

Editorial Comment

Laparoscopic live donor nephrectomy (LDN) has become the standard of care at most major academic centers. The benefits of laparoscopic over open donor nephrectomy have extensively been demonstrated since the first report by Kavoussi et al. Recently, the LESS Urological procedures are gaining popularity.

The authors studied 50 consecutive LESS-DN patients versus a matched cohort of 50 LDN patients. They demonstrated that LESS-DN patients recovered faster and complications were comparable with equal graft function and warm ischemia time. This report is valuable since convalescence and recovery is pivotal variables that may influence the decision to become a kidney donor increasing the pool of donors for the current high demand. The Gelport was used in this study that may also facilitate the learning curve compared to other single ports.

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IMAGING

Characterization of adrenal masses with diffusion-weighted imaging

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Objective: The purpose of this article is to assess the role of diffusion-weighted MRI in characterizing adrenal masses.

Materials and Methods: A retrospective review of the MRI database from August 2007 to July 2009 was performed. The MRI examinations of 48 patients, with 49 lesions, were reviewed independently and blindly by two experienced abdominal radiologists who measured the signal intensities on in-phase and opposed-phase T1-weighted imaging and apparent diffusion coefficient (ADC). ADC measurements and quantitative parameters of chemical shift imaging (signal intensity index and adrenal-to-spleen ratio) were assessed separately and in combination. Lesions with indeterminate signal intensity index ($< 16.5\%$) were considered benign if ADC was greater than or equal to 1.0×10^{-3} mm²/s and malignant if ADC was less than 1.0×10^{-3} mm²/s. Stepwise logistic regression analysis and receiver operating characteristic curves analysis were performed.

Results: There were 12 malignant and 37 benign lesions. On multivariate analysis, the only significant predictors of lesion status were signal intensity index from reviewer 2 ($p = 0.05$) and lesion size ($p = 0.04$); ADC values were not found to be useful. On receiver operating characteristic curve analysis, there was no significant difference in area under the curve for ADC, signal intensity index, adrenal-to-spleen ratio, or the combined signal intensity index and ADC assessment. For lesions that were indeterminate according to signal intensity index, ADC values greater than 1.50×10^{-3} mm²/s were found only in benign lesions, and nine of 11 lesions with ADC less than 1.0×10^{-3} mm²/s were malignant.

Conclusion: In general, ADC values are not useful in differentiating adrenal lesions. However, when ADC values are applied to lesions that are indeterminate on signal intensity index, they may help in differentiating a subset of benign and malignant lesions.

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Adrenal incidentalomas are found in about 6% of patients submitted to abdominal computed tomography. Based on distinct radiologic criteria classified as morphologic (size, shape, rate of growing), histologic (lipid content of the mass on CT without contrast or on chemical-shift imaging on MRI without contrast) and physiologic (absolute washout of contrast on CT), the vast majority of adrenal incidentalomas are adequately characterized as a benign or malignant. Lipid rich adrenal adenoma loses signal intensity when protons from water and fat are on opposed-phase in comparison with imaging when these protons are in-phase. Signal intensity index higher than 16.5% is usually found in benign adenomas. Indeterminate adrenal lesion represents a lesion with signal intensity index below 16.5%. In such situation, the authors showed that use of ADC values obtained with diffusion-weighted imaging (DWI) might be useful in differentiating benign from malignant adrenal lesions.

Although in our protocol for DWI of adrenal masses we use a different “b-value” (b-factor of 1000), we have found no utility of DWI even in this selected group of patients with indeterminate lesion on CSI. Actually we have seen two out of 13 adrenal adenomas showing the lowest ADC values. As pointed out by the authors, the different proportion of lipid-poor adenomas and fat-containing adrenal metastases may explain distinct results with DWI.

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Characterization of small solid renal lesions: can benign and malignant tumors be differentiated with CT?

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Objective: The purpose of this study was to evaluate the diagnostic performance of CT in determining whether a small solid renal enhancing mass is benign or malignant.

Materials and Methods: Ninety-nine biopsies of enhancing solid renal masses 4 cm or smaller without fat on CT scans were performed under CT fluoroscopic guidance. The growth pattern, interface with parenchyma, presence of a scar and segmental inversion enhancement, unenhanced CT histogram, and pattern and degree of enhancement on triphasic MDCT images were independently evaluated by two radiologists. Biopsy and pathology reports were used as the reference standard, and imaging follow-up of benign lesions was performed for at least 1 year. Statistical analysis was performed to determine the significance of CT criteria in differentiating malignant from benign lesions.

Results: Of the 99 lesions, 74 (75%) were malignant at biopsy, and 25 (25%) were benign. Lesions with gradual enhancement were more likely to be benign. No significant correlation was found between other CT