The culture of lactobacilli species in gastric carcinoma

Filamentous organisms have been reported in brushings and biopsies from both benign and malignant gastric ulcers, but these have not been characterised and their importance is unknown. In a preliminary study of tissue samples obtained at laparotomy from malignant gastric ulcers we cultured Lactobacillus spp, which are recognised commensals in the upper gastrointestinal tract, but not normally present in the stomach.

In view of the previous culture of Lactobacillus spp in surgically excised gastric tumours, we prospectively sought evidence of Lactobacillus spp infection of benign and malignant gastric ulcers in patients attending for gastroscopy.

Gastric mucosal biopsies were obtained from normal mucosa, erosions, and from benign and malignant ulcers in patients undergoing routine gastroscopy in our unit. The endoscopic biopsies were immediately placed into 5 ml of semisolid De Man, Rogosa, Sharpe (MRS) culture medium for transport to the laboratory. Biopsies were then plated on to the following: (1) 5% blood agar and MRS agar incubated in CO₂ at 37°C; and (2) neomycin agar and MRS agar incubated anaerobically at 37°C. After incubation for 48 hours, any probable Lactobacillus spp were subcultured to blood agar and Gram staining was performed. The cultures were re-checked at five days for slow growing strains. All Gram positive bacilli were stored at −70°C for later identification by catalase reaction and a profile using a gallery scheme (API 50 CHL) and fermentation of 49 carbohydrates.

In total, 39 patients were studied. Histology of the gastric biopsies revealed: adenocarcinoma (n = 9), gastric lymphoma (n = 2), benign gastric ulcer (n = 8), gastric erosions (n = 11), and normal mucosa (n = 9). All strains of Lactobacillus spp had grown at 48 hours.

Ten of 11 malignant and six of eight benign gastric ulcers grew Lactobacillus spp. In addition, Lactobacillus spp were cultured in four of 11 gastric erosions but all the normal specimens were negative for culture. Some specimens yielded more than one species. Some lactobacilli could not be speciated. Table 1 shows the numbers of specimens with each histological diagnosis that were culture positive for the individual species of lactobacillus.

These data demonstrate that Lactobacillus spp colonise areas of both malignant and benign gastric ulceration but not normal mucosa. It is probable, but not confirmed, that these are the filamentous organisms previously observed in similar samples. Although we cannot exclude a role for these bacteria in the aetiology of gastric ulceration, it seems most likely that they opportunistically colonise the necrotic tissue in areas of ulceration of whatever cause. Clarification of the mechanisms that underlie this phenomenon might provide a means to target gastric malignancy both for diagnosis and treatment. Additional work is needed to explore the relation between gastric ulceration and Lactobacillus spp.

Table 1 The culture of lactobacilli species

<table>
<thead>
<tr>
<th>Lactobacilli species</th>
<th>Histology</th>
<th>Lymphoma (n=2)</th>
<th>Adenocarcinoma (n=9)</th>
<th>Benign GU (n=8)</th>
<th>Erosion (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. paracasei</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>L. fermentum</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>L. rhamnosus</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>L. salivarius</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>L. delbrueckii</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>L. acidophilus</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Lactobacillus sp.</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

GU, gastric ulcer.

References

Digital imaging of surgical specimens

Matthews and Denney recently described in this journal a method for digitally recording gross specimen images. We agree that flatbed scanners are excellent for this purpose and currently are being used in a similar method. In fact, we have found that excellent images can be obtained without the need for a box to contain the specimen in fluid. The sample is simply placed on the device and scanned. Some imaging experts recommend the use of a black background rather than the white surface, which is standard on the scanner lid underside, although we have found little improvement using this modification.

It should also be noted that excellent results can be obtained from scanning histological sections mounted in 35 mm slide holders. However, this does require the acquisition of a 35 mm colour slide scanner, which is relatively expensive. The whole mount sections can also be used in a standard slide projector.

In laboratories already using computer technology, flatbed scanning provides a very convenient, cheap, and rapid form of recording gross images, with results obtained superior to conventional photocopying. Furthermore, annotations such as patient identification, orientation, and block site can be added to the image immediately and permanently stored.

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References

Recurrent cellular angiofibroma of the vulva

Cellular angiofibroma is a benign mesenchymal lesion that was first described in 1997, and which chiefly involves the vulval region. The original report described four cases of this distinctive lesion, all occurring in middle aged women, and the authors considered this to represent a benign neoplasm with little or no potential for local recurrence if excised with a rim of uninvolved normal tissue. Since then, an identical lesion has been described in a woman involving the subcutaneous tissue of the chest wall. Similar lesions have also been reported in the inguinoscrotal region of men. Here, we describe a vulval cellular angiofibroma that, although initially excised with a rim of normal tissue, exhibited tumour recurrence in a relatively short time period.

A 49 year old woman presented with a mass in the posterior aspect of the left labia majora.
A well circumscribed lesion measuring 4 cm in diameter was excised with a rim of normal tissue. Six months later she developed a recurrent swelling at the site of the previous excision. This lay in the angle between the posterior wall of the vagina and the anterior aspect of the external anal sphincter. A magnetic resonance imaging scan confirmed the presence of a recurrent lesion and the mass was excised. The mass was well circumscribed and was dissected free without complication. Ten months after excision of the recurrent lesion the patient is well with no further evidence of local recurrence.

The original surgical specimen consisted of a well circumscribed 4 cm firm white lesion, which was completely surrounded by a rim of normal tissue. The recurrent lesion consisted of a well circumscribed 6.5 cm diameter firm white lesion.

Histology of the original biopsy showed a well circumscribed but unencapsulated lesion, which was completely surrounded by a rim of compressed uninvolved tissue. The lesion was composed of short interlacing bundles and fascicles of spindle shaped cells with bland vesicular nuclei and abundant eosinophilic cytoplasm (fig 1A). There was no necrosis and few or no mitotic figures. A notable feature was the prominent vascularity within the lesion with thick hyalinised blood vessels (fig 1B). Small numbers of mature adipocytes were present within the lesion, especially around the periphery (fig 1C) and there were scattered stromal mast cells and occasional small collections of mature lymphocytes. Histology of the recurrent lesion showed similar features. Again the lesion was well circumscribed. There were foci of mildly increased cellularity and decreased vascularity compared with the original lesion and scattered mitotic figures were identified, the mitotic count being < 1/10 high power fields.

An additional feature was the presence of many small lymphoid aggregates throughout the lesion. These were mostly composed of mature lymphocytes with occasional germinal centres (fig 2).

Immunohistochemistry of both the original and recurrent lesion showed positivity of the spindle shaped cells for vimentin (Dako, Copenhagen, Denmark) but no staining for desmin (Dako), α smooth muscle actin (Sigma, Poole, Dorset, UK), S-100 protein (Diagnostic Products Limited, Abingdon, UK), CD34 (Sero-tec, Oxford, UK), or AE1/AE3 (Dako). There was weak staining for epithelial membrane antigen (EMA; Dako). There was diffuse strong nuclear positivity for the oestrogen receptor (ER; clone ID5; Dako; fig 3) and the progesterone receptor (PR; clone 1AB; Dako).

Electron microscopy showed spindle shaped tumour cells embedded in a collagen rich matrix containing vascular channels. Most of the tumour cells had a fibroblastic appearance with prominent cisterni of rough endoplasmic reticulum. Some of the tumour cells contained small numbers of cytoplasmic actin filaments with focal deposits of external lamina and occasional subplasmalemmal densities, in keeping with myofibroblastic differentiation.

The lesion we describe, which exhibits identical histological features to the cases of cellular angiofibroma reported by Nucci et al, was characterised by local recurrence in a relatively short period of six months. This was in spite of the fact that the lesion was adequately excised originally with a rim of uninvolved tissue. This is the first report of recurrence of a cellular angiofibroma and illustrates the potential for local recurrence even with adequate excision. The recurrent lesion contained foci of increased cellularity but there were no histological features to suggest malignancy. We do not feel that the fact that the neoplasm recurred is indicative of malignancy.
CSF spectrophotometry in the diagnosis of subarachnoid haemorrhage

We note with interest the recent “Best Practice” article on cerebrospinal fluid (CSF) spectrophotometry in the diagnosis of subarachnoid haemorrhage (SAH) by Dr Cruickshank et al.1 This group has produced a set of proposed national guidelines for the practice of spectrophotometry,2 we wish to highlight several important differences between the two sets of recommendations.

Most importantly, Cruickshank concludes that, as long as a CSF sample containing up to 40 000 × 10^6 erythrocytes/litre is centrifuged within 15 minutes, no oxyhaemoglobin will be present in the supernatant after centrifugation, and that within this cell count and time constraint, the presence of oxyhaemoglobin in CSF is supportive of SAH. This is entirely consistent with her in vitro data,3 although the only practical way of achieving this CSF delivery within this time window would appear to be by pneumatic tube, itself a cause of variable delay.

Our proposed guidelines are available through UKNEQAS for Immunochrometry.4 They can be accessed through www.imnqa.org.uk and we recommend them to your readers.

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References


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Dermatopathology in Systemic Disease

Smoller BR, Horn TD. (£110.00.) Oxford University Press, 2001. ISBN 0 19 513038 3

First, and lasting impression: what a beautiful book this is! Drs Smoller and Horn are to be congratulated on a piece of very fine work indeed. Dermatopathology in Systemic Disease provides a detailed, well illustrated, clearly described, and well referenced review of a difficult and often highly complex field of diagnostic dermatopathology. The wealth of data is made accessible by well subdivided texts, attractive tables, and generally excellent micrographs. The use of a similar structure of the texts for individual items enhances the accessibility of the data. The detailed index further ensures quick reference of the relevant descriptions and illustrations. The illustrations, in colour throughout, and almost all of the same size as the text column width, are perhaps a bit smaller than would be ideal; this is however something of a general trend in modern pathology textbooks (small colour pictures), a trend that I feel is not to be applauded at all!

The emphasis of the book, and its strength, is directed towards diagnostic histopathology; texts on pathogenesis are often very brief and (for example, lupus erythematosus; various connective tissue diseases) not always do justice to the large volume of data that have become available on these subjects. But in view of the emphasis on diagnostic rather than pathobiological aspects (to such an extent that a title of Diagnostic Dermatopathology in Systemic Disease might have been appropriate) this need not concern us. In sum, the book is a welcome and very well produced addition to available textbooks on dermatopathology.

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BOOK REVIEWS

Radiation Pathology
Forjadjo LF, Berthrong M, Anderson RE. (£120.00.) Oxford University Press, 2001. ISBN 0 19 511023 4

This is an interesting and well presented book, aiming to provide a comprehensive coverage of the varied and ever expanding field of radiation pathology. The three authors each receive authors in their respective fields, and their joint efforts are complemented by an interesting chapter on therapeutic applications by Dr JH Meyer. The book is, of course, heterogeneous, ranging from diagnostic histopathology to basic aspects of radiation pathobiology and from radiation induced carcinogenesis to the tissue damaging effects of radiation. Nonetheless, the authors have succeeded in providing a reasonably homogeneous whole, where chapters complement each other. A useful glossary precedes the first chapters and illustrations are generally of excellent quality.

There were perhaps a few subjects that might have benefited from a more in depth discussion. The short term and long term effects on the atomic bomb survivors is discussed with great clarity and authority, but the work on thyroid disease following the Chernobyl disaster, which has yielded a wealth of new data, would have fitted well into one of the chapters on radiation carcinogenesis and on the thyroid gland. Angiosarcoma, which is now considered a recognised late sequel to breast conserving treatment, is only mentioned in passing. Diagnostic aspects of recurrent tumour versus radiation induced cellular atypia could have received a rather more extensive discussion and more illustrations, especially in organs where these problems are regularly encountered: breast, prostate, and urinary bladder. Aspects of fine needle aspiration cytology, a technique that commonly serves as the first line diagnostic technique when recurrent tumour in an irradiated tissue is suspected, receives surprisingly little mention: in this respect, the book cannot be used as a bench book in the diagnosis of difficult cases. Despite these few criticisms, I feel that there is much to recommend this book as a work of substantial interest, providing a good coverage of a wide and heterogeneous field of biological and clinicopathological work.

W J Mooi

Pathology of Skeletal Muscle, 2nd ed
Carpenter S, Karpati G. (£110.00.) Oxford University Press, 2001. ISBN 0 19 506364 3

The first edition of Carpenter and Karpati’s Pathology of Skeletal Muscle has been one of the standard bench books of muscle pathology for practising neuropathologists. The second edition is substantially extended and updated on a wide range of topics.

The book falls into two sections: the first half is devoted to structure and reactions of muscle and contains an introductory chapter and chapters on removal and preparation of biopsy samples, skeletal muscle biology, the major pathological changes encountered, and detailed descriptions of subcellular components. The second section is devoted to diseases of skeletal muscle and broadly breaks down into chapters covering genetic disease (including dystrophies), lysosomal and non-lysosomal storage disease, inflammatory muscle disorders, and sporadic myopathies, with several shorter sections covering a large range of the rarer or less well understood conditions.

As examples of the topicality, there is an informative discussion of recent advances in the understanding of limb girdle dystrophies with references covering the sarcoglycanopathies, and deficiencies of dysferlin, calveolin, and calpain. Another example is a survey of human immunodeficiency virus and human T cell leukaemia virus 1 (HTLV-1) related myopathies, including the iatrogenic zidovudine-related myopathies. Each section carries a comprehensive list of references, which covers the literature up to 1998–9.

The book is well produced on high quality paper with a clear, easily read typeface, and the illustrations, both black and white and colour, are of superb quality and cannot be faulted. Judiciously included line diagrams, both black and white and in colour, are clear and easily understood. The price is reasonable. There are occasional infelicities as—for example, on page 54 in the section describing muscle spindles. The three types of intrafusal fibres are described and the reader is referred to table 3.3 for a survey of their features. However, table 3.3 only covers the standard type 1 and type 2 (intrafusal) muscles fibres. This is a major text in the field and should be recommended to all practising myopathologists as a vade mecum.

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