Uncontrollable diabetes mellitus: a rare paraneoplastic manifestation of renal cell carcinoma

Sir,

Paraneoplastic syndromes are well-known manifestations of renal cell carcinoma (RCC). They can occur in up to 20% of patients with RCC and can sometimes be responsible for the presenting symptoms of RCC. The most common ones are fever, hypercalcaemia, anaemia, hypertension, cachexia and hepatic dysfunction (Stauffer’s syndrome).

We report on a patient who presented uncontrollable deterioration of glycaemic control of pre-existing insulin dependent diabetes mellitus (IDDM) as a paraneoplastic manifestation of RCC.

Case. A 35-year-old man with a 12-year history of IDDM was admitted because of uncontrolled diabetes, thought to be secondary to a urinary tract infection (UTI). Insulin demand had risen from 80 units subcutaneously to more than 600 units intravenously.

The patient mentioned some right flank pain. Clinical examination was normal apart from mild fever. Laboratory tests revealed an elevated white blood cell count and a high erythrocyte sedimentation rate and CRP. Urine analysis showed microscopic haematuria. Cultures of blood and urine remained negative. Cortisol and glucagon were normal, as were adrenocorticotropic hormone, growth hormone, insulin-like growth factor 1 and parathyroid hormone.

Ultrasonography of the abdomen showed a cyst in both kidneys which had been known for years. When comparing a computerized tomography (CT) of the kidneys with a CT performed 4 years earlier, both cysts had become hyperdense, suggesting haemorrhage or infection and the cyst in the right kidney had clearly grown (Figure 1).

A needle biopsy of the cyst on the right showed, unexpectedly, a papillary RCC. No metastases were found after staging. There were no stigmata or family history of von Hippel–Lindau disease. Because of the identical radiologic aspect of the bilateral cysts and the papillary type of tumour which is known for its multifocality, the risk of RCC in the other kidney was anticipated and only a partial nephrectomy of the right renal middle pole was performed. The patient recovered well, but the high insulin need persisted. Pathologic examination showed two papillary RCC lesions without
vascular invasion, grade 2. In the macroscopically healthy parenchyma two more small lesions were recognized in the section margins. Subsequent magnetic resonance imaging suggested the presence of several small RCC lesions in the left kidney as well. Because of this and the desperate condition of the patient with high IV insulin need, fever and rising inflammatory parameters, radical nephrectomies on the left and subsequently on the right were performed. Many very small RCC lesions were found bilaterally.

Diabetes control improved immediately and insulin need became identical to the pre-morbid situation. Fever and inflammatory parameters disappeared. The patient is doing well on dialysis.

Comment. Unlike the two previously reported cases [1,2] who had no IDDM prior to disease and where RCC was of the clear cell type, this is the first patient where bilateral papillary RCC caused a deterioration of pre-existing diabetes. As in the other cases, no endocrine abnormality was found to explain the hyperglycaemia. Bilateral nephrectomy and disappearance of hyperglycaemia were clearly linked, but the exact pathophysiological explanation remains unknown.

In conclusion, in patients with uncontrollable IDDM the diagnosis of RCC should be considered.

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