

CT

1

2

2

: CT
: 114
CT 가 ,
, , , 가
: 114 57 58 CT
57 1 ,
, , , 98%, 95%, 98%, 95%, 97%
95%(54/57), 81%(46/57),
77%(44/57), 65%(37/57) 가 71%(21/29) . 20
1
: CT 가
.

가 가 가
가 CT
CT
(6).
가
CT

가

, 가
CT가 CT
가 (1-7). CT
2001 3 12
114 CT
76 , 38 45 (15-85)
CT Somatom Plus - 4(Simens,
Erlangen, Germany)

1
2

2001 10 22 2002 3 14
24 8 mm 90
5 mm 1-2

CT

2 가

CT

가

CT

가

가 (tissue rim sign)가

가

가

(8).

29 (Fig. 1), 13 (Fig. 2), 8 (Fig. 3) CT

57 58 가 (ureteroscopic stone removal) 18 , (extracorporeal lithotripsy) 8 , (percutaneous nephrolithotomy) 3

3 , 1 , CT

3 . 12 , 57

56 57 . 1

2 가

29 (Fig. 1), 13 (Fig. 2), 8 , 1

8 (Fig. 3) CT

(Fig. 4).

1 (Fig. 5).

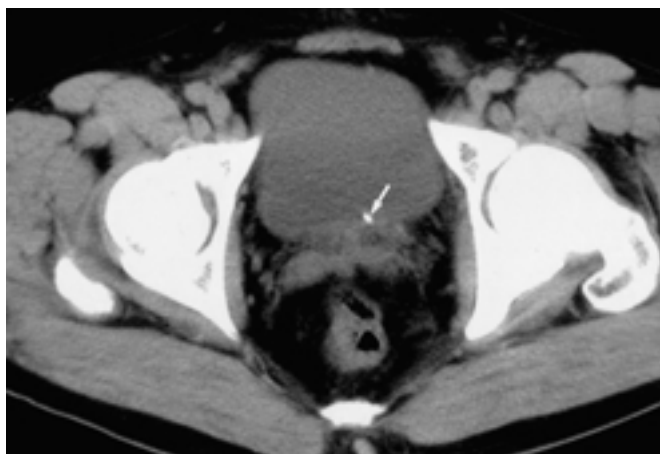
CT



A



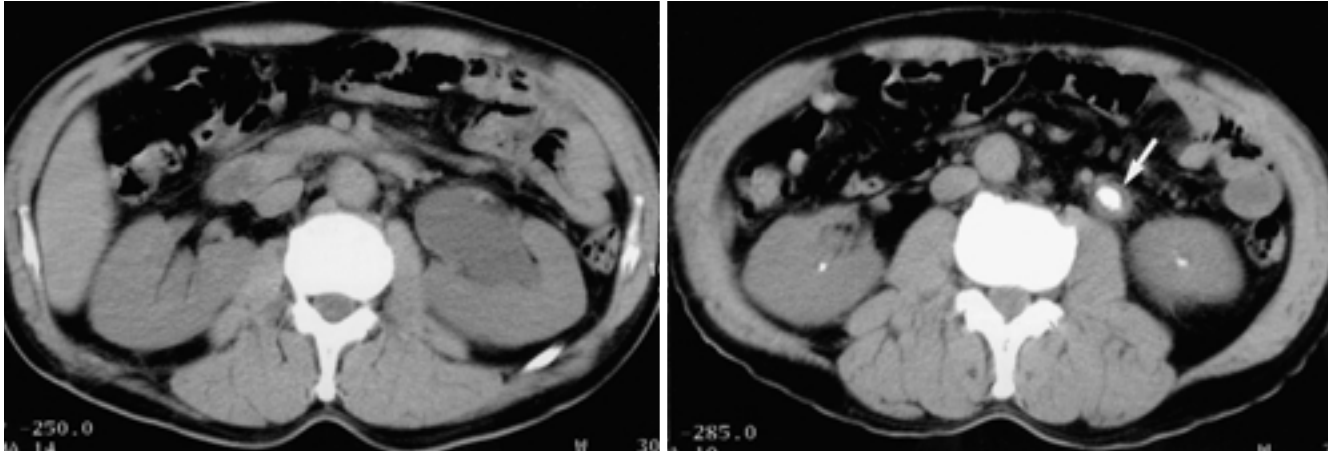
B



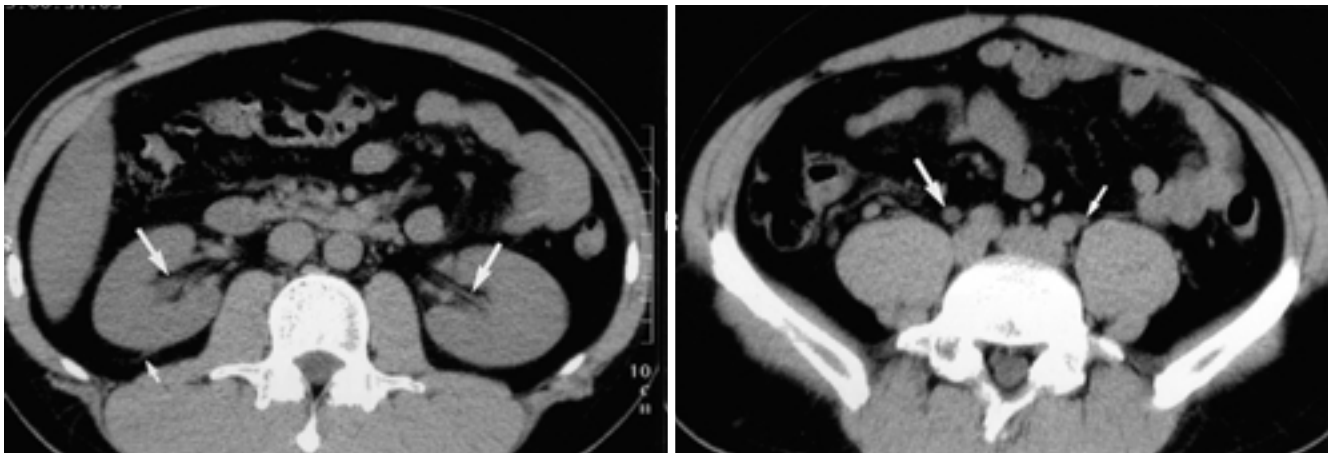
C

Fig. 1. A 42-year-old man with left flank pain.
A. Unenhanced CT scan through the kidney shows prominent dilatation of the left collecting system compared with right. There is thickening of bridging septae and Gerota 's fascia.
B. Unenhanced CT scan through mid ureter shows dilatation of ureter (arrow) with periureteric infiltration and normal-sized right ureter (short arrow).
C. Unenhanced CT scan through the bladder reveals 0.4cm sized stone (short arrow) at the ureterovesical junction. The stone passed spontaneously after conservative management.

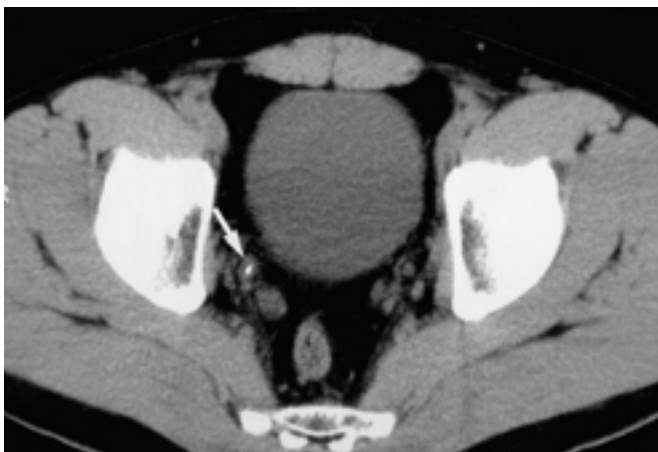
, 98%, 95%, 98%, 95%, 97% . 77%), 37 (37/57, 65%) . 가
54 (54/57, 95%) 29 21 (21/29,
, 46 (46/57, 81%), 44 (44/57, 71%) .



A
Fig. 2. A 49-year-old man with left flank pain.
A. Unenhanced CT scan through the kidney shows dilatation of the pelvocalyceal system and effacement of sinus fat.
B. Unenhanced CT scan through proximal ureter demonstrates large stone with tissue rim sign (arrow). There are renal stones at the lower poles of both kidneys. The ureter stone was removed by the percutaneous nephrolithotomy.



A
B
Fig. 3. A 33-year-old man with left flank pain.
A. Unenhanced CT scan through kidney shows mild dilatation of the collecting system compared with left side (arrow). The interface between the right kidney and surrounding fat is unclear (short arrow), indicating mild stranding of the perinephric fat. In contrast, margin of left kidney is well defined.
B. Unenhanced CT scan through lower ureter shows dilatation of the right ureter (arrow) and normal sized left ureter (short arrow).
C. Unenhanced CT scan through the bladder reveals small ureteric calculi with tissue rim sign (arrow) proximal to ureterovesical junction. Calculi passed spontaneously.



C

CT

(Fig. 7).

20

CT

5 , 3 , 2 ,
2 2 , 1 ,
1 , 1 , 1 ,
(retrocecal appendicitis) 1

(Fig.6) 가

CT

2

, 1

2

2

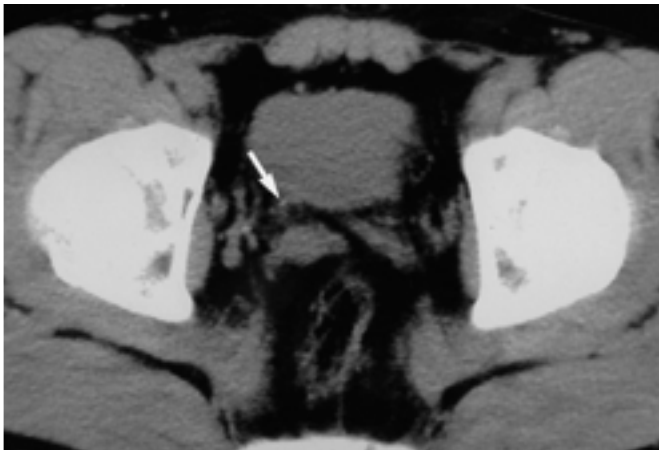
20 10
CT

CT

CT



A

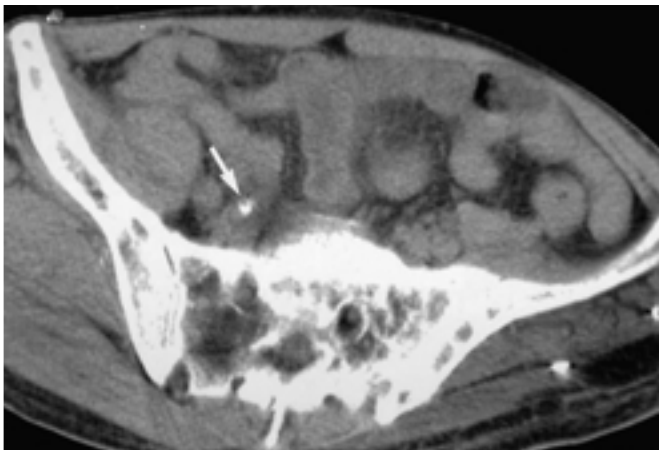


B

Fig. 4. A 31-year-old man with right flank pain
A. B. Unenhanced CT scan shows mild dilatation of renal pelvis and renal enlargement. We misdiagnosed it as pyelonephritis. In retrospect, tiny stone (arrow) is seen in the ureterovesical junction. Calculi passed spontaneously.



A



B

Fig. 5. A 49-year-old man with left flank pain
A. Unenhanced CT scan shows dilatation of the collecting system, perinephric infiltration, and thickened Gerota's fascia.
B. Unenhanced CT scan through pelvis shows calcified lesion (arrow) medial to the iliac vessels. We diagnosed it as a ureter stone. However, the stone was not found and pyonephrosis with distal ureteral stricture was seen on ureteroscopic examination. In retrospect, the calcified lesion has a faint lucent area, indicating phlebolith.

20 10
CT CT 10 CT
CT CT
CT 5 3
(2). CT
CT
가 가 가
CT
(12, 13). 가
5 mm Takahashi (14)
(collecting system) 가 가
가 가
CT 3
CT
(15) CT
Lie (16) 2:1 7
mm CT
50% - 75%
CT

1. Smith RC, Rosenfield AT, Choe KA, et al. Acute flank pain: com-

- CT
- parison of unenhanced CT and intravenous urography. *Radiology* 1995;194:789-794
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Usefulness of Unenhanced Helical CT in Patients with Suspected Ureteral Colic¹

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Purpose: To determine the usefulness of unenhanced helical CT in patients with suspected renal colic.

Materials and Methods: One hundred and fourteen patients with suspected ureteral colic, referred by physicians, underwent unenhanced helical CT. Two radiologists prospectively interpreted the results, determining the presence or absence of ureter stone and other diseases that arise outside the urinary tract. In cases of ureteral stone, we retrospectively sought secondary signs of hydronephrosis, perinephric fat stranding, thickening of renal fascia, renal enlargement, and the tissue rim sign.

Results: Among the 114 patients, 57 were confirmed as having ureter stones. Unenhanced helical CT depicted 57 of 58 stones in 57 patients, producing one false-negative and one false-positive result. Overall, the results showed 98% sensitivity, 95% specificity, 98% positive predictive value, 95% negative predictive value, and 97% accuracy. The frequencies of secondary signs were as follows: hydronephrosis, 95% (54/57); perinephric fat stranding, 81% (46/57); thickening of renal fascia, 77% (44/57); renal enlargement, 65% (37/57); and the tissue rim sign 72% (21/29). In 20 patients, the diagnoses were not related to stone disease and included one false-negative diagnosis of pyonephrosis.

Conclusion: Unenhanced helical CT provides information which is valuable in the accurate diagnosis of ureteral stone as well as other diseases that arise outside the urinary tract in patients with suspected renal colic.

Index words : Ureter, CT

Ureter, calculi

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