may need five seconds' differentiation in tap water to give discrete nuclear patterns. The sheaths were not stained by this method. The stain is also useful for permanent faecal smear preparations of trophozoites of protozoa, such as *Giardia*, *Trichomonas*, and amoebae, but it did not give satisfactory staining of all forms of cyst.

We think that this staining method has great potential for rapid diagnosis in the laboratory and is a useful "one stain" method for field work.

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References


Expression of leucocyte common antigen and epithelial membrane antigen in plasmacytic malignancies

Immunoperoxidase staining of paraffin sections with monoclonal antibodies is being used increasingly as a diagnostic aid in histopathology. Monoclonal antibodies against the leucocyte common antigen and epithelial membrane antigen are of potential value in distinguishing between lymphoid and epithelial neoplasms. Some plasma cells react with antibodies against epithelial membrane antigen in paraffin sections, however, and a recent report by Delsol et al. has shown that epithelial membrane antigen is also expressed in some non-Hodgkin's lymphomas. The leucocyte common antigen shows variable expression in non-Hodgkin's lymphoma, being reduced or absent in lymphocytic differentiation towards plasma cells. It is therefore theoretically possible that a lymphoma showing plasmacytoid differentiation may express both, either, or neither of these antigens. We have compared results of staining with antibodies to epithelial membrane antigen and leucocyte common (Dako LC and F8-11-13) in eight cases: five cases of non-Hodgkin's lymphoma with plasmacytoid differentiation, as shown by strong cytoplasmic immunoglobulin detected by immunoperoxidase staining; two cases of plasma cell leukaemia; and one case of myeloma. The Table shows the results.

In four of the eight cases, antibody to epithelial membrane antigen was positive. Most of the cells in three of these cases showed strong membrane staining; variable results were seen with antibodies to the leucocyte common antigen. In one case (no. 5), in which an immunoblastic lymphoma had developed in a patient with multiple myeloma, there was no staining with either monoclonal antibodies against the leucocyte common antigen but strong staining was seen with antibody to epithelial membrane antigen. Dako leucocyte common reacted with cells in seven of eight cases, staining the majority of the neoplastic cells in five cases and a proportion of the cells in two others. F8-11-13, which recognises a high molecular weight form of the leucocyte common antigen did not stain cells in three of the eight cases and stained only a minority of the cells in the remainder.

Our observations confirm that antibodies against epithelial membrane antigen react with a proportion of lymphomas and plasma cell leukaemias and agree with recent reports. The failure of antibodies against the leucocyte common antigen to stain a number of our cases and to react with only a proportion of the cells in others is consistent with the fact that the leucocyte common antigen may be lost during the differentiation of B cells; the high molecular weight form recognised by F8-11-13 is lost earlier.

These findings have obvious diagnostic implications. Immunoreactivity with epithelial membrane antigen in the absence of reactivity with antibodies to leucocyte common antigen suggests an epithelial histogenesis of a neoplasm. In some cases of non-Hodgkin's lymphoma, showing plasmacytoid differentiation, the typical staining reactions may be reversed, however; the lymphoid cells reacting with antibodies to epithelial membrane antigen and not with antibodies to leucocyte common antigen. Pizzolo et al. have reported a case in which the morphological appearance was that of a lymphoma but cells failed to react with antibodies to leucocyte common antigen, immunoglobulin, and B cell markers but did react with antibody to epithelial membrane antigen. In most cases plasmacytic malignancies may be identified by their characteristic morphological features, but in some cases, especially those of immunoblastic lymphoma, differentiation between lymphoma and anaplastic carcinoma may be difficult. It is in these cases that monoclonal antibodies such as those against epithelial membrane antigen and leucocyte common antigen should be of value to the diagnostic histopathologist.

The loss of leucocyte common antigen and the expression of epithelial membrane antigen in lymphoid neoplasms which are differentiating towards plasma cells should, however, be kept in mind when evaluating the results of staining with these antibodies. In cases where doubt persists as to the diagnosis we agree with recent comments by Heyderman and MacCartney.

### Immunoperoxidase staining of plasmacytic malignancies with monoclonal antibodies to leucocyte common antigen and epithelial membrane antigen

<table>
<thead>
<tr>
<th>Case no</th>
<th>Diagnosis</th>
<th>Monoclonal antibodies</th>
<th>Epithelial membrane antigen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Malignant lymphoma, plasmacytic</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>2</td>
<td>Malignant lymphoma, diffuse centroblastic</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>3</td>
<td>Malignant lymphoma, immunoblastic</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Malignant lymphoma, immunoblastic/plasmacytoma</td>
<td>Neg</td>
<td>Neg</td>
</tr>
<tr>
<td>5</td>
<td>Malignant lymphoma, immunoblastic/plasmacytoma</td>
<td>Neg</td>
<td>++</td>
</tr>
<tr>
<td>6</td>
<td>Multiple myeloma</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>Plasma cell leukaemia</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>Plasma cell leukaemia</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

+ = 2-20%; ++ = 20-70%; +++ = >70% positive staining cells.

Samples from cases 1-6 were fixed in buffered formaldehyde and processed for paraffin embedding and section; in cases 7 and 8 cytopsins of blood mononuclear cell suspensions were made and fixed in acetone. In all cases staining for immunoglobulins showed the neoplastic cells to be strongly positive for intracytoplasmic immunoglobulin.

An indirect immunoperoxidase staining technique was used as described by Salter et al.
and Sloane et al. that staining for other epithelial markers and immunoglobulin should be undertaken or, if possible, fresh tissue should be obtained for frozen section immunophenotyping.

This work was supported by the Sir Stanley and Lady Davidson Medical Research Fund of the University of Edinburgh.

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References

Book reviews


Medical Microbiology contains 11 chapters on a variety of subjects related to infections, ranging from toxic shock and AIDs to the monobactams and bacterial surface lectins. The pace of change in infectious disease is such that new information is continually appearing, and sometimes the information outstrips the rate at which books can be published—for example, the chapter on AIDS which, unfortunately, has been overtaken by events. The book contains several nice photographs, which will be useful in teaching microbiology and contains much helpful information on developments in microbiology. Two of the previous three volumes have focused on one particular aspect of infection, namely immunisation (Vol 2) and the bacterial envelope (Vol 3). Infection is so variegated a subject that review articles operating over too wide an area in one volume tend to give one a bit of culture shock, as this one does.

JD WILLIAMS

Notices

International Committee for Standardisation in Haematology

The ICSH expert panel on cytochemistry has recently recommended methods for identifying peroxidase, alkaline phosphatase, acid phosphatase, non-specific esterase, and chloracetate esterase in blood films. The reference methods and selected reliable techniques, which are suitable for use in routine laboratory practice, are described. The recommendations have been published in Clinical and Laboratory Haematology 1985;7:55-74.

Reprints are available from the Panel Chairman, Dr A Shibata, First Department of Internal Medicine, Niigata University School of Medicine, Asahi-Machi, Niigata 951, Japan.

Cancer surveys

The Imperial Cancer Research Fund, one of the oldest organisations in the field of cancer research, is a charity which has supported research on the causes, prevention, and treatment of cancer in its own laboratories and clinical units for over 30 years. It has now begun a new project aimed at service to cancer research by publishing a series entitled Cancer Surveys.

The purpose of Cancer Surveys is to provide a comprehensive review of areas in oncology and related fields in which there is current scientific or clinical interest. The major objective is to bridge the gap between the clinic, the laboratory, and the epidemiologist.

Each issue of the journal covers one selected topic and provides a definitive account of the present state of knowledge. The journal appears quarterly: in each issue there are one or more guest editors with specialist knowledge, who provide general assessments of the topics. Contributors are invited to review specific areas in which they have made important contributions, to concentrate on their own activities and interests, to include research findings, which may or may not have been published elsewhere, and to relate epidemiological and laboratory research to clinical problems. The objective is to have papers which are of importance, not only historically but also as the foundation for contemporary and future research, and which stand as original contributions in their own right.

With many journals publishing reports directly related to cancer and innumerable others dealing with the enormous range of biological topics that are of interest to cancer workers, this journal is of particular importance both for clinicians and laboratory research workers. The Journal is published in the spring, summer, autumn, and winter of each year. Further information may be obtained from Dr LM Franks, Imperial Cancer Research Fund, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2 3PX.