**Case Report**

**Minocycline-induced chronic interstitial nephritis?**

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**Introduction**

Acute interstitial nephritis is a rare complication of tetracycline therapy and there have been two case reports associated with minocycline [1,2]. In both cases the patients presented within 2 weeks of commencing the antibiotic with an acute febrile illness and loin pain, and an acute interstitial nephritis was confirmed on renal biopsy. We report a case of chronic interstitial nephritis in a patient who presented 6 months after commencing minocycline therapy whose renal function returned to normal after withdrawal of minocycline and a short course of steroids.

**Case Report**

A 47-year-old female was referred with a 4 month history of general malaise, anorexia, nausea, vomiting, and weight loss. She had suffered from acne vulgaris for 20 years and had been on continuous tetracycline therapy from 1974 to 1985 either as oxytetracycline 100 mg daily or minocycline 50 mg daily. After 8 years off antibiotics her acne vulgaris relapsed and she was started on minocycline MR 100 mg daily 3 months prior to the start of her current symptoms. She was extensively investigated for an episode of painless haematuria in 1988 and had a normal biochemical profile, negative urine microscopy and culture and a normal intravenous urogram, renal ultrasound and cystoscopy. Physical examination was unremarkable. Full blood count was normal but plasma creatinine was 520 μmol/L. Urinalysis showed blood ++, protein + + and urine culture grew *Strep. Faecalis* sensitive to amoxycillin. She was started on amoxycillin 500 mg three times daily but she developed a florid maculopapular rash and persistent vomiting, which necessitated an emergency admission. Her renal function deteriorated further with a plasma creatinine of 782 μmol/L. Autoantibody screen, antiglomerular basement membrane antibody, and antineutrophil cytoplasmic antibody were negative. Complement levels were normal. An ultrasound scan of the kidneys was normal. A renal biopsy showed chronic interstitial nephritis. The glomeruli appeared normal but there was marked flattening and damage to the tubular epithelium. There was extensive oedema of the interstitium with a moderate inflammatory infiltrate of lymphocytes, plasma cells and occasional eosinophils. Immunofluorescence was negative for IgA, IgG, IgM, and C3.

Minocycline was discontinued and the patient given methylprednisolone 250 mg daily for 3 days and then oral prednisolone 60 mg daily, which was tailed off over the next 6 weeks. Renal function improved and serum biochemistry was normal 6 months later.

**Discussion**

Acute interstitial nephritis is a relatively rare cause of acute renal failure. The first descriptions by Councilman in 1898 were attributed to infectious agents but today in the developed world drugs account for the majority of cases [3]. In many cases of acute interstitial nephritis related to antibiotic therapy the presence of infection may make it difficult to definitely identify the drug as the causal agent. Patients usually present acutely within 2 weeks of exposure to the drug, often with allergic features such as a rash and fever, but less common is a delayed presentation with a long period of exposure to a drug before the onset of symptoms. Minocycline was felt most likely to be the causal agent in our patient because of the temporal relationship between the commencement of the antibiotic and her symptoms; also she was taking no other medication. In addition there was improvement in renal function after withdrawal of the drug. The pathogenesis is poorly understood. An antitubular basement membrane antibody may be demonstrated in some cases of methicillin-induced interstitial nephritis, but the majority of patients fail to show linear immunofluorescence along the tubular basement membrane. The predominant cell type found in most cases of interstitial nephritis are T lymphocytes. Cell-mediated injury either by delayed hypersensitivity reaction or a direct T-cell cytotoxicity have been identified as probable mechanisms of damage [4].

The role of corticosteroids in treatment is unclear. There have been many reports that the rate of recovery
and the eventual outcome was improved with prednisolone therapy although other authors have found no particular benefit [5]. This patient was treated with a steroid regime commonly used for allograft rejection, with a rapid resolution of symptoms and improvement of renal function.

References


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