Multidetector CT-Urography in the study of urological complications in renal transplant

PURPOSE: To evaluate the value of CT-urography in the diagnosis and follow-up of the urological complications of renal transplantation.

MATERIALS AND METHODS: We performed 19 CT-urography examinations (3 of which were follow-up) on 15 patients by using a spiral multislice CT scanner and multiplanar reconstructions. The examinations were carried out directly after administration of 100 ml of iodinated contrast medium by slow iv infusion, with acquisitions starting 5 minutes after the end of the infusion. Surgery was regarded as the gold standard for the diagnosis of urological complications in the operated patients, whereas in patients who had undergone medical therapy or stent placement the gold standard was 1 month ultrasound and clinical follow-up with evaluation of diuresis and renal function.

RESULTS: Between January 1999 and December 2001 a total of 210 kidney transplantations were performed at our hospital. There were 34 urological complications in 28 patients with a 16.1% prevalence, consistent with the major international studies. The complications detected were 14 urine leaks and 19 ureteral obstructions secondary to stones, oedema, blood clots and stricture. We observed one case of reflux in the allograft ureter. Fourteen out of 16 CT-urography examinations yielded important clues for the diagnosis of urological complications in kidney allografts, completely replacing standard urography. In particular, CT-urography correctly detected 5 urinary fistulas by demonstrating iodinated contrast material leaks along the ureteral tract, and 8 cases of obstructive uropathy due to different causes (1 submucosal tunnel edema, 1 blood clot, 1 stone and 5 cases of ureteral stricture). One case of urinary fistula and one of obstructive uropathy were not detected.

DISCUSSION AND CONCLUSIONS: CT-urography proved to be an important diagnostic tool in the evaluation of urological complications of kidney allografts, showing a diagnostic accuracy over 90%; it is useful for confirming the type and site of urological lesions, and therefore to provide guidance for a targeted surgical approach. Compared with excretory urography, which is no longer used in this diagnostic field, CT-urography is more complete and precise as it provides information not only about the urinary tract, but also about the kidney parenchyma and pararenal fluid collections. The only disadvantage, which limits its use to selected cases, is the risk associated with the use of iodinated contrast agents in patients with impaired renal function.

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White Paper Abstract

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