non-penicillinase-producing *N. gonorrhoeae* and observed that 90% of the strains were susceptible to 0.45 mg/L (range for penicillinase producing=0.25–32). Jules and Neu also confirmed that temocillin had inhibitory in vitro activity against *N. gonorrhoeae* at 1 mg/L regardless of the ability to produce penicillinase.

The introduction of temocillin in the treatment of *N. gonorrhoeae* infection would be beneficial as it offers the opportunity for single-dose intramuscular treatment due to a half-life of ~6 h. In Denmark, the prevalence of ceftriaxone-resistant *N. gonorrhoeae* is low and it has not been possible to provide a ceftriaxone-resistant isolate. Denmark, the prevalence of ceftriaxone-resistant *N. gonorrhoeae* is ≏0.25–32 mg/L. In 1949, this disease was initially titled WD and in 1991 the causative organism was identified, *Tropheryma whipplei*. WD mainly affects men and is primarily a disease of gastrointestinal malabsorption; however, WD may affect other organ systems including the heart, lungs, brain, joints, skin and eyes. When not diagnosed immediately, WD has four predominant symptoms to aid in diagnosis: arthralgias, weight loss, diarrhea and abdominal pain. CNS findings are also common, including dementia, nystagmus and myoclonus. We present here a case of WD treated with minocycline alone for 10 months after 2 weeks of induction therapy with 2 g of ceftriaxone intravenously daily.

An African American in his sixth decade (weight 77 kg, height 170 cm) presented to the emergency department (ED) on three separate occasions over a 30 day period complaining of worsening abdominal pain and a 45 day history of diarrhea alternating with constipation. Approximately 7 weeks later, the patient presented again to the ED with complaints of shortness of breath and dizziness upon standing and at rest and a 2.3 kg weight gain. During the preceding 12 months he had lost >15 kg. Also, within the preceding 12 months he had persistent abdominal pain, arthralgia and a history of paricarditis with no neurological presentations. Past medical history was significant for iron deficiency anaemia in relation to lymphangiectasia diagnosed 1 month earlier and congestive heart failure. Our patient was also found to have hypotension and was subsequently admitted for evaluation. Echocardiogram results revealed an ejection fraction of 55% with mild left ventricular hypertrophy. Laboratory workup was significant for haemoglobin of 9.1 g/dL, haematocrit of 28.3%, albumin 1.7 g/dL, calcium 8.1 mg/dL and sodium 130 mmol/L (Table 1). Physical examination revealed 2+ pitting oedema extending up to his thighs bilaterally. Small bowel appearance during oesophago gastroduodenoscopy 1 month earlier was significant for lymphangiectasia. Subsequent duodenal biopsy stained positive with PAS staining and showed PAS-resistant inclusions within the

### References


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### Transparency declarations

None to declare.
macrolides, aminoglycosides, penicillin, rifampicin, teicoplanin, time PCR assay previously demonstrated that doxycycline, with MICs ranging from 0.25 to 2 mg/L.\(^\text{11} - \text{13}\)

chloramphenicol and sulfamethoxazole/trimethoprim had activ-

The decision to utilize single-drug minocycline maintenance therapy in this patient case was based upon several factors. Doxycycline was unavailable due to a national drug shortage at the time and concerns about medication adherence with multiple daily dosing eliminated tetracycline as an option. Optimal treatment would include hydroxychloroquine in combination based on expert opinion; however, it was avoided due to increased potential for adverse effects and unclear dosing recommendations in patients with mild renal impairment.

Single-drug therapy with minocycline for CNS or non-CNS disease has not been successfully reported. The literature does not support minocycline (alone or as combination therapy) for CNS-associated WD. Our patient did not have CNS changes, imaging of the head was unremarkable and therefore CNS evaluation was not performed. Pollock et al.\(^\text{14}\) reported a case of CNS WD treated with 100 mg of minocycline twice daily and 40–60 mg of prednisone daily for 3 months. Baseline dementia did not progress, but a repeat CT scan showed an increasing number of enhancing lesions. Therapy was switched to 250 mg of tetracycline four times daily with resolution of lesions on CT scan.\(^\text{14}\) A report from France compared combination treatment options (doxycycline and hydroxychloroquine + sulfadiazine or trimethoprim/sulfamethoxazole) with sulfamethoxazole/trimethoprim only and found zero treatment failures with combination therapy.\(^\text{9}\) Currently, treatment of WD is based on observation and expert opinion; however, it was avoided due to increased potential for adverse effects and unclear dosing recommendations in patients with mild renal impairment.

Delayed recognition and/or treatment of WD may lead to serious clinical complications. Progression to death after CNS involvement occurs rapidly. Appropriate documentation of serious allergic reactions is necessary and should be recognized as a determining factor of treatment. Improper recognition or treatment of WD may lead to serious clinical complications. Since minocycline alone has not been evaluated for T. whipplei, prudent monitoring of clinical outcomes is necessary.

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This case report was carried out as part of our routine work.

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None to declare.
Voriconazole and cobicistat-boosted antiretroviral salvage regimen co-administration to treat invasive aspergillosis in an HIV-infected patient

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SIR,
Antiretroviral (ARV) regimens to treat MDR HIV strains often require the use of a ritonavir-boosted PI, usually darunavir, in combination with other drugs.1 Aspergillosis is a serious infection in immunocompromised patients and the drug of choice for its treatment is voriconazole2 but it shows a complex drug–drug interaction profile. Ritonavir induces the CYP3A4 isoenzyme, leading frequently to insufficient drug levels of voriconazole3 contradicting its co-administration.4–7 Consequently, in patients with MDR HIV infections and aspergillosis, therapeutic options are limited. Cobicistat shows a theoretically better drug–drug interaction profile, due to the more selective 3A4 isoenzyme inhibition, but clinical experience with drugs other than ARVs is lacking.3,8

A middle-aged male patient with HIV since 1987, treated since the early 1990s with several ARV regimens and experienced multiple virological failures causing an MDR strain (62V/65R/30M mutations, conferring resistance to lamivudine/emtricitabine/abacavir/nevirapine/efavirenz/ritonavir and partial resistance to tenofovir). In 2014 he had an undetectable viral load and CD4 lymphocyte count >1000 cells/mm3, and was on 800/100 mg of darunavir/ritonavir once daily and 400 mg of raltegravir twice daily. He never developed an AIDS-related opportunistic infection. He also had a severe chronic obstructive pulmonary disease. In July 2014, he was admitted for a respiratory infection and treated with broad-spectrum antibiotics and high doses of systemic steroids with incomplete response. Then invasive pulmonary aspergillosis was diagnosed (Figure 1). The chosen antifungal drug was liposomal amphotericin B plus anidulafungin. However, the patient showed no clinical response, so the antifungal regimen was modified to 200 mg of voriconazole twice daily and the ARV regimen was changed to enfuvirtide, zidovudine, tenofovir and raltegravir at the usual doses. On this treatment, he clinically improved and was discharged. After 4 months the patient requested an ARV regimen change, due to intolerance to enfuvirtide injections. The regimen chosen then was 150/150/200/300 mg of elvitegravir/cobicistat/emeritcatabine/tenofovir disoproxil fumarate (co-formulated as Stribild®) once daily and 800 mg of darunavir once daily.

To check the pharmacokinetics of this drug combination, a complete 24 h pharmacokinetic curve was performed for 800 mg of darunavir once daily and 200 mg of voriconazole twice daily on this regimen. The chosen antifungal drug was voriconazole in axenic medium. J Antimicrob Chemother 2005; 55: 178–81.

1References

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