Renal Cell Carcinoma Presenting with Acute Renal Failure and IgA Glomerulonephritis

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Dear Sir,

The association of IgA glomerulonephritis (IgA-GN) with tumors such as bronchial carcinoma [1], mucin-secreting tumors [2], multiple myeloma [3], and nasopharyngeal tumors [4] has been documented. In the following case report, a renal cell carcinoma, for the first time to our knowledge, is described in association with IgA-GN in a clinical setting.

Case Report

A 50-year-old male was admitted to the hospital because of acute renal failure. He was well until 5 weeks prior to admission when he noted raised, greyish spots over the upper and lower extremities. Urinalysis revealed proteinuria and microscopic hematuria, serum creatinine 120 µmol/l, and C3 and C4 were 0.3 and 0.13 g/l, respectively (normal range 0.55–1.2 and 0.2–0.5 g/l). The antistreptolysin O titer was less than 200 U, and investigation of serum immunoglobulins revealed IgA 5.5 g/l (normal 0.7–3.7 g/l). Antinuclear antibodies and cryoglobulins were negative. Fifteen days later, the serum creatinine concentration was still 122 µmol/l, and urinalysis continued to show proteinuria and hematuria. In the week prior to admission he felt progressively weak and noted diminished urine output.

He was not taking any medications and only reported bronchial asthma for the previous 2 years. In particular, there was no history of alcohol intake or liver disease. The blood pressure was 160/110 mm Hg; greyish papular rash was evident on the forearms and the feet. Bilateral basal rales were present; the rest of the physical examination was unremarkable. Urinalysis showed excess red blood cells, red cell casts, granular casts (but no eosinophils), and proteinuria (3 g/24 h). Blood urea was 45 mmol/l, creatinine 1,158 µmol/l, and the liver function tests were normal. The urine output over the next 24 h was only 200 ml, the patient became more uremic, and hemodiagnosis was commenced. Abdominal ultrasound revealed a large mass replacing the lower pole of the right kidney which was confirmed by angiography, and the patient underwent right radical nephrectomy. Postoperatively, the patient needed hemodialytic support only on two occasions, after which the renal function improved gradually. The serum creatinine, 2 weeks later, was 300 µmol/l, the skin rash disappeared, and both serum IgA and complement became normal.

Fig. 1. Photomicrograph showing mesangial cell proliferation and crescents. HE. × 240.

Sections from the tumor showed renal cell carcinoma mainly papillary in type. Sections from the renal tissue adjacent to the tumor and biopsy from the contralateral kidney, both revealed...
mesangioproliferative glomerulonephritis with one third of the glomeruli showing crescents of
various stages of development. The tubules contained proteinaceous material and were otherwise
unremarkable. Vessels and interstitium were normal (fig. 1). Immunofluorescent studies
revealed diffuse mesangial deposition of IgA, C3,
and fibrin. Electron microscopy showed increased mesangial matrix with paramesangial dense
deposits. The glomerular basement membrane was normal.

Discussion
The relationship of IgA-GN to the underlying renal cell carcinoma in our patient was intriguing,
since several laboratory (IgA hyperglobulinemia, hypocomplemen-temia) and clinical (nephritic
state, skin rash) parameters have spontaneously reverted to normal after the tumor resection. This
association of renal cell carcinoma with immunofluorescent deposition in the nontumorous
glomeruli was previously documented for IgG and IgM [5] and, more recently, for IgA in a
diffuse linear pattern [6]. Moreover, out of 3 patients with clear-cell carcinoma reported by
Ozawa et al. [7], 1 patient displayed mesangial hypercellularity with IgA deposition; specific
immuno-logical studies suggested a common antigen determinant between renal tubular
epithelium and plasma membrane of renal cell carcinoma. These findings as well as our
observation suggest that the nephropathy was secondary to circulating immune complexes
mediated by tumor antigen-antibody.
The association of IgA-GN with acute renal failure, in our patient, is interesting and requires a
brief comment. Kincaid-Smith et al. [8] observed episodes of acute renal failure in 16 out of 244
patients with mesangial IgA nephropathy; renal biopsies were done, at the time of the episode of
acute renal failure, in 13 of those patients. Crescents were seen in all of those biopsies; however,
they were not sufficiently widespread to account for the impaired renal function. Instead, the
renal tubules showed morphological changes of acute tubular necrosis. Nevertheless, the
tubulointerstitium in our patient was fairly unimpressive, and the recovery pattern was slower
than one would have expected with acute tubular necrosis.
Whether the association between IgA-GN and renal cell carcinoma in our patient is a mere
coincidence or is causally related is practically impossible to ascertain, and further studies are
needed.
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