

IMAGING

The incidental adrenal mass on CT: prevalence of adrenal disease in 1,049 consecutive adrenal masses in patients with no known malignancy

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AJR, Am J Roentgenol 2008; 190: 1163-1168

Purpose: The purpose of our study was to determine the nature and prevalence of adrenal lesions identified on CT in patients with no known malignancy.

Materials and Methods: A computer search of abdominal CT reports using the term “adrenal” was performed in 65,231 consecutive patients with examinations performed from January 2000 to December 2003. An adrenal mass was identified in 3,307 (5%) patients. Patients with no known malignancy and no suspicion for a hyperfunctioning adrenal mass were further isolated. Nine hundred seventy-three patients with 1,049 adrenal masses fulfilled the study criteria. The nature of each lesion was determined by histopathology; imaging characterization with CT, MRI, or washout; a minimum of 1 year of stability on follow-up imaging; or clinical follow-up of at least 2 years.

Results: One thousand forty-nine adrenal masses were characterized with the following methods: histopathology (n = 12), imaging characterization (n = 909), imaging follow-up (n = 87), and clinical follow-up (n = 41). There were 788 adenomas constituting 75% of all lesions. There were 68 myelolipomas (6%), 47 hematomas (4%), and 13 cysts (1%). Three pheochromocytomas (0.3%) and one cortisol-producing adenoma (0.1%) were found incidentally. One hundred twenty-eight lesions (12%) were presumed to be benign by imaging or clinical stability. No malignant adrenal masses were found, even among the 14 patients who later developed malignancy elsewhere.

Conclusions: In 973 consecutive patients with an incidental adrenal mass and no history of cancer, no malignant lesions were identified. Adenomas (75%) and myelolipomas (6%) were the most common lesions.

Editorial Comment

The authors report very large retrospective study regarding the prevalence of adrenal incidentalomas on CT studies performed in patients without cancer. Actually this publication encompasses a larger number of patients when compared with previous study published by the same authors where all of the incidentally detected adrenal masses with a CT attenuation of equal or less than 10 HU were benign (1). Adrenal incidentalomas were classified almost exclusively by classical and well known imaging criteria (unenhanced and enhanced CT studies and chemical-shift MR imaging). Although the authors reports that only 1% of the adrenal masses of this large series was histological evaluated, their criteria has been proved to be effective by other large series where histological confirmation were obtained(2,3). As radiologic experience accumulates, the tendency to accept strict and specific imaging features for adequate characterization of adrenal adenomas continues to grow. Large series with histological confirmation, large number of patients without histological confirmation but with prolonged clinical and radiological follow-up continues to strength the role of imaging features in the evaluation of adrenal adenomas. In many centers, radiologic characterization of adrenal adenomas is accepted similarly to the radiologic characterization of other adrenal incidentalomas such as cysts, pseudocysts, hematomas and mielolipomas. Small, < 3 cm in diameter, homogeneous and well defined adrenal mass with CT attenuation of equal or less than 10 HU or showing more than 20% of loss of signal intensity on chemical-shit MR imaging should be considered as an adrenal adenoma.

References

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Endorectal and dynamic contrast-enhanced MRI for detection of local recurrence after radical prostatectomy

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AJR, Am J Roentgenol 2008; 190:1187-1192

Objective: The objective of our study was to evaluate the sensitivity and specificity of endorectal MRI combined with dynamic contrast-enhanced MRI to detect local recurrence after radical prostatectomy.

Materials and Methods: A total of 51 patients who had undergone radical prostatectomy for prostatic adenocarcinoma 10 months to 6 years before underwent a combined endorectal coil MRI and dynamic gadolinium-enhanced MRI before endorectal sonographically guided biopsy of the prostatic fossa. The MRI combined with MR dynamic imaging results were correlated with the presence of recurrence defined as a positive biopsy result or reduction in prostate-specific antigen level after radiation therapy.

Results: Overall data of 46 (25 recurred, 21 nonrecurred) out of 51 evaluated patients were analyzed. All recurrences showed signal enhancement after gadolinium administration and, in particular, 22 of 24 patients (91%) showed rapid and early signal enhancement. The overall sensitivity and specificity of MR dynamic imaging was higher compared with MRI alone (88%, [95% CI] 69–98% and 100%, 84–100% compared with 48%, 28–69% and 52%, 30–74%). MRI combined with dynamic imaging allowed better identification of recurrences compared with MRI alone (McNemar test: $\chi^2 = 16.67$; $p < 0.0001$).

Conclusion: MRI combined with dynamic contrast-enhanced MRI showed a higher sensitivity and specificity compared with MRI alone in detecting local recurrences after radical prostatectomy.

Editorial Comment

The authors of this manuscript confirms previous publications that has been shown that endorectal magnetic resonance imaging studies are of value for adequate characterization of local recurrence of prostate cancer after radical prostatectomy . Recurrent prostate cancer appears on dynamic contrast magnetic resonance imaging as an abnormal soft tissue mass with faster and stronger contrast enhancement and contrast washout. As we know the management of the patient with PSA recurrence after radical prostatectomy is debatable. In our daily practice, urologists and radiotherapists only sporadically require imaging in patients suspected of prostate cancer recurrence. Unless patient presents with positive digital rectal examination, they usually rely on

PSA kinetics. Even when anastomotic biopsies document only benign tissue, the study of PSA doubling time is usually characteristic of the coexistence of residual cancerous cells. Local recurrence of prostate cancer is usually clinically suspected based on PSA kinetics and is usually characterized by a prolonged doubling time (>10 months) in a patient with a Gleason score of 2–7, a positive surgical margin, and absence of seminal vesicles or lymph nodes involvement. Currently these patients may be treated by means of radiation therapy. In our experience both color Doppler transrectal ultrasound and dynamic contrast enhanced MR, followed by TRUS-guided biopsies are useful modalities for early detection and confirmation of local recurrence of prostate cancer. These modalities however, should be used only when confirmation of local recurrence of prostate cancer is mandatory or in other words will modify the patient's clinical management.

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UROGENITAL TRAUMA

Urethral and bladder neck injury associated with pelvic fracture in 25 female patients

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J Urol. 2006; 175: 2140-4

Purpose: We describe the presentation, diagnostic evaluation, management and outcome of female urethral trauma.

Materials and Methods: All female patients treated at Harborview Medical Center between 1985 and 2001 with urethral injury were identified by International Classification of Diseases 9th revision code. Approval of the Human Subject Division was obtained and patient charts were reviewed. The Urogenital Distress Inventory Short Form, the Incontinence Impact Questionnaire Short Form and the Female Sexual Function Index were sent to the patients.

Results: A total of 25 patients (13 adults, 12 children) with a mean age of 22 years (range 4 to 67) met inclusion criteria. All had pelvic fracture related to blunt trauma. They represented 6% of all female patients treated in the same review period with pelvic fracture. Blood was seen at the introitus in 15 patients and 19 had gross hematuria. Of the injuries 9 were avulsions, 15 were longitudinal lacerations and 1 was not further specified. Primary repair was performed in 21 patients and 4 were treated nonoperatively. There were 5 patients who required secondary procedures including fistula repair in 4 and continent urinary diversion in 1. At a mean followup of 7.3 years (range 1.6 to 14.4) 9 of 21 patients (43%) had moderate or severe lower urinary tract symptoms and 8 of 13 (38%) had sexual dysfunction (FSFI score less than 26.55). **Conclusions:** Female urethral and bladder neck injury occurs with pelvic fracture, presents with gross hematuria and/or blood at the introitus, and requires operative repair for avulsions and longitudinal lacerations. These patients are at risk for significant sexual and lower urinary tract dysfunction.