The Paediatric Pathology Society
Abstracts for Oral Presentations

71 ACUTE RENAL FAILURE AND HAEMOLYTIC ANAEMIA FOLLOWING PNEUMOCOCCAL INFECTION

M.E. McGraw, R.F. Stevens, R.J. Postlethwaite, M. Lendon
Royal Manchester Children's Hospital, Hospital Road, Pendlebury, M27 1HA

We present two cases of acute renal failure associated with a microangiopathic haemolytic anaemia following pneumococcal infections. In both children there was evidence of red cell T-poly-agglutinability (being manifest initially as discrepant ABO blood grouping). In one child pneumococci were isolated from the blood whilst in the other there was antigenic evidence of a recent pneumococcal infection. Both children had a period of oliguric renal failure requiring dialysis. Prostaglandin metabolism was shown to be normal in both children. Renal biopsy in one case showed evidence of exposure of the T antigen on the renal glomeruli, tubules and red cell casts. Pneumococci are known to produce the enzyme neuraminidase which has been implicated in T-activation. We suggest that T-activation following pneumococcal infection should be included in the spectrum of the Haemolytic Uraemic Syndrome.

72 Haemosiderin-laden macrophages in the interstitial tissue of the lung of sudden infant death cases - a mark of previous 'near-miss' events?

SUSAN STEWART, F.J.FAWCETT and W. JACOBSON* (Histopathology Department, District Hospital, Peterborough PE3 6DA, and *Department of Paediatrics, University of Cambridge, Addenbrooke's Hospital, Cambridge CB2 2QQ).

In a series of 24 consecutive cases of Sudden Infant Death Syndrome (SIDS) the lungs of 10 infants showed foci of haemosiderin-laden macrophages in the interstitial and subpleural tissue without extravasated red cells nearby, indicating that petechial haemorrhages had occurred at some time prior to the last and fatal event. These lungs were free from inflammatory changes and therefore can be considered to be true cases of SIDS. In contrast the lungs of 11 infants showed inflammatory changes including bronchiolitis and interstitial pneumonia. The remaining 3 infants showed both inflammatory changes and interstitial haemosiderin in macrophages without red cells in the proximity. Fresh petechiae and alveolar haemorrhage sometimes with haemosiderin-laden macrophages are seen in all groups. It is suggested that in true SIDS the lungs are not only free from inflammatory changes, but also show signs of previous events causing petechial haemorrhages, for example near-miss episodes. Haemosiderin-containing macrophages in the interstitium, without free red cells nearby may be the mark of such an event.

73 FOETAL PULMONARY LYMPHANGIECTASIS

D. GAILLARD, N. MULLIEZ*
Laboratoire Pol BOUIN. C.H.U. 51092 REIMS Cedex -France-
*C.H.U. Saint-Antoine PARIS -France-

Less than 70 cases of congenital pulmonary lymphangiectasis in neonates are reported in the literature. Half of them are stillborn, however to our knowledge no such foetal cases have yet been reported. The occurrence of these lesions in 2nd term gestation and the absence of valves, would indicate that this disease is probably a malformation and not an acquired lesion. We report here 5 new cases of pulmonary lymphangiectasis with the classical microcystic honeycomb appearance on cut section. 3 of them are isolated pulmonary lymphangiectasis from 20 and 22 week old spontaneous abortions and a 31 week old male stillborn, with no cardiopathy, no pleural effusion, no lymph node hypertrophy. 2 other cases may be a part of hydrops foetalis with no erythroblastosis : one is a 31 week old still born boy, the other is a 24 week old male twin foetus with placental vascular anastomoses, presenting a cystic adenomatoid malformation of the left inferior lobe. In all cases the development of the elastic network appears normal. Except the last case Factor VIII staining using the immunoperoxydase method reveals' no Factor VIII related antigen in cystic lymphatic vascular endothelial cells.

74 Identification of Rectal Ganglion Cells using Monoclonal Antibodies.

D.J. Reen, Catherine Scallen and P. Puri.
Children's Research Centre, Our Lady's Hospital for Sick Children, Crumlin, Dublin 12.

Many histopathologists are reluctant to make a diagnosis of Hirschsprung's disease on the basis of suction rectal biopsies, possibly due both to doubt as to the amount of submucosa that must be scanned before absence of ganglion cells is indicative of aganglionosis and the relative difficulty of accurate identification of submucosal ganglia. The aim of this study was to produce a ganglion cell specific monoclonal antibody that could be used as a reliable marker for the detection of ganglion cells in suction rectal biopsy specimens. Balb/c mice were immunised with human lumbar sympathetic ganglia. Following fusion of mouse spleen cells with Sp2 myeloma cells, 704 hybridomas were produced with 67 producing nonspecific antibodies and 4 hybridomas producing ganglion cell specific monoclonal antibody. All 4 hybridomas were re-cloned twice by limiting dilution and cells were stored in liquid nitrogen. One clone (F7) which gave the highest titre was subsequently passaged in mice to produce high titre ascites fluid monoclonal antibody. This antibody reacted with rectal ganglion cells from dog, rabbit and pig as well as from humans but was completely negative with a wide range of other human and animal tissues. Using indirect immunofluorescence this antibody stained brightly all ganglion cells in specimens of ganglionic bowel but was negative when reacted with rectal tissue from three patients with Hirschsprung's disease tested so far. This method provides a new and easy approach for the identification of ganglion cells in rectal biopsies in suspected cases of Hirschsprung's disease.

75 THE ROLE OF LUNG DEVELOPMENT IN AGE RELATED SUSCEPTIBILITY OF FERRETS TO INFLUENZA VIRUS

D.M. COATES, R.H. HUSSEINI, D.I. RUSHTON*, C. SWEET, H. SMITH.
Department of Microbiology and Pathology*, University of Birmingham, PO Box 363, Birmingham B15 2TT.

Earlier studies of the effects of influenza virus on the ferret have shown:
(i) intranasal inoculation of neonatal ferrets is universally fatal, whereas in 15 day old suckling or adult animals recovery is the rule.
(ii) a proportion of the infected neonatal ferrets succumb with pathological evidence of an upper respiratory tract infection but no parenchymal lesions in the lungs, a finding analogous to that in a proportion of human sudden infant deaths (SIDS).
(iii) organ cultures of neonatal ferret lung are more susceptible than adult lung and ciliated epithelium is more susceptible than alveolar epithelium to influenza virus.
That these differences in survival might be related to changes in the structure of the lung associated with growth was investigated by morphometric techniques. These demonstrated:
(i) that the ratio of ciliated to alveolar epithelium halved between birth and 15 days and halved again with the attainment of adulthood.
(ii) that the size of the bronchi and bronchioles but not their number increased during the same period.
The possible significance of these findings is discussed both in relation to the ferret and human neonate and infant.