- 6 Dodds WJ, Taylor AJ, Erickson SJ, Stewart ET, Lawson TL. Radiologic imaging of splenic anomalies. *Am J Roentgenol* 1990;**155**:805–10
- 7 Revuelta Alvarez S, Fernandez-Escalante C, Casanova Rituerto D, Lopez Espadas F, Martin Fernandez J. Assessment of post-splenectomy residual splenic function. Splenic autotransplants. *Int Surg* 1987;**72**:149–53
- 8 Sumaraju V, Leon G, Smith SM. Infectious complications in asplenic hosts. *Infect Dis Clin N Am* 2001;**15**:551–65
- 9 Sherman R. Perspectives in management of trauma to spleen: 1979 presidential address, American Association for the Surgery of Trauma. *J Trauma* 1980;**20**:1–13
- 10 Zoli G, Corazza GR, D'Amato G, Bartoli R, Baldoni F, Gasbarrini G. Splenic autotransplantation after splenectomy: tuftsin activity correlates with residual splenic function. *Br J Surg* 1994;**81**:716–18

Pulmonary embolism caused by *Candida albicans*

J Villaquiran MD¹ S M Allen FRCS¹
A J Marshall MD FRCP² N J Ring FRCR³

J R Soc Med 2004;**97**:392–393

Native valve infective endocarditis usually affects the mitral or aortic valve and the incidence of systemic embolization is about 20%. Fungal endocarditis, which accounts for 1% of cases, has special features.

CASE HISTORY

A man aged 72 was admitted after becoming increasingly short of breath in the past week, much worse over the past two days. On the day of admission he had had a cough and some haemoptysis. Eleven months previously he had had an anterior resection for rectal carcinoma and had subsequently required readmission with signs of peritonitis and renal failure. At laparotomy the anastomosis was found to have broken down with faecal peritonitis and a Hartmann's procedure was performed. He had a protracted and stormy course in the intensive therapy unit with multiple episodes of sepsis including meticillin-resistant *Staphylococcus aureus*, pseudomonas and lastly *Candida albicans* in blood cultures. He eventually recovered, but four weeks before the current admission an isotope ventilation and perfusion scan, requested by his general practitioner, had shown a high probability of pulmonary emboli (Figure 1) and he had been started on anticoagulants.

On examination he was dyspnoeic with slight bilateral pedal oedema and a raised jugular venous pressure. Oxygen saturation was 69% on air and the provisional diagnosis was recurrent pulmonary embolism; this became less likely when the international normalized ratio was reported as 5.3. He remained very short of breath, and an echocardiogram three days after admission showed a large vegetation on the tricuspid valve, 2.2 cm in diameter (Figure 2). There was mild dilatation of the right atrium and ventricle and pulmonary artery pressure was considerably above normal (about 60 mmHg). A CT pulmonary angiogram then revealed large filling defects in the artery to the left lower lobe and also filling defects in both upper lobe arteries (Figure 3). Subsequently, blood cultures yielded *C. albicans* identical to the strain isolated during the patient's previous stay in the intensive care unit. Flucytosine and amphotericin were prescribed.

At operation the chest was opened through a median sternotomy and pulmonary artery pressures were found to be about two-thirds of systemic. Full cardiopulmonary bypass was established with ascending aortic return and bicaval venous drainage. The anterior and septal leaflets of the tricuspid valve proved to be completely covered with fungal growth. The valve was partly excised and reconstructed. Large amounts of embolic fungal material were removed by means of a standard embolectomy catheter from the left lower and right upper lobe arteries and a smaller amount from the left upper pulmonary artery. Subsequent cultures from the tricuspid valve confirmed the presence of *C. albicans*. The antifungal regimen was continued and the patient was discharged six weeks after admission.

Figure 1 VQ scan showing multiple defects on perfusion images (arrows) with normal ventilation

Departments of ¹Cardiothoracic Surgery, ²Cardiology, ³Radiology, Derriford Hospital, Plymouth, Devon PL6 8DH, UK

Correspondence to: J Villaquiran

Figure 2 Transoesophageal echocardiogram demonstrating a mass on tricuspid valve

Figure 3 CT scan showing large filling defect (arrow) in left lower lobe artery

COMMENT

In the typical case of infective endocarditis the offending organism is bacterial and affects valves on the left side (mitral or aortic) previously abnormal because of rheumatic disease or congenital defects.¹ Fungal endocarditis, by contrast, is usually right-sided and causes larger vegetations with a greater likelihood of embolization. The ultrasound features of candida endocarditis have been described by Donal and co-workers.² Reviewing 270 published cases of fungal endocarditis (*C. albicans* 24%, non-*albicans Candida* spp. 24%, *Aspergillus* spp. 24%) Ellis *et al.*³ found that the major risk factors were non-cardiac surgery, vascular lines, immunocompromise and injection drug abuse. The second

two may well have contributed in our patient. The aim of surgical treatment is to remove vegetations while conserving the valve, and to extract pulmonary emboli.⁴⁻⁶

REFERENCES

- 1 Julian DG, Cowan JC. *Cardiology*, 6th edn. London: Baillière Tindall, 1992;224-5
- 2 Donal E, Abguegen P, Coisne D, *et al.* Echocardiographic features of *Candida* species endocarditis: 12 cases and a review of published reports. *Heart* 2001;**86**:179-82
- 3 Ellis M, El-Abdely H, Sandridge A, Greer W, Venture W. Fungal endocarditis: evidence in the world literature, 1965-1995. *Clin Infect Dis* 2001;**32**:50-62
- 4 Tsukui H, Ohara K, Akimoto T, Mukaida M, Abe K. Three cases of right-sided active endocarditis with multiple pulmonary infarction (in Japanese). *Jpn J Thorac Cardiovasc Surg* 1998;**46**:75-80
- 5 Yoshimura T, Kitaura K, Sohma A, Satoh S, Wada Y, Oka T. A case of successfully treated fungal tricuspid infective endocarditis with repeated pulmonary embolism (in Japanese). *Nippon Kyobu Geka Gakkai Zasshi* 1997;**45**:98-1002
- 6 Tanaka M, Abe T, Hosokawa S, Suenaga Y, Hikosaka H. Tricuspid valve *Candida* endocarditis cured by valve-sparing debridement. *Ann Thorac Surg* 1989;**48**:857-8

An epigastric swelling

Sriram Rajagopalan MRCS¹ D A Robinson FRCS²
Rachel Hargest MD FRCS¹

J R Soc Med 2004;**97**:393-394

A cyst that, above the diaphragm, is readily diagnosed can cause puzzlement when it presents in the epigastrium.

CASE HISTORY

A woman aged 52 was referred for assessment of a painless epigastric swelling, 5 × 5 cm, present for eight months. On examination it was non-tender with a doubtful cough impulse. The presumptive diagnosis was a hernia or a lipoma. Ultrasound showed a simple cystic lesion in the subcutaneous plane, appearing extrapericardial and extra-peritoneal. MRI then revealed an extrapericardial cyst, in keeping with a benign lesion such as a ganglion (Figure 1). It was close to the heart but no communication was evident. Ultrasound-guided aspiration then yielded several hundred millilitres of clear colourless fluid, typical of a pericardial

Departments of ¹General Surgery and ²Radiology, Nevill Hall Hospital, Abergavenny NP7 7EG, Wales, UK

Correspondence to: Mr Sriram Rajagopalan, Flat 2, Foresterhill Court, Westburn Road, Aberdeen AB25 2WA, Scotland, UK
E-mail: surgeryram@yahoo.co.in