THE VALUE OF AUSCULTATION IN OBLITERATIVE ARTERIAL DISEASE OF THE LOWER EXTREMITIES

H. GAYLIS, CH.M., (RAND) F.R.C.S. (ENG.)

Department of Surgery

Postgraduate Medical School of London

Obliterative arterial disease of the lower extremities can readily be diagnosed on the clinical features of the case without recourse to special investigations. The anatomical level of the arterial lesion, however, cannot be accurately deduced from the symptoms and signs. For example in intermittent claudication of the calf—one of the commonest presenting features of obliterative arterial disease of the lower extremities—the arterial lesion has no constant anatomical site. The affected vessel may in fact be situated anywhere between the terminal aorta and the muscular branches of the popliteal artery. Other signs and symptoms such as muscle weakness, coldness, numbness, discoloration, and extent of gangrene, are equally vague and inaccurate guides.

The only clinical guide to the level of the obstruction is the distribution of the arterial pulses. The thrombosed segment may be assumed to lie below the lowest palpable pulse. While complete occlusion of an artery is generally obvious, partial occlusion of a vessel may occasion difficulty in detection, especially when bilateral. Extensive narrowing of one iliac artery is evident when discrepancy is noted in femoral pulses either by palpation, oscillometry, or the detection of a reduced femoral arterial blood pressure on the affected side, but minor degrees of narrowing can readily be missed. Furthermore, should both common iliac arteries be equally narrowed a discrepancy in femoral pulses will not occur and the possibility of a bilateral high occlusion may be overlooked. Nevertheless, the recognition of minor unilateral or bilateral symmetrical narrowing of the iliac vessels or terminal aorta not manifest by examination of the femoral pulses may be detected by auscultation over the affected vessels. The following case history illustrates the value of this method.

CASE HISTORY

A man aged 62 years was admitted for investigation, complaining of claudication in the right calf precipitated by walking a distance of 400 yards. Examination of the lower extremities revealed no nutritional skin changes, muscle wasting or weakness. All the pulses were present but the right anterior and posterior tibials were diminished. Bruits were heard over both femoral arteries in the groin but were more intense on the right. A bilateral femoral arteriogram revealed minimal atheromatous changes in the distal segment of the popliteal artery in the right leg.

In view of the bruits over the femoral arteries it was doubted whether the narrowed popliteal artery was solely or even predominantly responsible for the symptoms. Consequently an aortogram was performed and this revealed diffuse narrowing of both iliac arteries, radiologically more extensive on the right.

Had the aortogram been omitted, resection-grafting of the affected popliteal artery might have been considered. In the presence of the more extensive lesions in the iliac vessels, this procedure alone would have been irrational and the result probably unsatisfactory. An adequate blood flow is a most important factor in the prevention of post-operative thrombosis, and narrowing of the artery proximal to the site of proposed graft is a contra-indication.

DISCUSSION

While it is generally appreciated that murmurs are heard over peripheral aneurysms and arterio-venous fistulae one feels that the information derived from the murmurs of atherosclerotic vessels is being neglected. Atherosclerosis is a disease in which *par excellence* murmur formation may be found—a fact which has long been known. The roughness of the wall and the eccentric situation of the atheromatous plaques set up

turbulence and vibration which may be detected by auscultation and occasionally by palpation (Edward and Levine, 1952). This we have repeatedly confirmed by correlating the auscultory findings with arteriography. Most commonly murmurs are heard over the femoral and external iliac artery in the groin and occasionally, especially in a thin person, over the terminal aorta. Rarely, murmurs are heard over the popliteal artery.

When conservative methods of treatment or amputation or sympathectomy are contemplated precise localization of the arterial lesion is not important and is of academic interest only, but when direct methods of attack are indicated, such as resection-grafting, by-pass grafting, or endarterectomy, precise localization is essential. In the lower extremities, when the distal limb pulses are diminished or absent and murmurs are audible over the abdominal aorta or iliac or femoral arteries, aortography in addition to femoral arteriography is always indicated if direct surgical attack upon the artery is contemplated.

SUMMARY

1. The value of auscultation in obliterative arterial disease of the lower limb is stressed.

2. Equality of femoral arterial pulsations does not exclude athero-sclerotic narrowing of the terminal aorta or iliac arteries. When the distal limb pulses are diminished or absent and murmurs are audible over the abdominal aorta or iliac or femoral arteries, aortography in addition to femoral arteriography is indicated if direct surgical attack on the artery is contemplated.

REFERENCES

Edward, A. E. and Levine, H. D. (1952): Arch. Intern Med., **90**, 284.