

Honoring a Giant in Radiology: Morton A. Bosniak, M.D.

By Alec J. Megibow

THE article that follows this brief introduction is written by one of the true giants of radiology, Morton A. Bosniak, M.D. Dr. Bosniak ranks among the few individuals in radiology whose body of work defines the evolution of the field. The renown of the Abdominal Imaging Section at NYU can be directly traced to his seminal leadership and extraordinary vision.

Dr. Bosniak graduated from the Massachusetts Institute of Technology and the SUNY Downstate Medical Center

College, and then trained in Radiology at Cornell University Medical Center. He began his academic career at the Montefiore Medical Center of the Albert Einstein College of Medicine. During that period he mentored notable individuals such as Seymour Sprayregan, M.D., who became chair of radiology at Montefiore, and Stanley Siegelman, M.D., who, among innumerable accomplishments, brought the journal *Radiology* to its current status as one of the most highly referenced publications in medicine. Dr. Bosniak was recruited to the faculty of NYU in 1963, with his original passion being diagnostic angiography. The first book he coauthored, with John Evans, M.D., was *The Kidney*; this book presented the initial applications utilizing angiographic findings to provide specific diagnoses in renal masses.

Subsequent work then expanded angiographic descriptions to diagnoses in the retroperitoneum and adrenal glands. In his continued quest for improved detection and characterization of renal masses, Dr. Bosniak pioneered techniques such as nephrotomography and high-volume drip infusion tomographic-enhanced urography. Dr. Bosniak has published over 150 scientific papers, five textbooks, and over 30 book chapters. He has been invited as Visiting Professor over 160 times, and has lectured to radiological societies over 100 times. Dr. Bosniak has participated in postgraduate education throughout the world. He has served as president of the Society of Cardiovascular

Imaging, the Society of Uroradiology, and the New York Roentgen Society, and has been the recipient of numerous honors, including the Annual Gold Medal for the Society of Uroradiology in 2000 and the RSNA Gold Medal, that society's highest honor, in 1996.

Dr. Bosniak's career could reasonably and very respectably have been defined strictly by his work in urography and angiography, but in fact his greatest contributions to medicine were made through his careful observations of



Morton A. Bosniak, M.D.

renal masses. He realized that the power of CT to visualize the most minute levels of contrast enhancement within a renal mass could potentially provide tissue characterization, thereby differentiating between malignancy and benignity. Assessing the degree of contrast enhancement could allow one to accurately characterize a lesion as neoplastic, or conversely, when enhancement was absent, confidently call the abnormality benign. He suggested that tissue-specific information inherent in the Hounsfield scale could identify certain elements, such as fat, within a renal mass with a remarkable level of sensitivity. Such information has important prognostic implications: because of his research, the preoperative identification of small amounts of fat in renal angiomyolipomas has saved innumerable patients unnecessary nephrectomies. He

considered every averted surgery a victory for the patient. Physicians and patients worldwide would send him their studies for consultation, which was always provided gratis, with the only stipulation being that the films be kept in his teaching file for further study, and for the education of his colleagues and residents.

He was the first to understand the implications inherent in recognizing the subset of slow-growth small renal masses. The ultimate outcomes from these observations were to spare elderly patients unnecessary nephrectomy, and, even more significantly, to provide imaging data for a small

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<p>State of the Art</p> <p>The Current Radiological Approach to Renal Cysts / 1 Morton A. Bosniak</p>	
<p>Thoracic Radiology</p> <p>Spatial Resolution Requirements for Digital Chest Radiographs: An ROC Study of Observer Performance in Selected Cases / 11 Peter M. Lams and Michael L. Cocklin</p> <p>Digital Radiography of Subtle Pulmonary Abnormalities: An ROC Study of the Effect of Pixel Size on Observer Performance / 21 Heber MacMahon, Carl J. Vyborny, Charles E. Metz, Kunio Doi, Victoria Sabetti, and Steven L. Solomon</p> <p>Digital and Conventional Chest Images: Observer Performance with Film Digital Radiography System / 27 Lawrence R. Goodman, W. Dennis Foley, Charles R. Wilson, Alfred A. Rimm, and Thomas L. Lawson</p> <p>Digital and Conventional Chest Imaging: A Modified ROC Study of Observer Performance Using Simulated Nodules / 35 Dev P. Chakraborty, Eamonn S. Breatnach, Michael V. Yester, Benigno Soto, Gary T. Barnes, and Robert G. Fraser</p> <p>Differentiation of Pulmonary Parenchymal Consolidation from Pleural Disease Using the Sonographic Fluid Bronchogram / 41 Howard L. Dorne</p>	
<p>Mammography</p> <p>Galactocoele: Three Distinctive Radiographic Appearances / 43 Antonio Gómez, Jose M. Mata, Luis Donoso, and Amparo Rams</p>	
<p>Abdominal and Gastrointestinal Radiology</p> <p>Focal Hepatic Masses and Fatty Infiltration Detected by Enhanced Dynamic CT / 45 Michael B. Alpern, Thomas L. Lawson, W. Dennis Foley, Steven J. Perlman, Lawrence J. Reif, Enrique Arevalos, and Alfred A. Rimm</p> <p>MR Imaging of Fat / 51 Georges C. Dooms, Hedvig Hricak, Alexander R. Margulis, and Gerard de Geer</p> <p>Hepatic Artery Pseudoaneurysm: Diagnosis with Real-time and Pulsed Doppler US / 55 Gary E. Falkoff, Kenneth J.W. Taylor, and Steven Morse</p> <p>Shunts for Portal Hypertension: MR and Angiography for Determination of Patency / 57 Michael E. Bernardino, Harvey V. Steinberg, Thomas C. Pearson, R. Kristina Gedgudas-McClees, William E. Torres, and J. Michael Henderson</p> <p>Gallbladder Perforation: Diagnostic Utility of Cholescintigraphy in Suggested Subacute or Chronic Cases / 63 Robert Smith, Joel M. Rosen, and Philip O. Alderson</p> <p>Pancreatic Acinar Cell Carcinoma with Subcutaneous and Intrascapular Fat Necrosis / 67 D. Randall Radin, Patrick M. Colletti, Deborah M. Forester, and Winston W. Tang</p> <p>Sensitivity of Double-Contrast Barium Study for Left-Colon Polyps / 69 Douglas K. Rex, Glen A. Lehman, John C. Lappas, and Rescoe E. Miller</p>	
<p>Genitourinary Radiology</p> <p>Adrenal Tissue Characterization Using MR Imaging / 73 Gary M. Glazer, Edward J. Woolsey, Joseph Borrello, Isaac R. Francis, Alex M. Aisen, Fred Bookstein, Marco A. Amendola, Milton D. Gross, Robert L. Bree, and William Martel</p> <p>Vernix in Amniotic Fluid: Sonographic Detection / 80 Lyndon M. Hill and Robert Breckle</p> <p>Adrenal Masses Differentiated by MR / 81 James W. Reinig, John L. Doppman, Andrew J. Dwyer, Alan R. Johnson, and Richard H. Knop</p> <p>Prostatic Evaluation by Transrectal Endosonography: Detection of Carcinoma / 85 Matthew D. Rifkin, Gerald W. Friedland, and Linda Shortliffe</p> <p>Prostatic Evaluation by Transrectal Sonography: Criteria for Diagnosis of Early Carcinoma / 91 Fred Lee, Jerry M. Gray, Richard D. McLeary, Fred Lee, Jr., Timothy A. McHugh, M. Hugh Solomon, Glen H. Kumasaka, William H. Straub, Gilbert S. Borlaza, and Gerald P. Murphy</p> <p>Prostatic Evaluation by Transrectal Sonography with Histopathologic Correlation: The Echogenic Appearance of Early Carcinoma / 97 Wolfgang F. Döhnert, Ulrike M. Hamper, Joseph C. Eggleston, Patrick C. Walsh, and Roger C. Sanders</p>	

The title page of the January 1986 edition of *Radiology*, launching the State-of-the-Art series with an article by Dr. Bosniak introducing the CT classification system of renal cysts.

group of visionary urologic surgeons contemplating nephron-sparing surgery for renal cell carcinoma.

When Dr. Siegelman assumed the role of Editor-in-Chief of *Radiology*, he believed the journal would be defined as a source of the highest-quality science and timely, clinically relevant information necessary for practicing radiologists. He created the "State-of-the-Art" section, and not surprisingly asked his mentor, Dr. Bosniak, to contribute the very first article in this series. It was in this paper, "The Current Radiological Approach to Renal Cysts," published in 1986, that Dr. Bosniak first introduced the CT classification system of renal cysts.

Dr. Bosniak's careful observations and meticulous analyses of countless lesions led to the accurate trifurcation of cystic renal masses into surgical cases, those that could be followed for stability or growth, and those requiring no further workup. Since 1991, the Bosniak Classification has been the standard by which all renal cystic lesions are evaluated. Every urologic surgeon in the world knows of the Bosniak Classification of renal cystic masses.

When I began my NYU radiology residency in 1974, Dr. Bosniak was the heart and soul of our teaching program. I remember my first noon conference, held in the amphitheater at the end of the second floor corridor in the Bellevue C & D Building. When he walked in that day, a hush came over the room; "Dr. Bosniak is here" was whispered among the residents. The tone of the conference became formal, and I felt secure that I would be expertly educated. Dr. Bosniak held us to the highest standards. If we missed a case, we were never demeaned (but never excused, either); rather, we were told to prepare a short presentation about the radiological findings we had not detected, a teaching technique which facilitated group education. He attended every conference in those days, and the breadth of his knowledge extended beyond abdominal imaging; his command of general radiology was astounding. On the clinical service, he taught that no advancement in radiology was possible without perfect images. He was one of the first to recognize that patients would be best served by radiologists who specialized along clinical lines. I am proud to say that I was Dr. Bosniak's first Abdominal Imaging Fellow, with training in CT, angiography, barium, and ultrasound. This was a unique concept in 1978 and emblematic of Dr. Bosniak's vision.

NYU received its first CT, the EMI 5005 whole-body scanner, on March 21, 1978. At that time we were already behind other radiology departments in CT research and clinical care. It took a while to accumulate material, but rapidly we began to publish research reports based on this new modality. Having faith in his young (at that time) staff's abilities, Dr. Bosniak conceived the first (as yet unnamed) Head-to-Toe imaging course in 1981. The purpose of this course was not only to present NYU as a real "contender" in the world of CT, but also to provide the opportunity to invite the then current leaders in CT to New York to showcase our high-quality work. It was a combination of faith and bravado — in many ways the essence of New York. This year marks the twenty-fifth anniversary of that course, which appropriately bears his moniker.

Those of us in the body section of NYU who have worked, learned, argued, and agreed with him are also privileged to have been inspired, educated, mentored, encouraged, challenged, and supported by him. At other times he pushed, and even occasionally exasperated, us, but we can never imagine our professional lives and academic careers without Dr. Bosniak as a role model and leader. We only hope that our current Abdominal Imaging Section can maintain the level of intensity and integrity that Dr. Bosniak embodies.

Alec J. Megibow, M.D., M.P.H., F.A.C.R., is Professor of Radiology, Director of NYU Faculty Practice Radiology, and a member of the Abdominal Imaging Section.

