Diagnostic Images

Confusing fat

Presented by L. Kreel and M. Wong

Department of Diagnostic Radiology and Organ Imaging, Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, N.T., Hong Kong.

The patient

An asymptomatic man of 38 presented for a chest radiograph for emigration purposes. A film taken several years previously had produced a marked difference of opinion as to whether he had cardiomegaly.

Investigation

Computed tomographic (CT) scan of the thorax.

Figure 1 CT scout view or scanogram. The apparent heart size is obviously in excess of the normal cardiothoracic ratio, almost entirely to the left and downwards (with a straight left border) nearly reaching the rib margin.

Figure 2 A CT section at the level of the tracheal bifurcation shows a lipomatous mass in the position of the left lobe of the thymus closely applied to the ascending aorta (AA) and pulmonary artery (PA).

a

b

Figure 3 (a, b) The adipose mass wraps around the left heart border and extends to the right, anterior to the right ventricle with appearances pathognomonic of a thymolipoma.

Comment

The normal cardiothoracic ratio is 2 : 1, but this is only true if the film is postero-anterior, the right hemidiaphragm is below the anterior 6th rib, there is no depressed sternum and no 'straight back' with a narrowed anteroposterior diameter. With marked obesity there is often a poor inspiration and the thickness of the anterior chest wall exaggerates the size of the film. Children not infrequently have a prominent thymus that produces a large thymicocardiac shadow. Pericardial fat pads may also give a false impression of cardiomegaly. In this man, there is the well recognized but unusual thymolipoma over the left heart border giving the false impression of cardiomegaly.

Fatty infiltration of the liver is a not uncommon chance finding on CT, occurring particularly in obesity, diabetes, patients on steroids, alcoholics and chronic pancreatitis. Occasionally the fatty infiltration is of a small area and can then mimic a tumour but causes no vascular distortion or displacement.

Figure 4 Sections through the liver demonstrate fatty infiltration of the right lobe with attenuation of 29 HU compared with that of the spleen of 44. (Normally the liver is 5–10 units higher than the spleen.) Furthermore the attenuation of the right lobe is obviously considerably less than the left lobe of the liver.

Acknowledgements

We would like to thank Media Services of the Chinese University of Hong Kong (Prince of Wales Hospital) for the illustrations and Ms Sanny Chan for secretarial services.

References

1. Winarso, P., Isherwood, I., Phoutou, S. & Donnelly, R.J. Thymolipoma simulating cardiomegaly: use of computed tomography in diagnosis. *Thorax* 1982, **37**: 941–942.
2. Kreel, L. Fatty liver. Computed tomography in the diagnosis of liver disease. In: Herlinger, H., Lunderquist, A. & Wallace, S. (eds) *Clinical Radiology of the Liver*. Marcel Dekker Inc, New York, Basel, 1982. Chapter 11.