Entamoeba histolytica in male homosexuals

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SUMMARY The mobility patterns of four enzymes using cultured trophozoites of Entamoeba histolytica were examined by electrophoresis. By this means the stocks of amoebae isolated from male homosexuals were characterised into zymodemes. No amoebic stock isolated corresponded to a pathogenic zymodeme.

Introduction

Characteristic isoenzyme patterns have been identified for all the intestinal amoebae of man. Among these, stocks of Entamoeba histolytica are distributed into 18 pathogenic and non-pathogenic zymodemes. All the amoebic stocks characterised were collected not only from hospital patients within the UK but also from such endemic areas in the world as India, Central America, and South Africa. The amoebae were isolated as trophozoites by inoculation of material into culture media containing bacteria. The series of isolations reported here were compared with those already characterised.

Materials and methods

Samples of faeces collected from male homosexual volunteers attending two London hospitals and one Edinburgh hospital were inoculated into culture as described. The trophozoites harvested from culture were lysed in water by freezing and thawing, and the released enzymes protected by the use of dithiothreitol, e-amino-caproic acid, and ethylene diamine-tetraacetic acid. Finally, the material was stored in liquid nitrogen. The lysates were applied to thin layer starch gel electrophoresis and subsequently the isoenzyme patterns located visually by the use of a formazan development. The zymodemes were identified using EC 5319 glucose-phosphate isomerase (GPI); EC 11140 L-malate : NADP+ oxidoreductase (oxaloacetate decarboxylating) (ME); EC 2751 phosphoglucomutase (PGM); and EC 2711 hexokinase (HK).

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The association between homosexuality and gastrointestinal infections. Their research was carried out in highly selected populations. William et al. studied 89 self-selected homosexual men attending a specific health project in New York; 26% had infection with E histolytica, Giardia lamblia, or both. Kean found in his survey that 40% of 126 patients had E histolytica or G lamblia or both in their faeces.

Keystone et al. in their study in 1980 in Toronto found 36.5% of 200 homosexuals were similarly infected with either or both parasites. In contrast, they found only a 4% infection rate with these parasites in 100 heterosexuals used as controls.

To show that the vast majority of homosexuals are passing only non-pathogenic E histolytica, we have examined faecal samples from 470 such people. When cultured 52 of these samples grew E histolytica (11.1% infection rate), while there were also pure growths and mixtures of the other intestinal amoebae. Helminths were never identified by concentration methods of all samples.

Only some of the subjects were specifically treated for amoebiasis, and the decision for this was on clinical grounds alone. Thus some men passing E histolytica cysts in their faeces were not treated, and these have subsequently not presented with amoebic symptoms. An 11% infection rate for E histolytica is high when compared with the approximate rate of 0.5% in the general population in the two cities used for this survey. Furthermore, the rate of 11% is also about 10 times that of pathogenic E histolytica found in a survey of a known endemic area of Africa for this amoebae.

E histolytica is circulating at a high level in a community which in these days of increased continental travel is divided between such cities as London and New York. The danger of introducing a pathogenic zymodeme into this pool where dissemination could theoretically be very rapid is quite alarming. Since faeco-oral contamination probably plays a notable role in the homosexual community there is a need to consider very carefully the treatment for any male homosexual passing E histolytica cysts.

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**Table I** Distribution of faecal protozoa from 470 male homosexuals

<table>
<thead>
<tr>
<th>Protozoa</th>
<th>No of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entamoeba histolytica</td>
<td>52</td>
</tr>
<tr>
<td>Entamoeba coli</td>
<td>84</td>
</tr>
<tr>
<td>Endolimax nana</td>
<td>43</td>
</tr>
<tr>
<td>Iodamoeba buetschli</td>
<td>78</td>
</tr>
<tr>
<td>Giardia lamblia</td>
<td>21</td>
</tr>
</tbody>
</table>

**Table II** Distribution of Entamoeba histolytica zymodemes from 470 male homosexuals

<table>
<thead>
<tr>
<th>Zymodeme:</th>
<th>I</th>
<th>III</th>
<th>V</th>
<th>XVII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No</td>
<td>28</td>
<td>22</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
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References