



## Case Report

# A Hydatid Incidentaloma of the Left Kidney: Case Report

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## Summary

We report a case of a left renal incidentaloma discovered in a 40-year-old woman during a routine ultrasound scan performed before surgical cure of an umbilical hernia. This incidentaloma turned out to be a renal hydatidosis. This study will have confirmed the usefulness of reliable imaging before any parietal surgery, especially in transperitoneal way. The treatment of renal hydatidosis is surgical, with satisfactory results. The indications are divided between those who favour conservative treatment and those who favour radical treatment. However, in the paediatric age group, one should be as conservative as possible. In conclusion, in the presence of any renal mass, the diagnosis of hydatidosis must be evoked, especially in endemic areas. Renal imaging must be carried out as far as possible, especially for GHARBI type I and IV hydatid cysts, which pose many diagnostic problems.

**Keywords:** Conservative treatment; Hydatidosis; Nephrectomy; Renal imaging

## Introduction

Renal hydatidosis is a rare location of hydatid disease. Because of its rarity, its management is not well codified. We

report a case of a patient in whom this pathology was fortuitously discovered and who was treated using a radical method.

## Medical Observation

Patient K.R, 40 years old, without any pathological history, caesarean section 11 months ago for a podalic presentation, who initially consulted us for surgical treatment of an umbilical hernia that appeared during her pregnancy. The examination revealed a patient in good general condition. The abdomen was soft and painless, with no palpable mass and a solid subumbilical midline surgical scar. Indeed, there was a small uncomplicated umbilical hernia admitting the pulp of the index finger. The indication for surgery was given because of the painful nature of the hernia. The pre-operative check-up was normal, as was the pre-anaesthetic check-up. The patient presented to us with an abdominal ultrasound that showed a solid mass of heterogeneous hypoechoic echostructure, with regular contours, measuring 6 cm in diameter, without any mass effect on the excretory cavities. On the other hand, the right kidney of normal size was in place, with regular contours and with non-dilated and non-lithiasic pyelo-caliceal cavities (Figure 1) (Ultrasound images of a 06 cm hypoechoic left renal mass). A parietal defect of 05 cm in diameter was noted in the periumbilical region.



**Figure 1:** Ultrasonography of renal hydatid cyst.

In order to better approximate the exact nature of this left renal mass, an uro-scanner was performed which revealed an upper polar left renal mass of spontaneous tissue density, finely calcified in places in the periphery, not enhancing after injection of contrast medium, well limited and measuring: 69x42x40 mm. There is an absence of intra-tumour fat. The mass is in contact with the lower splenic pole superiorly and the posterior abdominal wall posteriorly, with disappearance of the fatty separation line in places. There is also an absence of bony changes adjacent to the mass. There is no imprint on the pyelo-caliceal cavities or signs of infiltration. The iliac, coelio-mesenteric, retroperitoneal and left renal hilar lymph nodes are free. There is no thrombosis of the renal veins and the inferior vena cava. A simple left renal cyst was also noted. The right kidney was completely normal, as well as both ureters and the bladder (Figures 2) (CT images of the left RHC). In conclusion, the radiologist made a diagnosis of a hemorrhagic and remodeled left renal cyst. The patient initially refused any surgical intervention affecting the integrity of her kidney, as she simply wanted to be operated on for an umbilical hernia. And in front of our insistence on the interest of the surgical exploration for fear of leaving a malignant tumour in place, and after her informed consent, we carried the operative indication as well for the umbilical hernia as for the renal mass.



**Figure 2:** Computed tomography (coronal and transversal slides) of renal hydatid cyst.

The surgery was performed under general anaesthesia with the patient in the supine position. A median xypho-subumbilical coeliotomy was chosen. An epiploic incarceration found at the level of the umbilical hernia was freed. And in view of the smallness of the parietal defect (infra-centrimetric), which was far from corresponding to the ultrasound findings, a simple aponeurotic raphia with non-resorbable thread was performed. Next, the left colonic angle and the descending colon were freed in order to approach the left renal compartment.

Once the GEROTA fascia was opened, the renal pedicle was dissected and the renal vein was placed on a lake. An attempt was made to dissect the left renal artery before any mobilization of the left kidney, but a posterior collateral of the renal vein was injured,

forcing us to perform a left nephrectomy of necessity, after failing haemostasis. Intraoperatively, the left upper polar renal mass was well limited, with a millimetric orifice through which liquefied pus was escaping, an aspect that initially suggested a tubercular etiology.

Once haemostasis was assured, a plane-by-plane closure was performed on a tubular drain slid into the left renal space. The postoperative course was simple, and the patient was discharged on the fourth day after the operation with a normal clinical examination and above all normal renal function. She was then referred to the nephrology consultation. Anatomical pathological examination revealed a unilateral nephrectomy specimen measuring 13x9x2 cm, surmounted by an encapsulated and cystic nodular lesion measuring 8x5 cm with a haemorrhagic surface. The opening of the lesion revealed a multilocular appearance filled with yellowish granular material.

Histology confirmed the diagnosis, finding a cystic wall composed of two layers: an inner cellular layer corresponding to the proligeral layer containing daughter vesicles and a denser, lamellar and anhistic outer layer corresponding to the cuticle. This cystic wall is the site of necrotic, fibro-hyaline and inflammatory changes. The renal parenchyma is the site of moderate interstitial nephritis with vascular congestion. All of these lesional aspects are compatible with a hydatid cyst of the kidney.

## Discussion

Renal hydatidosis is a rare location of visceral hydatidosis, accounting for 2-4% of all locations, and in order of frequency would come in 3<sup>rd</sup> position after liver and lung locations [1]. The kidney is the most common location for hydatidosis of the urogenital tract [2]. Renal Hydatid Cyst (RHC) is often unilateral, preferably single and polar, but it can be multiple and even bilateral [3]. It is most often found on the left, although it is not known why [4]. Renal infestation occurs most often by the haematogenous route, or by the lymphatic route after the hexacanth embryo has passed through the liver and lung filters and into the systemic circulation [5]. Rarely, renal involvement is thought to occur as a result of contiguity [6]. Due to its retroperitoneal location and slow growth, RHC is characterized by its long clinical latency until it reaches large volumes or until the kidney is completely destroyed.

There are generally three circumstances of discovery

- An incidental finding in 3-10% of cases [7,8], as described in our case.
- After specific symptoms (such as hydaturia, which is only encountered in 20% of cases), or non-specific symptoms

(haematuria, hypertension due to hilar compression of the renal artery, which is reversible after removal of the cyst, or even a flank mass syndrome) [9-11].

- Or as a result of complications which are dominated by rupture and superinfection [12]. There are three possible outcomes of a RHC rupture:
  - a. Or it is contained, in which case there is a simple cleavage between the endocyst and the perikyst;
  - b. Either it is a communicating rupture with the urinary excretory tract at the origin of the hydaturia, or in the digestive tract;
  - c. Or the rupture directed into a virtual cavity, such as the pleural or pericardial envelope.

Biologically, hypereosinophilia is present in more than 50% of cases, but is inconsistent and non-specific [1]. Immunological tests (immunoelectrophoresis, indirect immunofluorescence and Elisa) are positive in 70-80% of cases [3] and can help in the diagnosis pre-operatively. In our case, the eosinophil count was normal, which did not help us in our diagnosis. Since the diagnosis of renal hydatidosis was not evoked on imaging in our patient, we did not use hydatid serology. Radiological examinations help to orientate the diagnosis and provide presumptive arguments. A positive hydatid serology correlated with suggestive imaging is of great help to the practitioner in pre-operation.

Standard radiographs sometimes show fine, arciform calcifications molding the cystic cavity, which are more characteristic than heterogeneous calcifications. In the case of a large cyst, there may be an effacement of the external border of the psoas [5]. Intravenous urography is not useful in the diagnosis of the aetiology, but it proves that the lesion belongs to the kidney, assesses the impact on the upper tract, and determines the condition of the contralateral kidney. Opacification of the cystic cavity would be pathognomonic by showing, for example, a multilocular "bead bag" structure in relation to the presence of daughter vesicles [2,13].

The contribution of ultrasound is not negligible, its reliability is estimated at 80% [14]. It allows the size of the cyst and its topography to be determined. It also specifies its type according to the GHARBI classification (see Table 1), and looks for other locations. Ultrasound has its limitations, however: in type I it is often confused with a simple serous cyst (hence the interest of hydatid serology in this case), and in type IV it is often mistaken for necrotic tumors [15]. Ultrasound provides additional diagnostic support in pseudotumoral RHC showing the absence of intra- and peri-lesional flow [5].

TYPE	IMAGE	DIFFERENTIAL DIAGNOSIS
I	Fluid collection	Serous cyst (serology +++)
	Rounded or oval anechoic image with posterior echo enhancement, with sharp boundaries	
II	Fluid collection with split walls (floating membrane)	Pathognomonic+++.
	Sharp contours	
III	Honeycombed image (daughter vesicles)	Pathognomonic+++.
IV	Heterogeneous echostructure Irregular boundaries	
	· Thin wall	Complicated serous cyst Kidney abscess, necrotic tumour
	· Thick wall	Old haematoma, abscess, renal tuberculosis, necrotic and
	· Thick, calcified wall	calcified tumour
V	Dense walls	Old haematoma, old tuberculosis
	Arciform line with posterior shadow cone Calcified cyst	

**Table 1:** Sonographic aspects of renal hydatidosis and differential diagnoses according to the Gharbi classification.

CT is also of great help; it rules out the diagnosis of simple renal cysts and necrotic tumors, but does not always rule out cystic metastasis, renal abscesses or certain cystic tumors [16]. It also estimates the remaining healthy parenchyma for possible conservative surgery [13,14]. On CT, the RHC presents as a liquid mass, homogeneous or heterogeneous, whose attenuation coefficient is not modified after injection of contrast medium; enhancement is only observed in case of communication with the renal excretory tract, and then only late [3]. In our patient, the CT scan was rather confusing, as not only did it not allow us to approach the diagnosis, but the radiologist advised us to perform surgical biopsies on the mass, which would certainly have favored the dissemination of the disease and would have further complicated the therapeutic management. Furthermore, the quality of the remaining parenchyma in the kidney where the cyst was located was not specified at all, although this parenchyma had lesions of moderate nephritis.

MRI is only used if there is a problem of differential diagnosis with a serous cyst or renal cancer that is not resolved by ultrasound-CT. On MRI, the RHC appears hyperintense on T2-weighted sequences with a peripheral halo of hyposignal corresponding to the pericyst. The internal architecture is identical to that found on CT [14,17]. MRI and echocardiography should have been requested in our case, but as these examinations are not common practice at our level, we decided to rely on the intraoperative findings and on the histological study which alone will provide diagnostic certainty.

If left untreated, the RHC increases in size and may rupture into the excretory tract with a near-constant risk of superinfection. The cyst can destroy the kidney either by compression of the parenchyma or by obstruction of the excretory tract. Exceptionally, the evolution is towards calcification [18]. The truly curative treatment for RHC is surgical. The most logical approach seems to be lumbotomy, which limits peritoneal contamination by possible daughter vesicles. But other incisions can be used (median, Baraya, subcostal) in case of a large cyst with anterior development or in case of association with another peritoneal location, or in case of diagnostic doubt with renal cancer. The laparoscopic route is beginning to be used by certain teams, and its results seem promising. There are various controversies between the proponents of conservative treatment (morbidity, recurrence) and radical treatment (benignity of the condition). In children, conservative treatment should be favored. Thus partial pericystectomy or resection of the protruding dome of the cyst is the procedure most frequently performed in the largest series, in view of its very good results [4].

Padding of the residual cavity, or filling it with Gerota's fascia fat, to avoid dead spaces and thus limit the risk of infection is recommended. Drainage with a Jost-Redon type suction drain, left in contact with the residual cavity, is strongly recommended. Partial nephrectomy, which is difficult to perform, seems to most authors to be unjustified, as it removes healthy nephrons and may even lead to dissemination of the disease [1,4]. However, conservative surgery can lead to complications. Cysto-urinary

fistulas are present in 15- 30% of cases [18]. When they are discovered intraoperatively, they must be systematically blinded, and a discharge nephrostomy must be associated. These fistulas dry up in 50% of cases. If they do not, a ureteral stent is required.

Suppuration of the residual cavity can occur in up to 8% of cases in the case of conservative surgery. It is usually treated by maintaining the drain for a few weeks. If this fails, a second operation must be performed. As for total nephrectomy, which is ardently defended by the Turkish authors [8], it is only conceivable in the case of total pyonephrosis. In our case, a nephrectomy of necessity was performed in view of the haemorrhagic incident, but it seems totally justified, given the large volume of the mass, and given the pathological character of the remaining parenchyma, which was the site of moderate nephritis. Moreover, any biopsy or untimely manipulation of the mass before pedicle control could have provoked anaphylactic shock by migration of daughter vesicles into the general circulation. And because there were no particular measures to protect the operating field (due to ignorance of the hydatid nature of the disease), only the long-term follow-up of the patient will attest to the definitive cure.

Recurrences are exceptional, and are essentially parietal, due to insufficient protection of the operating field. And because in our case there were no particular measures to protect the operating field (due to ignorance of the hydatid nature of the disease), only the long-term follow-up of the patient will attest to the definitive cure.

Percutaneous therapeutic methods such as ultrasound- or scan-guided PAIR (Puncture-Aspiration-Injection-Reaspiration), first used as a diagnostic tool (especially in Gharbi's RHC type IV), currently allow non-surgical treatment of selected patients [19,20]. Medical treatment with imidazole derivatives may be reserved:

- Patients with a contraindication to surgery;
- To RHC type I and II of small volume;
- And multiple hydatidosis.

Refraining from treatment is only justified in the case of a fully calcified hydatid cyst (Gharbi type V) with negative serology.

## Conclusion

Renal hydatidosis, despite its rarity, should be considered as a diagnostic hypothesis in the presence of any renal mass, especially in endemic areas. It poses a diagnostic problem especially for types I and IV. Renal imaging should be used to the maximum extent possible when the ultrasound-scanner combination is inconclusive. The treatment of choice remains surgery, and it is divided between those who favor radical treatment and those who favor conservative treatment.

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