Case Report

Hairy-cell leukaemia in a renal transplant recipient

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Introduction

Hairy-cell leukaemia is a rather uncommon chronic malignant lymphoproliferative disorder accounting for about 2% of all adult leukaemia cases [1]. This clonal B-cell proliferation [2] is characterized by a cellular infiltration of both bone marrow and spleen by large differentiated B cells, often exhibiting hair-like protrusions (hairy cells). We report here the first case of hairy-cell leukaemia diagnosed in a renal transplant recipient.

Case Report

A 67-year-old white male was admitted on 3 January 1994 to our unit to receive a second cadaveric renal transplantation. Due to end-stage renal failure secondary to reflux nephropathy, he was started on haemodialysis in October 1990. In March 1991 he had received a first cadaveric renal transplantation, which had rapidly failed by July 1991.

At admission, physical examination was normal. On pretransplant white blood cell count, neutropenia was noted: 4100 white blood cells/mm3 with 33% neutrophils, 13% monocytes, and 45% lymphocytes.

He received the left kidney from a 60-year-old male who had died of a stroke. Immunosuppressive therapy combined low-dose steroids, azathioprine 2 mg/kg/day and cyclosporin 6 mg/kg/day. Soon after grafting, the patient developed segmental ureteral necrosis which was surgically repaired. He subsequently experienced a biopsy-confirmed acute allograft rejection, leading to progressive deterioration of renal function despite high-dose steroids; the patient required haemodialysis again on day 47 post-transplantation. On day 21, severe pancytopenia was noted (6.6 g haemoglobin/dl, 1300 WBC/mm3, 25000 platelets/mm3) and was attributed to azathioprine after bone-marrow aspiration analysis. Azathioprine was therefore suspended. Two infectious complications then occurred consecutively: Staphylococcus epidermidis prostatitis on day 23 and Pseudomonas aeruginosa septicemia on day 48.

On day 57 the patient's temperature rose to 40.5°C for no obvious reason. Physical examination was normal. Because of the persistence of pancytopenia despite azathioprine withdrawal, a second bone marrow aspiration was performed on day 60 which demonstrated the presence of typical hairy cells. Hairy-cell leukaemia was diagnosed. Retrospectively a second careful examination of the first bone marrow aspiration confirmed that hairy cells were already present on day 21!

The patient was put on triple-drug antibiotic therapy consisting of isoniazid, ethambutol, and rifampicin for putative mycobacterial infection without any modification in fever. Alpha-interferon was introduced on day 69 at 3 million units/day. Because of a fall, a brain CT scan was performed which revealed two cerebral abscesses. An image-guided stereotactic aspiration allowed diagnosis of Aspergillus fumigatus abscesses.

Despite specific antibiotic therapy with amphotericin B, the patient died on day 106 post-transplantation.

Discussion

To our knowledge, the present case report is the first observation of hairy-cell leukaemia diagnosed soon after a renal cadaveric allograft.

There are several lines of evidence suggesting that hairy-cell leukaemia was already present when the patient was transplanted for the second time and that transplantation did not induce it.

Firstly, unexplained neutropenia was already noticed just before transplantation. Secondly, monocytosis was also detected on the same pretransplantation white blood cell count. Retrospectively one might think that this monocytosis was indeed an artefact, because the automatic counter had mistaken monocytes and hairy cells. Thirdly, hairy-cell leukaemia is considered to be a chronic disorder which is unlikely to have developed in 21 days. Lastly, although the aetiology of hairy-cell leukaemia remains unclear, no hairy-cell leukaemia
has ever been described in connection with the immunosuppressive drugs used for this patient.

On the other hand, renal transplantation, particularly immunosuppression, might have been partly responsible for the occurrence of the fatal central nervous system infection by *Aspergillus fumigatus*, which is a very unusual pathogen in our unit (not a single case in the last 8 years). Hairy-cell leukaemia is itself strongly associated with recurrent infections (which are the main cause of death in this disease [3, 4]). Such infections could be caused by the impaired effector-cell functions related to granulocytopenia and monocytopenia, both of which are associated with functional abnormalities of monocytes and granulocytes.

This case report demonstrates that neutropenia combined with monocytosis can be indicative of hairy-cell leukaemia, which can be easily diagnosed from a peripheral blood smear. This malignant haematological disease is of course a contraindication to renal transplantation.

**References**


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