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SHORT REPORT

Pelvic Aspergillosis in a Renal Transplant Patient

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Case

In March 2002, a 48-year-old male patient was admitted due to left lower abdominal discomfort and fever. His past medical history included end-stage renal disease due to chronic glomerulonephritis. In 1989, he received a live donor renal transplantation and developed rejection 1 year later. Graft nephrectomy was applied to the transplanted kidney in 1992 and he received a cadaveric renal transplantation in 1999. The early postoperative course was complicated by acute rejection (on the third postoperative day). He received pulse steroid therapy (1 g/day for 4 days) and OKT3 during this period.

Until March 2002, he had been on immunosuppressive treatment (mycophenolate mofetil 500 mg q12h, tacrolimus 3 mg q12h, and prednisolone 20 mg qd, and he survived without any problems (serum creatinine value was 2 mg/dl).

On admission, the vital signs were normal and physical examination revealed tenderness in left lower abdomen. Laboratory investigations revealed leukocyte level of 4000/mm³ with 70% segmented neutrophils, a haematocrit level of 24.4%, a platelet level of 161,000/mm³, a blood urea nitrogen level of 69.4 mg/dl and a serum creatinine level of 4 mg/dl. Chest and paranasal sinus X-rays were normal. Pelvic

ultrasonography revealed a 5 x 5 x 5 cm cystic mass in the pelvis, behind the anterior abdominal wall. Lower abdominal MRI showed a 6 x 5 cm cystic mass originating from the inferior of the left rectus muscle and extending to the subcutaneous tissue. The mass was enhanced with opaque material and did not show any invasion to the transplanted kidney. Renal DTPA scintigraphy revealed that the transplanted kidney was in a state of chronic rejection. There was no stenotic area in the renal artery. Cultures of sputum, urine and blood were negative.

According to these findings, an operation was performed. A 9 x 2 x 3 cm irregular cystic mass lying below the inferior pole of the transplanted kidney was removed. Severe adhesions were noted between the mass and surrounding abdominal wall structures.

Histological examination of the specimen revealed numerous branching septate fungal hyphae which were compatible with *Aspergillus*. Culture of the surgically removed tissue grew a filamentous fungus identified as *Aspergillus fumigatus* by conventional methods (1).

Liposomal amphotericin B therapy was introduced immediately (3 mg/kg per day) (2). By the end of the second week of liposomal amphotericin B therapy, a follow-up computerised tomography scan of the abdomen showed progression of the mass (15 x 2 cm) in the same localisation. Purulent drainage from the incision

site developed 1 month after surgery. Abundant polymorphonuclear leukocytes (PMNL) and Gram-negative bacilli were detected during microscopic examination of this material. Piperacillin-tazobactam was started empirically and its culture grew *Pseudomonas aeruginosa*, which was susceptible to piperacillin-tazobactam.

The patient's fever continued and his clinical status started to deteriorate. By the end of the first week of antibacterial therapy, there were still many PMN leukocytes and Gram-negative bacilli at microscopic examination of the purulent drainage. Blood cultures were negative. The patient developed tachypnea and bilateral infiltrates at chest X-ray. Antibacterial therapy was changed, with imipenem and trimethoprim-sulphamethoxazole (TMP-SMX) being administered, and he was transferred to the surgical intensive care unit. He developed septic shock and died on the 50th day of antifungal therapy and the 11th day of imipenem + TMP-SMX therapy. Since it was not possible to obtain consent for an autopsy, we cannot make any comment about the contribution of pelvic aspergillosis to his death.

Discussion

Advances in immunosuppressive therapy have led to increased survival in renal transplant patients. These therapies have increased the number of patients at risk of developing infectious complications. Bacterial infections are easily recognised, and opportunistic infections caused by fungi such as *A. fumigatus* present challenging problems (4). Systemic fungal infections following renal transplantation are associated with high morbidity and mortality rates despite their lower incidence compared to viral and bacterial infections (3). The incidence of fungal infections after renal transplantation is reported to range from 1% to 14% depending on the hygiene and sanitation conditions of the transplantation centre (5).

The clinical spectrum of *Aspergillus* infections mainly includes allergic manifestations in the normal host, skin and mucosal infection, and tissue or invasive diseases in normal or immunosuppressed patients (pulmonary aspergillosis, invasive tracheobronchitis, necrotising pulmonary aspergillosis, central nervous system aspergillosis with infarcts, and abscess formation). Other

infections include osteomyelitis, keratitis and endophthalmitis, wound infections in burn patients, empyema, peritonitis, and vascular graft infections (6).

Therapy for aspergillosis is highly individualised and based on the site and extent of the infection. Successful treatment depends on 3 factors: early diagnosis, aggressive antifungal treatment, and the ability to reduce immunosuppressive therapy (7). In general, for invasive disease, an unacceptably high mortality rate remains despite traditional amphotericin B therapy, even when doses exceed 1 to 1.25 mg/kg per day (8). Nephrotoxicity limits its effectiveness, particularly when used with concomitant nephrotoxic agents such as cyclosporine. To reduce toxicity and other adverse effects, newer agents such as amphotericin B lipid complex have demonstrated effectiveness in treating aspergillosis (9).

In this case, the patient suffered from left lower abdominal discomfort. The laboratory investigations revealed no abnormal findings except for elevated creatinine levels showing a state of chronic rejection. This occult clinical presentation, in spite of significant disease, is characteristic of opportunistic infections and the diagnosis is often difficult (10). Microscopic examination and culture of suspicious body fluids and tissues are necessary to establish the diagnosis. Our patient also developed a surgical site infection and nosocomial pneumonia which probably contributed to his death.

Aspergillosis continues to be an important cause of morbidity and mortality in immunocompromised patients. A high index of suspicion, prompt diagnosis, and early antifungal therapy are needed. In summary, we report a case of pelvic aspergillosis with pelvic abscess which has not been reported previously in renal transplant recipients.

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