

Tc-99m DTPA 光子斷層造影術增添診斷價值於腹膜透析患者的各種大小之透析液滲漏：  
3 年的回溯性分析

Tc-99m DTPA SPECT/CT imaging adds diagnostic value to dialysate leak of varying size in  
peritoneal dialysis patients: a 3-year retrospective analysis

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**Purpose:** With the clinical utility of peritoneal dialysis (PD) is increasingly flourishing worldwide, dialysate leaks will be inevitably and frequently encountered. Although sulfur colloid and macroaggregated albumin are the most commonly used 99mTc-labeled radionuclide in peritoneal scintigraphy, they are larger fat-soluble molecules. DTPA was a smaller water-soluble molecule. Moreover, SPECT/CT has high sensitivity and little radiation dose. This study aimed to evaluate the diagnostic value of Tc-99m DTPA SPECT/CT imaging in identifying dialysate leaks.

**Methods:** From June 2009 to May 2012, we retrospectively analyzed the eight lesions of seven PD patients (2F, 5M; median age, 63.4 years; range, 23-67 years) who undertook Tc-99m DTPA SPECT/CT imaging for suspected dialysate leakage and managed at our hospital. No patient was known to have a pre-existing hernia and no hernias were apparent on clinical examination. A dose of 1.5 mCi of Tc-99m DTPA was added to 1.5 L dialysate and infused into the peritoneal cavity. Both planar and SPECT/CT images were acquired.

**Results:** There was a variable interval between the onset of symptoms and the duration of PD therapy (24 hr to 8 months). Dialysate leaks were demonstrated conclusively on four of eight lesions on planar images and all eight lesions on SPECT/CT images. There were two negative and two obscure results on planar images. The time course of the lesion apparent on the SPECT/CT scanning varied from 30 min to 8 hr. Inguinal hernias were present in five patients; left sided in three, right sided in one, and bilateral sided in one. In one patient with bilateral inguinal hernia but merely left side swelling, SPECT/CT detected peritoneo-scrotal shunting of both sides. Abdominal leaks were present in two patients. Six patients were treated surgically. All patients were able to continue on PD.

**Conclusion:** Our study shows that Tc-99m DTPA SPECT/CT imaging, which requires little radiation exposure, allows the safe detection long hours of clinical and subclinical dialysate leak of varying size.