

# A case of the rupture of an angiomyolipoma on the kidney as the argument for the broader use of modern technology

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## KEY WORDS

kidney ► angiomyolipoma ► RFA

## ABSTRACT

We have presented the case of borderline size AML (*angiomyolipoma*) of the kidney that had had been initially qualified for observation and had a serious complication caused by a rupture leading to a hematoma and subsequently to an operation. In the author's opinion a wider use of minimally invasive technologies in the prophylactic treatment of some cases of AML might prevent such complications and might make planning the treatment easier for the urologist and his patients.

## INTRODUCTION

Angiomyolipoma (AML) is a benign hamartomatous tumor consisting of abnormal fat, muscle and vascular elements. It accounts for about 3% of solid renal masses. The introduction of CT and ultrasound has allowed diagnosing it without the need for biopsy in the majority of cases, due to the characteristic picture of the fat tissue [1]. AML is most often asymptomatic and routine management can be only confined to observation. However, sometimes it may cause symptoms such as recurrent hematuria or pain. The most serious complication that may occur is life-threatening intra-

tumoral bleeding. It has been established that the frequency of serious problems is closely related to the size of the tumor. Thus a lesions exceeding 4 cm should be followed-up particularly carefully and if symptoms are significant they will require intervention. The options are usually: partial or total nephrectomy performed openly or laparoscopically, as well as selective embolization of the renal arteries which is preferred by some authors. Most problematic are obviously the borderline cases, as it was in the presented case. Then the urologist may face a fairly difficult dilemma as to what to offer to the patient. In our opinion new technologies that have been recently introduced and are based on ablation of the abnormal tissue with a needle-probe inserted into the lesion under imaging control like radiofrequency ablation (RFA) or cryoablation are very promising. They may widen the range of options that the urologist has in problematic cases when the size of AML is borderline, symptoms are medium and the patient is worried by the fate of his tumor. In the described case the patient was referred for observation, because prophylactic surgery did not seem to be justified. It led to a serious complication and required emergent surgery. In our opinion the situation would have been different if the urologists initially had a chance to use some of the modern ablative technology.

## CASE REPORT

Patient aged 65 years came to the urological clinic on 27.11.2007 because of a left renal tumor incidentally found on ultrasound. In a subsequent CT performed on 17.01.2008 a lesion of maximum diameter of 37 x 37 mm with radiological features of angiomyolipoma was confirmed (Fig. 1). The patient was a little concerned

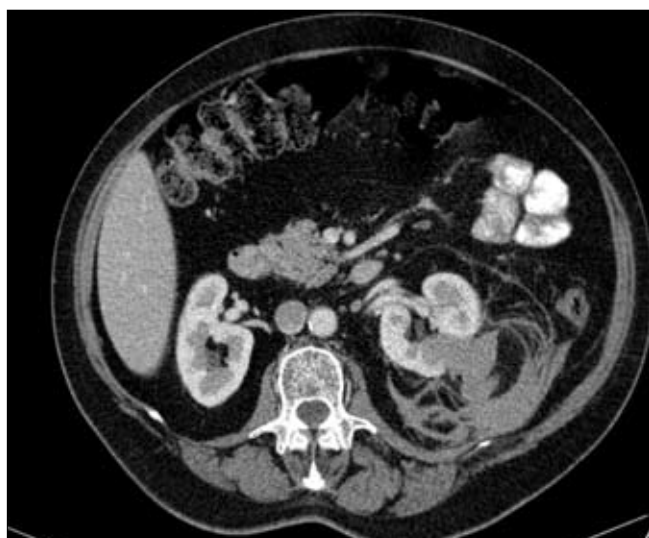


Fig. 1. Original CT scan of the AML in the left kidney.



Fig. 2. CT scan showing the hematoma in the site of the AML.

about having the tumor and complained of a slight lumbar pain. She was informed about the benign character of the mass and about the small risk of possible complications as well as about available methods of treatment. Thus conservative management was chosen with ultrasound check-ups scheduled for every 6 months. About one year later on 22.10.2008 the patient was admitted to the hospital because of a poor general condition and a strong left lumbar pain that she associated with falling two days before. On CT done on an emergency basis, the hematoma, located posteriorly to the left kidney, spanning from the pancreas to the pelvis and communicating with the rupture of the kidney at the site of the previously observed AML, was discovered (Fig. 2). She was referred for surgical exploration, the hematoma was evacuated and the ruptured tumor of the kidney was excised. Hemostasis was secured with a fragment of fat being sutured into the defect in the kidney. The post operative period was uneventful and she was discharged after 7 days. The histopathology report confirmed the diagnosis of a ruptured AML. The follow up did not reveal any complications. Patient is well and is happy to live without the thought of the tumor in her body.

## DISCUSSION

AMLs are rather rare, benign renal solid tumors. 30% of them are associated with tuberous sclerosis but the majority are sporadic. They occur more often in females after 50 years of age, as in the presented case. Most AMLs are asymptomatic. However some may cause pain, hematuria and then require treatment. The most serious complication is the massive and sometimes dangerous intra-tumoral bleeding. It is usually managed by a surgical intervention often associated with a nephrectomy [2]. The frequency of the complication is related to the size of the AML. In 1986, Oesterling presented the analysis of 602 cases of AML from literature and 13 from his own material. He established that 90% of lesions causing serious symptoms are bigger than 4 cm. Among masses smaller than 4 cm only 23% present symptoms. It led to the elaboration of guidelines according to which AML >4 cm with significant symptoms are qualified for removal. Lesions >4 cm, without symptoms should be checked every 6 months. In cases of masses less than 4 cm, intervention is recommended only with persistent symptoms [3]. In Poland most urologists prefer conservative approach to AML, claiming that the treatment should not be more harmful than the disease itself. In a current situation this is probably right, as far as treatment options are: the total or partial nephrectomy, done openly or laparoscopically, or selective embolization of renal artery. We know that the latter is also not a complication-free technique. It may cause post-embolization syndrome meaning pain and fever in a substantial portion of patients and the possible danger of a large artery lesion and renal function impairment. Embolization is also not always effective. According to Kothary its success rate reaches only 70% and quite often the procedure needs to be repeated [4]. Therefore, very often the urologist is confronted with a difficult decision about what to offer a patient with borderline AML oscillating around 4 cm, with medium symptoms, and sometimes causing significant tumor anxiety in the patient. Such a problematic situation occurred in the presented case. Because we knew from literature that the risk of a surgical intervention would be about 5%, we had ordered observation [5]. Unfortunately it led to the dangerous situation and emergent operation. In our opinion, having the option of eliminating the tumor with a less invasive method may help urologists and encourage them to choose more active treatment in borderline cases and thus would spare patient pain and worries.

Having this in mind we find the procedures utilizing imaging-controlled ablation techniques very interesting. One of them is RFA. It is based on destruction of the pathologic tissue with an energy

generated by the passage of a current through the tissue around the needle probe inserted into the tumor under ultrasound control. Another similar method is cryosurgery where low temperature is used. They both have been getting popular in the management of small hepatic or renal tumors and in some series, authors mention about AML of the kidney being treated. Prevoo, in 2008, presented the case of the successful treatment of 4.5 cm AML tumor in the solitary kidney of a 70 year old patient. The curative effect of RFA is a coagulative necrosis leading to closure of the vessels, which perfectly corresponds with the main aim of the treatment of AML, which is not a complete eradication of the lesion as it is in carcinomas, but a prevention of its growth leading to the rupture of its vessels [6]. What is important is that the biopsy may also be taken safely during the procedure, eliminating the possible doubts about the character of the lesion. In our opinion, the minimal invasiveness of RFA or cryosurgery may enable the urologist to be more active in borderline cases of AML and will help them in providing better care to their patients, thus limiting the amount of complications and worries.

An additional reason to mention is the fact that the progress of new techniques is inevitable. In the future they will definitely compete with any current operative methods for treatment of small lesions of the kidneys. So we believe that urologists should be up to date with news on this subject.

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