(Refer to page 34)

**Answer: Pyopneumothorax**

The radiograph demonstrated a large left pleural effusion with a horizontal upper border indicating the presence of air and fluid, in this case pus. The pleural cavity normally contains a relatively small amount of fluid, not more than 10 mls. Various pathological states can involve the pleural space including pneumothorax, pleural effusion, empyema, haemothorax, and chylothorax.

Pleural effusions are the most common pleural disorders arising from a wide spectrum of pathologies. Initial assessment typically involves the assessment of laboratory parameters from pleural aspirate assessing the characteristics of the fluid, cell counts (white and red blood cells and lymphocytes), lactate dehydrogenase (LDH) and protein level (transudate [<30 mg/L] or exudates [30 mg/L or more]). If there is concern of infection, the pH of the sample should also be assessed.  

Frank pus on aspiration is diagnostic in itself for empyema (Panel). (Refer to supplementary text on evaluation pleural effusion).

Spontaneous pyopneumothorax is an uncommon condition with the combination of air and pus within the pleural space. The empyema may precede or supersede the pneumothorax. Certain underlying conditions may increase the risk (chronic lung or pleural disease such tuberculosis, chronic suppurative lung disease or invasive procedures or trauma to the thorax cavity such as central line insertion, pleural aspiration and blunt or penetration chest traumas).  

Organisms reported to cause pyopneumothorax include commonly encountered organisms such as *Staphylococcus aureus*, *Pneumococcus*, *Mycobacterium tuberculosis*, *Klebsiella* spp, anaerobes such as *Bacteroides fragilis* and the gas forming organisms such as *Clostridium* spp.

The treatment for pyopneumothorax is therapeutic thoracocentesis with wide bore drainage tube and antibiotics appropriate for the organisms. The treatment course may need to be given for up to four to six week. In cases where medical or drainage treatments fail, surgical evacuation may be required before the disease results in chronic inflammatory changes. In such cases, video assisted thoracoscopic surgery (VATS) is the preferred option as it is associated with less morbidity and shorter hospital stay.

**REFERENCES**

