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ORIGINAL ARTICLE

Has the significance of incidental findings on unenhanced computed tomography for urolithiasis been overestimated? A retrospective review of over 800 patients

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KEYWORDS

CT;
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Clinical significance;
Genitourinary;
Incidental cancer

ABBREVIATIONS

GU, genitourinary;
KUB, kidneys, ureters and bladder;
MD, multidetector

Abstract ***Objectives:*** To evaluate the detection of clinically unsuspected pathologies using 64-slice multidetector computed tomography (CT) of the abdomen in patients with flank pain. The presence of significant incidental findings (those warranting immediate management) was also correlated with that of urolithiasis, to assess potential changes of management.

Patients and methods: The study included 899 patients undergoing CT in a 6-month period between June and December 2008. Patients who were referred from outside, with no medical record in the hospital where the study was conducted, and those who were lost to follow-up, were excluded. All of the CT examinations were reported after a radiology resident and a consultant radiologist with >4 years of experience evaluated the CT. Genitourinary and extra-genitourinary findings were assessed and divided into clinically significant or not.

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Results: The overall incidence of additional and incidental findings was 14%. Besides urolithiasis and obstruction there were 34 (28%) genitourinary findings and 87 (72%) extra-genitourinary findings; most of the former were insignificant. Of the extra-genitourinary findings, significant diagnoses were documented in 34 cases.

Conclusions: Abdominal multidetector CT detects more incidental findings which are clinically significant.

Introduction

Unenhanced CT of the kidneys, ureters and bladder (CT KUB) is rapidly replacing IVU as the method of choice for imaging patients with ureteric colic and suspected urolithiasis [1,2]. Trends in the use of CT KUB and IVU show a major change in the number of referrals for CT KUB in comparison to IVU [3]. There is abundant data available showing the higher sensitivity of CT KUB for detecting urolithiasis [4–6]. Sagittal and coronal reformatted images also add important information to the diagnostic findings [7]. Complications and secondary signs of obstruction, such as perirenal and peri-ureteric fat stranding, can also be identified with CT KUB [5]. The overall costs are much lower for CT KUB as it saves significant amount of time [4]. It is safer, as no contrast material is given, but the radiation dose is higher [4,5]. Radiation exposure is still a major challenge in the use of CT for the diagnosis and follow-up of ureterolithiasis and obstruction [8]. Although there are obvious difficulties in comparing the exact effective dose between various imaging methods, measurements made to compare IVU and spiral CT by De Denaro et al. [9] showed that the effective dose for CT is 3.3 times that for IVU.

CT KUB is most advantageous in those patients where the clinical presentation can be vague, might overlap more than one body system, or symptoms are

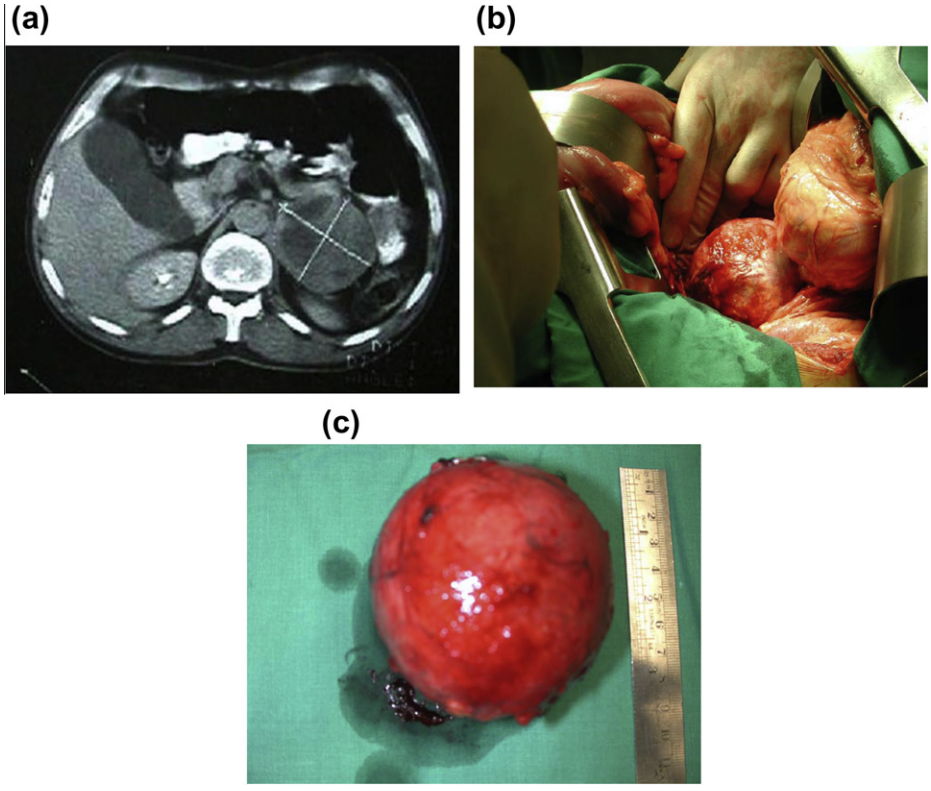

Figure 1 A 45-year-old man presented with acute-onset left-flank pain. He complained of mild flank discomfort, but there was acute exacerbation that brought him to the emergency department. The CT for suspected ureteric colic showed a moderate-sized left adrenal mass (a). After a detailed endocrinological evaluation, which showed no abnormality, he underwent an open left adrenalectomy via a thoraco-abdominal approach (b), and a well-encapsulated 9 × 5 cm mass was removed (c).