Bronchoalveolar lavage (BAL) quiz: when can you expect which cells?

Pulmonary diseases have traditionally been evaluated by laboratory tests, lung function tests, imaging procedures and tissue biopsies. Bronchoalveolar lavage (BAL) represents an additional tool in the assessment of the health status of the lung for pulmonologists that can facilitate the diagnosis of various diffuse lung diseases. BAL is competent to provide cells and solutes from the lower respiratory tract. BAL fluid (BALF) can be analyzed to determine white blood cell (WBC) profiles and to detect respiratory pathogens. Although BAL is seldom useful as a "stand-alone" diagnostic test for the diagnosis of diffuse infiltrative lung disease, when combined with clinical data and high-resolution computed tomography of the chest, BAL WBC profiles can contribute significantly to the diagnosis of specific forms of interstitial lung disease. However, if despite this thorough clinical evaluation the diagnosis remains unclear, a biopsy should be considered as the final diagnostic step. Additionally, BAL can play a very important role in the diagnosis of respiratory infection, and it is useful in monitoring the lung allograft. Examination of BAL cells or acellular components of BAL via gene microarray technology or proteomic analyses may allow BAL to assume a more prominent role in diagnosis and management of lung disease in the near future.

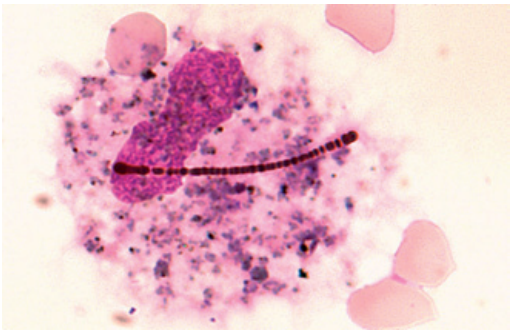

Figure 1. *May-Grünwald Giemsa stain. Foreign body phagocytised by an alveolar macrophage (AM). Normally these particles are not present in BALF.*
What kind of exposure *should be considered?*
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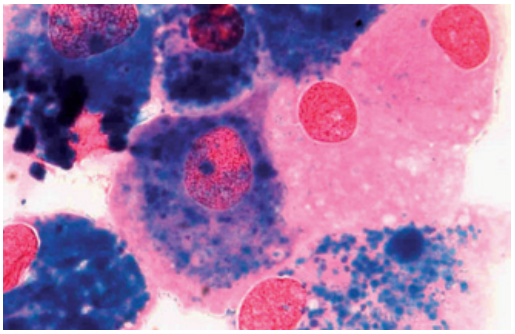

Figure 2. *A Perls' stain can be used to visualise haemosiderin. When using this stain, cells that have phagocytised red blood cells (or degeneration products of these cells) display a positive reaction varying from a faint blue discoloration of the cytoplasm to an intense blue-staining of intracytoplasmic material.*
When is application of this stain recommended?

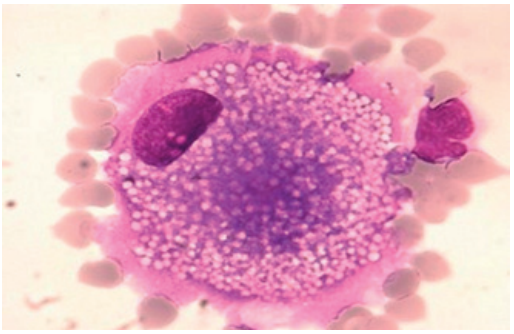

Figure 3. *May-Grünwald Giemsa stain. A group of foamy alveolar macrophages (AMs). The cytoplasm of these macrophages show complete vacuolisation. Although the presence of these foamy AMs is usually non-specific. However, they normally are not found in BALF from patients suffering from: a) sarcoidosis, b) extrinsic allergic alveolitis (EAA) or hypersensitivity pneumonitis (HP), or c) drug-induced pneumonitis.* ***What is the correct answer?***

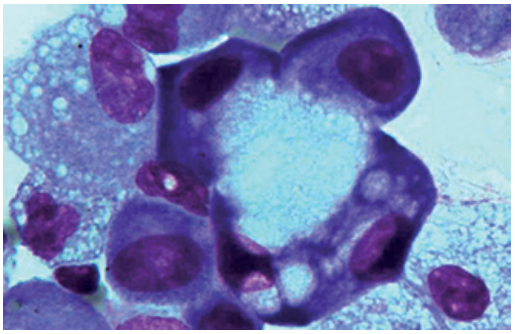

Figure 4. *Reactive type II pneumocytes (RPII) in May-Grünwald Giemsa stained cytocentrifuged BALF samples, In normal circumstances these cells are not present in BALF.*
In which conditions can these cells be present in BALF?

Answers to these questions you can find on http://www.wasog.org/wasogbal2011/bal.htm. Moreover, you can find an atlas of BAL cells as well as some relevant clinical questions.