

*Case report*

## Percutaneous nephrostomy in an unusual case of ureteric obstruction

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Ureteric obstruction from an iliac artery aneurysm is uncommon.<sup>1</sup> We report what we believe to be the first case in which percutaneous nephrostomy was used in the management.

### CASE REPORT

A 70-year-old man presented with rigors. He had a history of severe cardiovascular disease. Examination revealed marked congestive cardiac failure, a palpable abdominal aortic aneurysm and a separate pulsatile mass on right-sided rectal palpation. Haemoglobin was 11.1 gm/dl, white cell count  $23.7 \times 10^9/l$ , serum urea 26.2 mmol/l and creatinine 330 mmol/l. Computerised tomography confirmed the presence of an aortic aneurysm and also identified a right internal iliac artery aneurysm which had caused noninflammatory dilatation of the ipsilateral ureter (Fig 1).

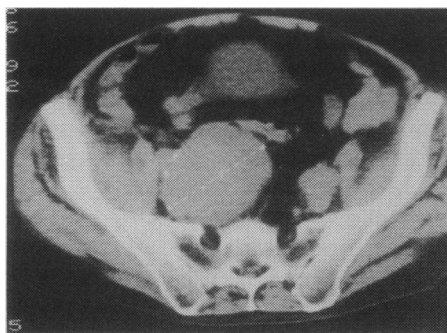


Fig 1. Computerised tomogram of the pelvis showing the right internal iliac artery aneurysm.

Excision of the aneurysm was not possible due to the patient's poor cardiovascular condition. A right percutaneous nephrostomy was performed resulting in rapid clinical improvement, serum urea falling to 15.8 mmol/l and creatinine to 285 mmol/l. The pus obtained grew coliform organisms on culture, allowing the appropriate antibiotic to be commenced. It was intended to insert a double J ureteric stent but antegrade pyelography following catheterisation of the right

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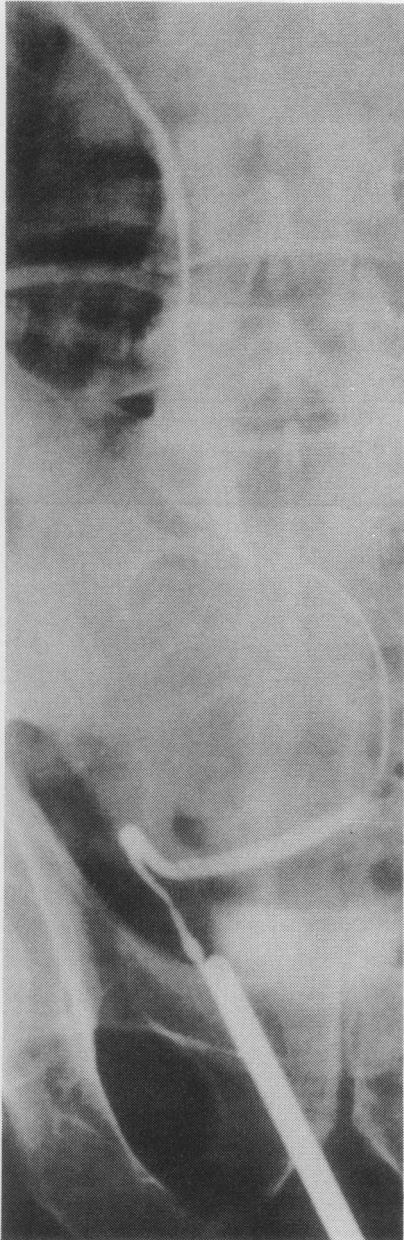


Fig 2. Antegrade pyelogram following ureteric catheterisation revealing acute angulation of the right ureter.

ureter (Fig 2) revealed acute angulation of the ureter, making it impossible to pass a guide wire from above or below. A percutaneous pigtail catheter was therefore left in place. During the following five weeks, despite the improved renal function, the patient suffered two further myocardial infarctions, the second proving fatal.

## DISCUSSION

Iliac artery aneurysms occur one tenth as frequently as aortic aneurysms.<sup>2</sup> Ureteric obstruction can be caused by compression, reactive fibrosis secondary to atherosclerosis, or inflammatory aneurysmal disease similar to that seen in retroperitoneal fibrosis.<sup>3</sup> Only 10 cases of noninflammatory ureteric obstruction from internal iliac artery aneurysms have been reported,<sup>1, 4, 5, 6</sup> all of which have been treated surgically. We report what we believe to be the first case in which percutaneous nephrostomy was used in the management.

Fifty percent of iliac artery aneurysms are asymptomatic,<sup>2</sup> but they may be associated with ureteric or bladder neck obstruction,<sup>1, 3</sup> rupture into the ureter or rectum,<sup>2</sup> or pyonephrosis.<sup>1</sup> In 20% of cases abdominal examination reveals a pelvic mass or bruit,<sup>2</sup> although a pulsatile, expansile mass is more frequently found on rectal examination.<sup>6, 7</sup> In previous reports the diagnosis has been made either at operation or by invasive arteriography or pyelography.<sup>8</sup> The present case shows the effectiveness of CT scanning.

Previous cases have been treated by surgical excision of the aneurysm or by ureterolysis. In our patient, definitive corrective surgery was deferred due to the risk of graft contamination from repair of the aneurysms in the presence of infection, the history of widespread cardiovascular disease and the poor general condition of

the patient. Percutaneous nephrostomy, in which a catheter is inserted into the renal pelvis under ultrasonic or fluoroscopic control, allows relief of symptoms until definitive surgery can be performed. Although first introduced in 1955, its potential is only now being realised. Relief of uraemia and septicaemia occurs in over 90% of cases, and failure of catheter placement occurs in less than 3% of

patients; major complications, such as leakage of urine, severe haemorrhage, exacerbation of pyonephrosis or catheter displacement occur in about 4% of cases, although minor complications (wound infections or transient haematuria) occur more commonly.<sup>9, 10</sup>

In this case, percutaneous nephrostomy relieved the pyonephrosis, improved renal function and provided specimens for bacteriology. Although the patient subsequently died from his cardiovascular disease, the symptomatic relief and clinical improvement obtained from percutaneous nephrostomy indicates the effectiveness of the technique in cases of ureteric obstruction in whom definitive surgery is considered inappropriate.

#### REFERENCES

1. Thompson PM, Packham DA, Yates-Bell AJ. Ureteric obstruction of solitary kidneys by aneurysms of the iliac artery. *Br J Urol* 1981; **53**: 421-3.
2. Markowitz AM, Norman JC. Aneurysms of the iliac artery. *Ann Surg* 1961; **154**: 777-87.
3. Frank IN, Thompson HT, Rob C, Schwartz SI. Aneurysm of the internal iliac artery. *Arch Surg* 1961; **83**: 956-8.
4. Redman J, Campbell GS. Ureteral obstruction secondary to iliac artery aneurysm. *Urology* 1975; **6**: 212-4.
5. Peterson LJ, McAninch JW, Weinert JC. Ureteral obstruction of solitary kidneys by iliac artery aneurysms. *Urology* 1977; **9**: 17-21.
6. Kaynan A, Rosenberg V, Szuchmacker P. Ureteral obstruction secondary to iliac artery aneurysms. *Mount Sinai J Med* 1978; **45**: 334-41.
7. Rennick JM, Link DP, Palmer JM. Spontaneous rupture of an iliac artery aneurysm into the ureter. *J Urol* 1976; **116**: 111-2.
8. Safran R, Sklenicka R, Kay H. Iliac artery aneurysm: a common cause of ureteral obstruction. *J Urol* 1975; **113**: 605-8.
9. Stables DP, Ginsberg NJ, Johnson ML. Percutaneous nephrostomy: a review of the literature. *Am J Roent* 1978; **130**: 75-82.
10. Perinetti B, Catalona WJ, Manley CB, Geise G, Fair WR. Percutaneous nephrostomy: indications, complication and clinical usefulness. *J Urol* 1978; **120**: 156-8.