Viability of *Trichomonas vaginalis* in Transport Medium

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The ability of Amies gel agar transport medium to maintain the viability of *Trichomonas vaginalis* was determined by comparing transported vaginal specimens to specimens immediately inoculated into culture medium. The prevalence of trichomoniasis in the study population was 26% (68 of 260 women). The immediate inoculation method detected infections in 64 of 68 infected women (sensitivity of 94.1%). The transport method detected 62 of 68 infections (sensitivity of 91.2%). There was no significant difference between the two methods.

*Trichomonas vaginalis* remains a common cause of vaginitis worldwide and in many segments of the U.S. population. Recently it was estimated that the annual incidence and prevalence of this infection in the United States were 5 million and 20 million cases respectively (2). Unlike the bacterial sexually transmitted diseases, there is no nationwide reporting system for trichomoniasis, and case detection and treatment remain low priorities for public health programs despite the fact that vaginal trichomoniasis has been associated with both preterm birth and human immunodeficiency virus acquisition (3, 8). Currently, trichomoniasis is most frequently diagnosed by wet-preparation examination of vaginal fluid. However, this technique has a sensitivity of only about 60% compared to culture (1).

Inoculation into culture media could maintain the viability of the organisms prior to inoculation into culture media. The prevalence of trichomoniasis was 26% (68 of 260 women). Comparisons between the diagnostic methods are shown in Table 1. The sensitivity of wet-preparation examination was 63%. There was excellent agreement between the culture pouches which were held in Amies gel transport medium prior to inoculation and those which were inoculated at the bedside. As shown in Table 1, there was no significant difference in sensitivity between the two methods (91.2 versus 94.1%). The mean number of days to positivity for culture pouches inoculated at bedside and for Amies gel transport medium were 1.59 and 1.76, respectively (P = 0.3). The specimens from five patients were positive for *trichomonads* by the bedside inoculation method but negative for *trichomonads* by the transport method. Of these, two specimens were positive after 1 day of incubation, and one specimen each was positive at days 3, 4, and 5. The specimens from three patients were positive only by the transport method, all of which gave the positive result at day 4 of incubation. There was no significant difference between specimens with concordant and discordant results with respect to the mean number of hours that the swabs were held in the transport medium prior to inoculation (25.1 versus 25.8; P = 0.9). One specimen was positive by wet-preparation examination only. There was no significant association between patient complaints of vaginal discharge, pruritus, or odor and the ability to detect *trichomonads* by any of the methods (data not shown). Sixty percent (26 of 43) of those women with a positive wet-preparation examination for *T. vaginalis* denied these symptoms.

Trichomoniasis is an extremely prevalent curable infection which may cause distressing symptoms and has been associated with complications such as preterm birth and human immunodeficiency virus acquisition (3, 8, 10). However, screening for this frequently asymptomatic infection is rarely undertaken. The purpose of this study was to test the ability of a transport swab system to maintain viability of *T. vaginalis* for up to 24 h after collection. Clinicians are quite familiar with the concept of transport swabs and are likely to feel comfortable with this technique. This method would also overcome possible barriers to screening such as lack of or unwillingness to use a microscope. Further, although the wet-preparation examination is
the most common and inexpensive tool available for diagnosing trichomonosis, this technique is not sensitive enough to be useful for screening purposes. We have previously shown that the viability of trichomonads can be maintained for a short period (15 to 20 min) in vaginal secretions placed on a cotton swab prior to inoculation of culture medium (9). We chose the Amies gel transport system as our holding medium for this study because of its gel formulation and its ability to maintain fastidious organisms such as Neisseria gonorrhoeae (8a). Other transport systems might work equally well, but this will need to be studied in the future.

In summary, we have demonstrated the ability of a transport swab to maintain the viability of T. vaginalis in vaginal secretions for up to 24 h. Use of this transport system in conjunction with culture medium for T. vaginalis results in a diagnostic sensitivity of 91.2%. This technique may provide increased screening opportunities for this vaginal infection.

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REFERENCES


### TABLE 1. Comparison of methods for diagnosing T. vaginalis infection

<table>
<thead>
<tr>
<th>Diagnostic method</th>
<th>No. of positive samples</th>
<th>No. of false-negative samples</th>
<th>Sensitivity (%)</th>
<th>95% CI</th>
<th>Specificity (%)</th>
<th>Positive predictive value (%)</th>
<th>Negative predictive value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture</td>
<td>64</td>
<td>4</td>
<td>94.1</td>
<td>84.9–98.1</td>
<td>100</td>
<td>100</td>
<td>98.0</td>
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<td>Bedside inoculation</td>
<td>62</td>
<td>6</td>
<td>91.2</td>
<td>81.1–96.4</td>
<td>100</td>
<td>100</td>
<td>97.0</td>
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<tr>
<td>Wet-preparation examination</td>
<td>43</td>
<td>25</td>
<td>63.2</td>
<td>50.6–74.4</td>
<td>100</td>
<td>100</td>
<td>88.5</td>
</tr>
</tbody>
</table>

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*a n = 260.  
*b 95% CI, confidence interval for sensitivity.