stones (that is cystine and plaster of Paris) but it is not a factor for other stone compositions. THSWL has satisfactory disintegrative efficacy for human stones, especially COM and cystine calculi.

Editorial Comment

There are currently 2 dual-head lithotriptors available: the Twinheads (FMD) and the Duet (Direx). In this study, the Twinheads was used to fragment 4 types of artificial stones and 3 types of human urinary calculi. The results of dual head lithotripsy were intriguing, although the assessment of any superiority of this type of lithotripsy over other types is only through comparison of these results to those in other studies (using methods similar to the ones in this study, by many of the same investigators, brushite stones were found to be resistant to several standard lithotriptors while these same stones fragmented well with dual head lithotripsy). It is not clear if any advantage of lithotripsy with the Twinheads machine owes to the same cavitation bubble interaction investigated by Zhong and associates (1) in their studies of dual lithotripsy. Moreover, the other dual head lithotriptor currently available (Duet, from Direx) can be set to either synchronous or asynchronous firing, and thus might provide different results. It remains to be seen if dual head lithotriptors will prove better, in terms of either efficacy or safety, than standard ones, but dual lithotripsy might well be the next big thing in shock wave lithotripsy.

Reference

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IMAGING

Radiologic features of Castleman's disease occupying the renal sinus

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Objective: Our purpose was to describe the radiologic findings in five abnormalities in three patients with Castleman's disease occupying the renal sinus.

Conclusion: Common findings such as mild homogeneous enhancement passing through the mass of the collecting system with mild hydronephrosis on contrast-enhanced CT and hypointense signal on T2-weighted images were obtained. Castleman's disease may be considered in a differential diagnosis of a mass occupying the renal sinus, although it is difficult to differentiate from malignant lymphoma.

Abstract Edited

Purpose: To describe the radiologic findings in five abnormalities in three patients with Castleman's disease occupying the renal sinus.

Materials and Methods: We report three patients (two men, one woman; 65 – 73 years old; mean, 69 years old) with proven Castleman's disease involving the renal sinus. In one patient, the mass was unilateral; in the other two, it was bilateral. All five masses were diagnosed histologically at nephrectomy or open surgical biopsy. The histologic types included the mixed form in one patient and the plasma cell type in the other two patients. No lesions, other than those in the renal sinus, were detected in any patient during a radiologic examination of the entire body. One of the three patients was symptomatic (weight loss); the other two were asymptomatic. CT, MRI and angiographic examinations were performed.

Results: The five masses, in three patients, ranged in maximal diameter from 3.0 to 4.5 cm (average diameter, 3.9 cm). All masses had relatively well-defined margins except on the anterior side, where irregular margins were seen. All lesions showed slightly higher attenuation than renal parenchyma on unenhanced CT images and mild homogeneous enhancement on the early phase images. The enhancement persisted to the delayed phase. However, the attenuation of the masses after injection of the contrast agent never approached that of normal renal parenchyma. As a result, all masses showed lower attenuation than renal parenchyma. Moreover, mild hydronephrosis, which was detected as blunting of the calices, was seen in all kidneys associated with a mass in the renal sinus, and the collecting system passed through the masses without being obstructed. On MR imaging, three masses, in two patients, had homogeneous and isohypointense signal relative to that of the renal cortex on T1-weighted images. On T2-weighted images, all masses were homogeneous and hypointense in signal compared with that of the renal cortex. Angiography was performed in one patient. No definite vascular staining was seen at the renal sinus. Both the left renal artery and the left renal vein were patent, and no irregularity of the vascular wall was seen.

Conclusion: Common findings such as mild homogeneous enhancement passing through the mass of the collecting system with mild hydronephrosis on contrast-enhanced CT and hypointense signal on T2-weighted images were obtained. Castleman's disease may be considered in a differential diagnosis of a mass occupying the renal sinus, although it is difficult to differentiate from malignant lymphoma.

Editorial Comment

The abstract of this paper was editorially prepared with the purpose of to call the attention for this relatively uncommon pathological entity, which only recently has been more frequently recognized. Castleman's disease is an uncommon type of hyperplasia of lymphoid follicles that only sporadically occurs in the abdomen and pelvis. Histologically, this disease can be divided into 3: the hyaline vascular type, which is more common (90% of cases), the plasma cell type and the mixed form. It may present as asymptomatic involvement of one lymph node group (unicentric) or as a multicentric disease with systemic symptoms. Unlike localized disease, for which surgical excision is curative regardless of the histological type, multicentric disease often necessitates aggressive systemic therapy and portends a poor outcome. The most frequently sites of involvement are: chest (67-70%); neck (14-40%); retroperitoneum (paraaortic or pararenal space, 5-9%) and mesentery.

The most frequent appearance of abdominal or pelvic Castleman disease is of a single, well-defined enhancing mass simulating either bulky adenopathy, primary retroperitoneal tumor or lymphoma. When the mass occurs in the pararenal space can be associated with hydronephrosis. Calcification is seen in about 30% of the cases. Castleman's disease, although rare, should be included in the differential diagnosis of an isolated well defined solid mass in the retroperitoneum or a soft tissue mass occurring in the renal sinus or in the pararenal space.

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Helical CT for nephrolithiasis and ureterolithiasis: comparison of conventional and reduced radiation-dose techniques

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Purpose: To determine the accuracy of unenhanced helical computed tomography (CT) performed at reduced milliampere-second, and therefore at a reduced patient radiation dose, by using conventional unenhanced helical CT as the standard.

Materials and Methods: Fifty patients with acute flank pain who weighed less than 200 lb (90 kg) were prospectively recruited for this study. Conventional helical CT scans were obtained with patients in the prone position by using 5-mm-thick sections, 140 kVp, 135-208 mAs (mean, 160 mAs), and a pitch of 1.5 (single-detector row CT) or 0.75 (multi-detector row CT, 4 x 5-mm detector configuration). Conventional CT was immediately followed by low-dose scanning, whereby the tube current was reduced to 100 mA (mean, 76 mAs). All other technical parameters and anatomic coverage remained constant. Three independent readers who were blinded to patient identity interpreted the scans in random order. The observers noted the location, size, and number of calculi; secondary signs of obstruction; and other clinically relevant findings. High- and low-dose scans were compared by using paired t tests and the signed rank test.

Results: Calculi were found in 33 (66%) patients; 25 (50%) had renal calculi and 19 (38%) had an obstructing ureteral calculus. The accuracy rates (averaged over the three readers) for determining the various findings on the low-dose scan compared with the high-dose scan were as follows: nephrolithiasis, 91%; ureterolithiasis, 94%; obstruction, 91%; and normal findings, 92%. When interpretations between readers were compared, agreement rates were 90%-95% for standard-dose scans and 90%-92% for reduced-dose scans ($P > .5$). Uncomplicated mild diverticulitis was found in three patients. No other clinically important abnormality was identified. A reduction in the tube current to 100 mA resulted in a dose reduction of 25% for multi-detector row CT and 42% for single-detector row CT.

Conclusion: In patients who weighed less than 200 lb, unenhanced helical CT performed at a reduced tube current of 100 mA, and therefore at a reduced patient dose, resulted in scans of high accuracy.

Editorial Comment

There is no doubt regarding the crescent acceptance of the unenhanced helical computed tomography (UHCT) for the investigation of patient with acute flank pain and suspected of having urolithiasis. Although UHCT confers diagnostic advantages and avoids the risks of intravenous contrast medium, this should be considered against the increased radiation dose to the patient (particularly to the gonads). Depending on the protocol used, the average dose of an intravenous urography (IVU) vary from 1.5 to 2.0 mSV while for UCHT the effective dose is usually 4.7 mSV. In other words the total dose of radiation of non-optimized UHCT protocol confers a total dose, which is about three times that of an IVU. This study deals with a very important issue in radiology today, which is how to decrease radiation dose to the patients. This issue became more crucial among radiologists after the introduction of the multidetector row CT (MDCT). This diagnostic procedure has become widely used, particularly in the USA, and has been proven to be a valuable tool for various indications. A major issue using this new modality is the inherent risk of applying increased radiation exposure, when compared to single-slice CT or other imaging modalities. Fortunately, radiologists are now able to save radiation exposure from the use of MDCT by choosing optimized exposure parameters or its superior dose efficiency in comparison to single-slice CT. The use of intelligent tools in these modern equipments, such as ECG- or body shape-based real-time dose modulation, can further reduce the radiation dose.

As we can see all efforts are been doing now by radiologists in order to perform a low-dose CT protocol. While acquiring thin slices with high spatial resolution, we can reduce the dose to similar values as in conventional radiography, especially when examining under high-contrast conditions. Using all these various options available, radiation exposure can sometimes even be lower than using a conventional single-slice helical CT. By using low dose-CT protocol we can reach similar sensitivity, specificity and accuracy. For the detection of urolithiasis, for example, low dose CT protocol is superior to IVU and confers a total dose of 2.8 mSV, which is about double that for IVU and about 75% and 50% of that for non-optimized UHCT protocols. Recently these low dose noncontrast CT protocols has been shown to be useful also for the diagnosis of stones in pregnant women and children.

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UROGENITAL TRAUMA

Does tachycardia correlate with hypotension after trauma?

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Background: Tachycardia is believed to be closely associated with hypotension and is often listed as an important sign in the initial diagnosis of hemorrhagic shock, but the correlation between heart rate and hypotension remains unproved.

Study Design: Data were collected from all trauma patients, 16 to 49 years old, presenting to our university-based trauma center between July 1988 and January 1997. Moribund patients with a systolic blood pressure < or =50 or heart rate < or = 40 and patients with significant head or spinal cord injuries were excluded. Tachycardia was defined as a heart rate > or = 90 and hypotension as a systolic blood pressure < 90.

Results: Hypotension was present in 489 of the 14,325 admitted patients that met the entry criteria. Of the hypotensive patients, 35% (169) were not tachycardic. Tachycardia was present in 39% of patients with systolic blood pressure 120 mmHg. Hypotensive patients with tachycardia had a higher mortality (15%) compared with hypotensive patients who were not tachycardic (2%, P = 0.003). Logistic regression analysis revealed tachycardia to be independently associated with hypotension (p = 0.0004), but receiver operating curve analysis demonstrated that the sensitivity and specificity of heart rate for predicting hypotension is poor.

Conclusions: Tachycardia is not a reliable sign of hypotension after trauma. Although tachycardia was independently associated with hypotension, its sensitivity and specificity limit its usefulness in the initial evaluation of trauma victims. Absence of tachycardia should not reassure the clinician about the absence of significant blood loss after trauma. Patients who are both hypotensive and tachycardic have an associated increased mortality and warrant careful evaluation.