

Adherence of neomycin to the tubing of a plate pouring machine

Margaret Macaulay *et al*¹ have shown that neomycin may become bound to silicone rubber tubing used for preparing media in the laboratory and may be carried over into diagnostic sensitivity test agar (DST, Oxoid) to inhibit the growth of coagulase negative staphylococci.

We have shown that neomycin, kanamycin, and gentamicin used in concentrations commonly recommended for anaerobe selective media may be carried over to other media through the same tubing, inhibiting the growth of any suitably sensitive organism. The consequences of any such media being used in the primary plating of specimens are obvious.

In this laboratory we use separate, identifiable tubing for pouring media containing these antibiotics, after which at least 3 litres hot water is flushed through. All non-inhibitory media, including MacConkey agar, are shown to support the growth of a sensitive *Staphylococcus aureus* (NCTC 6571) before being released for use. Those plates poured first in each batch should be selected for testing.

We believe that unless other laboratories are equally thorough in their testing of poured media, some may have a serious carry over problem of which they are unaware.

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Reference

- ¹ Macaulay ME, Storey J, Riordan T. Adherence of neomycin to the tubing of a plate pouring machine. *J Clin Pathol* 1985;38:115-6.

Fine needle aspiration cytology

I enjoyed reading the review article published in your January 1985 issue.¹ I think, however, that pathologists should be more aware of the fact that smears made from needle biopsies of the brain have been standard practice in numerous departments of neuropathology for many years.² No doubt this has been contributed to by the value of burr hole biopsy to neurosurgeons and the soft consistency of the biopsy.

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- ¹ Lever JV, Trott PA, Webb AJ. Fine needle aspiration cytology. *J Clin Pathol* 1985;38:1-11.
² Adams JH, Graham DI, Doyle D. *Brain biopsy: the smear technique for neurosurgical biopsies*. London: Chapman & Hall, 1981.

As a firm believer in the value of fine needle aspiration cytology I was delighted to see a review article on the subject in the *Journal of Clinical Pathology*.¹ The authors have provided a comprehensive overview in a comparatively short article.

The authors state, quite correctly, that up to 35% of percutaneous fine needle aspirations of lung may be complicated by simple pneumothorax. The great majority of these, however, are small, symptomless, and resolve spontaneously, and only 2-10% of cases require chest drainage.^{2,3} Pneumothorax is therefore not as fearsome a complication as it may at first appear. Aspiration is contraindicated only in severe emphysema and pulmonary hypertension.⁴

As the authors have shown, fine needle aspiration is a safe and reliable method of diagnosis, applicable to virtually any site within the body.

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- ¹ Lever JV, Trott PA, Webb AF. Fine needle aspiration cytology. *J Clin Pathol* 1985;38:1-11.
² Kline TS. *Handbook of fine needle aspiration biopsy cytology*. St Louis: CV Mosby Company, 1981.
³ Frable WF. *Thin needle aspiration biopsy*. Philadelphia: WB Saunders Company, 1983.
⁴ Tao LC, Pearson FG, Delarne NC, Langer B, Saunders DE. Percutaneous fine needle aspiration. *Cancer* 1980;45:1480.

Streptococcus milleri found in pulmonary empyemas and abscesses

As a species *Streptococcus milleri* has only recently gained wide acceptance, although some of its members were first described

40 years ago. It is increasingly recognised as a cause of pyogenic disease and is particularly associated with deep seated abscesses within internal organs.

Bartlett and Finegold² studied the anaerobic bacteriology of pleuropulmonary infections especially of empyemas and abscesses. They found a variety of anaerobic bacteria usually as mixed infections, but interestingly they consistently found that the anaerobic streptococci were most often isolated in pure culture from these sites. These workers did not fully report the identification of the anaerobic streptococci, but some were possibly *S milleri*. Their work and our isolation of pure cultures of anaerobic streptococci from pulmonary empyemas and abscesses prompted us to undertake a fuller study.

Material and methods

Pleural aspirates from empyemas and pulmonary abscesses as well as fluid from pleural drainage sites not due to these conditions were studied. Samples (10-15 ml) of pleural fluid or pus were transferred into citrated bottles, and a further 1 ml was inoculated into freshly prerduced Robertson's cooked meat broth. The bottles were sealed and sent to the laboratory.

The pleural fluid, pus, or broth was inoculated on to standard laboratory media (selective and non-selective) and incubated in air, 5% CO₂, and anaerobic conditions at 37°C. Any suspicious organisms resembling streptococci were fully identified by biochemical methods described elsewhere.³

Results

Of 23 samples from patients with either empyemas or pulmonary abscesses, eight yielded *S milleri* in pure culture when fistulae to the gastrointestinal tract were

Table 1 Results of culture of specimens from patients with pulmonary empyemas and abscesses

Results of culture	No of specimens
No bacterial growth detected	6
Mixed coliforms; anaerobes and <i>Streptococcus milleri</i>	5*
Mixed coliforms and anaerobes	3†
<i>Staphylococcus aureus</i> only	1
<i>S milleri</i> only	8
Total	23

*Four patients had fistulae with the gastrointestinal tract.

†All had fistulae with the gastrointestinal tract.

Table 2 Results of culture of specimens from patients with other pulmonary effusions

Results of culture	No of specimens
No bacterial growth detected	29
Mixed coliforms and anaerobes	29*
Anaerobes only	10†
<i>Staphylococcus aureus</i> only	1
Mixed anaerobes and <i>Streptococcus milleri</i>	2
Total	71

*Eighteen patients had fistulae with the gastrointestinal tract.

†Eight patients had fistulae with the gastrointestinal tract.

absent (Table 1). On the other hand five isolates of *S milleri* were mixed with coliforms anaerobes when recovered from eight other patients, of whom seven had such fistulae. The overall isolation rate of *S milleri* was 57%. When pleural fluid from patients with conditions other than those above was examined coliform and anaerobic organisms predominated while *S milleri* represented less than 3% of the total isolates (Table 2). Clearly, in patients with deep seated pulmonary involvement *S milleri* was most often isolated either in pure culture (no gastrointestinal fistulae) or as part of a mixed flora (with gastrointestinal fistulae). *S milleri*, however, was less frequently isolated when there was no extensive pulmonary disease, despite the presence of gastrointestinal fistulae.

Pulmonary abscesses have many underlying clinical causes and bacterial isolates include a mixture of anaerobes, coliforms, and microaerophilic streptococci. In this series it seems clear that *S milleri* is the main causative agent in empyemas and pulmonary abscesses when the infection is strictly contained within the pulmonary cavity and occurs as part of a mixed flora when gastrointestinal fistulae are present. The natural habitat of the organism includes the mouth, upper respiratory tract, gastrointestinal tract, and vagina. Although bacteraemia with metastatic abscess formation can occur, it is more likely that in our patients invasive and purulent lesions occurred as a result of regional spread of the organism from the mouth and respiratory tract to the pulmonary cavity as a result of local disease, trauma, or surgery.

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References

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- ² Bartlett JG, Finegold SM. Anaerobic pleuropulmonary infections. *Medicine* (Baltimore) 1970;51:413-50.
- ³ Waitkins SA, Ball LC, Fraser CAM. A shortened scheme for the identification of indifferant Streptococci. *J Clin Pathol* 1980;33:47-52.

Book reviews

Pathology of Skeletal Muscle. Stirling Carpenter and George Karpati. (Pp 754; £85.) Churchill Livingstone. 1984.

This is an unusual book which grows in attractiveness the longer it is used. The format is unusual: five basic chapters on the normal and abnormal structure of muscle followed by an alphabetical ordered descriptive pathology of individual muscle diseases, so that, for example, ischaemic myopathy precedes limb girdle dystrophy which is followed by malignant hyperpyrexia syndrome. I found this irritating but as I became familiar with the format the disadvantage became trivial. It is a beautifully produced book with splendid photographs at light, semi thin, and ultrastructural levels. The chapter on pathological reactions is thorough and the sections on individual diseases informative. It is probable that the book had a long gestation at the printers: relatively few references are in the past three or four years. The book is not cheap but this reflects the quality of production. It is a good buy for the departmental library.

G SLAVIN

Clinical Chemistry in Diagnosis and Treatment. Joan F Zilva and PR Pannall. (Pp 539; soft cover £9.) Lloyd-Luke. 1984.

For a text book to achieve four editions is a mark of great success.

The fourth edition of Zilva and Pannall is very much the mixture as before but with text clarified and brought up to date. A new chapter on drug monitoring has been added.

The book is intended for medical students and junior hospital staff but it is probably the best general book for those preparing for the primary MRC Path providing they supplement it with intelligent reading around.

BRENDA SLAVIN

Quality Assurance and Control in Clinical Laboratories. Selected papers from a Symposium held in the University of Hull, 1984. Ed AD Farr. (Pp 191; paperback £5.) Institute of Medical Laboratory Sciences. 1984.

This book comprises 27 papers presented at a symposium organised by the IMLS in April 1984. Inevitably the standard varies, but the scope is remarkably wide ranging and topical, and covers blood transfusion, cellular pathology, clinical chemistry, haematology, immunology, and microbiology.

Many of the papers give a wealth of practical advice on the selection of methods and reagents, trouble shooting, and internal quality control, as well as the lessons learnt from external quality assessment schemes in each discipline. Several are more philosophical and give thought provoking ideas and comments on the current state of their particular art. Perhaps the most challenging comment comes in the Chairman's introduction: that good performance must mean "good" for the patient, and this means not only ensuring the analytical reliability of the result but also its usefulness in terms of its effect on the clinical outcome. Quality control of the request would be a good theme for a future symposium.

All who work in clinical laboratories can learn something from this useful little book.

PMG BROUGHTON

The Science of Biological Specimen Preparation for Microscopy and Microanalysis. Ed JP Revel, T Barnard, GH Haggis. (Pp 246; US \$43.00.) Scanning Electron Microscopy Inc, 1984.

This publication is a compilation of papers presented at the 2nd Pfefferkorn conference held in the USA in April 1983. The publishers, who sponsored the conference, are also known for their annual conferences and journal on Scanning Electron Microscopy. The present book follows the format of the SEM journals, utilising, in the main, camera ready copy of typescript manuscripts submitted by the authors.

The contents cover a wide range of technical topics, including the chemistry of fixation methods, resin embedding and sectioning techniques, methods for the preparation of frozen and frozen hydrated tissues, freeze-etching, and many others. The individual papers, 28 in total, vary somewhat in their approach but in general