Aerobic vaginitis: prevalence, management and outcomes in a large integrated sexual health clinic.

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What is aerobic vaginitis?

“Disruption of the lactobacillary flora, accompanied by signs of inflammation and the presence of … predominantly aerobic microflora composed of enteric commensals or pathogens.”
<table>
<thead>
<tr>
<th>AV Score</th>
<th>Lactobacillary Grades</th>
<th>Number of Leukocytes</th>
<th>Proportion of Toxic Leukocytes</th>
<th>Background Flora</th>
<th>Proportion of Parabasal Epithelium</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>I and IIa</td>
<td>&lt;10/hpf</td>
<td>None/ sporadic</td>
<td>Unremarkable/cytolysis</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>IIb</td>
<td>&gt;10/hpf, &lt;10/epithelial cell</td>
<td>≤ 50% leukocytes</td>
<td>Small coliform bacilli</td>
<td>&lt; or equal 10%</td>
</tr>
<tr>
<td>2</td>
<td>III</td>
<td>&gt;10/epithelial cell</td>
<td>&gt;50% leukocytes</td>
<td>Cocci or chains</td>
<td>More than 10%</td>
</tr>
</tbody>
</table>

Total score:
- <3     normal
- 3-4    mild
- 5-6    moderate
- 7-10   severe

AV score elements

Parabasal cells, White blood cells

Background flora: chained cocci

Lactobacillary grade: III
Sandyford Sexual Health Services

- 110,000 attendances /yr
- Fully integrated ‘walk-in’ sexual health service
  - Satellite laboratory for near-patient microscopy (approx 200 women/mth)
- Local guidelines suggest syndromic management with referral to us for women with recurrent discharge
Methods
(Nov 2013 to Dec 2014)

• All women who met local criteria for speculum examination and near-patient microscopy.

• Gram stain (Hay-Ison) + wet film (TV).

• Single Biomedical Scientist also scored the wet film slide for AV.¹ Scores of 5 or more alerted to the Clinician.

• Case note review to determine treatment choice and outcome.

¹Definition of a type of abnormal vaginal flora that is distinct from bacterial vaginosis: aerobic vaginitis. BJOG 2002;109:34–43.)
# Modified Hay-Ison scoring

<table>
<thead>
<tr>
<th>Grade</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Epithelial cells with no bacteria seen</td>
</tr>
<tr>
<td>I</td>
<td>Normal flora (lactobacillus morphotype only)</td>
</tr>
<tr>
<td>II</td>
<td>Intermediate (reduced lactos with mixed bacterial morphotype)</td>
</tr>
<tr>
<td>III</td>
<td>BV (mixed flora with few or absent lactos)</td>
</tr>
<tr>
<td>IV</td>
<td>Epithelial cells covered in Gram+ve cocci</td>
</tr>
</tbody>
</table>
Example Case

- Age 31
  - IBS
  - Irritation and discharge
  - Exam: purulent discharge
  - Microscopy: WBC++, abnormal flora includes GPC+++
    - (ie Hay-Ison Grade III ?IV)
- Rx: clindamycin cream 1 week
- HVS: Group B Strep, mixed anaerobes
- Outcome: resolved

AV score = 9 (severe)
Prevalence of aerobic vaginitis

n=1616

Slight (3-4): 15.7%
Moderate (5-6): 3.8%
Severe (>6): 0.7%
Total: 20.2%
Hay-Ison grade vs AV score

- MILD
  - NO FLORA (0): 10%
  - NORM (I): 20%
  - INT (II): 30%
  - BV (III): 20%
  - GPC (IV): 20%

- MODERATE
  - NO FLORA (0): 10%
  - NORM (I): 20%
  - INT (II): 30%
  - BV (III): 20%
  - GPC (IV): 20%

- SEVERE
  - NO FLORA (0): 10%
  - NORM (I): 20%
  - INT (II): 30%
  - BV (III): 20%
  - GPC (IV): 20%

n=253, n=61, n=11
Culture results

n=45 cultures in women with AV score >=5
Severe AV affects older population

Mean age (y) = 32.0 vs 42.7, p=0.04
Treatment choice

Clindamycin i/vag
Metronidazole
Oral A/B
Antifungal
HRT
Acid gel

n=72 with AV score ≥ 5
some patients had >1 Rx
Outcomes

n=72 with AV score ≥5

- Resolved: 31
- Persisted: 24
- Recurred: 3
- N/A: 14

Greater Glasgow and Clyde
Outcomes by AV score

AV score

<table>
<thead>
<tr>
<th>Score</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>38</td>
</tr>
<tr>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
</tr>
</tbody>
</table>

Legend:
- N/A
- RESOLVED
- RECURRED
- PERSIST
Outcomes by Hay-Ison grade

- Hay-Ison grade II: n=19
- Hay-Ison grade III: n=39
- Hay-Ison grade IV: n=14

- 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- N/A
- RESOLVED
- RECURRED
- PERSIST

n=72 with AV score ≥5
Clinical implications

• About 5% of symptomatic women attending our service have a significantly abnormal AV score. Of these:
  – Half have classical BV by Hay-Ison score grade III
  – 25% have persistent or recurrent symptoms
  – Recurrence is associated with Hay-Ison grades II and IV and AV scores of 5-6

• Severe AV is seen in an older cohort

• AV scoring can alert clinicians to think outside the ‘BV box’
<table>
<thead>
<tr>
<th>AV sc</th>
<th>Clinical present^n</th>
<th>Clinical impression</th>
<th>Treatment</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Discharge, odour</td>
<td>AV and thrush</td>
<td>Clindamycin, fluconazole</td>
<td>AV &amp; thrush improving</td>
</tr>
<tr>
<td>7</td>
<td>Vulval itch</td>
<td>AV</td>
<td>Clindamycin</td>
<td>Resolved</td>
</tr>
<tr>
<td>7</td>
<td>Discharge, irritation</td>
<td>?AV</td>
<td>Clindamycin</td>
<td>Resolved</td>
</tr>
<tr>
<td>7</td>
<td>PCB, dyspareunia</td>
<td>Atrophic vaginitis</td>
<td>Vagifem, lube</td>
<td>?AV not cause</td>
</tr>
<tr>
<td>7</td>
<td>Discharge</td>
<td>HSV type 2</td>
<td>Acyclovir</td>
<td>Unknown</td>
</tr>
<tr>
<td>7</td>
<td>Discharge, itch</td>
<td>AV/BV</td>
<td>Clindamycin</td>
<td>Resolved</td>
</tr>
<tr>
<td>7</td>
<td>Lesions, irritation</td>
<td>HPV, AV and BV</td>
<td>Clindamycin, imiquimod</td>
<td>Resolved</td>
</tr>
<tr>
<td>8</td>
<td>Discharge</td>
<td>BV</td>
<td>clindamycin, Balance active</td>
<td>Resolved</td>
</tr>
<tr>
<td>8</td>
<td>Vulval irritation</td>
<td>AV</td>
<td>clindamycin</td>
<td>Resolved later relapsed</td>
</tr>
<tr>
<td>9</td>
<td>Discharge, irritation</td>
<td>AV</td>
<td>clindamycin</td>
<td>Resolved</td>
</tr>
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<td>9</td>
<td>Discharge, irritation</td>
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<td>clindamycin</td>
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