Diagnostic Images

Peripheral vascular disease

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Case 1

A woman age 59 years. Claudicating pain on using the left arm. On examination: right brachial systolic pressure 150 mm Hg; left brachial systolic pressure 100 mm Hg; left radial and brachial pulses palpable but diminished.

Figure 1 Case 1. Doppler ultrasound examination of axillary arteries. (a) Left axillary artery showing diminished height of systolic wave, broadening of complex and absent negative wave as occurs in arteries beyond a stenosis indicating greater than 75% narrowing. (b) Right axillary artery with steep systolic wave and normal negative complex for comparison with (a).

Figure 2 Case 1. Digital vascular image (DVI) from an intravenous (superior vena caval) injection of contrast medium showing a short tight stenosis of the left subclavian artery. (arrow) (There is also stenosis of the left external carotid artery and an ulcer at the origin of the right internal carotid artery) (By courtesy of Drs A. Thornton and J. Stephens, Maida Vale Hospital).

Case 2

A woman age 61 years. Psychiatric patient referred for medical opinion. On examination: bruit on left side of neck; left brachial systolic pressure 155 mm Hg; right brachial systolic pressure 180 mm Hg.

Figure 3 Case 2. DVI showing long length stenosis of the proximal left subclavian artery (arrow) (By courtesy of Dr D. Irving, Lewisham Hospital)

Comment

Peripheral vascular disease is a common cause of morbidity and mortality, can affect any artery, is usually due to atheroma, most frequent in the middle aged and elderly. Many more patients can now be treated with the recent advances in surgery and radiology including by-pass grafting and percutaneous balloon angioplasty. Case selection for surgery clearly requires an accurate definition of the anatomical lesion.

Direct arteriography was the previously accepted method of investigation following simple clinical tests and an accurate history. Recently two further aids have been developed. Doppler ultrasound is now considered to be a good screening procedure in detecting significant stenosis which can be defined more accurately by digital vascular imaging. Both these techniques are eminently suitable for district general hospitals. They can be performed on an outpatient basis, Doppler ultrasound is totally non-invasive and DVI much less so than arteriography. Many more cases per session can be examined by DVI than with conventional arteriography, it is a great saving on film, and is suited to examining all the major arteries including carotids, subclavians, renals, iliacs and femorals.