

Pulmonary tuberculosis and lung carcinoma

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PULMONARY TUBERCULOSIS & LUNG CARCINOMA

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Pulmonary tuberculosis is an infectious disease that is caused by causative organism *Mycobacterium tuberculosis* and is transmitted by air-borne droplets produced from respiratory secretions of affected individuals. The lung carcinomas, on the other hand are a group of invasive tumours which have an invasive property and also have metastatic capabilities. The lung carcinomas originate mostly from the epithelial lining of the lungs. These are broadly classified into non-small cell and small cell carcinomas. On the basis of cell type, the carcinoma can be squamous cell carcinoma, adenocarcinoma, and small cell carcinoma or large cell carcinoma. Adenocarcinoma is the most common type of carcinoma in North America and is prevalent in non-smokers and women. Squamous cell carcinoma is associated with a strong history of smoking with a greater ratio in men. Tuberculosis infection of the lung causes death of 2 million people annually worldwide (Kenchel 2009; Porth 2010). The clinical manifestations associated with both respiratory diseases which include dyspnoea, weight loss, cough, fever and haemoptysis will be discussed, focusing on their physiological aspects.

Tuberculosis is divided into four stages which include primary disease, latent tuberculosis, and primary progressive and extra-pulmonary tuberculosis. All four stages manifest differently in individuals depending on their immune status. Shortness of breath or dyspnoea is one of the symptoms of tuberculosis which is manifested in the primary disease. The affected parts of the lung tissue are unable to perform complete and efficient gas exchange which results in hypo-perfusion and leads to shortness of breath in the individual. The increase in the lung volume leads to fall in the lungs capacity

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to perform diffusion properly (Kenchel 2009).

Muscle wasting and weight loss is a characteristic feature of tuberculosis observed in the patients with active tuberculosis. This symptom is explained by the decrease in appetite of the individual because of the change in the metabolic activities. The active inflammatory process and the immune reactions to the *Mycobacterium tuberculosis* leads to the altered metabolism leading to both fat and protein loss from the body's total weight. This presents as weight loss, wasting and fatigue. The macrophages produced in response to the bacteria entry produce a cascade of cytokines and inflammatory enzymes which are responsible for the fever in this pulmonary infection. Haemoptysis or blood in sputum is a result of rupture of a vessel in the necrotic cavities formed in the lungs. It can also be caused by destruction of any dilated or aspergilloma formation (Kenchel 2009).

The lung cancer symptoms are divided into those caused by involvement of lungs, local spread and metastatic spread. The non-specific symptoms associated with lung carcinoma are weight loss, anorexia and fatigue. The weight loss symptoms are caused by the increased metabolic activity of the tumour cells and is then associated with fatigue and loss of appetite as well. Chronic cough is a result of obstructive nature of the tumour mass and the local irritation of the airway passages. Haemoptysis manifests due to the erosion of any local vessel by the malignant lesion and the sputum presents with streaks of blood. The tumour mass which lies in close proximity to the pleural walls can cause pleural effusion which compresses the lung. This results in shortness of breath due to reduced lung expansion capacity (Porth 2010).

Metastasis of the lung carcinoma results in symptoms related to the site of
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invasion for instance hoarseness in laryngeal metastasis (Porth 2010).

Clinical manifestations of tuberculosis and lung carcinoma are similar in many aspects but proper diagnostic techniques, clinical examination and history of the patient can help in proper diagnosis and medical intervention for the disease.

Bibliography

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