

MILK OF CALCIUM RENAL DISEASE*

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A review of the literature of milk of calcium renal disease discloses that only 11 cases have been reported. Howell first described the condition in 1959.¹

CASE REPORT

A 66-year-old White female was admitted with a history of having had an infectious disease of the right kidney 35 years previously. Multiple stones had been removed at that time, and in addition a lobectomy had been performed 2 years previously for tuberculosis of the left lung. No recurrence of the disease or any other lung pathology had occurred since that time. The patient continued to have pain in the right flank but examination failed to demonstrate any new stones.

When she reported to the chest clinic at our hospital for follow-up examination an intravenous pyelographic study was requested because of her history of previous renal disease. Good function was demonstrated in both kidneys. On the supine film of the abdomen 2 opacities (Figs. 1 and 2) which were not in communication with any calyx, and which appeared to change in shape from semilunar to circular, were noted within the lower pole of the left kidney. Decubiti films (Fig. 3) were therefore requested and these revealed fluid levels in the opacities. In reports

of her previous examinations in another hospital, and eventually in this hospital, no note has been made of such findings in the X-ray plates. A diagnosis of milk of calcium renal disease was therefore made. Other physical and laboratory examinations did not disclose any data relevant to the disease.

In our particular case, the change and shape of the opacities housed within one of the cysts was the significant

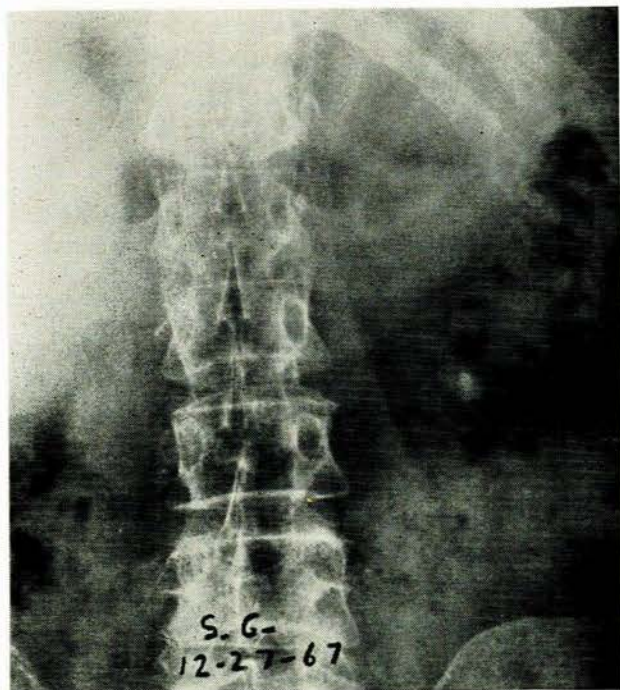


Fig. 1. Supine film demonstrating two opacities within the lower pole of the left kidney.

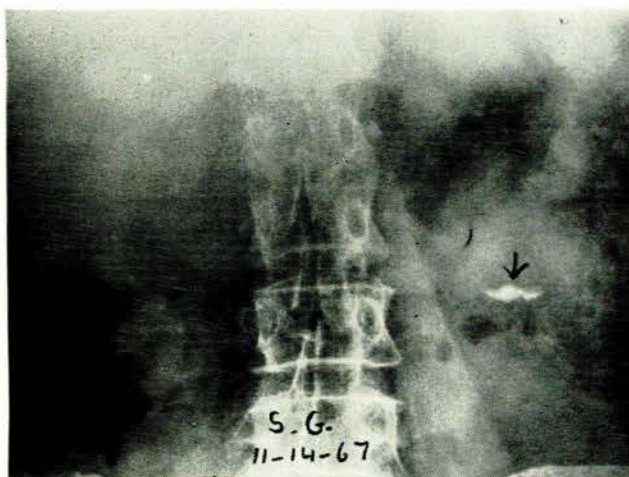


Fig. 2. Supine film demonstrating change in shape of the opacities.

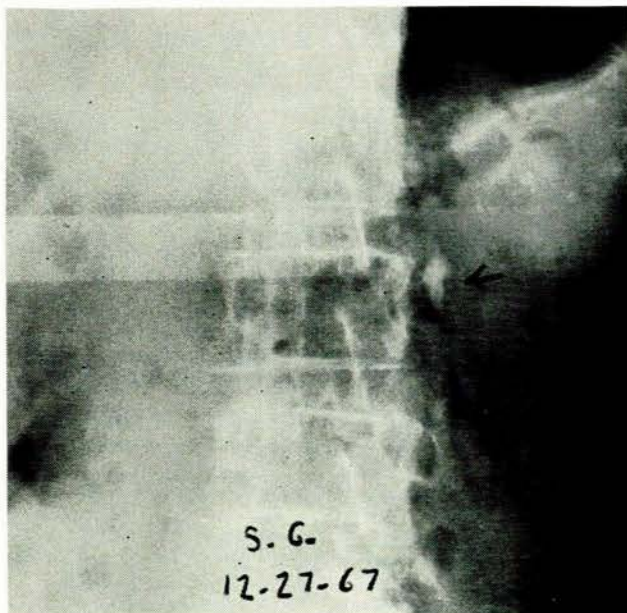


Fig. 3. Left lateral decubitus with fluid level present; in addition the second opacity, probably due to a stone, is demonstrated.

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finding. The upright and decubiti positions revealed layering and fluid levels with an opaque calculus floating in the cyst.

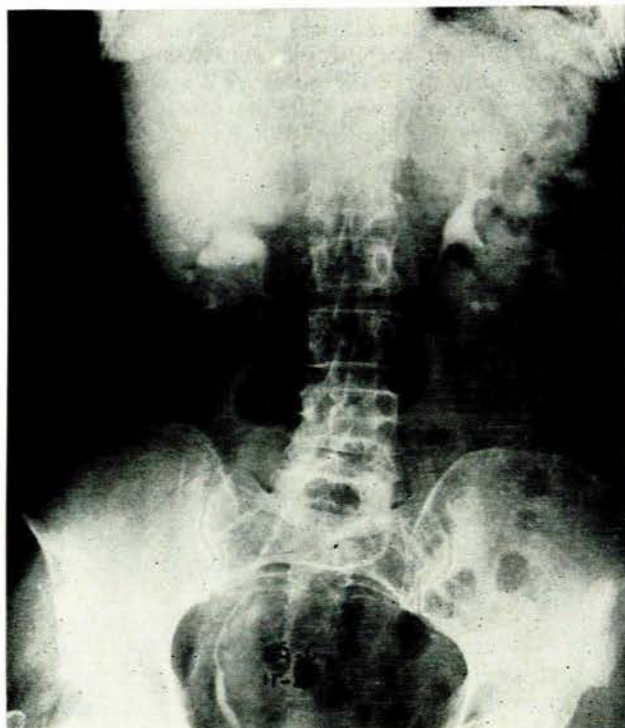


Fig. 4. Intravenous pyelogram, again showing the opacities in the lower pole of the left kidney with otherwise normal appearance of pyelogram.

DISCUSSION

Pyelogenic or calyceal cysts are not infrequently reported. Their existence is not remarkable. However, when such cysts contain milk of calcium, they become worthy of note, considering the paucity of cases¹⁻¹¹ thus far reported. Their exact aetiology has not been clearly defined. Many authors still believe them to be of postinflammatory origin. Others believe that they are an anomalous development from the Wolffian ducts.⁴ At the time of discovery they may or may not communicate with a calyx.⁵ However, the diverticulum may be inflamed, leading to infection of the trapped urine.⁵ In a process that is analogous to the formation of milk of calcium in the gallbladder as a result of an obstruction of the cystic duct with resultant bile

stasis, calculi may also form. This would explain the stone in our specific case. The mystery persists as to why the calcium is not incorporated into the wall of the diverticulum or why it does not solidify.⁶

Mention is made by Walker *et al.*¹² of the structure of the diverticulum. They state that the wall is of smooth muscle with transitional cell epithelial lining. The actual contents are a viscous fluid containing calcium carbonate, and calculi may exist or form within this suspension. Communication with the collecting systems is not always present or demonstrable. According to Howell,¹ communication seems to be evidenced by a decrease in the amount of calcium.

This entity may be without symptoms, as in our case, in which instance no treatment is necessary. In the presence of symptoms compatible with urinary tract infection, such as pain, haematuria or pyuria and fever, surgery is more or less universally accepted as the correct treatment. Haematuria is usually due to the presence of calculi. However, this would imply a patent communication between the diverticulum and the calyceal systems.¹³ In our patient haematuria was not a symptom, presumably because there was no communication.

SUMMARY

Milk of calcium within a renal calyceal diverticulum is usually asymptomatic unless superimposed infection occurs. This is the 12th case to be reported in the literature.

In asymptomatic cases treatment is conservative, if not actually disregarded. However, in cases with infection or haematuria, surgery appears to be indicated. The aetiological, pathological and radiological aspects of the disease are discussed.

REFERENCES

1. Howell, R. D. (1959): *J. Urol. (Baltimore)*, **82**, 197.
2. Benendo, B. and Litwak, A. (1964): *Brit. J. Radiol.*, **37**, 70.
3. Berg, R. A. (1968): *Amer. J. Roentgenol.*, **101**, 708.
4. Braasch, W. F. and Emmett, J. L. (1951): *Clinical Urography*. Philadelphia: W. B. Saunders.
5. Campbell, M. F. (1964): *Urology*, 2nd ed. Philadelphia: W. B. Saunders.
6. Emmett, J. L. (1964): *Clinical Urography*, 2nd ed., vol. II. Philadelphia: W. B. Saunders.
7. Ferguson, G. and Ward-McQuaid, J. N. (1955): *Brit. J. Surg.*, **42**, 595.
8. Holm, H. (1948): *Acta radiol. (Stockh.)*, **29**, 87.
9. Iozzi, L., Blocklyn, M. and Rosenberg, F. (1965): *J. Urol. (Baltimore)*, **93**, 556.
10. Maurer, R. M. and Wilden, R. E. (1965): *Radiology*, **84**, 274.
11. Morin, L. J. and Albert, D. J. (1966): *J. Urol. (Baltimore)*, **96**, 869.
12. Walker, W. H., Pearson, R. E. and Johnson, N. R. (1960): *Ibid.*, **84**, 517.
13. Wesson, M. D. (1950): *Urologic Roentgenology*, 3rd ed. Philadelphia: Lea & Febiger.