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Early diagnosis of kidney cancer by computed tomography imaging – a case study

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Abstract

In the case of small tumors, the kidneys usually do not show the oncological importance and are characterized by slow growth, however, the presence of any changes that occur within these tumors should be monitored. A 66-year-old man underwent computed tomography (CT) examination. As a result of the study, in the lower pole of the left kidney, a tumor mass was observed. Imaging studies performed for various reasons often show an abnormal mass within the kidneys. The reasons for the development of kidney tumors are not fully understood.

Keywords: kidney, tumor, computed tomography

1. Introduction

Nowadays, thanks to the availability of imaging tests, there is an increase in the detection of renal tumors, even with a small degree of clinically significant. One of the commonly used imaging studies is computed tomography [1-3]. The kidney tumor is rarely perceptible to the patient and can develop for a long time, without any complaints. Early kidney cancers do not usually cause any signs or symptoms, but larger ones might. Some possible signs and symptoms of kidney cancer include: blood in the urine (hematuria), low back pain on one side, mass (lump) on the side or lower back, fatigue (tiredness), loss of appetite, weight loss not caused by dieting, fever that is not caused by an infection and that doesn't go away and anemia. In the case of small tumors, the kidneys usually do not show the oncological importance and are characterized by slow growth, however, the presence of any changes that occur within these tumors should be monitored [4, 5].

2. Case presentation

A 66-year-old man, according to the history of the disease, was resection of the rectum with the formation of a stoma. The patient underwent computed tomography (CT) examination. The study was conducted using a contrast agent - Omnipaque 350 (contains 755

mg of iohexol equivalent to 350 mg of organic iodine per ml). The CT examination was performed using the SOMATOM Definition AS (Siemens) and analyzed with SYNGO Multi-Modality CT Workstation (Siemens). As a result of the study, in the lower pole of the left kidney, was observed a solid tumor-like mass increasing exophytically, measuring 28x28 mm. Without the infiltration of the tissues of the surrounding organs (Figure 1 A, B and C).

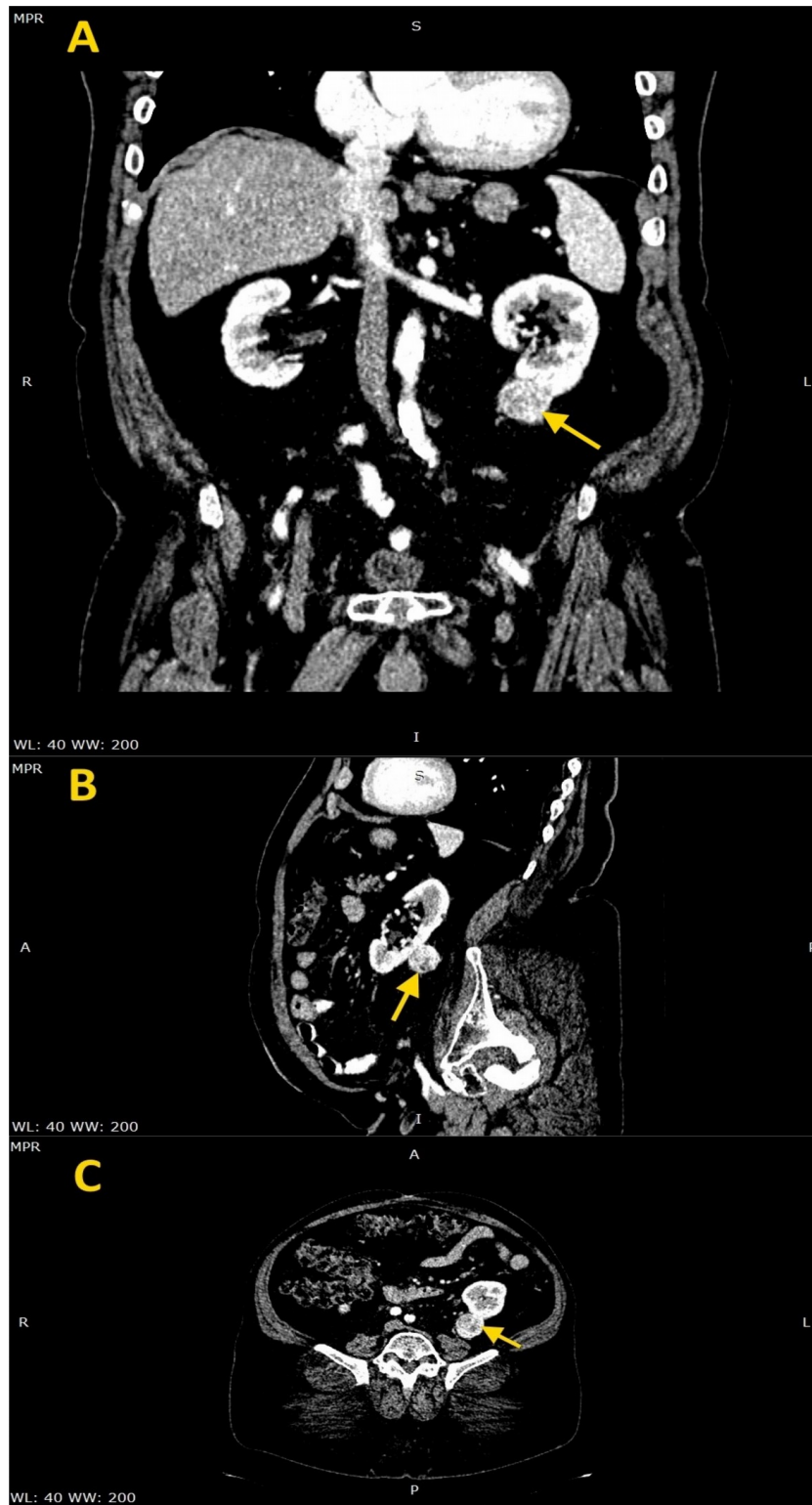


Figure 1. The CT scan detects the tumoral mass (yellow arrow): A – coronal reconstruction; B – sagittal reconstruction; C – axial reconstruction.

3. Discussion

Imaging studies performed for various reasons often show an abnormal mass within the kidneys. Some of them are malignant tumors, others are benign tumors. Benign tumors develop asymptotically. Pain occurs when the tumor grows to considerable size and oppresses the surrounding tissues. When the tumor is large or there is no technical possibility to perform a saving procedure, it is necessary to remove the entire kidney. Some authors believe that the oncological possibilities of kidney cancer significantly increase with the size of the tumor, especially above 3 cm [6]. Malignant kidney neoplasms account for 2-3% of all cancers in adults. Incidence peak is between 60 and 70 years of age [7-8]. In men, renal tumor occurs 1.5 times more often than in women [9]. The reasons for the development of kidney tumors are not fully understood. However, it has been proven that etiologic factors are most affected by smoking, obesity and long-term use of anti-hypertensive drugs. It is believed that genetic changes are also important, especially in hereditary forms of cancer [10-13].

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