

THE PLACE OF ULTRASOUND SCANNING AND FLUOROSCOPY IN THE PERCUTANEOUS TREATMENT OF THE RENAL CYST

R. Boja, D. Nicolescu

Clinic of Urology
University of Medicine and Pharmacy Tirgu Mures

In the last decade, due to ultrasound scanning, which is capable to differentiate accurately the solid character from the liquid one of an expansive renal process, the differential and positive diagnosis of renal masses has considerably improved. Besides, this makes possible to perform the guided needle puncture and the aspiration of cystic liquid. The cytological findings of the aspirated liquid and the examination of the cyst with a contrast matter make it possible to differentiate the simple renal cyst from the malignant one. In this way, the simple renal cyst can be successfully treated by a simple aspirative needle puncture, followed by sclerosing the walls by introducing some sclerogenic agents (Solvocilin, Dextroze 50% or Aethoxysklerol), the lumbotomy being performed only in case of a malignant cyst.

Material and method

In a four years' period (1985-1988) we had 57 patients with solitary renal cysts: 34 of them being women and 23 men. In 19 cases the cyst was asymptomatic and incidentally discovered during a general ultrasound scanning for digestive diseases.

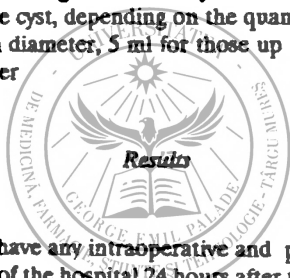
The urography suggested the presence of a renal mass only in 17/57 cases; the remained patients were normal.

The ultrasound scanning has identified in each patient the presence of a transsonic cavity with clearly marked walls and homogenous content. 49/57 patients had polar, the remained 8 patients had mediorenal located cysts.

The aspirative needle puncture and the sclerosing of the cyst is made on the radiological table, under an image amplifier and fluoroscopic guidance. The preliminary ultrasound scanning is necessary for the location of the puncture side. We prefer local anesthesia to any other anesthesia. The sonographic monitoring makes it possible to follow the needle until it reaches into the transsonic cavity. The puncture of the cyst is confirmed by the draining of the serocitrin liquid through the needle.

Ten ml of liquid is aspirated for cytological, biochemistry and bacteriological tests, then 10 ml of contrast matter is introduced for the fluoroscopical visualisation of the outline and walls of the cyst. The fluoroscopical examination confirms the aspiration of the entire content by the disappearance of the contrast matter. The same thing can be checked even with ultrasound scanning, which confirms the disappearance of the transsonic cavity.

The sclerogenic agent - Aethoxysklerol 1-3% - is injected after the complete aspiration of the cyst, depending on the quantity of aspirated liquid: 4 ml for the cyst up to 5 cm in diameter, 5 ml for those up to 8 cm, 6 ml for those with more than 8 cm in diameter



We did not have any intraoperative and postoperative complications. The patients were let out of the hospital 24 hours after the intervention.

In 56/57 cases the aspirated liquid was serocitrin. The cytological findings were negative and the biochemical tests showed an identical composition of the blood plasma.

One of the patients had a bulky cyst from which 800 ml of hematic liquid were aspirated. The cytological test did not reveal tumorous cells. The opacification of the cystic cavity with Odiston 30% showed irregularities of the cystic walls, and it is likely that the cyst would become malignant. The C.T. was uncertain, and therefore the open intervention was needed. For a malformed kidney with vascularization abnormality and parenchymatous deficiency a nephrectomy was performed. The histopathological examination revealed the malignancy of the mucosa of the cyst.

After 3 months every patient was checked by ultrasound scanning. At a first stage, when we did not introduce the sclerogenic substance, the relapses were 19/26 patients. In the rest of 29 patients, we got even sclerogenic treatment, we found 3 relapses. All of these patients had big cysts of more than 8 cm diameter.

Discussions

Until the ultrasound scanner was discovered, arteriography had been the only means of investigation to precisely differentiate a solid renal mass from a liquid one.

Arteriography, an invasive method, with contraindications and numerous incidents was successfully substituted by ultrasound scanning. This does not have any contraindications, being rapid, efficient and able to differentiate, with the same accuracy, a solid renal mass from a liquid one (1).

In the experience of many authors the clear serocitrin liquid obtained by aspirative needle puncture is a sure sign of benignity. Only the cytologic findings are able to differentiate a simple renal cyst from a malignant one (1, 2, 3). The cysts with irregular, thickened walls and non-homogenous content at examination with ultrasound scanner and fluoroscopy, by using a contrast matter, and those from which haemorrhagic liquid is obtained by needle puncture, are suspected of getting malignant. Though the malignancy of the cysts is very rare, being of 1/10000 according to the most recent data (4), in each doubtful case lumbotomy should be performed.

The intracavitary injection of Aethoxysklerol causes an aseptic thrombophlebitis limited to the mucosa of the cyst followed by a sclerosing process (5, 6, 7). The correct needle puncture of the cystic cavity should be controlled radiologically, because the intraarterial, intravenous, or in the excretory system injection is dangerous.

Conclusions

1. At present, ultrasound scanning is the only acknowledged method for the positive and differential diagnosis of renal masses, successfully replacing arteriography.

2. The percutaneous treatment, under sonographical and fluoroscopical control has successfully replaced the open surgery of simple cyst.

3. The fluoroscopical examination with contrast matter and the cytological test of the aspirated liquid can easily differentiate a simple cyst from a malignant one.

4. The rate of relapses is considerably low because of the intracystic introduction of a sclerogenic agent.

5. Open surgery is exclusively for the malignant cyst.

References

1. Zeman R. K. et al.: Imaging approach to the suspected renal mass. *Radiol. Clin. North Amer.* 1985, 23, 503-529.

2. Jacobson H. G., Goldberg B. B.: The role of Ultrasonography in the diagnosis of the renal mass and Impaired renal function. *J. A. M. A.* 1984, 251, 2561-2563.

3. *Leinenen A., Paivansalo M., Konturi M.:* Ultrasonography, arteriography and C.T. in the diagnosis of renal carcinoma. *Am. J. Radiol.* 1986, *139*, 239-241.

4. *Awis E. S., Cronan J. J., Pfister R. C.:* Needle puncture of cystic renal masses: A Survey of the Society of Uroradiology. *Am. J. Radiol.* 1987, *148*, 297-299.

5. *Reuter H. J.:* Die Verödung von Nierenzysten. *Akt. Urol.* 1987, *18*, 25-27.

6. *Dalton D., Harvery M., Grayhack J.:* The natural history of simple renal cyst: a preliminary study. *J. Urol.* 1986, *135*, 905-908.

7. *Reuter H. J.:* Die Medikamentöse sklerosierung von Nierenzysten. *Z. Urol. Nephrol.* 1986, *79*, 503-509.

Kw: fluoroscopy; renal cyst; treatment; Summary

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Nowadays due to the progress of imagery, the renal cysts have an apparently growing incidence. Thus, ultrasound scanning can precisely identify and localize an expansive renal process, and is capable to specify its solid or liquid character. In addition, on the basis of the ultrasound scanning, fluoroscopic examination (a contrast matter injected intracystically) and the cytology of the aspirated liquid, establishing the diagnosis of malignant cysts became possible.

Since 1985 we have introduced in the treatment of solitary renal cysts the sonographically guided aspirative percutaneous needle puncture, successfully substituting open surgery.

The rate of relapses is very low because of the sclerogenic agent injection after the entire aspiration of the cyst.

This study presents the authors experience in 57 cases of renal cysts, with diameters between 4 and 12 cm, which were solved percutaneously by aspiration and sclerosing with Aethoxysklerol.