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CASE REPORT

Urged Nephrectomy in a Renal Transplant Recipient

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ABSTRACT

Acute Urinary Tract Infection (UTI) not only affects a patient well-being but also gives rise to several issues like Interaction of antibiotics with immunosuppressive drugs, isolation of resistant strains, recurrent UTI, fungal UTI and most importantly Urosepsis, with impairment of graft function. We present the case of a patient with End stage renal disease. After successful allograft renal transplant the patient had multiple admissions with urosepsis. Received sensitive antibiotics for a prolonged period of time, almost six months but still persisted with infection. At last native kidney nephrectomy was done which removed the possible source and relieved the patient from antibiotics. This focuses the need for some pretransplant screening methods to gauge the possibility of getting serious urinary tract infections, better surgical techniques like early removal of urinary stents and highlights a huge void in understanding of UTIs in this group and lack of research work. *J Microbiol Infect Dis 2018; 8(1):27-29*

Keywords: Urosepsis, Kidney transplant, Nephrectomy

INTRODUCTION

Urinary tract infections (UTIs) are the most common form of bacterial complications affecting renal transplant recipients [1-3]. The incidence in patients who are not receiving prophylaxis has been reported to be around 5 to 36% [4, 5].There are many issues which need to be addressed while dealing with urinary tract infections in a renal transplant recipient. They include interaction of antibiotic medication with immunosuppression, infection with drug resistant bacteria, fungal UTI, and finally recurrent UTI. Urosepsis with impairment of graft function can be sequelae of recurrent UTI in Kidney transplant recipients. We present a case where a renal transplant recipient developed UTI, which was refractory to all sensitive antibiotics for a prolonged duration and prompted us to go for the last therapeutic option i.e. native kidney nephrectomy. The aim of presenting this case is to highlight the helplessness of available antibiotics in dealing with urinary tract infections in a subgroup of patients. Multiple admissions make these immunocompromised patients at risk of developing secondary hospital acquired infections. So a need arises to gauge the risk beforehand and limit the associated complications.

CASE REPORT

An 18-year old male, renal allograft transplant recipient applied. Indication of transplant was chronic kidney disease- end stage was on hemodialysis for last six months. The etiology was neurogenic bladder with bilateral hydronephrosis and the donor was his mother. Patient was receiving Immunosuppressive drugs like Mycophenolate mofetil, Cyclosporine, Prednisolone and was put on prophylaxis with sulfamethoxazole-trimethoprim. A month after the procedure, ultrasonography (USG) of abdomen and pelvis revealed a normal graft kidney. Increased orinary bladder wall-thickness s/o Cystitis and Stent was seen in situ which was removed after 6 weeks of transplant, uneventfully.

Two months after transplant, patient presented with fever and dysuria of 1 week duration. Fever was high-grade, intermittent, T_{max} 102 ^{0}F and associated with chills. Investigations revealed a neutrophilic leukocytosis (TLC-24000) and azotemia (creatinine = 2.73 mg/dl). The only source of infection was urine which revealed 40-

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45 pus cells with culture growing *Acinetobacter baumanii* sensitive to Polymixin antibiotic. Blood cultures revealed the same organism with similar sensitivity patterns, so a diagnosis of urosepsis was made and patient was started on sensitive polymixin for three weeks. He became symptomatically better and was discharged on oral antibiotics Faropenem.

He was readmitted one week later with similar history i.e. high grade fever and dysuria. Investigations revealed a neutrophilic leukocytosis, with urine growing the same organism i.e*. Acinetobacter-baumanii*, sensitive to Polymixin and Tigecycline. Patient was managed with intravenous Tigecycline for three weeks. Repeat urine culture was sterile, remained afebrile for one week and was discharged.

Two weeks later he admitted again with similar complaints. This time he followed up in the ward for two and a half month. Urine revealed the same organism with similar sensitivity pattern. Tigecycline treatment was continued for 10 days more, followed by injectable Imipenem and later injectable Colistin. Kidney biopsy was suggestive of rejection and four doses of IV Rituximab were also given (C_4D +ve s/o Antibody mediated rejection). Non-contrast CT Abdomen revealed diffusely thick walled urinary bladder, dilated right distal ureter of Native kidney, dilated left ureter & pelvicalyceal system (PCS) of left Native kidney. Right Grade II (Vesicoureteric Reflux) VUR and left Grade IV-V VUR. Finally percutaneous nephrostomy (PCN) of the left native kidney was done. Antibiotics were stopped. Patient remained afebrile for 2 weeks and was discharged.

Readmitted fourth time as with urosepsis three weeks later. This time there was *E. coli* in both urine as well as PCN culture. As per sensitivity he was started on injectable Meropenem for one week. In view of unresolved recurrent UTI, it was decided that a Native kidney nephrectomy has to be done. Patient was dated and the procedure was done uneventfully after a week. Follow-up urine-cultures are all sterile. Patient is doing well since then with no febrile episodes thereafter.

DISCUSSION

Urinary tract infections are a common health concern which most Infectious disease physicians experience while dealing with renal transplant patients. This patient group is prone to get infected with resistant organisms, which during the course of time tend to narrow down the antibiotic susceptibility spectrum. Important proposed risk factors include pre- transplant UTI, prolonged period of hemodialysis before hospitalization, postoperative bladder catheterization, immunosuppression, Diabetes Mellitus, allograft trauma, and Polycystic Kidney disease. Most infections tend to occur in the first month after transplantation but patients with serum creatinine levels ≥2 mg/dL, a daily prednisone dose ≥20 mg, multiple rejection therapy, or chronic viral infection may, continue to have infection problems even after the first 6 months.

Most ID physicians agree on a fact that a febrile renal transplant recipient, with abrupt deterioration of renal function, without any evident source of infection, should be treated with empiric antibacterial therapy aimed at gram negative bacteria, after blood and urine samples have been obtained [6].

Presentation can be typical of a non-transplant UTI i.e. dysuria, urinary frequency, urgency and an occasional fever, but most often symptoms are masked due to ongoing immunosuppression.

Organisms involved are mostly Escherichia coli (30%-80%) or other Gram-negative bacteria like Klebsiella (10%), Proteus (5%) or Pseudomonas aeruginosa (10%). Gram-positive enterococcus (15%-30%) or Staphylococcus aureus (10%) is found more often than in non-transplant population. Infections with *Pseudomonas* and *Staphylococcus* develop early in the course, usually first month, while enterococci and *E. coli* have been found to appear thereafter [7-9].

Urinary tract infections causing graft dysfunction has been proposed in the past but a direct relation remains to be proven. While simple lower UTI does not seem to affect transplant function, it can develop into transplant pyelonephritis in around 20% of cases [10-13]. Among them almost 10%-12% develop urosepsis, which can be very serious in such an immunocompromised population. A recent study

reported that nine of 10 transplant recipients who died due to sepsis had UTI [14].

Symptomatic UTI should first be treated empirically with a subsequent treatment according to the microbiological findings in pretreatment urine. Prophylaxis with Co-trimoxazole is widely used as it prevents Pneumocystis infections as well. The duration of treatment is not clear, a time of at least 2 weeks (up to 4 weeks) has been recommended.

Surgical therapy of recurrent UTI after Kidney transplantation aims at long-term optimization of urinary drainage. Nephrectomy of native kidneys has been used successfully in refluxive kidneys to reduce recurrent UTI [15] but should (according to the European Association of Urology Guideline) rather be seen as the 'last option' treatment.

CONCLUSION

A urinary tract infection in renal transplant patients is a major determinant of morbidity and mortality, directly or indirectly. Early stent/catheter removal, better hygiene practices, Co-trimoxazole prophylaxis though has decreased the incidence but considering the frequency of recurrence and isolation of resistant organisms, new ways to tackle with the problem have to be devised. Fungal UTIs should be taken seriously and atypical organisms to be kept higher in the list.

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