Evaluation of laparoscopy and endocervical swab in the diagnosis of Chlamydia trachomatis infection of the female genital tract

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Summary. A group of 60 consecutive women admitted to the gynaecology department of Eastbourne District General Hospital for pelvic pain were entered into this study. Evidence of C. trachomatis infection of the genital tract was investigated by detection of chlamydial lipopolysaccharide antigen in the peritoneal fluid collected from the pouch of Douglas during laparoscopy and in the endocervical swab. The test used was an Enzyme-Linked Immunosorbent Assay (ELISA). Peritoneal fluid was positive in 11 subjects (18%, P < 0.05), endocervical swab was positive in 3 (5%, P < 0.05). The difference was statistically significant (P = 0.01, two tailed test at 1% level). Ten women with a positive ELISA on the peritoneal fluid had a negative cervical swab, 2 women with a positive cervical swab had negative peritoneal fluid and in only one woman were both cervical swab and peritoneal fluid positive.

Key words: Laparoscopy - Endocervical swab - Chlamydia trachomatis infection

Introduction

C. Trachomatis is now the most important agent in the epidemiology of sexually transmitted diseases (Taylor-Robinson et al., 1980).

Its prevalence in asymptomatic women has been reported to vary from 3% to 10.7% (Longhurst et al., 1987; Fish et al., 1989, Ridgway et al., 1983) while Scott et al. (1989) detected C. trachomatis in 21 out of 165 (12.7%) women admitted to a gynaecology unit for lower abdominal pain using an endocervical slide for immunofluorescent detection.

Chlamydial infection of the female genital tract usually starts at the endocervical epithelium and once it has spread upwards endocervical culture for this organism may become negative (Moller et al., 1986).

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Moss & Hawkswell (1987) found that 40.8% of their patients with pelvic inflammatory disease had evidence of active C. trachomatis infection. Involvement of the tubes (strictures of the lumen, intraluminal adhesions) may occur and predispose to ectopic pregnancies (Watkins and Caldwell, 1986; Menchaca et al., 1988).

Underdiagnosis and undertreatment of C. trachomatis infection may have serious consequences.

Materials and methods

Endocervical swabs and peritoneal fluid samples from 60 women admitted to the gynaecology department of Eastbourne District General Hospital for pelvic pain were tested for presence of C. trachomatis lipopolysaccharide antigen.

All women had a negative pregnancy test (urine beta hCG < 50 IU/ml).

Endocervical swabs were collected after inserting a sterile speculum to visualise the cervix and prior to a bimanual pelvic examination: excess mucus and debris were removed and the first swab discarded: a second swab was used to collect the sample and put immediately in transport medium.

Fluid from the pouch of Douglas was aspirated with aseptic technique under laparoscopic guidance using a Verres needle during laparoscopy.

The method used to detect C. trachomatis was an enzyme-linked immunosorbent assay (ELISA) system (Abbott Laboratory Diagnostics) which employs the enzyme immunosassay technique to detect the chlamydial lipopolysaccharide antigen (Stokes et al., 1984; Jones et al., 1984).

Bacterial culture for aerobes and anaerobes was carried out on all peritoneal fluid samples to exclude concomitant infections.

Results

Laparoscopy showed evidence of pelvic inflammatory disease (one or more of the following: red and congested uterus and tubes, pelvic adhesions, hydro/pyosalpinx, turbid fluid in the pouch of Douglas) in 34 women (57%).

The ELISA test was positive on the peritoneal fluid in 11 cases (18%) and on the endocervical swab in 3 (5%). In only one of the 13 women with evidence of C. trachomatis infection (8%) was there correlation between the two tests (Table 1).

Bacterial culture of the peritoneal fluid samples for aerobes and anaerobes were negative in all cases.

The positive ELISA results were confirmed by either repeating the ELISA or by immunofluorescence.

Table 1. Correlation between ELISA test for C. trachomatis carried out on peritoneal fluid (PF) and endocervical swab (ECS)

<table>
<thead>
<tr>
<th></th>
<th>PF positive</th>
<th>PF negative</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>ECS positive</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ECS negative</td>
<td>10</td>
<td>47</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>49</td>
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