in preserving lung tissue.[5] In about 15% cases of acute pulmonary embolism, the collateral supply by bronchial arteries is insufficient. Pulmonary infarcts may be observed several hours later.[4]

The small air bubbles in the superior vena cava may originate from intravenous contrast media injection during CT scan and round pneumonia is a reasonable diagnosis of pulmonary opacities in this case.

W-J Lee, K-L Liu, S-J Chen
Department of Medical Imaging, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan

Correspondence to: Dr S-J Chen, Department of Medical Imaging, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan; james_5586@hotmail.com

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PULMONARY PUZZLE

Answer

The patient was submitted to lung and prostate biopsies which showed pulmonary alveolar proteinosis (PAP) and embryonal rhabdomyosarcoma (fig 1A and B). A radical cystoprostatectomy with an ileal conduit was performed without curative intention due to lymph node metastasis and 1 month later the patient underwent pelvic radiotherapy and doxorubicin-based chemotherapy. The patient refused treatment of the pulmonary disease. There was progression of the lymph node metastasis and no improvement in the pulmonary symptoms or radiological findings after treatment. The patient died 1 year after surgery as a result of intra-abdominal spread of the neoplasm.

PAP is a rare cause of respiratory failure which results from accumulation of lipoproteinaceous material in the alveolar space. It is believed to be caused by dysfunction of the clearance of surfactant from the alveoli by macrophages.[1] PAP is associated with high levels of autoantibodies against granulocyte-macrophage colony stimulating factor (GM-CSF) in the blood and tissues. Neutralisation of the biological activity of GM-CSF may cause neutrophil and alveolar macrophage dysfunction, which would explain the pathogenesis of PAP.[2] It may be secondary to many conditions such as acute silicosis and other inhalation syndromes, immunodeficiency disorders, infections, haematological malignancies (predominantly myelogenous leukaemias), metastatic melanoma to lung and breast cancer, but no association with prostate cancer is known.[1–4] These associated diseases and GM-CSF neutralisation suggest that PAP is characterised by defective immune function.[2]

Embryonal rhabdomyosarcoma of the prostate occurs predominantly in male infants and children and is a rare and highly malignant tumour. Fewer than 20 cases of prostate rhabdomyosarcoma have been reported in adults.[5] In the present case there was a temporal association between the urinary and pulmonary symptoms. The PAP may have been a secondary manifestation of the prostate tumour, but its treatment did not improve the pulmonary symptoms or the radiological findings.

From the question on page 1002

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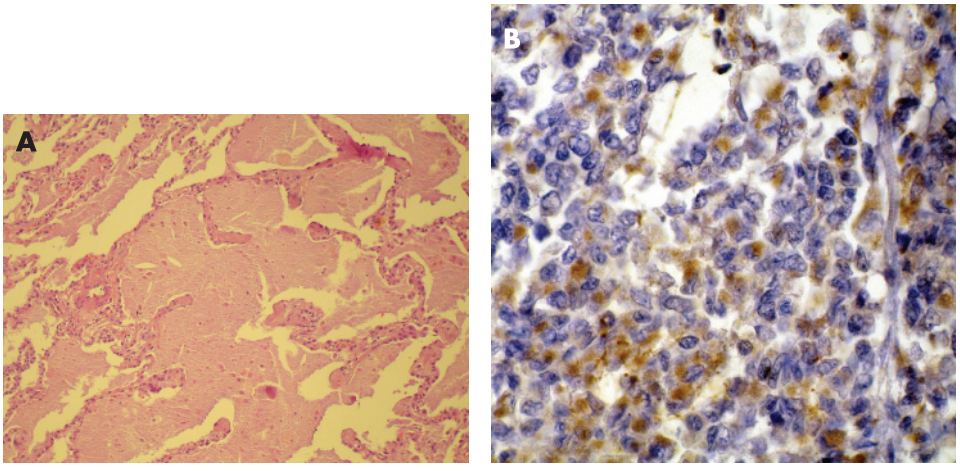

Figure 1 (A) Alveolar proteinosis (H&E stain, magnification 100×). (B) Embryonal rhabdomyosarcoma of prostate with myogenin positivity (immunohistochemical stain, magnification 400×).