Buerger's disease affecting the axillary artery

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IN BUERGER'S DISEASE, the pathological process usually involves intermediate and small arteries of the lower limbs. Involvement of the larger vessels is an uncommon finding in this disease. This case report is of a patient who presented with symptoms of occlusive vascular disease and was found to have Buerger's disease involving the axillary artery in addition to other peripheral vessels.

Case Report

A 27-year-old male Chinese carpenter was admitted on 15th July, 1969, with a history of progressive weakness and pain on exercise in his right upper limb of a year's duration. Four months after the onset of symptoms, he found that he had to stop working as a carpenter. Two months later, he experienced pulling, a cramp-like pain in his left calf muscle on exertion but this disappeared with rest. The distance he was able to walk before the onset of pain became progressively shorter. He also noted coldness of the right limb. There was no history of migratory thrombophlebitis. He had been smoking about ten cigarettes a day for the last 17 years.

On examination, he was found to be a well-covered individual. Mild wasting of his right biceps, triceps, thenar and hypothenar muscles was noted. The right upper limb was also colder than the left. The other abnormal findings were in the examination of the peripheral pulses. All other systems were normal.

In the right upper limb, none of the arterial pulse were palpable. In the left upper limb, pulsations were absent over the radial and ulnar arteries, but weak pulsations could be felt over the axillary and brachial arteries. In the lower limbs, all pulses on the right side were easily palpable, while those on the left were markedly diminished. Carotid and temporal pulses were palpable and equal on both sides. No murmurs were heard in the neck, axillae or abdomen. Blood pressure could not be recorded in both upper limbs and left lower limb. It was 130/80 mmHg in the right lower limb. The optic fundi and heart were normal.

Laboratory investigations revealed a haemoglobin of 13.3 gm. per 100 ml., leucocyte count was 8,100/ml. with a normal differential count, erythrocyte sedimentation rate was 40 mm/hr. and a subsequent reading was 15 mm./hr. Urinalysis was normal. Serum cholesterol, blood sugar, blood urea and serum proteins were within normal limits. No Lupus-Erythematosis cells were found in the peripheral blood and the blood Kahn test was negative. Electrocardiographic studies and radiological examination of the chest revealed no abnormality.

An arch aortogram done via the right femoral artery showed obstruction of the right mid-axillary (Fig. 1) and left brachial arteries; and a femoral arteriogram showed occlusion of the left popliteal artery.

In view of his disability, it was felt that vascular reconstructive surgery should be attempted in the right upper limb. At operation, the right axillary

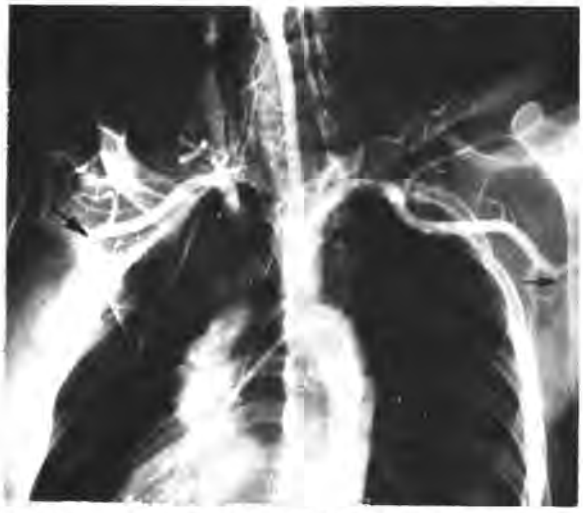

Fig. 1: Occlusion of the right mid-axillary artery and a branch of left axillary artery.

artery was found to be thrombosed in the second and third parts and the right brachial artery was also thrombosed and narrowed, the thrombosis extending to the junction of the middle and lower third of the arm. A right brachial arteriogram done at operation showed the distal part of the brachial and radial arteries to be patent but the ulnar artery was narrowed and obstructed in the distal third of the forearm. A right axillary to brachial artery dacron-vein bypass graft was inserted. A biopsy of right axillary artery and right saphenous vein was taken.

The section of the axillary artery revealed occlusion of the lumen by an organising thrombus in which scattered lymphocytes and haemosiderin laden macrophages were present; there were no giant cells. The internal elastic membrance was intact (Fig. 2) apart from a few small foci of fragmentation. The intima was not thickened and there were no collections of neutral fat or cholesterol clefts. There was perivascular fibrosis.

Sections from the right saphenous vein (Fig. 3) showed occlusion of the lumen by fibromuscular tissue in which prominent blood vessels were present. In addition, there was perivenous fibrosis.

Discussion

Classically, Buerger's disease affects young male adults with a long history of smoking as in this patient. However, an unusual feature of the disease in this patient is the occlusion of the axillary artery.

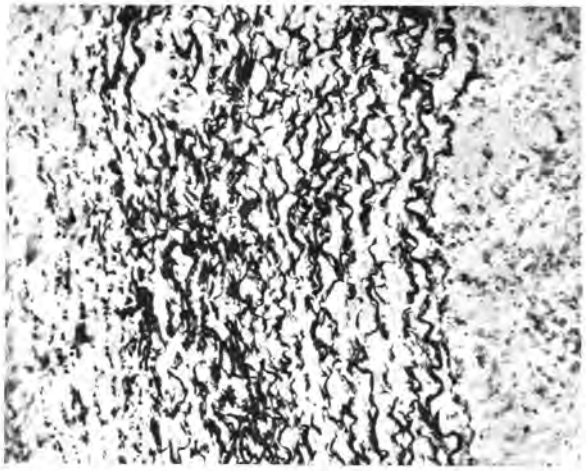

Fig. 2: Photomicrograph of axillary artery showing the intact internal elastic membrance.

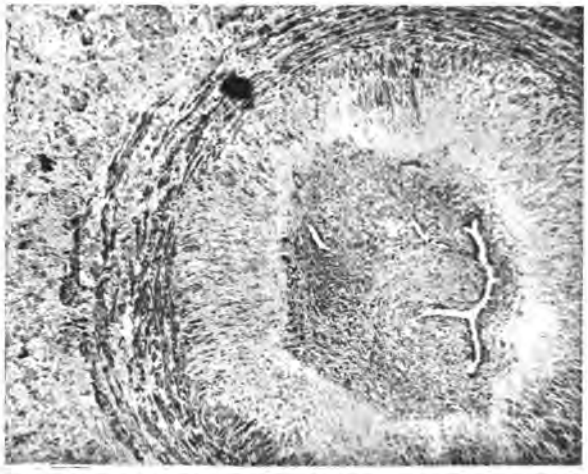

Fig. 3: Photomicrograph of right saphenous vein, showing occlusion of lumen by vascular fibromuscular tissue.

Occlusion of ulnar and/or radial arteries in Buerger's disease occurs in at least 40% of cases [1]. Involvement of vessels proximal to this is uncommon as borne out in studies of a large series of cases by various authors.

De Bakey [2], in a follow-up study of World War II army, cases, found that of 363 upper limbs in patients with Buerger's disease, only 22 of them had brachial artery involvement as determined by diminished or absent pulsation; more proximal involvement was not found. Abramson et al [3] found that in 145 patients with involvement of the uppper limbs, 72 (49.6%) of them had absent pulsations of ulnar or radial arteries, or both, on one or both sides. There was no mention of involvement of the brachial or axillary arteries.

In a study of 14 arteriograms in ten patients with Buerger's disease, McKusick et al [4,5] reported ulnar and/or radial artery occlusion in 11 of them; there was no occlusion of brachial or axillary arteries. In their study of Buerger's Syndrome in the Orient, McKusick et al [6] found one out of 28 patients with absent brachial artery pulsation but the pulse was palpable in the axillary artery. Schatz et al [7] noted diminished or absence of distal pulses of the upper extremity in 22 of 41 patients studied. Diminution or absence of proximal pulses was not recorded.

Since in the studies of various authors occlusion of the axillary artery in association with Buerger's disease has not been reported, it is felt that this case report is worthy of record.

Summary

An uncommon occurence of occlusion of the axillary artery in a young man with Buerger's disease is described. The literature in this respect is briefly reviewed.

Acknowledgements

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