Spontaneous steinstrasse from multiple ureteric calculi

A 61-year-old man presented with a transient ischaemic attack. His past medical history was unremarkable except for a vague history of urinary tract infections in his youth. Physical examination revealed no significant findings. On full work-up he had a raised serum creatinine of 130 μmol/litre.

Renal ultrasonography showed multiple calculi in the lower pole of the left kidney with mild prominence of the left collecting system. Non-contrast computed tomography of the kidneys, ureter and bladder revealed multiple small calculi in the left renal collecting system with extensive calculi fragments occupying the length of the left ureter in a 'steinstrasse' fashion (*Figure 1a*, three-dimensional reconstruction and *Figure 1b*, black arrow) extending down to the vesicoureteric junction (*Figure 2*). He was referred on to the urology service for surgical removal of these fragments.

Steinstrasse or 'stone street' usually refers to a complication of extracorporeal shock wave lithotripsy for the treatment of renal tract calculi whereby smaller fragments from the breakdown of a larger calculus become lodged in the ureter. This may result in partial or complete urinary tract obstruction, necessitating further intervention. However, steinstrasse also occur spontaneously in the renal tract without a prior history of lithotripsy (Peces, 2000; Vaddi et al, 2011).

Non-contrast computed tomography of the kidneys, ureter and bladder allows precise evaluation of the size, number and location of renal calculi fragments as well as associated obstructive complications leading to hydronephrosis and hydroureter and subsequent renal failure. As intravenous contrast is not required, computed tomography of the kidneys, ureter and bladder is particularly useful where renal function is impaired and also allows a limited assessment of other abdominal viscera in cases of undifferentiated flank or abdominal pain. BJHM

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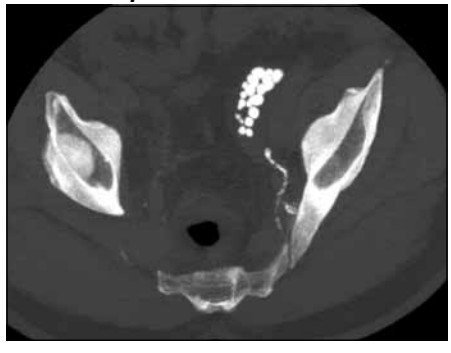
Figure 2. Axial formatted non-contrast computed tomography of the pelvis demonstrates that the fragments extend down to the level of the left vesicoureteric junction.



Peces R (2000) Steinstrasse due to distal renal tubular acidosis with sensorineural deafness. *Nephrol Dial Transplant* **15**(8): 1251–2

Vaddi SP, Devraj R, Reddy V, Vikram A, Dayapule S, Munisami R (2011) Urethral steinstrasse causing acute urinary retention. *Urology* **77**(3): 594–5

Figure 1. a. Three-dimensional and (b) coronal reconstructions from non-contrast computed tomography of the kidneys, ureters and bladder showing multiple calculi fragments in the lower pole of the left kidney extending down along the left ureter in a steinstrasse fashion.