

# PostScript

## CORRESPONDENCE

### Simplified semiquantitative culture using washed sputum from children with lower respiratory tract infections

Microbiologic diagnosis of bacterial lower respiratory tract infection in children is difficult because invasive diagnostic approaches, such as bronchoscopy or lung biopsy,<sup>1</sup> are usually not available for children. Previously, we showed the usefulness of a semiquantitative culture using sputum obtained from children.<sup>2</sup> However, this method requires sputum to be washed three times to reduce bacteria from the upper respiratory tract, and is tedious to perform as routine laboratory work. The purpose of our present study was to evaluate a simplified culture method for identifying causative pathogens in childhood lower respiratory tract infection.

We studied 268 children who were admitted to Saitama Medical School, Japan from February 1999 to August 2001 with the diagnosis of lower respiratory tract infection. Sputum was obtained by inducing the children to cough, as described previously.<sup>2</sup> The specimens were classified according to the Geckler classification<sup>3</sup> and washed in sterile saline by vigorous stirring using a bacterial loop. The core part of the sputum was collected and inoculated on to agar plates and incubated. For the simplified method, colonies were identified and bacteria with almost pure growth or with colony numbers of more than 50% on the plate were defined as pathogens. For 60 specimens we used sputum remaining from the simplified method, which was washed in fresh saline twice more and cultured. This was the same methodology used in the original method.<sup>2</sup> Results were compared between the two methods. Informed consent was obtained from the parents of all children.

Most specimens were classified into Geckler 5: fewer than 10 squamous epithelial cells and more than 25 neutrophils for each low power ( $\times 100$ ) field. The pathogens identified by the original/simplified methods were as follows: *Haemophilus influenzae*, 17/19; *Streptococcus pneumoniae*, eight/eight; *Pseudomonas aeruginosa*, six/three; methicillin resistant *Staphylococcus aureus*, six/three; *Streptococcus agalactiae*, two/two; and *Stenotrophomonas maltophilia*, one/one. No significant pathogens were identified in 21 and 24 specimens by the simplified and original methods, respectively. Mixed pathogens were identified in three and one specimen, respectively. In 56 samples, results were the same with both methods, with an agreement rate of 93% (56 of 60).

Pathogens identified by the simplified method in 268 children were as follows: *H influenzae* 33%, *S pneumoniae* 16%, and *S aureus* 3%. No significant pathogens were identified in 123 specimens (46%).

The diagnostic value of sputum in children is not clear because expectorated sputum is difficult to obtain. We successfully obtained sputum by inducing the children to cough. In addition, the simplified semiquantitative culture using washed sputum showed a high agreement rate with the original method, which involved three washes. We recommend this simplified method as a less invasive

method to clarify bacterial pathogens in lower respiratory tract infections among children.

Our result showed that *H influenzae* was the most frequent pathogen. Although the pathological role of non-typable *H influenzae* in respiratory tract infections has not been highly evaluated in children,<sup>4</sup> Shann<sup>1</sup> and Korppi and colleagues<sup>5</sup> reported a pathogenic role for non-typable *H influenzae*. We think these discrepancies could be a result of the diagnostic methods used.

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## References

- 1 Shann F. The management of pneumonia in children in developing countries. *Clin Infect Dis* 1995;21(suppl 3):S218-25.
- 2 Uehara S. A method of bacteriological examination of washed sputum in infants and children. *Acta Paediatr Jpn* 1988;30:253-60.
- 3 Geckler RW, Gremillion DH, McAllister CK, et al. Microscopic and bacteriological comparison of paired sputa and transtracheal aspirates. *J Clin Microbiol* 1977;6:366-9.
- 4 McIntosh K. Community-acquired pneumonia in children. *N Engl J Med* 2002;346:429-37.
- 5 Korppi M, Kotila ML, Jääskeläinen J, et al. Role of non-capsulated *Haemophilus influenzae* as a respiratory pathogen in children. *Acta Paediatr* 1992;81:989-92.

## BOOK REVIEWS

### A Handbook of Anatomical Pathology

Edited by R A Burnett. Royal Institute of Public Health and Hygiene, 2004, £15.00 (paperback). ISBN 1 90166 011 7145

Students of the Certificate or Diploma in Anatomical Pathology Technology will find this an excellent source of operational knowledge; mortuary managers will want to buy the editor a drink for the bibliography alone; pathologists will be reminded just how difficult it is to operate a mortuary in these days of Department of Health reports, Health and Safety Executive guidelines, and CPA visits. Such big praise for such a relatively small book, but then discussion about the size and colour of the publication surprisingly takes up about half of the introduction by the editor; the theme shall be maintained!

It is bigger than the 1991 "Red Book" which, according to its introduction—"in many mortuaries it takes pride of place on the bookshelf along with the much bigger format Yellow Book..."—well, not in mine it doesn't, because it was/is such an annoying little book to use, with a scanty contents page and no index. The 2004 Red and White Book (should have kept to one colour to maintain the chromatic flow) has undoubtedly expanded in its scope and amount of text and, as such, is a better source of information. However, because of the barely improved contents page and persistently non-existent index, it is still difficult to use; the contents page in this handbook takes you to the country, then to a region and strands you there. I don't need the sophistication of satellite navigation to find my way around a book, but even the cheapest road atlas has an

index to take you straight to the town. It troubles me that the introduction prides itself in the fact that each "part" is designed to be complete in itself, with minimal cross referencing and, therefore, some duplication and repetition is inevitable; who really wants to read the whole book over and over again to spot the duplications—that is, facts pertaining to the same subject area? I don't, and neither I suspect does any busy APT or pathologist. This is a shame because there is a veritable mine of information here. The price of £15 (including post and packaging) is easily affordable for the most cash strapped of organisations (even UK NHS hospital trusts). Having said that, on publishing the second edition, please will the Royal Institute of Public Health as publishers invest in a better word processing package with an index facility (even Microsoft Word will do it on a desk top) and pass the few pence on to the reader; it will be money well spent.

S C Biddolph

### Biology and Management of Multiple Myeloma

Edited by J R Berenson. Humana Press, 2004, \$125.00 (hardback), pp 376. ISBN 0 89603 706 1

This multiauthor book provides a useful comprehensive account of our current state of knowledge of multiple myeloma, encompassing epidemiology and aetiology, diagnosis, cytogenetic and molecular genetic abnormalities, prognosis, and treatment. There are chapters on renal lesions, bone lesions, and anaemia and monoclonal gammopathy of undetermined significance has also been discussed. The authors have been drawn from Europe, North America, and Australia and the approach taken is therefore generally applicable. The text has been well edited (or perhaps the book was well planned) so that there is not a great deal of duplication; some duplication could have been avoided between the chapter on cytogenetic and molecular genetic analysis and that on prognosis. The book will probably be of use to clinicians because it not only gives an account of relevant scientific advances but also provides an up to date review of current and future treatment options. It should also be useful to pathologists, providing an update of the clinical context in which they are reporting. The standard of production is high—acid free paper and a good clear font that makes for easy reading.

B J Bain

## CALENDAR OF EVENTS

Full details of events to be included should be sent to Maggie Butler, Technical Editor JCP, The Cedars, 36 Queen Street, Castle Hedingham, Essex CO9 3HA, UK; email: maggie.butler2@btopenworld.com

### Breast Diagnostic Histopathology Update

22-23 September 2005, Hammersmith Hospital and Imperial College, London, UK

Further details: Wolfson Conference Centre, Hammersmith Hospital, Du Cane Road, London W12 0NN, UK. (Tel +44 (0)20 8383 3117/3227/3245; Fax +44 (0)20 8383 2428; e-mail wcc@ic.ac.uk)