CASE REPORTS

Four of 12 cases of TV occurred in asymptomatic women, with unremarkable examinations, three with normal vaginal pH values (see table 1). Monogamous sexual histories suggested these four cases were at low risk for STIs. The remaining eight cases were classified as higher risk for TV (multiple partners/previous TV/sexual assault). Symptoms and findings in some cases could be explained by concomitant diagnoses (bacterial vaginosis/candidiasis/Neisseria gonorrhoeae/Chlamydia trachomatis).

Culture results for TV were only positive for 2/12 patients. Case note review demonstrated unexpectedly high levels of TV which were diagnosed by wet preparation microscopy. This contamination could occur elsewhere. False positive diagnosis of STIs can have a variety of important emotional, psychological, and medicolegal sequelae. Culture confirmations were negative in all but two patients. Contamination of wet preparation microscopy samples was felt likely.

Wet preparation microscopy is performed by application of a posterior fornix swab into normal saline on a microscopy slide. The saline was deemed a potential reservoir for contamination. Saline samples from examination rooms were examined microscopically. One saline sample contained a motile TV-like organism. This was identified as Bodo saltans, a contaminant.

We informed our patients rapidly of the possible misdiagnosis. No serious sequelae were reported by our patients; several expressed relief.

Key points

- A variety of flagellate protozoa resembling Trichomonas vaginalis can contaminate saline.
- Use of sterile saline for wet preparation microscopy will avoid such contamination.

THE CONTAMINANT

Bodo saltans is a flagellate protozoan with worldwide distribution. It is non-pathogenic. It measures 4–10 µm long and is usually ovoid in shape. It has a short anterior and a longer trailing flagella (which mimics the undulating membrane of TV). Bodo saltans can spread as an airborne cyst. We hypothesise a cyst landed in saline, containing bacteria, in the examination room and hatched. Reproduction by binary fission then occurred. This is the first reported case in a genitourinary medicine clinic. There are many other similar organisms that could result in contamination and misdiagnosis.

RECOMMENDATIONS

This contamination could occur elsewhere. False positive diagnosis of STIs can have a variety of important emotional, psychological, and medicolegal sequelae. Our experience has enabled us to improve diagnosis of TV and eliminate the risk of saline contamination with this and other flagellate organisms. Contaminated saline can be avoided by using sterile saline applied directly onto a microscope slide. Saline should not be applied from non-sterile containers or with reusable pipettes.

Microscopic diagnosis can be improved by increasing familiarity with the morphology and motility of TV. We recommend a second staff member checks all positive wet preparation microscopy and culture confirmation. There is also a need to provide good reference materials for microscopy. An awareness of organisms, like Bodo saltans, could prevent similar misdiagnosis recurring.

Table 1  A summary of findings from the case notes review

<table>
<thead>
<tr>
<th>Case No</th>
<th>Symptoms</th>
<th>Signs</th>
<th>pH</th>
<th>Microscopic findings</th>
<th>Previous STI</th>
<th>Concurrent GU problems</th>
<th>Sexual risk</th>
<th>TV culture result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>None</td>
<td>None</td>
<td>4</td>
<td>Normal</td>
<td>Chlamydia</td>
<td>None</td>
<td>Low</td>
<td>Negative</td>
</tr>
<tr>
<td>2</td>
<td>None</td>
<td>None</td>
<td>4.5</td>
<td>Normal</td>
<td>Warts</td>
<td>None</td>
<td>Low</td>
<td>Negative</td>
</tr>
<tr>
<td>3</td>
<td>None</td>
<td>None</td>
<td>4.5</td>
<td>Normal</td>
<td>None</td>
<td>None</td>
<td>Low</td>
<td>Negative</td>
</tr>
<tr>
<td>4</td>
<td>None</td>
<td>None</td>
<td>5.5</td>
<td>Candida</td>
<td>Warts</td>
<td>None</td>
<td>Low</td>
<td>Negative</td>
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<tr>
<td>5</td>
<td>Discharge</td>
<td>Discharge cervicitis</td>
<td>5</td>
<td>Mixed flora</td>
<td>None</td>
<td>None</td>
<td>Low</td>
<td>Negative</td>
</tr>
<tr>
<td>6</td>
<td>Dysuria</td>
<td>Discharge cervicitis</td>
<td>5</td>
<td>Mixed flora</td>
<td>None</td>
<td>None</td>
<td>Low</td>
<td>Negative</td>
</tr>
<tr>
<td>7</td>
<td>Discharge</td>
<td>Discharge cervicitis</td>
<td>4.5</td>
<td>Normal</td>
<td>TV, chlamydia</td>
<td>None</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>8</td>
<td>Discharge</td>
<td>Discharge cervicitis</td>
<td>4.5</td>
<td>Spores</td>
<td>None</td>
<td>Chlamydia</td>
<td>Yes</td>
<td>Negative</td>
</tr>
<tr>
<td>9</td>
<td>Discharge</td>
<td>Discharge cervicitis</td>
<td>6</td>
<td>Clue cells</td>
<td>PID</td>
<td>Bacterial vaginosis</td>
<td>Yes</td>
<td>Negative</td>
</tr>
<tr>
<td>10</td>
<td>Discharge</td>
<td>Discharge cervicitis</td>
<td>6</td>
<td>Clue cells</td>
<td>HSV</td>
<td>Chlamydia, bacterial vaginosis</td>
<td>Yes</td>
<td>Negative</td>
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<tr>
<td>11</td>
<td>Discharge</td>
<td>Discharge cervicitis</td>
<td>6</td>
<td>Mixed flora</td>
<td>None</td>
<td>None</td>
<td>Yes</td>
<td>Positive</td>
</tr>
<tr>
<td>12</td>
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<td>Vaginitis, cervicitis</td>
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<td>Normal</td>
<td>Chlamydia</td>
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<td>Positive</td>
<td></td>
</tr>
</tbody>
</table>
CONTRIBUTORS
All authors contributed to the manuscript; AS prepared the first and final manuscript; AS, SP, and BC collated data on the subjects; DW identified and described Bodo saltans; PK and NS reviewed and amended the manuscript.

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REFERENCES

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