Letters


Distinguishing lymphoma and small cell anaplastic carcinoma of the thyroid by immunocytochemistry

I read with interest the report by Burt et al.11 regarding the problem of differential diagnosis between lymphoma and small cell anaplastic carcinoma of the thyroid. A similar study has been performed in our department in Leicester on a smaller number of cases (19). In addition to thyroglobulin and epithelial membrane antigen antisera, our study also included a cytokeratin antibody (CAM 5.2). It was found that this antibody was more sensitive for detecting epithelial malignancies than epithelial membrane antigen. A combination of common leucocyte antigen and CAM 5.2 resolved the differential diagnosis in all but two of the cases. The use of this or a related cytokeratin antibody, together with common leucocyte antigen is thus suggested for this diagnostic problem. Epithelial membrane antigen, apart from reduced sensitivity compared with cyto-keratin, suffers from the additional disadvantage of being reactive in a proportion of lymphomas.2

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References


T lymphocyte numbers and serum E rosette inhibitory substance

It is well established that T lymphocyte numbers are diminished in certain disease conditions. These include protein calorie malnutrition12 plasmidom malaria infection3 4 measles infection,5 6 and systemic lupus erythematosus.7 Others are HBsAg positive chronic hepatitis,8 rheumatoid arthritis,9 and cancer.10 Sera from most of these patients inhibit both in vitro phytohaemagglutinin transformation of lymphocytes,5 11 and E rosette formation by normal human lymphocytes.12-17

There is circumstantial evidence to suggest that the presence of E rosette inhibitory substance (probably an immune complex) could be partly responsible for the diminished number of E rosettes that are recorded in these patients. Treatment with levamisole considerably increases the number of E rosette forming T lymphocytes in vivo and in vitro in several disease conditions, in which patients commonly possess circulating immune complexes and low E rosetting lymphocytes.18-20 We also observed recently that, in common with children who had protein calorie malnutrition, children with malaria or measles infections had increased titres of circulating immune complexes, serum E rosette inhibitory substance(s), and diminished numbers of circulating E rosettes.16

It is therefore necessary for workers carrying out studies of lymphocyte subpopulations to be cautious in interpreting findings of diminished E rosettes. The percentage of E rosettes observed in such cases may not represent the total circulating E rosette numbers present. From our experience a test for the presence of E rosette inhibitory substance(s) in such patients is useful, as there may be some circulating T lymphocytes that are not capable of forming E rosettes in vitro, probably as a result of the previous binding of their surface receptors to inhibitory substances in vivo.14

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Detection of Chlamydia trachomatis by
enzyme immunoassay, immunofluorescence,
and cell culture

Mumtaz et al1 presented their evaluation of
a commercial enzyme immunoassay (Abbott
Laboratories) for detecting Chlamydia tracho-
matis in urethral and cervical specimens.
The hospital and laboratory in which the
work was performed has a long and well
established research interest in C trachomatis.
We present our experience with this enzyme
immunoassay in a district general hospital
that does not have such an established inter-
est but wishes to provide a rapid and reliable
service for the diagnosis of C trachomatis
infection. We also simultaneously tested
many of our patients using a third tech-
nique.

We evaluated 83 cervical specimens by
enzyme immunoassay and a McCoy cell
culture technique that was essentially similar
to that described by Mumtaz et al1 except
that cell monolayers were stained with
Giemsa. Cell cultures were not passaged.
Specimens were taken from women on their
first visit to the clinic of genito-urinary medi-
cine, irrespective of their reason for attend-
ance. Fifty five of these patients were also
tested by direct immunofluorescence using a
fluorescein labelled genus specific mono-
clonal antibody (Boots-Celltech Diagnos-
tics). Specimens were considered to be
positive if 10 or more fluorescing elementary
bodies were seen. In each case the swab for
enzyme immunoassay was taken before the
swab for cell culture. If immunofluorescence
was being performed the swab for culture
was used to prepare a slide before it was
placed in transport medium.

Comparison of cell culture, enzyme
immunoassay, and immunofluorescence
for detecting C trachomatis in cervical samples

<table>
<thead>
<tr>
<th>Cell culture</th>
<th>Enzyme immunoassay</th>
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<tr>
<td></td>
<td>Positive</td>
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<td>Positive</td>
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<td>Negative</td>
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*11 tested by immunofluorescence: 10 positive;† Two tested by immunofluorescence: two positive;‡ One tested by immunofluorescence: one positive;§41 tested by immunofluorescence: 41 negative.

The Table shows the results. C trachomatis
was isolated from 20 (24%) samples. Seventeen
of these were positive by enzyme immunoassay.
Of the three samples negative by enzyme
immunoassay, one was positive by
immunofluorescence. Two of the three
cases that were negative by cell culture but
positive by enzyme immunoassay were
tested by immunofluorescence, and both
were positive. None of the three patients
whose samples were negative by cell culture
had been treated with antibiotics in the few
months before sampling.

Although the number of specimens evaluated
was small, our results were similar to
those of previous studies.1–4 In addition,
the results obtained indicate that specimens
positive by enzyme immunoassay but nega-
tive by cell culture are not necessarily
false positives but may represent the loss of vi-
ability of C trachomatis during transport.
Our findings also raise some doubt about
the use of cell culture as the “gold standard”
and the value of defining a “specificity”
(the number of healthy subjects with a
negative test result divided by the total
number of healthy subjects)5 for antigen
detection assays.

If the enzyme immunoassay test is com-
pared only with cell culture its specificity
in our evaluation was 95% (60/63). Two of
the three discrepant results were positive by
immunofluorescence, and the third was not
tested by this technique. If these results are
taken to indicate that these two specimens
were positive (and the third specimen dis-
regarded) the specificity of enzyme immu-
noassay may be considered to be 100%
(60/60) in our small series. Similarly, the
sensitivity of the enzyme immunoassay
improves from 85% (17/20) to 86% (19/22)
compared with a sensitivity for cell culture
of 91% (20/22). Therefore, sensitivity and
specificity figures must be interpreted with
care when the reference test is known to
have a sensitivity of less than 100%.

In conclusion, although under ideal con-
ditions cell culture may be more sensitive
than enzyme immunoassay, in routine diag-
nostic use this is probably balanced by the
failure to isolate C trachomatis from several
infected patients. The use of such an enzyme
immunoassay has resulted in a considerable
improvement in our service, as we no longer
encounter the problems of maintaining a
cell line of required sensitivity for the reliable
isolation of C trachomatis.

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Comparison of methods for detecting Chla-
mydia trachomatis

Dr Ridgway and others reply as follows:
Morgan-Capner et al raise the possibility
that apparent false positive results with the
new chlamydial antigen detection methods
may reflect deficiencies in the cell culture
T lymphocyte numbers and serum E rosette inhibitory substance.
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