CASE REPORTS

Myeloma and a mass in the heart

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When heart failure develops in a patient with myeloma, special imaging techniques may be informative.

CASE HISTORY

A man of 76 was admitted elsewhere with atrial fibrillation and congestive cardiac failure. In the previous 3 years he had received intermittent courses of melphalan and prednisolone for multiple myeloma, though not in the months leading up to this admission. He was initially treated with intravenous diuretics and improved clinically. Three days after admission, an echocardiogram showed a large pericardial effusion with early tamponade and large mass lesions in the left and right atria. He was then transferred to our centre. On arrival there were no signs of heart failure. The electrocardiogram (ECG) showed low voltages, with atrial flutter and a rapid ventricular response rate. On chest X-ray the cardiac silhouette was enlarged, and bilateral small pleural effusions were present. Old healed rib fractures of the left chest wall were noted. Haemoglobin on admission was 12.2 g/dL, creatinine 146 μmol/L, serum globulins raised at 41 g/L.

The patient underwent further assessment with multi-slice CT of the heart. Retrospective ECG gating was used to minimize cardiac motion artifact and maximize image resolution, with 500 ms gantry rotation and 4×1.0 mm collimation. The acquisition was adapted directly from a non-invasive coronary angiography protocol. A large intracardiac mass was seen to arise from the interatrial septum, extending into both atria (Figure 1A,B). The tumour encroached into both right upper and lower pulmonary veins and superior vena cava, which was almost totally obstructed. Three-dimensional CT reconstruction with volume rendering techniques allowed clear visualization of all the cardiac structures involved by tumour.

Intracardiac plasmacytoma was diagnosed. The pericardial effusion was drained (800 mL) and the fluid showed a monoclonal band identical to that found in serum (IgA lambda). After drainage of the effusion there was spontaneous reversion to sinus rhythm. On oncological advice he then received radiotherapy to the heart—30 Gy (mid plane dose) in ten fractions over two weeks with 6 MV photons—during which time he was anticoagulated. When electively readmitted six weeks after completion of the initial radiotherapy he was clinically well. Repeat multi-slice

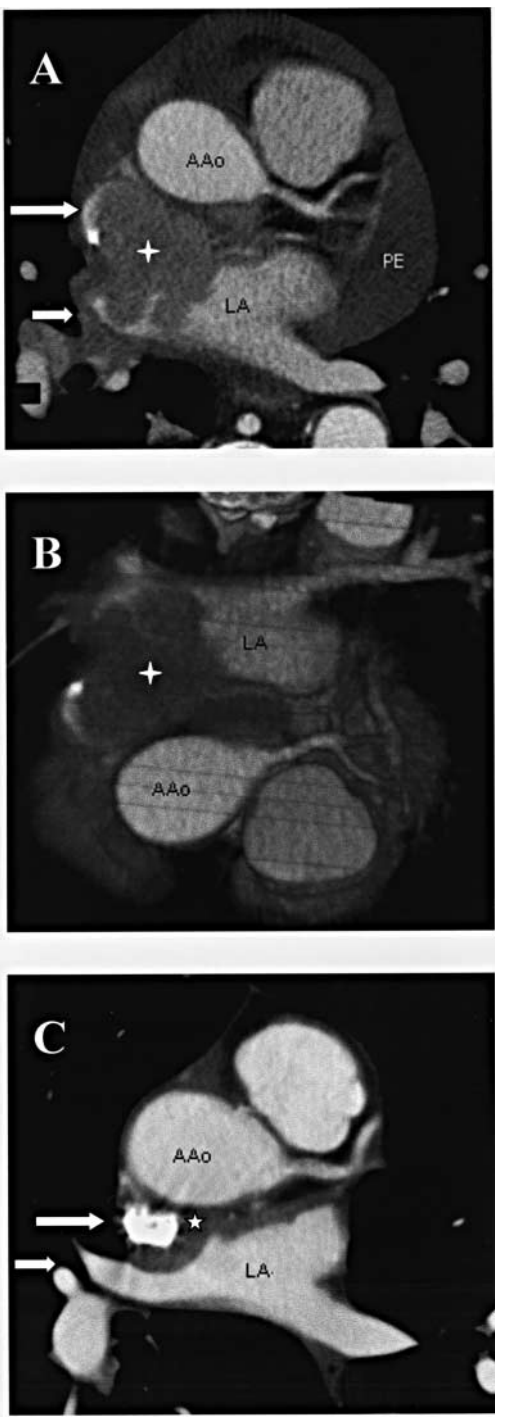

Figure 1 **Intracardiac plasmacytoma** (A) CT axial cross-section, large arrow showing superior vena cava, small arrow right upper pulmonary vein. Ao=ascending aorta; LA=left atrium; PE=pericardial effusion.
(B) three-dimensional CT reconstruction; (C) CT axial cross-section after radiotherapy, arrows as in (A)

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CT scan showed almost complete tumour regression, with abnormal signals now confined to a rim along the interatrial septum (see Figure 1C). There was no evidence of pulmonary vein involvement and the contrast-filled superior vena cava was widely patent. The patient was discharged for haematology follow-up at his local hospital. Six weeks later he was admitted with a scrotal swelling with biopsy consistent with plasmacytoma This was managed by orchidectomy.

COMMENT

The development of a plasmacytoma during treatment of myeloma is a bad prognostic feature suggesting resistance to chemotherapeutic agents. There are a few previous case reports of intracardiac plasmacytomas, identified after surgical resection,[1–3] or by transvenous biopsy,[4] or at necropsy.[5] Palliative radiotherapy successfully reduced tumour size in one patient[6] and radiotherapy plus chemotherapy in another.[5] Plasmacytomas are very sensitive to local radiotherapy, and a proportion of local tumours are curable by this means.[7] In patients less ill than ours, the hazards of mediastinal irradiation would have required more consideration. There is a modest late excess incidence of coronary artery stenosis,[8] and of pericardial constriction after treatment.[9]

The clinical presentation of intracardiac tumours depends on the anatomical structures involved. The multi-slice CT images obtained here allowed accurate anatomical localization. The nature of the mass as intracardiac, rather than invading from the vena cava, was not discernible on transthoracic or transoesophageal echocardiography. Multi-slice CT scan was also the modality of choice for confirming the treatment response.

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An Afghan child with deep vein thrombosis

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A link between deep vein thrombosis (DVT) and pulmonary tuberculosis has been described,[1,2] but not with gastrointestinal tuberculosis.

CASE HISTORY

A 13-year-old girl from Afghanistan developed abdominal pain 3 days after arrival in the UK. The pain was moderate, generalized and initially not associated with fever or vomiting. She made several visits to the general practitioner, who found nothing specific on examination and prescribed analgesics. About a month later she had further severe pain now associated with fever and vomiting. At her local district general hospital she underwent appendicectomy, suppurative appendicitis and a faecolith being found at operation. Postoperatively the pain persisted, although much improved. Two months later she returned with pain in the right lower quadrant of her abdomen and the right lower limb. Doppler ultrasound showed thrombosis of the right femoral vein, extending to the internal iliac vein, and she was started on heparin. The abdominal pain continued and it was noted that she had lost 14 kg over the previous four months. Further investigations revealed raised platelet count and C-reactive protein, macrocytic anaemia with low vitamin B_{12} and folate levels, but normal ferritin. Inflammatory bowel disease was suspected and she was referred to a tertiary hospital for further investigations and management. There was no history of past illness and no family history of chronic cough or gastrointestinal disease. The patient had received BCG vaccination at birth.

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