

Simulation of an Extrarenal Mass by a Superficial Simple Renal Cyst*

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SUMMARY

A patient with a subcapsular simple cyst of the kidney which was sufficiently superficial to be mistaken for an extrarenal mass at arteriography is reported. The implications of this error and the means of avoiding similar errors are discussed.

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The arteriographic assessment of simple cysts of the kidney is nearly always considered in terms of the important distinction between cyst and renal tumour.¹⁻⁴ The possibility of their confusion with masses arising outside the kidney has not received any emphasis, even though some simple cysts have a particularly superficial attachment to the kidney.⁵ This article describes such a case in which the confusion was very real.

CASE REPORT

An obese 69-year-old woman complained of chronic right-sided abdominal pain. Excretion urography showed a normal right upper urinary tract but the proximal third of the left ureter and the left kidney were displaced medially, superiorly and anteriorly by a rounded retroperitoneal mass, measuring 9 cm in diameter (Fig. 1). The calyceal pattern was normal. The mass was impalpable clinically because of her substantial girth.

Selective left renal arteriography showed slight flattening of the lateral border of the kidney adjacent to the mass (Fig. 2, top). The deviation of the superior capsular artery away from the upper lateral border of the kidney was misinterpreted as a normal variant (Fig. 2, bottom). A selective arteriogram of the left first and second lumbar arteries was normal. A diagnosis of a retroperitoneal cyst or avascular tumour was made and laparotomy was advised.

At operation, a large subcapsular simple cyst with a very superficial attachment to the lateral border of the left kidney was found and unroofed. The postoperative period was complicated by arrhythmias due to ischaemic heart disease.

DISCUSSION

A subcapsular simple cyst of the kidney is seen at arteriography as a sharply demarcated, homogeneous, translucent

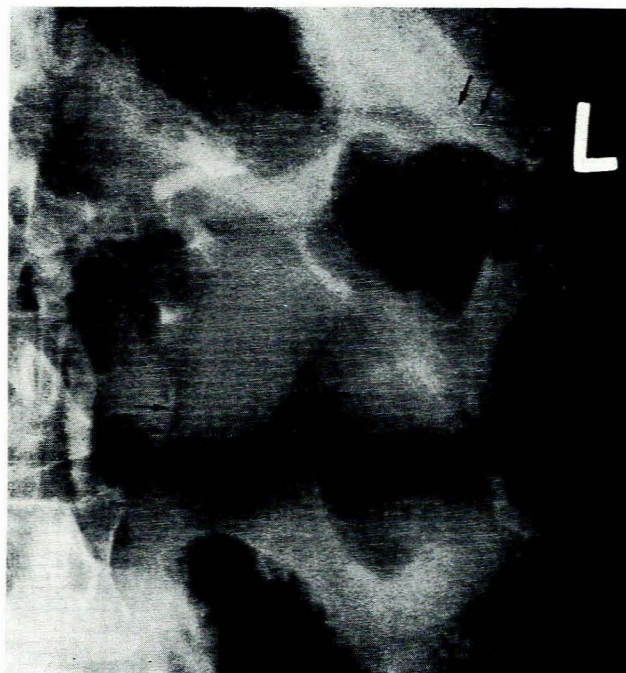


Fig. 1. Excretory urogram showing medial, superior and anterior displacement of the left kidney by a rounded retroperitoneal mass (arrows).

parenchymal defect¹ whose size varies with the cyst's volume and intrarenal proportion. The parenchymal border of the defect is usually lifted aside to form a tapered spur or beak² where the cyst emerges through the kidney surface, but this useful sign cannot be expected with a very superficially placed mass and was absent in 5 of the 204 simple cysts examined with arteriography by Folin,⁴ as well as in the present case. That the parenchymal defect can amount to a mere flattening of the normal outward convexity of the lateral kidney contour has not been illustrated in the angiographic literature previously. Perhaps the nearest example is shown by Ney and Friedenber.⁶

At least 3 omissions contributed to the erroneous diagnosis of an extrarenal mass.

Common things occur commonly and greater weight should have been placed upon the much higher incidence of simple cysts of the kidney⁷ as compared with primary cysts and tumours of the retroperitoneal connective tissue.⁸

Secondly, oblique projections at arteriography might have revealed the parenchymal defect to be a little larger

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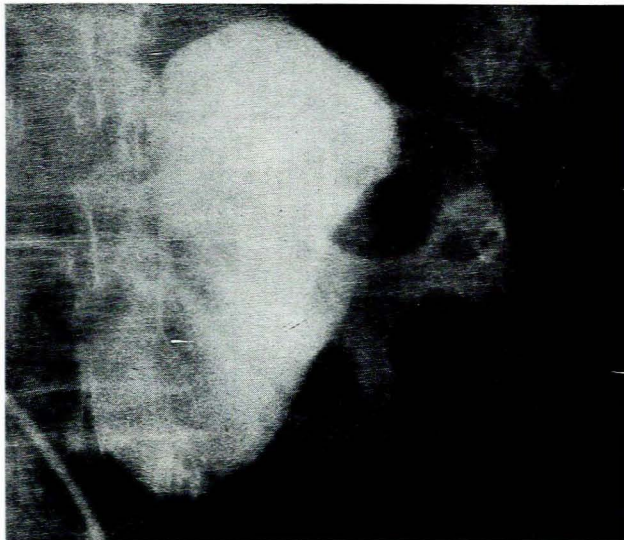
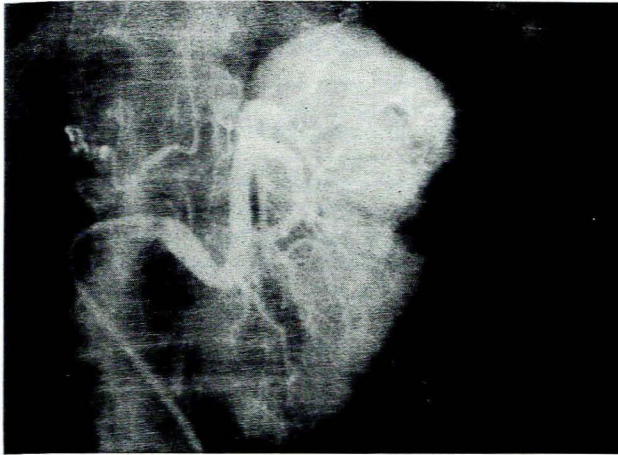


Fig. 2. Selective left renal arteriogram: Above: arterial phase showing lateral deviation of the superior capsular artery (arrow) over the superior border of the mass. Below: nephrogram phase showing only slight flattening of the lateral border of the kidney.

than was apparent from the antero-posterior projection, although the superficial situation of the cyst at surgery makes it unlikely that the difference would have been significant.

The most serious error was the misinterpretation of the pattern of the superior capsular artery. The importance of this vessel in arteriographic diagnosis has been stressed by Meyers *et al.*⁹ Its normal course is characteristically tortuous and it often extends far out laterally into the perinephric fat¹⁰ but, in retrospect, the lateral deviation in this case corresponded precisely to the superior border of the mass.

The need for correct diagnosis in this and similar cases is more than academic. Masses arising from the retroperitoneal connective tissue require surgical exploration and histological diagnosis, whereas simple cysts of the kidney can usually be managed by percutaneous aspiration under fluoroscopic control.^{11,12} Surgical exploration of kidney cysts carries a significant mortality and morbidity¹³ largely because of the advanced age of many patients when cysts are detected. It is noteworthy that this patient's post-operative course was punctuated by cardiac arrhythmias.

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REFERENCES

1. Edsman, G. (1957): *Acta radiol. (Stockh.)*, **155**, suppl.
2. Olsson, O. in Abrams, H. L., ed. (1961): *Angiography*, Vol. 2, p. 557. Boston: Little, Brown.
3. Frimann-Dahl, J. in Kincaid, O. W. and Davis, G. D., eds. (1966): *Renal Angiography*, p. 171, Chicago: Year Book Medical Publishers.
4. Folin, J. (1967): *Acta radiol. (Stockh.)*, **267**, suppl.
5. Olsson, O. in Alken, C. E., Dix, V. W., Weyrauch, H. M. and Wildbolz, E., eds. (1962): *Encyclopedia of Urology*, Vol V/I, p. 209. Berlin: Springer-Verlag.
6. Ney, C. and Friedenberg, R. M. (1966): *Radiographic Atlas of the Genitourinary System*, fig. 808, p. 338. Philadelphia: J. B. Lippincott.
7. Plaine, L. I. and Hinman, F. jnr (1965): *J. Urol.*, **94**, 342.
8. Ackerman, L. V. (1954): *Atlas of Tumor Pathology, Section 6*, Fascicles 23 and 24. Washington, D.C.: Armed Forces Institute of Pathology.
9. Meyers, M. M., Friedenberg, R. M., King, C. M. and Meng, C. H. (1967): *Brit. J. Radiol.*, **40**, 949.
10. Boijesen, E. (1959): *Acta radiol. (Stockh.)*, **183**, suppl.
11. Frimann-Dahl, J. (1964): *Brit. J. Radiol.*, **37**, 146.
12. Wahlquist, L. and Grumstedt, B. (1966): *Acta chir. scand.*, **132**, 340.
13. Kropp, K. A., Grayhack, J. T., Wendel, R. M. and Dahl, D. S. (1967): *Surg. Gynec. Obstet.* **125**, 803.