Viral and Epidemiological Studies

D. R. GAMBLE (*Public Health Laboratory, West Park Hospital, Epsom*) Epidemiological data suggest that juvenile diabetes may occur in genetically predisposed children but that its onset is associated with, and is probably triggered by, environmental factors. The nature of these factors is at present uncertain but there is growing evidence that diabetes may follow virus infection in animals and it may also do so in man.

The incidence of new cases of juvenile diabetes follows a seasonal pattern with a peak in cases occurring among children aged 9 years or over but not in younger patients. The age incidence increases from birth to a major peak at 11 years and then declines; minor peaks occur at 5 years and at 7 or 8 years. Children who first attend school or play groups before the age of 5 develop diabetes earlier than those who start school at 5, and in these children the peak incidence occurs sooner, at about 5 or 6 years. Environmental factors are clearly responsible for these differing patterns and, apart from virus infection, such factors as diet, stress, environmental temperature, physical activity, social class, and bacterial infections may be involved, either singly or in combination. Data will be presented on the effects of season, year, and age, on the incidence of juvenile diabetes, and the relationship of these findings to environmental factors will be discussed.

Diagnostic Laparotomy and Splenectomy in the Staging of Hodgkin's Disease

J. A. WHITTAKER (*Welsh National School of Medicine, Cardiff*) Forty-eight patients seen in a two-year period had histologically proven Hodgkin's disease. All were assessed clinically and radiologically and staged according to the recommendations of the Rye conference¹. Fourteen patients with stage 4 disease were excluded from the study and the remainder (34) underwent diagnostic laparotomy and splenectomy to determine the extent of Hodgkin's disease within the abdomen.

The preoperative staging was compared with the final staging which took account of operation findings and histological data from spleen sections and from lymph node and liver biopsies. Eighteen patients (53%) changed stage, including 15 advancing to a later stage. Whereas 10 of 11 patients with early clinical disease (stage 1-2) and systemic symptoms (weight

loss, sweating, fever, pruritus) advanced stage, only four of 15 without systemic symptoms did so. Clinical assessment of spleen size was unreliable and 13 patients who did not have palpable spleens had histological evidence of disease. Clinical assessment of liver involvement appeared more satisfactory and the only liver biopsies showing Hodgkin's disease came from patients whose livers were clinically enlarged. Lymphangiography proved more reliable in assessing intraabdominal lymphadenopathy than in many previously reported series with fewer than 10% of lymphangiograms incompatible with the operative findings. False negative findings were more frequent than false positives, but were only seen in patients whose disease was confined to coeliac axis or splenic pedicle nodes. No mortality and little significant morbidity resulted from the operation.

Laparotomy is recommended for exact staging in all patients with Hodgkin's disease confined to lymph nodes and is critically important in patients with systemic symptoms and disease apparently localized above the diaphragm.

Reference

¹Rosenberg, S. A. (1966). *Cancer Res.*, 26, 1310.

A Simplified Approach to Metabolic Bone Disease

R. P. TOWERS (*St Vincent's Hospital, Dublin*) Increasing appreciation of the importance and frequency of metabolic bone disease has led to greater demands by clinicians for precise information. The deficiencies of radiological and biochemical investigation mean that bone biopsy, with particular reference to the demonstration of osteoid seams, is necessary. As decalcification obscures the distinction between calcified bone and uncalcified bone, the use of undecalcified sections is necessary, but the preparation of these required special techniques and skill not always found in the routine histopathology laboratory.

Attention is drawn to the method published by Tripp and Mackay in 1972. Based upon a technique by Gomori in 1933, this procedure involves immersing pieces of alcohol-fixed bone in 2% aqueous Ag NO₃ in the dark for 48 hours, followed by a reducing process which leaves a black deposit of silver at the interface between bone and osteoid. Routine decalcification and paraffin embedding permit staining by a variety

of methods, van Gieson giving a particularly attractive result, with osteoid seams clearly demarcated.

While the quantity of osteoid can be expressed as a subjective opinion, more precise mensuration is often desirable, commonly making use of point-counting methods. An alternative which has been found satisfactory is to project sections stained as described above onto paper, outlining the complete trabeculae and the osteoid seams, cutting these out and weighing them, whereby the percentage of osteoid can be easily calculated. Estimation of total bone, necessary in studying osteoporosis, can be done using the same principle.

The above procedures are recommended as being satisfactory and within the competence of a non-specialized laboratory.

Reference

Tripp, E. O., and Mackay, E. H. (1972). *Stain Technol.*, 47, 129.

Granulomatous Orchitis due to Histoplasma Capsulatum Masquerading as Sperm Granuloma

M. MONROE (*Richmond Memorial Hospital, Richmond, Virginia, USA*) A case of disseminated histoplasmosis with death resulting from adrenal necrosis is presented. The patient, a 69-year-old white male, had in the week prior to death been treated for the 'influenzal syndrome', and following intravenous administration of saline solution, improved symptomatically. His death was sudden and unexpected. At necropsy massive adrenal necrosis was demonstrated, with *H. capsulatum* visualized by the Gomori methenemine silver stains. Other organs containing granulomata but no organisms were heart, lungs, liver, spleen, and hilar lymph nodes. A pure culture of *Histoplasma capsulatum* with tuberculate chlamydospores grew out of the adrenal. Two years prior to death the patient underwent left orchidectomy for a swollen testis, diagnosed clinically as a chronic abscess and pathologically as sperm granuloma. Review of the testicular lesion, stained by the Gomori methenemine silver stains technique, revealed a few but unquestionable *H. capsulatum* in the granulomatous tissue. No cases of histoplasmosis of the testis could be found in the AFIP files. This case emphasizes the necessity of staining all granulomatous lesions, and particularly those of the testis, by the Gomori methenemine

silver stains technique. Had this been done, it is possible that appropriate treatment could have been instituted to have prevented death from disseminated histoplasmosis, even though treatment is admittedly not without dangers.

The Interpretation of Respiratory Tract Histology in Cot Deaths

E. TAPP, D. M. JONES, AND J. O'H. TOBIN (*Withington Hospital, Manchester*) The diagnosis of 'cot death' is essentially one of exclusion, and is made in sudden unexpected deaths in infancy where all recognized causes of death have been eliminated. The main problem, therefore, in the respiratory tract is to determine whether a particular lesion is significant enough to cause death.

With this in mind, the histological degree of inflammation in the respiratory tract of 1939 sudden unexpected deaths has been assessed and has been correlated with the bacteria isolated from them. The type of bacteria isolated appears to give some indication as to the significance of degrees of inflammation in the tracheo-bronchial tree which on histological grounds alone would have been doubtful.

Virus isolations from the lungs have been low (16%), but were found particularly in cases which histologically showed acute bronchiolitis. Viruses were also isolated from two cases showing only minor degrees of inflammation in the lung parenchyma. In addition immunofluorescent studies of specific antibody to respiratory virus in the Ig_a, Ig_g, and Ig_m fractions of the serum indicate evidence of recent virus infection in five other cases with only minor histological lesions in the lung parenchyma. The significance of these findings is discussed.

Filing and Retrieval of '2 × 2' Transparencies in Morbid Anatomy

R. A. G. BROWN (*Ninewells Hospital, Dundee*) An inexpensive and reliable indexing, filing, and retrieval system for '2 × 2' transparencies within a department of pathology is described. Indexing is based upon an abridgement of the Systematized Nomenclature of Pathology and retrieval upon punched feature cards. Using plastic slide wallets holding 24 slides, 2400 transparencies and the associated index cards can be conveniently stored in one drawer of a standard filing cabinet.

Endoscopic Biopsy and the Diagnosis of Duodenitis

T. J. BETTERIDGE (*RAF Institute of Pathology, Halton*) The advent of endoscopy has imposed further burdens upon the pathologist in the assessment of changes and their significance. The problem of limits of confidence is discussed with respect to the diagnosis of duodenitis.

A simple classification is described and related to the diagnosis of 200 duodenal endoscopy biopsies. The classification relates to cellular and architectural changes. It is not felt that gastric metaplasia is of value in the grading of duodenitis.

Classification may be of limited value when set against justified clinical bias in the choice of biopsy site, but a logical assessment with a standardized format is of value to pathologists and clinicians in maintaining a consistent standard of evaluation.

Histopathology Reports and Medical Records—A Matter of Chance?

I. M. MAGRATH (*Orpington, Kent*) Most histopathology departments suffer from telephone enquiries about reports. The reading of reports over the telephone, and their receipt, by non-medical staff is a practice officially frowned on but, in fact, tolerated as inevitable. While some impatience by clinicians with the speed of decalcification or of special stains in difficult cases is understandable, requests for results already sent out need examination.

Some 500 reports each from two laboratories with different speeds and methods of receiving and processing specimens and of delivering reports were followed in an attempt to determine factors which might cause long-term failure of reports to reach their destination. It seemed likely that specimens which had reached the laboratory poorly identified, with incomplete or incorrect details, would be at risk in proportion to these inadequacies. In fact, no such consistent reason could be found for the nucleus of missing reports, and it became clear that many poorly or wrongly detailed reports reached the case notes because there existed duplications and mechanisms which ensured this, whether by accident or design; the fallibility of some elaborate and expensive devices used in records systems was also shown.

While the causes of disappearance in some reports, and the quantitative value of the covering mechanisms for many of the remainder could hardly be assessed, it seemed desirable that any attempt to 'rationalize' procedures in a laboratory office, secretariat, or hospital records department should be preceded by a careful study of the local circumstances for each hospital, as such streamlining might cause a serious drop in the arrival of reports.

An Epidemic Due to *Serratia marcescens* in a Neurosurgical Unit

K. B. ROGERS AND B. GITTENS (*Children's Hospital, Birmingham*) Over a 10-month period the operation sites of 16 of 181 patients who had major intracranial operations developed infections due to *Serratia marcescens*.

Until the characteristic colonial appearance of *serratia* on MacConkey's medium was appreciated, it was thought that two of the first four infections were caused by *Enterobacter liquefaciens*.

The infection never followed spinal operations or operations on Thursday, when the anaesthetist did not measure central arterial blood pressures. This led to a realization that two months before the first infection became manifest there had been a modification of the apparatus with which the central arterial blood pressure was measured. *Serratia* was isolated from a tube that was no longer required, but which had been inadvertently left in place and was being connected to the new recording system.

The *serratia* in this epidemic had a relatively low virulence. The infection became manifest in nine patients between 99 and 266 days after operation and only six patients showed evidence of infection as early as 12 days after operation; also in five patients *serratia* was recovered at the end of operations from the skin incision before it was sutured and none developed infections. This is in marked contrast to the fulminating septicaemia with thrombocytopenia, purpura, and hyperpyrexia some years previously amongst the infants, in a small epidemic who became infected with *serratia* through the incision made to give intravenous fluids.

Antibodies to *serratia* were found in the sera of the infected patients and the possible value of this finding is discussed.