



## Oncology

## Tumor Seeding With Renal Cell Carcinoma After Renal Biopsy



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## ABSTRACT

Tumor seeding following biopsy of renal cell carcinoma is extremely rare with an incidence of 1:10,000. In this paper two cases with multiple recurrent RRC metastasis in the biopsy tract following biopsy of renal tumor is presented and the current literature is shortly discussed.

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## Introduction

The incidence of renal cell carcinoma (RCC) is increasing. This is due to increasing use of CT scans in diagnostic investigations in most medical specialties and consequently increasing incidental finding of small renal masses.<sup>1</sup>

Twenty to thirty percentage of renal masses less than 4 cm are known to be benign.<sup>2</sup> Renal biopsy is therefore becoming part of standard diagnostic procedure before advising the patient on therapeutic options for small renal masses.

The risk of tumor seeding is reported to be less than 1:10,000.<sup>3</sup> Despite the low incidence of tumor seeding two cases of RCC seeding along the subcutaneous biopsy tract are presented and current literature is shortly discussed.

## Case presentation

## Patient A

A 40-year old woman is admitted due to a sore palpable tumor in her left flank. CT imaging raise suspicion of a tumor emanating from the spleen, and a true cut needle biopsy with a coaxial needle is performed. Histologically the tumor is suspected to derive from the adrenal gland and a unilateral nephrectomy and adrenalectomy is performed a month later. On the final pathological report, the diagnosis is RCC.

Four years later the patient develops a local recurrent tumor in the cicatrice. Resection of the tumor is performed without complications; the histological report again shows RCC with negative surgical margins. This incident repeats after another 7 years, but this time there are several tumors in the old place of the kidney, but also in the psoas major muscle. All histological examination shows adenocarcinoma renis and again there are negative surgical margins.

The patient is still in follow up, and has not developed further recurrences.

## Patient B

A 60-year old woman is admitted due to abdominal pain and hematuria. Clinical imaging reveals a small renal tumor in the right kidney. A fine needle biopsy is performed with findings of RRC and the patient undergoes nephrectomy. On the pathology report small islands of tumor cells in the Gerotas fascia along the original biopsy canal are described and tumor seeding is suspected.

Two years after the initial biopsy, the patient undergoes surgery for recurrence along the biopsy canal in the right abdominal wall (Fig. 1). A second recurrence in the abdominal wall is excised 1 year later and a third local recurrence is treated after another 6 months with resection of 12th rib and several small recurrences on the psoas muscle. Four years and 5 months after initial surgery, the patient has yet another local recurrence and undergoes surgery once more. All of the incidents showed RCC and all were with negative surgical margins in spite of several relapses.

Due to the extent of the surgery and the fear of another recurrence the patient suffers both physical and emotional.

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**Figure 1.** CT scan showing relapse (arrow) of RCC in biopsy tract after fine needle biopsy of small renal mass.

## Discussion

Previously clinicians were reluctant to use renal biopsy in the diagnostic investigation of incidental finding of small renal masses. This was due to the risk of insufficient diagnostic yield and the risk of tumor seeding.

The increased incidence of small renal masses led to the development of minimally invasive treatment options, including laparoscopic partial nephrectomy. It was found that as many as 20%–30% of renal masses less than 4 cm were benign.<sup>2</sup>

In recent years several articles have been published describing that diagnostic accuracy using fine needle biopsy has improved markedly and risk of tumor seeding reported to be less than 1:10,000. So far only eight cases have been reported world wide.<sup>3</sup>

The technique used and size of the needle varies in the few reported cases, but there seems to be consensus of potential risk factors such as needle size, end-cutting needles, number of passes,

use of coaxial sheath, non-negative pressure while withdrawing and length of needle tract.<sup>4</sup> Coaxial sheath has in recent studies showed to nearly eliminate the risk of RCC<sup>5</sup> which correlates with earlier retrospective studies. In conclusion the use of a coaxial sheet, as few passes as possible, small needle, short needle tract and negative pressure on withdrawal are all factors that minimize the risk of tumor seeding.

Renal tumor biopsy is currently recommended grade C in EAU's guidelines before ablative treatment, systemic treatment or Active surveillance of renal tumors.<sup>6</sup>

Despite the low incidence and few reported cases, we here present two cases with tumor cell seeding following renal tumor biopsy from one department. When tumor cell seeding does occur, the emotional and physical stress of multiple recurrences and subsequent surgery may be potentially very burdensome for the patient.

## Conclusion

Tumor seeding following renal tumor biopsy is rare. In spite of this, we here present two cases with RCC tumour seeding and multiple recurrences.

To minimize the risk of seeding, needle size and technique used should be taken into consideration before a biopsy is performed.

## Conflicts of interest

None.

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