**Nocardia puris** Endophthalmitis

Dear Editor,

Nocardiosis is a localized or disseminated infection caused by soil-borne aerobic actinomycetes. The genus Nocardia currently contains more than 50 species that have not been subjected to the same level of analysis by phenotypic and molecular methods. New species recently characterized have been reported as human pathogens. An 80-year-old man with a history of scleral buckle surgery for retinal detachment in 1986 in Vienna, Austria, was referred to our hospital in May 2007, after a period of 21 years with no symptoms. The patient presented with a 4-week history of severe inflammatory reaction in the anterior chamber and vitreous body of the right eye. Fundus examination revealed no scleral erosion by the silicone sponge explant. However, signs of explant inflammation were present. The sponge was removed and sent to the laboratory where pus formation was found. The microbiological diagnosis of a *Nocardia* spp. was made by conventional identification procedures (Gram stain, modified Kinyoun stain, colony morphology, nitrate reductase and urease production and esculin hydrolysis). The patient was treated with oral moxifloxacin hydrochloride (400 mg OD for >1 month). Topical treatment consisted of a combination therapy with antibiotics and corticosteroids. Marked improvement was seen after 10 days of therapy. There was no sign of inflammation and retinal detachment in the right eye. The patient was discharged with a visual acuity of 10/100 and was asked to visit the outpatient department for follow-up.

As molecular methods have revolutionized Nocardia taxonomy, a 16S rRNA gene sequencing and phylogenetic analysis was undertaken according to Hiraishi. Analysis of the obtained 16S rRNA gene sequence with BLAST revealed that the isolate had a 98.9–99.9% sequence similarity with *Nocardia puris* strains. The phylogram in Figure 1 shows the close relationship of the isolate with other *N. puris* isolates. A discrete genetic cluster was clearly formed, supported by a bootstrap value of 1000.

To our knowledge, this is the first report of *N. puris* endophthalmitis. Post-operative endophthalmitis may occur weeks to years following surgery, but such a delayed infection in an immunocompetent patient was likely due to the low virulence of the organism introduced at the time of surgery. The 16S rRNA gene sequence results must be interpreted with caution and almost always in combination with phenotypic identification. Surgical therapy remains the cornerstone of therapy; however, newer fourth generation fluoroquinolones seem to play an important role in clinical recovery.
Figure: Dendrogram showing the phylogenetic relationships of isolates belonging to different Nocardia species on the basis of the 16S rRNA gene sequences. The separate genetic cluster formed by the isolate “36173618/Athens/07” and other Nocardia puris isolates is marked. Bootstrap values of the species-specific clusters are also shown along with the GenBank sequence accession numbers.

References


*D Papaventsis, N Siafakas, L Kondyli, M Akritidou, P Pantazi, E Perdikari, G Bethimoutis, G Chatzakis, L Zerva
Table 1: Description, result and cost analysis of HIV tests

<table>
<thead>
<tr>
<th>Name of test</th>
<th>Test principle</th>
<th>Antigen type</th>
<th>Positive/Reactive</th>
<th>Negative/Nonreactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELISA</td>
<td>-</td>
<td>-</td>
<td>121</td>
<td>30</td>
</tr>
<tr>
<td>LIA</td>
<td>121</td>
<td>30</td>
<td>63.7</td>
<td></td>
</tr>
<tr>
<td>RTK</td>
<td>Determine HIV-1/2 Immuno-chromatography</td>
<td>Recombinant proteins, synthetic peptides</td>
<td>121</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.58</td>
</tr>
<tr>
<td></td>
<td>Uni-Gold Immuno-chromatography</td>
<td>Recombinant proteins</td>
<td>121</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Capillus HIV1/HIV2 Agglutination</td>
<td>Recombinant proteins</td>
<td>121</td>
<td>30</td>
</tr>
</tbody>
</table>

#The assays can detect IgG antibody only; ♦Envelope proteins / peptides of HIV-1/HIV-2 are used in all these RTKs; *The prices (in U.S. dollars) of the test materials quoted by the local vendors. Actual prices may vary

Dear Editor,

Laboratory diagnosis of human immunodeficiency virus (HIV) infection depends mostly on detection of antibodies against HIV in plasma or serum using a sequential two-test algorithm; Enzyme Linked Immunosorbent Assay (ELISA), followed by the more specific Line Immuno Assay (LIA) / Western blot (WB) test. As recommended, a positive test result must not be given to the patient until the screening test has been repeatedly reactive on the same specimen and a supplemental test like LIA/WB is positive.[1]

In Bangladesh, a country with low prevalence of HIV, WB/LIA is recommended as the confirmatory laboratory test of HIV. However, due to financial constraints, many individuals with positive ELISA results are reluctant to have their diagnosis confirmed by this expensive LIA/WB test. Moreover, since the number of diagnosed HIV cases is low in Bangladesh, LIA/WB tests are performed in batches in order to minimize the cost of the test. As such, the test is performed infrequently at the referral centers. For these reasons, results of LIA/WB tests often take more than a week. During this time, patients experience enormous anxiety, and many fail to return for follow-up.

As the need for HIV testing continues to increase, countries with limited resources such as Bangladesh are increasingly recognizing the need to explore new testing strategies with minimum expenses, which serve the patient's testing needs more effectively. In a randomized single blinded study conducted at the Department of Virology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh, we retrospectively tested specimens from 121 HIV positive and 30 HIV negative individuals collected between July 2004 and April 2005. The specimens tested either positive or negative by ELISA, and were confirmed by LIA analysis. The aim of our study was to assess the feasibility of a combination of rapid tests as an alternative method to LIA/WB for confirming the preliminary positive results of ELISA. All the sera were tested by three rapid test kits (RTK), namely, Determine HIV-1/2 (Abbott Laboratories, IL, USA), Uni-Gold (Trinity Biotech, Ireland) and Capillus HIV-1/HIV-2 (Trinity Biotech, Ireland) according to Strategy III, recommended by the Joint United Nations Program on HIV/AIDS and WHO which involves three rapid assays used for diagnosis and surveillance in low prevalent countries.[2]

Using this method, we obtained a 100% concordance with the ELISA and LIA results and the three rapid tests [Table 1]. On cost benefit analysis, it was calculated that altogether the three rapid tests required only 11.3 USD, whereas, each WB costs approximately 63.7 USD. However, due to lack of samples, the main limitation of our study was the inability to include sera with discordant WB results. As such, it remains to be determined whether this alternative combination of tests could confirm the discordance of HIV results.

*Corresponding author (email: <D.Papaventsis@liverpool.ac.uk>)

DOI: 10.4103/0255-0857.49438