Multiple small opacities of metallic density in the lung

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Answers on p 798.

Questions

- (1) What is the likely diagnosis?
- (2) What is the differential diagnosis?

A 24 year old young man presented with sudden onset of chest pain, dry cough, and shortness of breath of five days' duration. He denied trauma, fever, chills, or haemoptysis. A physical examination was unremarkable. Chest auscultation revealed decreased breath sounds with pleural rub in the right infra-axillary region. His complete blood count, urine analysis, and liver and renal function tests were normal. Chest radiography showed bilateral, multiple point opacities with a metallic density confined primarily to lower and middle zones

as well as in the right ventricular apex (figs 1 and 2). High resolution computed tomography (HRCT) of the thorax revealed bilateral diffusely distributed multiple, tiny dense spherules, sometimes appearing as beaded chains filling pulmonary arterioles. Metallic density was also noted at the apex of the right ventricle with streak artefacts (figs 3 and 4). A radiograph of the abdomen showed numerous metallic deposits in the distribution of the paravertebral veins and kidney. Ultrasound showed multiple metallic deposits in the right kidney, however, they were absent in the left kidney; the liver, gall bladder, and spleen were normal. Pulmonary function tests showed restrictive ventilation defect, with reduction in vital capacity. The single breath carbon monoxide (CO) diffusing capacity was at the lower limit of normal (33.04 ml CO/min/mm Hg) and the ratio of diffusing capacity to single breath helium dilution total lung capacity was low (3.90 ml CO/min/mm Hg/l, predicted value 5.76).

Figure 1 Chest radiograph (posteroanterior view) showing multiple small opacities of metallic density. A large metallic opacity is also visible in right ventricle (arrow).

Figure 2 Chest radiograph (lateral view) showing multiple small opacities of metallic density. A large metallic opacity is also visible in right ventricle apex (arrow).

Figure 3 HRCT of chest showing spherules of metallic density.

Figure 4 HRCT of chest showing multiple opacities of metallic density conglomerating at some places. Opacities of similar density with multiple streak artifacts are also seen in the heart.

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Unusual cause of an abduction deficit in a 14 year old girl

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A 14 year old girl presented with sudden onset of diplopia and slurred speech with no fever. A week previously, she had a headache, cough, and rhinorrhoea. However her symptoms resolved a few days before admission. Eye examination confirmed an abduction paresis of the left eye and abduction nystagmus of the right eye. Esotropia of the left eye was absent when the eyes were fixated in the primary position. There was full vertical eye movement, insufficient vestibulo-ocular reflex, and slow saccades of the affected eye. Neurological evaluation revealed slurred speech and ataxic gait.

Cerebrospinal fluid (CSF) analysis showed 40 white cells (all lymphocytes), protein of 0.4 g/l, and normal glucose content. Viral serology and bacterial cultures of blood, urine, CSF, stools, and throat swab were negative. Polymerase chain reaction analysis was negative for herpes simplex genome in the CSF. Serological tests for toxoplasmosis and *Mycoplasma pneumoniae* were negative. An autoimmune screen and a metabolic profile were normal. An electroencephalogram showed bilateral delta waves, more posteriorly, with no epileptiform discharges.

Magnetic resonance imaging (MRI) of the brain using T2 weighted axial images (fig 1) showed an increased signal in the cerebellar white matter and the dorsal aspect of the lower pons. There was an increased signal in the region of the abducens nucleus and the paramedian pontine reticular formation.

Treatment with oral erythromycin, intravenous acyclovir, and cefotaxime was started immediately and a degree of clinical improvement was seen within 48 hours. After three weeks of treatment, ocular movement, speech, and gait returned to normal and a repeat CSF analysis showed no abnormality. Subsequent MRI of the brain showed a marked improvement in the abnormal areas identified previously (fig 2).

Questions

- (1) What is the most likely diagnosis?
- (2) Give possible differential diagnoses of an abduction deficit.
- (3) How would you manage a patient with an abduction deficit?

Figure 1 T2 weighted axial image showing increased signal in the cerebellar white matter. There is increased signal at the dorsal aspect of the lower pons, and lateral to this on the left at the level of paramedian pontine reticular formation and abducens nucleus.

Figure 2 T2 weighted axial image showing a marked improvement in the previously identified abnormal areas of high signal.

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