drainage is provided to set the unit apart from the remainder of the hospital. References are provided for alternative approaches. The authors maintain that it is important to have repetitive training exercises to keep all personnel prepared for an accident and to test procedures and equipment. A montage of pictures is presented to show the elements of such a drill. In addition, a list of Regional Coordinating Offices for Radiographic Assistance of the Department of Energy is provided.

Monte Carlo Calculations of Gamma-Ray Backscattering. A. Gayer, S. Bukshpan, F. Nardi; Nuclear Research Center, Yavne, Israel. *Nucl Inst Meth* 180: 589-595, 1981

Backscatter of gamma rays is influenced by the primary energy, absorber atomic number, and the geometric configuration. The results of a Monte Carlo program that simulates backscatter for primary energies from 0.1 to 13 MeV and atomic numbers from 0.6 to 50 are presented. Photon histories are followed until the photon is absorbed or escapes the material. Results are presented in the form of graphs for both narrow-beam and wide-angle geometry. The graphs enable the selection of energy and material to enhance or suppress the amount of backscattered photons.

Empirical Polynomials for Computing Gamma Ray Interaction Cross Section Coefficients in Ge and NaI(Tl). F. T. Avignone, III, J. A. Jeffreys; Dept. of Physics and Astronomy, Univ. of South Carolina, Columbia, SC. *Nucl Inst Meth* 179: 159-162, 1981

The author has taken known cross sections for Ge given by Storm and Israel and the absorption coefficients for NaI(Tl) of Hubbell and performed a polynomial fit. The Ge cross sections were fitted with a second degree polynomial and the NaI(Tl) data were fitted with a third degree polynomial. The energy range for Ge is 0.001-60 MeV and for NaI(Tl) 0.01-10 MeV. Agreement with published values is better than 3%.

Discriminatory hCG Zone: Its Use in the Sonographic Evaluation for Ectopic Pregnancy. N. Kadar, G. DeVore, R. Romero; Yale University School of Medicine, New Haven, CT. *Obstet Gynecol* 58: 156-161, 1981

Correlating the sonographic appearance of the gestational sac with the hCG level as determined by radioimmunoassay, the authors ascertained a level of 6000-6500 mIU/ml to be a discriminatory zone for the determination of ectopic gestation. The gestational sac was identifiable in 93.5% of 46 patients with intrauterine pregnancy who had serum hCG levels above the discriminatory zone and in none of those 20 with hCG levels below 6000-6500 mIU/ml. The study determined that the sac of a normal intrauterine pregnancy becomes detectable by gray scale ultrasonography when the hCG level is above 6000-6500 mIU/ml: When a sac is demonstrated with hCG values below this zone, an abnormal pregnancy, either missed abortion or ectopic, is suggested. The absence of an intrauterine sac or presence of a sonolucent area in the uterus when the serum hCG level is above the discriminatory zone is considered diagnostic of ectopic gestation. Representative sonograms and diagrams are provided.

Ultrasonographic Assessment of Bladder Tumors. I. Tumor Detection. II. Clinical Staging. V. Itzhak, D. Singer, Y. Fischelovitch; Chaim Sheba Med. Ctr., Tel Aviv Univ., Tel-Hashomer, Dept. of Urology, Kaplan Hospital, Rehovot, and Medical School of Hebrew Univ. and Haddassah, Jerusalem, Israel. *J Urol* 126: 31-36, 1981

Sonographic detection of 71 bladder tumors in 37 patients was found to be dependent upon both size and location of the neoplasm. Only 33.3% of tumors less than 0.5 cm. in diameter were identified; 83.3% of those in the 1-2 cm group were recognized; and 95% of those greater than 2 cm were detected. The bladder neck and dome were found to be relatively blind areas for sonography. A blood clot produced the single false-positive examination in this series. Sonography is, therefore, not advocated as the initial screening examination in the search for bladder tumors.

In a second consideration the authors determined a staging accuracy of nearly 100% for ultrasound in the evaluation of deep tumors of the bladder. Superficial tumors were, however, overstaged, and an accuracy of only 55% was attained. The uniformity of the bladder wall seen in normal patients is disrupted in the presence of invasive tumor, and the authors advocate ultrasound as the method of choice in preoperative staging of bladder neoplasms. The absence of the sharp bladder outline around the posterior and lateral walls was interrupted by invasive neoplasm. Representative in vivo and in vitro sonograms are provided.

Preoperative Sonography of Malignant Ovarian Neoplasms. C. K. Requard, F. A. Mettler, Jr., J. D. Wicks; Univ. of New Mexico School of Medicine, Albuquerque, NM. *Am J Roentgenol* 137: 79-82, 1981

In a study of 32 patients with proven malignant ovarian neoplasms, sonography was found to be 97% accurate for the detection of and 84% accurate in the characterization of the physical aspects of the tumor. No correlation between the histologic grade and the gross pathologic or sonographic appearance was identified, and ultrasound was successful in staging the malignancy in only 48% of the patients. Peritoneal and omental seeding, bowel, and bladder wall involvement were all poorly identified by sonography. The incidence of ascites in the current study was 59%; the authors state that ascites does not necessarily imply a high stage of disease. Of the masses examined, 68% were characterized as complex, 19% as solid, and 13% as purely cystic.

Ultrasound and Radionuclide Studies of Urinary Extravasation with Hydronephrosis. E-L. Yeh, L-C. Chiang, R. C. Meade; Veterans Administration Center, Wood and Columbia Hospital, and Medical College of Wisconsin, Milwaukee, WI. *J Urol* 125: 728-730, 1981

The authors encountered two cases in which ureteral obstruction producing hydronephrosis ultimately caused urinary extravasation. In both cases, sonolucent perinephric collections were identified at ultrasound. The specificity of such a finding is, however, somewhat low with urinoma, hematoma, perinephric abscess, and lymphocele, all representing diagnostic possibilities. The use of technetium-DTPA renal scanning served to identify the perinephric collections as urine. Early surgical intervention is indicated and the combination of the two procedures proved highly efficacious.

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