Shigella septicaemia following renal transplantation

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Summary

Two patients are described who developed septicaemia with *Shigella flexneri* following renal transplantation. Pre-operative screening had not identified either patient as a chronic carrier of *Shigella* sp. The acute management and problems posed by unrecognized carriers amongst patients undergoing transplantation in areas of the world where *Shigella* is endemic, are discussed.

Introduction

Septicaemia is a well recognized complication of immunosuppression and is responsible for considerable morbidity and mortality in the early postoperative period after renal transplantation when immunosuppression is maximal. The agents responsible are usually organisms such as skin and bowel flora, that are normal inhabitants of the body, but are not pathogenic under usual circumstances. Esoteric opportunistic infections are also well recognized. In areas of the world where patients may be chronic carriers of a greater variety of organisms, infection with more unusual species may be more likely.

Case reports

Case 1

A 40-year-old Syrian male, on regular haemodialysis for 6 months for renal failure secondary to chronic glomerulonephritis, received a renal transplant from a live related donor. Tissue typing showed 2 HL antigens out of 4 common to donor and recipient. The graft functioned immediately and routine immunosuppression was given with azathioprine (3 mg/kg body weight) and high dose prednisolone. One gram methyl prednisolone was given 5 days postoperatively. On the 6th day he developed a pyrexia (39.8°C) and severe watery diarrhoea flecked with blood. Stool microscopy showed many pus and red blood cells but no staphylococci or yeasts. He was treated with loperamide, oral neomycin and metronidazole.

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Blood cultures were sterile; but stools on the first 2 days of diarrhoea grew *Shigella flexneri* type 6 resistant to ampicillin, kanamycin, neomycin, tetracyclines, chloramphenicol and gentamicin but sensitive to colistin and cefuroxime. The patient improved in 3 days but developed oral candidiasis which responded to local amphotericin B. Slight diarrhoea continued with negative cultures. Neomycin was discontinued after 9 days and the following day he became pyrexial (40.1°C) with severe hypotension and diarrhoea. Blood cultures grew *S. flexneri* type 6. He was treated with parenteral fluids, hydrocortisone and parenteral cefuroxime (2.0 g loading dose, 500 mg 8-hourly). The patient recovered and was discharged 2 weeks later. One month after operation he again developed diarrhoea and *S. flexneri* type 6 was isolated. He became asymptomatic after 10 days of oral colistin sulphate and codeine phosphate, and has remained so, with negative stool cultures. Renal function was good throughout; serum creatinine 104 µmol/l.

Case 2

A 29-year-old Saudi male received a renal transplant from his brother 6 weeks after starting regular haemodialysis for renal failure from presumed chronic glomerulonephritis. Tissue typing showed the brothers to be HLA-identical and the graft functioned immediately. Immunosuppression consisted of azathioprine (3 mg/kg body weight) and high dose prednisolone. Stool microscopy and cultures were negative pre-operatively. One gram of methyl prednisolone was given on the 5th day. The following day, bloody, mucoid diarrhoea developed with abdominal colic and pyrexia. Stool and blood cultures both grew *S. flexneri* type 3 (resistant to ampicillin but sensitive to other antibiotics including neomycin and cefuroxime). He was treated with oral neomycin and parenteral cefuroxime, 500 mg 8-hourly. Treatment was continued for 7 days; he became afebrile but diarrhoea and tenesmus persisted.

One month postoperatively the patient developed brachial herpes zoster which settled spontaneously, and ova of *Schistosoma mansoni* were seen in his stool. He was treated for one week with niridazole. His bowels became normal 8 weeks after operation. Immunosuppression throughout was at standard dosage and renal function remained normal; serum creatinine 59 $\mu\text{mol/l}$ and plasma urea 4.2 mmol/l.

Comment

Septicaemia in *Shigella flexneri* infections is uncommon (Christie, 1974) and has not previously been described following renal transplantation. The only other reported case of *Shigella* septicaemia involved infection with *S. sonnei* 2 years after transplantation (Neter *et al.*, 1974). Of the first 7 patients receiving transplants at the Riyadh Military Hospital, 2 developed *S. flexneri* septicaemia. These patients are assumed to have been chronic intermittent excretors of the organism.

It is possible that chronic carriage of *Shigella* spp. is more likely to be associated with septicaemia immediately following transplantation when immunosuppressive dosage is high, than during maintenance immunosuppression. There is a need

to be aware of this possibility and to initiate prompt parenteral antibiotic therapy with adequate supportive measures. Recognized carriers might benefit from oral suppressive antibiotic therapy with a minimally absorbed antibiotic to reduce the risk of this complication.

In Case 1 the choice of antibiotic for treatment of the septicaemia was limited to colistin or a cephalosporin. Nephrotoxicity is not reported for cefuroxime and the response in both cases was dramatic.

Further experience of transplant surgery in developing areas will produce many examples of unusual and exotic opportunistic infections. These are examples from a region where *Shigella* infections are endemic.

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References

- CHRISTIE, A.B. (1974) *Infectious Diseases*, 2nd edn, p. 133. Churchill Livingstone, Edinburgh.
- NETER, E., MERRIN, C., SURGALLA, M.J. & WAJSMAN, Z. (1974) *Shigella sonnei* bacteremia. *Urology*, **4**, 198.