Characterisation of anaerobic cocci in the diagnostic laboratory

At present, the classification of anaerobic cocci is confused and confusing. In a recent paper¹ we reviewed the development of classification schemes for these organisms and drew attention to the difficulties encountered by diagnostic laboratories that attempt to characterise anaerobic cocci without the use of specialised techniques such as gas-liquid chromatography. There are two main problems:

1 There is no reliable standard test for differentiating between *Peptococcus* and *Peptostreptococcus*; in our experience, the morphology as determined by Gram stain is variable and novobiocin sensitivity or resistance is not a good differentiating test. In a study of 30 strains of *Peptostreptococcus anaerobius* (identified for this purpose by the production of iso-caproic acid on gas-liquid chromatography), 20% were resistant to novobiocin (5 µg disc).

2 Many strains of anaerobic cocci are biochemically inert and cannot be accurately speciated.

Thus our present schemes are unreliable or unhelpful, and there is evidence that, in any case, they may be based on unsound definitions. A recent paper² even casts doubt on the validity of the basic definition of *Peptococcus* and *Peptostreptococcus*. Until the taxonomic relations within the anaerobic cocci have been finally elucidated, we believe that it is important for the diagnostic laboratory to have a simple identification scheme that allows at least some characterisation of clinical isolates in an easily understood manner by means of simple and reliable tests. In studies on anaerobic cocci of clinical interest over many years, the following points have become clear:

1 The Gram stain reaction itself is of value and correlates well with sensitivity (Gram positive) and resistance (Gram negative) to vancomycin (5 µg disc).

2 Morphology is variable and inconsistent.

3 Strains of anaerobic cocci can be readily subdivided into "saccharolytic" and "asaccharolytic," by means of a glucose fermentation test.⁴

4 The strains of the organism presently labelled *Peptostreptococcus anaerobius*⁵ (as defined by production of iso-caproic acid on gas-liquid chromatography) are often clinical isolates and form a clearly defined group that can be reliably and easily characterised in the diagnostic laboratory by their susceptibility to "liquoid" (polyanethol sulphonate).

We therefore suggest that because of the

Simple characterisation scheme for anaerobic cocci.

present highly confused state of the classification of anaerobic cocci of clinical interest, the diagnostic laboratory should "return to basics." We propose the following simple but radically different approach to the identification of these organisms. We have divided anaerobic cocci of clinical interest (as previously defined)³ into four groups as follows:

Group A: Liquoid sensitive, glucose fermenting, Gram positive anaerobic cocci (this would correspond to *Peptostreptococcus anaerobius* as defined in the VPI manual⁴)

Group B: Liquoid resistant, glucose fermenting, Gram positive anaerobic cocci

Group C: Non-fermenting, liquoid resistant, Gram positive anaerobic cocci

Group D: Gram negative anaerobic cocci.

The proposed identification scheme is shown in the figure.

This scheme has the merit of being simple and reliable, without the requirement for complex procedures and utilising only commonly used simple tests. We are aware that such a scheme is likely to be criticised as being simplistic and of doubtful taxonomic validity. To our critics, we would submit that our scheme can form a valid basis for further work and further refinement (for example, Group C could be further subdivided into two subgroups on the basis of the indole reaction), can be applied easily in any diagnostic laboratory, and can be readily understood by clinical colleagues. Present classification schemes do not fulfil all of these criteria.

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Book reviews

Inflammation and Demyelination in the Central Nervous System. Ed BH Waxman, T Yonezawa and H Lassmann. International Congress of Neuropathology, 1982. Acta Neuropathologica. Supplementum 9. (Pp 91; Soft cover DM 34; US\$ 13.50.) Springer. 1983.

This volume contains the Proceedings of one of the special Symposia that formed part of the programme of the 9th International Congress of Neuropathology held in Vienna in September 1982. The contributors are therefore all accredited experts in their respective fields. The topics dealt with include immunological models and aspects of diseases of the central nervous system, demyelination of inflammatory type, and demyelinating disease in general.

The volume contains a wealth of interesting information and a comprehensive bibliography.

Sadly it is a very unattractive publication because of the use of photographic techniques. Do we blame the contributors for not obeying instructions, or the publishers for not instructing? I do not know.

J HUME ADAMS

Interpretation of Liver Biopsies. Richard J Stenger. Biopsy Interpretation Series. (Pp 175; \$42.50.) Raven Press. 1983.

This slim volume is divided into sixteen concise chapters each with about three pages of text, nine half-page black and white illustrations of good quality, and about twenty-five up-to-date and relevant references. The chapter headings are traditional.

The text is well written and provides a lucid account of the basic pathology of liver disease, supplemented by a good range of well-chosen illustrations. It is very concise and few subjects extend beyond a single paragraph. No previous pathological knowledge is implied and throughout, despite the title, the emphasis is descriptive rather than interpretative, giving the impression that the author is showing what can be achieved with a liver biopsy rather than how to achieve it. Of his intended audience I think these qualities should prove ideal for clinicians and trainees in gastroenterology and general medicine. Pathologists, on the other hand, might feel that there is insufficient discussion of morphological problems, especially those concerned with differential diagnosis. This book should fill an important niche as an introduction to liver pathology for clinicians, but it cannot really be recommended as a bench book for pathologists.

DGD WIGHT

Blood Cell Volume Analysis. A New Screening Technology for the Haematologist. RM Rowan. (Pp 97; £5.) Albert Clark & Co. Limited. 1983.

Earlier in this century blood cell size distributions, such as the Price-Jones curve, were in vogue. But the sheer tedium of producing them with a microscope and the

errors involved meant that the technique fell into disuse. The present generation of automated haematological instruments has reversed this process since it is now possible to obtain objective and precise size distributions of red cells, leucocytes, and platelets as part of the routine full blood count. Haematologists will therefore have to re-learn the earlier work and keep abreast of the newer developments. Dr Rowan's book provides an ideal guide. The opening chapter reviews the historical aspects. There is then a detailed account of the Coulter Model S Plus series of instruments followed by three chapters on the application of these counters to red cell, leucocyte, and platelet volume distribution analysis.

I am sure that this work will be constantly used in laboratories with a Coulter Model S Plus. It will also be of value to a wider readership since many of the basic principles are relevant to the other automated blood counters.

JM ENGLAND

Principles and Practice of Surgical Pathology. Vols I and II. Ed Steven G Silverberg. (Pp 1656; £124.50.) John Wiley & Sons Ltd. 1983.

Professor Silverberg's textbook of surgical pathology consists of 1656 pages and is in two volumes. Now there is significant morbidity attached to works in two volumes for they are a source of constant irritation and the latter I believe is atherogenic. The irritation is provoked by getting out of the chair, reaching up to the shelf, pulling down a heavy volume and—you've guessed—its the wrong damned one. Principles and Practice of Surgical Pathology overcomes this hazard by a simple method. On the spine of one volume is written "Below SNOP: 56/SNOMED: 56,000", and on the other "From SNOP: 56/SNOMED 56,000". Assuming you know your SNOP/SNOMED topography you need never open the wrong volume again. Surely a recommendation to purchase this reference work.

Eighty six authors are involved in the 52 chapters, the majority being American. The initial part of the book has some interesting general chapters, for example, the differential diagnosis of metastatic tumours and a chapter on the organisation of the laboratory. It then moves into a more standard format with accounts of pathology

system by system. The largest organ systems are broken up into separate chapters separating either medical from surgical conditions, or neoplastic from non-neoplastic lesions. The book is laid out with two columns to a page but sadly many of the photomicrographs are limited to one column which means many are too small to be of value. It is not therefore a book for those who like to picture match. However, a feature of many of the chapters is the presence of useful lists and charts.

I must confess I have not read these volumes systematically but have kept each by my side during diagnostic reporting for several months and used them as the first source of reference whenever a problem arose. I have been most impressed and always found enough information either to solve the problem or refer me to suitable recent references.

As one cannot keep pace with the ever increasing numbers of specialist titles, comprehensive accounts like these two volumes plug the many holes. Several general textbooks of varying quality are on the market and I think this belongs with those in the first division. If you have the money, Professor Silverberg's textbooks are a good buy that will keep you one jump ahead of any threatening clinician, and using the comprehensive reference list, two jumps ahead.

AB PRITCH

Antibiotic Associated Diarrhoea and Colitis. Ed S Peter Borriello. Developments in Gastroenterology. (Pp 179; £24.25.) Martinus Nijhoff. 1984.

Establishment of the aetiological role of *Cl difficile* in antibiotic-associated pseudomembranous colitis some seven years ago stimulated a great deal of important research, and this is reflected in the ever-growing literature on all aspects of the problem. Now, it is a pleasure to welcome into one's library a definitive monograph on the subject, with major contributors from centres of excellence in the UK, Sweden and the USA.

In his introduction the Editor, Dr SP Borriello, writes that "an attempt has been made to collate the information available on all the different aspects of *Cl difficile* and the gastrointestinal diseases associated with it". The attempt is very successful, for in a mere 150 pages of type-script text the contributors usefully review the literature