ECVP/ESVP Summer School in Veterinary Pathology

Marie Curie Training Courses

Summer School 2006 – Emerging Infectious Diseases Case 6

Case 6 Provided by: Prof T Kuiken, Institute of Virology, Erasmus Medical Center Rotterdam, The Netherlands

Signalement: Cat (European Shorthair), 5 months

History:
Experimental intratracheal infection (2.5 x 10^4 $TCID_{50}$) with Avian Influenza virus H5N1 (isolate from fatal human case in Vietnam (A/Vietnam/1194/04). Euthanasia on day 7 post infection.

Gross Findings:
Multifocal to coalescing acute pulmonary congestion.

Histology: Tissue from a cat.

1. DESCRIPTION OF HISTOLOGIC FINDINGS

Lung. There are multifocal random areas which exhibit numerous desquamed, intra-alveolar macrophages which are occasionally binucleate, moderate amounts of fibrin, a few neutrophils and moderate amounts of eosinophilic amorphous material (alveolar oedema). There are multifocal alveoli which contain variable numbers of erythrocytes (alveolar haemorrhage). Throughout the section there are moderate numbers of single or small groups of hypereosinophilic pneumocytes with karyorrhectic and karyolytic nuclei (necrosis). Many alveoli contain large, square to polyhedral cells (up to 25 μm in diameter) with large nuclei (up to 20 μm in diameter) and distinct nucleoli (activated type II pneumocytes; moderate multifocal type II pneumocyte hyperplasia).
Bronchioles contain variable amounts of fibrin (exudate) and cell debris and exhibit scattered necrotic epithelial cells and scattered neutrophils and lymphocytes between epithelial cells (mild bronchitis).
There is moderate diffuse hyperaemia. Multifocally, alveoli are moderately distended (alveolar emphysema).

2. MORPHOLOGIC DIAGNOSIS

Lung; severe, acute, multifocal, necrotising pneumonia with type II pneumocyte hyperplasia and alveolar fibrin exudation; mild acute bronchitis.