Transpl Int (2002) 15: 523–524
DOI 10.1007/s00147-002-0454-5

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Mumps-associated nephritis mimicking acute rejection in a patient under chronic dialysis treatment because of graft dysfunction

Received: 8 August 2001
Revised: 27 May 2002
Accepted: 5 July 2002
Published online: 24 September 2002

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Dear Editors:

A 62-year-old man underwent chronic dialysis treatment 3 years after kidney transplantation because of graft dysfunction. Immunosuppression was reduced: FK506 and azathioprine were withdrawn, while methylprednisolone was gradually reduced from 8 to 2 mg/day. Two months after starting dialysis he developed fever, nausea, dyspepsia, and graft swelling. A clinical diagnosis of acute rejection was made, and the graft was explanted. On the first postoperative day he experienced bilateral swelling of the parotid glands. The explanted kidney was submitted to pathological examination. The graft was pale, with a finely granular surface and weighed 150 g. Under histological examination, features of chronic sclerosing allograft nephropathy were seen. In addition, a few glomeruli exhibited hypercellularity of Bowman's epithelial cells, which occasionally presented as multinucleated. Scattered proximal tubuli presented large epithelial cells with large pale nuclei and amphophylic cytoplasms. The interstitial mononuclear cell infiltrate was prominent, and the immunohistochemical analysis showed that it consisted of T (CD3+) lymphocytes, B (CD20+) lymphocytes, and several plasma cells (CD79+). A very mild tubulitis – fewer than four intra-epithelial lymphocytes per tubule cross-section (according to the Banff 97 classification) – was occasionally observed. Macroscopic and histological features were not consistent with acute rejection, therefore molecular analyses for major infective agents and electron microscopy were performed. Reverse transcriptase polymerase chain reaction (RT-PCR) analysis for the late gene of cytomegalovirus, PCR for viral capside antigen gp220 of the Epstein-Barr virus (EBV) and for the DNA polymerase region of herpes virus type1/2, were negative, but RT-PCR analysis detected a mumps-specific amplification product. Sequencing analysis showed a high homology with Enders strain (98%); minor nucleotide variations were seen between the sample and the positive control. Under ultrastructural examination, virus-like particles were found in the cytoplasm of tubule epithelial cells. The particles measured approximately 150–180 nm and were surrounded by a membrane. Thus, the results of the histological, molecular, and ultrastructural analyses revealed the presence of mumps-associated nephritis and allowed the exclusion of acute rejection. IgM antibodies in patient serum were tested by enzyme-linked immunosorbent assay (ELISA) 3 and 18 days after nephrectomy, and were present with a titer of under 1:10 (first sample) and above 1:10 (second sample), confirming the infection. The source

of infection was not known, but this is not surprising because 30%–40% of infections are subclinical.

Mumps infection usually manifests itself as parotitis. More severe manifestations include orchitis, aseptic meningitis, pancreatitis, uveitis, loss of hearing, myelitis, fatal myocarditis, and meningoencephalitis. Even though excretion of the virus in the urine occurs during the first few days, the illness is usually asymptomatic [9], and only a transient and mild renal dysfunction may be present in the acute phase in some cases. To our knowledge, only four cases of severe nephritis have been reported to date [4, 6, 7, 8]. Mumps infection in renal transplant patients is rare [3], and it is also infrequent in leukemic patients during cytostatic treatment [2]. Thus, in general, it is not considered an opportunistic infection occurring in immunosuppressed patients. Very few reports concerning mumps in immunosuppressed patients are available [1, 2, 3, 5], and it is unknown whether the clinical course for these patients is more severe than usual. In our patient, graft swelling was the first symptom of organ infection. Salivary gland involvement occurred later. Most immunosuppressive drugs had been withdrawn in our patient, so the severe presentation of nephritis might have been due to pre-existing chronic allograft nephropathy. In any case, serological screening for mumps and vaccination of negative recipients prior to transplantation should be recommended for children as well as for adult patients.

Acknowledgement Supported in part by MUIR (Italy). F.B.A. is a visiting Professor at the University of Padua.

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