Diagnostic Images

Sonography of tricuspid incompetence

Presented by L. Kreel

Newham General Hospital, London E13, UK.

The patient

A woman aged 70 years had rheumatic fever aged 4 years and was then quite well until 1980 when increasing breathlessness led to medical consultation.

Mitral stenosis with heart failure was diagnosed and treated with a Starr-Edwards valve prosthesis (Figure 1). She was readmitted in August 1985 with breathlessness, abdominal swelling and loss of memory for recent events. She was found to have atrial fibrillation, ascites and hepatosplenomegaly (Figures 2–7), blood pressure 130/80 mm Hg. Her heart failure was treated and this stabilized on frusemide, digoxin and warfarin.

She was lost to follow-up until 1986 when she presented with gross ascites, a firm pulsatile liver and signs of tricuspid incompetence. She was now diagnosed as having cardiac cirrhosis and incidentally multiple gallstones (Figures 8–9).

Figure 1a & 1b 1980. Chest film PA and lateral with Starr-Edwards valve replacing mitral valve, sternal split sutures, prominent left atrial appendage and enlarged right atrium.

Figure 2 1985. Normal liver parenchymal pattern (L). Small ascitic collection in the subhepatic space (straight arrow). Curved arrow indicates right hemidiaphragm.

Figure 3 1985. Markedly dilated inferior vena cava (IVC) entering right atrium (RA). Normal portal vein (P) anterior to IVC.

Figure 4 1985. Dilated inferior vena cava (IVC) with an hepatic vein (curved arrow) entering IVC. Normal parenchymal liver pattern (L).

Figure 5 1985. Markedly dilated hepatic veins (arrows) entering confluence into inferior vena cava.

Figure 6 1985. Enlarged spleen (S) but normal parenchymal pattern – longitudinal section.

Figure 7 1985. Enlarged spleen with compressed left kidney posteriorly (curved arrow) – transverse section.

Figure 8 Sonography 1986. Gallstones noted (arrow) with marked acoustic shadowing.

Figure 9 Sonography 1986. Marked ascites (arrow) now visible around liver (L).

Comment

A common cause of tricuspid incompetence remains mitral stenosis with pulmonary hypertension and heart failure. The enlarged liver, ascites and anasarca are prominent features and in the later stages associated with splenomegaly and cardiac cirrhosis.

Sonography can demonstrate these features particularly the hepatosplenomegaly and the ascites. Dilatation and pulsation of the inferior vena cava are quite dramatically displayed, as well as the markedly distended hepatic veins, and additional findings such as cholelithiasis.

Reference

1. Oram, S. In *Clinical Heart Disease*, 2nd edition. William Heinemann Medical Books, London, 1981, pp. 350–352.