PostScript

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A case of *Aspergillus fumigatus* peritonitis in a patient undergoing continuous ambulatory peritoneal dialysis (CAPD): diagnostic and therapeutic challenges

In the June 2004 issue of your journal, Scotter described a case of aspergillus peritonitis in a patient undergoing renal dialysis diagnosed by the polymerase chain reaction and galactomannan detection.¹

We had a similar case of aspergillus peritonitis detected by (repeated) culture of peritoneal fluid and a positive serum galactomannan detection test.

An 82 year old man under continuous ambulatory peritoneal dialysis was referred to our hospital because of chronic dyspnoea, persistent cough with production of white sputum, fever, and abdominal pain. He was known to have diabetes mellitus and corticosteroid dependent chronic obstructive pulmonary disease. He developed a documented polymicrobial bacterial peritonitis, which was adequately treated. A few days later *Aspergillus fumigatus* was repeatedly cultured from his sputum. A bronchial aspirate also yielded *A. fumigatus*. Because of persistent abdominal pain, peritoneal fluid was cultured using BacT/ALERT® FA aerobic and SN anaerobic culture bottles (bioMérieux, Marcy-L'Etoile, France). Cultures repeatedly yielded *A. fumigatus*. The dialysis catheter was removed and cultured on Sabouraud dextrose agar containing chloramphenicol; *A. fumigatus* grew after two days of incubation. The galactomannan antigen detection test (Platelia® *Aspergillus*; Bio-Rad, Marnes-La-Coquette, France) performed once on the patient's serum revealed a positive value of 3.5 (normal value, < 0.8; doubtful, 0.8–1.0; positive, > 1.0). Oral voriconazole 400 mg twice daily was started promptly because peritoneal aspergillosis was considered very likely. Unfortunately, the patient died after 24 hours of antifungal treatment.

Peritonitis caused by fungi of the *Aspergillus* spp is rare in patients with continuous ambulatory peritoneal dialysis and is associated with high mortality.^{2–5} Early detection,

peritoneal catheter removal, and appropriate treatment with antifungal drugs may improve outcome.^{2–5} However, it is not clear whether voriconazole is the treatment of choice, because it has never been used in this setting, and there are no data available on voriconazole concentration in peritoneal fluid.

Galactomannan detection in serum and maybe also in peritoneal fluid, in addition to the polymerase chain reaction (if available), may contribute to an early diagnosis.

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- 4 Nannini EC, Paphitou NI, Ostrocky-Zeichner L. Peritonitis due to *Aspergillus* and zygomycetes in patients undergoing peritoneal dialysis: report of 2 cases and review of the literature. *Diagn Microbiol Infect Dis* 2003;46:49–54.
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Know the whole history

As histopathologists, we rely heavily on the clinical information provided with request forms to inform us of the patient's current complaint and relevant medical history. This varies enormously between clinicians. We also build up a relationship with our clinicians who regularly send biopsy material. This is particularly relevant in gastrointestinal pathology—for example, in assessing the endoscopic appearance of inflammatory bowel disease and the subsequent interpretation of the histological findings. With time, we develop an understanding with the clinicians who we deal with regularly and learn to judge the accuracy of the proposed

Figure 1 Crowded, atypical glands lined by pleomorphic nuclei, which are suspicious of malignancy. A normal gland is present at the top of the figure for comparison.

Figure 2 Ulcer slough overlying abnormal looking glandular tissue, which turned out to be pancreas in the base of the ulcer.

diagnosis, particularly with the more experienced endoscopists.

A 57 year old woman underwent endoscopy by an experienced gastroenterologist who noted a deep gastric ulcer and infiltrated looking duodenal cap carcinoma. The pathology data base showed that seven months previously she had a right hemicolectomy for a poorly differentiated Dukes's B adenocarcinoma of the hepatic flexure, which was infiltrating the omentum and involved the peritoneal surface of the specimen. Histological examination of the antral gastric biopsies showed abnormal glands with pronounced nuclear atypia (fig 1); the duodenal biopsies were mildly inflamed and oedematous. The gastric biopsies were considered suspicious of malignancy, particularly in view of the endoscopic appearances, and multiple repeat biopsies were suggested. Repeat endoscopy again showed an ulcer in the duodenal cap, but this time the essential information of radiotherapy for the colonic carcinoma was given. Further enquiries from the treating oncologist indicated that the treatment field included the duodenum and pancreas. At initial inspection the duodenal biopsies had a bizarre appearance with apparent underlying malignancy (fig 2); however, immunohistochemistry showed the underlying tissue to be pancreas with residual islets.

The pitfall of pancreatic tissue in the base of an ulcer is well known,¹ although not often seen. However, our case was further complicated by the effects of radiotherapy. Radiation induced changes in the gastrointestinal tract are well described but histopathologists need to be aware when radiotherapy has been given. As such, we rely on our clinical colleagues to provide this information to us but, on occasion, even the best clinicians may fail to provide a crucial piece of information, as was the case here, which can then trap the unwary.

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BOOK REVIEWS

Infection and Immunity

Edited by J S Friedland, L B Lightstone. London: Martin Dunitz, 2003. ISBN 1 84184 373 3

The title of this volume gives nothing away to the prospective book reviewer. I was expecting to plough through yet another undergraduate textbook, most likely with a cover featuring a false colour electronmicrograph of a bacterium being engulfed by a phagocyte, which, after review, could be off loaded on eBay to a hard up medical student. In fact, this volume is not a textbook as such and consists of 12 review article style chapters split equally between infection and immunology. To the workaday microbiologist many immunological topics, such as the biology of cytokines (which appear to be, according to circumstances, upregulated/downregulated/not affected, upregulating/downregulating/not affecting other cytokines), can seem impenetrable. However, all of the chapters in the immunology section were thoroughly readable to a non-specialist, which is in keeping with the publisher's stated aim that the book is intended to appeal to SpRs and others in training, in addition to clinicians and scientists interested in clinical and laboratory based research.

The section of the book devoted to infection covers a broad range of topics and, as with the other half of the book, each chapter makes good use of illustrations, diagrams, and box outs. Similarly, most chapters have helpful glossaries explaining frequently used terms and some also have the URLs of key websites, which are likely to be particularly useful given that there are no references cited post-2001. I found much of interest in this book, and particularly enjoyed the chapter on Toll-like receptors and the host response to infection.

Who will buy this book? This is a difficult question to answer. Although the high quality of the content and presentation is not in doubt, the book cannot help but come across as a series of chapters dealing with topics selected apparently at random, with no discernable leitmotiv. Although potentially there is much common ground between the two disciplines, thus yielding areas for discussion that would appeal to those with an interest in either infection or immunology, the topics considered, in many cases, fail to hit this target. Those of a predominantly immunological bent will, perhaps, find little of interest in the chapter on pathogenicity islands. Conversely, the reader drawn towards infection related subjects may be inclined to pass on chapters dealing with transgenic mice as experimental models for the study of autoimmune disease or peripheral immune tolerance and transplant rejection. In this respect, the book falls between two schools, and prospective readers are advised to leaf through the book in a real shop before deciding whether it deserves a place on their bookshelf, rather than merely buying "on spec" from, say, an eBay auction.

K G Kerr

Molecular Microbiology

Edited by D H Persing, F C Tenover, J Versalovic, *et al.* Washington DC: ASM Press, 2003, \$124.95 (hardback), pp 748. ISBN 1 55581 221 X

The availability of molecular diagnostic methods has increased dramatically over the past 15 years. This revolution has changed the landscape of medical diagnosis and management, and continues to do so, providing a new layer of depth to our understanding of the pathogenesis of disease, along with newly identified targets for a range of pharmacological and immunological treatments. Consequently, these developments demand an appropriate level of understanding on the part of medical and other healthcare staff.

This large, hardback book is edited by a diverse and accomplished group, and covers the part of the above revolution as it broadly applies to microbiology. The first section, Diagnostic principles, reviews DNA probe technology, nucleic acid amplification, nucleic acid sequencing, molecular strain typing, and novel approaches to the detection of nucleic acid amplification products. The second section, Diagnostic applications, is an in depth review of the use of molecular technologies to detect and characterise bacterial, viral, fungal, and parasitic pathogens. Also included are sections on pharmacogenetics and host genomics as they influence infectious disease outcomes, in addition to discussion of the crucial areas of laboratory standardisation, proficiency testing, and quality control.

Mutation detection forms a particular theme throughout the book, as would be expected, because nucleotide mutations contribute to microbial virulence; antigenic diversity of pathogens; attenuation; survival in hostile environments both in vivo and in vitro including immune evasion, antimicrobial resistance, and response to treatment; host susceptibility to and defence against infection; and the ability of the host to metabolise therapeutic antimicrobial drugs, etc. This is dealt with very well in the book across many different chapters. For example, several chapters are devoted to the various approaches to mutation scanning of microbes (screening methods (PCR based and non-PCR based)), DNA sequencing, phylogenetic analysis, strain typing approaches, pharmacogenetic methods of infectious disease management, and host susceptibility to microbial infection and cancer.

Single nucleotide polymorphisms (SNPs) occur throughout the human genome and the book describes their discovery through nucleotide sequencing, the various categories based on geographical location and therefore importance (coding, regulatory, intronic, and intergenic), and routine methods of detection. The presence of SNPs within various human genes has been shown to confer susceptibility, resistance, or phenotype modification to several infectious diseases, which are discussed in detail. For example, susceptibility to respiratory syncytial virus (RSV) infection (interleukin 8; IL-8), susceptibility to septic shock, cerebral malaria, mucocutaneous leishmaniasis, human papillomavirus/cervical cancer development (tumour necrosis factor α), susceptibility to a fatal outcome

in meningococcal disease (IL-1 β), immunodeficiency as a result of defective opsonisation (mannose binding lectin), human immunodeficiency virus 1 (HIV-1) susceptibility (CCR-5), susceptibility to intracellular pathogens such as *Mycobacterium tuberculosis* (N-RAMP (SLC11A1)), etc.

Various SNPs occurring within cytochrome P450s and drug transporters, such as P-glycoprotein and multi-drug resistance associated proteins, affect the metabolism of antibiotics including erythromycin, clarithromycin, primaquine, quinine, sulfonamides, isoniazid, dapsone, proguanil, HIV-1 protease inhibitors, imidazoles, rifampicin, and chloramphenicol. The book describes these SNPs, the function of the genes relevant to this section, and the methods available to detect an array of such polymorphisms to maximise efficacy and reduce toxicity of antibiotics towards efficient management of infectious disease.

In conclusion, this reference book brings together a wealth of information from diverse sources towards a common theme of molecular microbiology and infectious diseases. The book is well written by experts in the various fields, contains many helpful illustrations with colour plates, and will appeal to microbiologists, pathologists, infectious disease specialists, pharmacologists, and students of these disciplines. This is a thoroughly enjoyable book to browse or read and I envisage using my copy on a regular basis.

J Kerr

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

Diagnostic Histopathology of Breast Disease

9–13 May 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)

Practical Pulmonary Pathology

26–29 July 2005, Royal Brompton Hospital, London, UK

Further details: Professor B Corrin, Brompton Hospital, London SW3 6NP, UK. (Fax +44 (0)20 7 351 8293; e-mail b.corrin@ic.ac.uk)

Association of Clinical Pathologists' National Scientific Meeting

16–17 June 2005, Royal College of Physicians, London, UK

Further details: ACP Central Office, 189 Dyke Road, Hove BN3 1TL, UK. (Tel +44 (0)1273 775700; e-mail info@pathologists.org.uk)

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)