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Case Series

Linezolid-induced optic neuropathy in XDR pulmonary TB: A case series

Anand Srivastava [a,*], *Silpa Kshetrimayum* [b], *Sanjiv Kumar Gupta* [c], *Surya Kant* [d]

[a] *Assistant Professor, Department of Respiratory Medicine, King George's Medical University, Lucknow, India*
[b] *Junior Resident, Department of Respiratory Medicine, King George's Medical University, Lucknow, India*
[c] *Professor, Department of Ophthalmology, King George's Medical University, Lucknow, India*
[d] *Professor, Department of Respiratory Medicine, King George's Medical University, Lucknow, India*

ARTICLE INFO

Article history:
Received 26 April 2016
Accepted 2 November 2016
Available online xxx

Keywords:
Linezolid
Optic neuropathy
XDR-TB
Extensively drug resistant tuberculosis

ABSTRACT

Optic neuropathy has been reported as a side effect of long-term use of linezolid. This is particularly seen in cases of extensively drug resistant tuberculosis (XDR-TB) where treatment with linezolid may continue for about 24–30 months. We, hereby, report two cases of XDR-TB treated patients with a regimen containing linezolid who developed progressive painless loss of vision during the course of treatment. In both the cases, the visual symptoms resolved completely on withdrawing linezolid. Early recognition of this rare side effect and timely withdrawal may salvage the eyesight of such patients.

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1. Introduction

The emergence of drug-resistant tuberculosis over the past two decades has profoundly handicapped the efforts to control the global tuberculosis epidemic. The poor potency and tolerability of the second line drugs combined with the long duration of treatment further have worsened the grim scenario. Linezolid is a bacteriostatic agent of the oxazolidinone class which acts by reversible inhibition of monoamine oxidase. It is approved for use in infections due to vancomycin-resistant *Staphylococcus aureus*, *Enterococcus faecium*, nosocomial and community acquired pneumonia and various skin and skin structure infections.[1] It is also a Group 5 antitubercular agent. Neuropathy, as a side effect of linezolid, has been reported with prolonged therapy. We report two cases of linezolid-induced optic neuropathy who were on treatment for extensively drug resistant tuberculosis (XDR-TB).

2. Case 1

A 35-year-old male patient, non-diabetic, non-smoker, non-alcoholic, with XDR pulmonary TB presented with painless progressive loss of vision for 1 week. He was receiving treatment with capreomycin (750 mg/day), amoxycillin clavulinic acid (2 g/day), moxifloxacin (400 mg/day), linezolid (600 mg/day), Para-aminosalicylate (PAS) (12 g/day), terizidone

* *Corresponding author.*
E-mail addresses: drsrianand@gmail.com (A. Srivastava), ksh.silpa@gmail.com (S. Kshetrimayum), anjiv204@gmail.com (S.K. Gupta), skantpulmed@gmail.com (S. Kant).
http://dx.doi.org/10.1016/j.ijtb.2016.11.010
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Please cite this article in press as: Srivastava A, et al. Linezolid-induced optic neuropathy in XDR pulmonary TB: A case series, *Indian J Tuberc.* (2017), http://dx.doi.org/10.1016/j.ijtb.2016.11.010

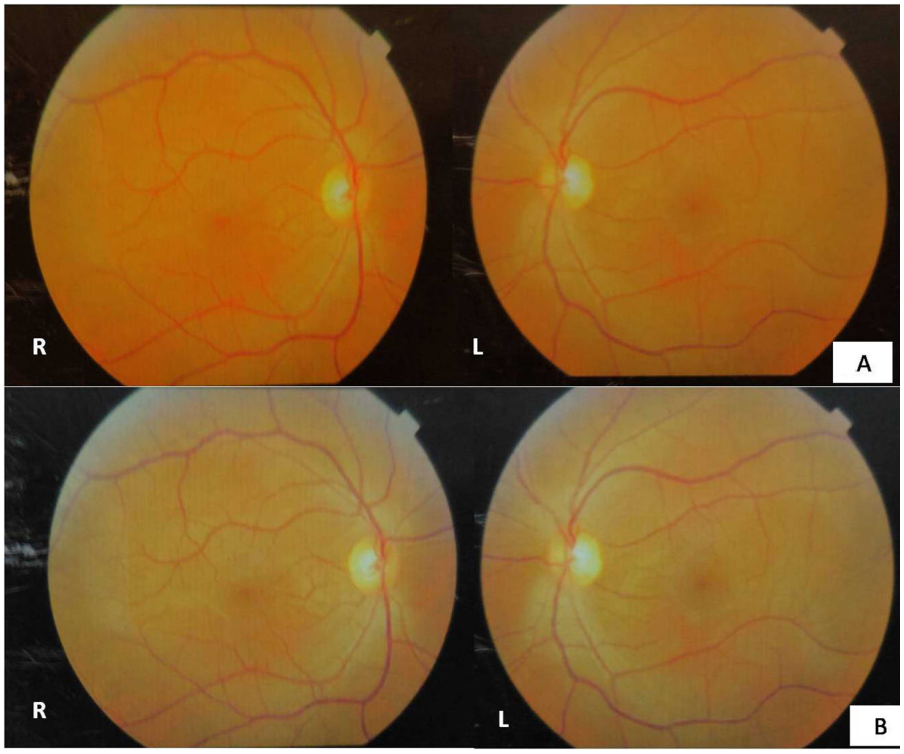

Fig. 1 – Abnormal appearance of fundus during the phase of active retrobulbar neuritis (A) with post-retrobulbar neuritis optic atrophy (B).

(500 mg/day), clofazamine (200 mg/day) and isoniazid (900 mg/day), given as per weight, for the past 10 months. He was not on any other drug with known ophthalmic toxicity.

On examination, his visual acuity was 6/24 in the right eye and 6/36 in the left eye. Colour vision was defective in both eyes. Anterior segment examination was within normal limits. Fundus examination showed features of active retrobulbar neuritis (Fig. 1A). Because of poor vision, it was not possible to capture an optical coherence tomography (OCT) in the diseased state.

Occurrence of toxic optic neuropathy due to intake of linezolid was suspected, and the drug was immediately withdrawn. The patient improved symptomatically after 1 week of stopping linezolid and free of all visual symptoms by the end of 2 weeks. Visual acuity was 6/6 in both eyes, and colour vision was restored. Fundus examination showed post-retrobulbar neuritis optic atrophy (Fig. 1B). OCT was done to look for residual nerve damage. It showed retinal nerve fibre layer thinning in both eyes (Fig. 3). Other than the minor nerve damage, regular follow-up of the patient for 1 year showed no deficit in vision.

3. Case 2

A 26-year-old male patient, non-smoker, non-diabetic, non-alcoholic, with XDR pulmonary TB presented with complaints of diminution of vision for 10 days on his monthly follow-up visit. He was on treatment with a regimen comprising imipenem (1 g/day) (as culture Drug Sensitivity Test (DST) showed capreomycin resistance), isoniazid (700 mg/day), pyrazinamide (1250 mg/day), terizidone (750 mg/day), PAS (12 g/day), clofazamine (200 mg/day) and linezolid (600 mg/day); all were given as per weight, and he had completed 5 months of therapy. We did not give capreomycin to this patient as the culture DST showed resistance to capreomycin. Owing to constraints in procuring thioacetazone, we kept the patient on imipenem. There was no history of any other drug intake.

On examination, visual acuity was reduced to finger counting at 1 m and colour vision was defective. Fundus examination showed tilted optic disc with mild features of retrobulbar neuritis (Fig. 2A). A Roth's spot inferior to optic disc was found incidentally in left eye. On stopping linezolid, patient's visual symptoms improved within 1 week. Visual acuity returned to 6/6 in both eyes. On examination of the fundus, mild temporal disc pallor was seen which was suggestive of post-retrobulbar neuritis optic atrophy. The Roth's spot had cleared (Fig. 2B). OCT with macular thickness cube revealed retinal nerve fibre layer thinning in both eyes (Fig. 4).

Patient is on regular follow-up for tuberculosis and has no visual complaints any further.

4. Discussion

Toxic optic neuropathy is defined as a clinical syndrome characterised by papillomacular bundle damage, central or cecocentral scotoma, and reduced colour vision.[1] The condition is usually easy to identify but often missed or recognised at a stage when restoration of normal vision is not possible.

Please cite this article in press as: Srivastava A, et al. Linezolid-induced optic neuropathy in XDR pulmonary TB: A case series, *Indian J Tuberc.* (2017), http://dx.doi.org/10.1016/j.ijtb.2016.11.010

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