On-line Case Report

Digital artery occlusion secondary to plastic shopping bag trauma

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ABSTRACT

Upper limb digital arterial occlusion is uncommon. We present the case of a 47-year-old man with an ischaemic right middle finger (dominant hand) due to trauma from carrying a heavy plastic shopping bag. Duplex scanning revealed no proximal source of emboli. An angiogram demonstrated occlusions in the medial and lateral digital arteries of the middle digit at the level of the proximal phalanx. Treatment with heparin and warfarin resulted in complete resolution of symptoms.

Keywords: Digital ischaemia – Cold finger – Digital artery entrapment – Shopping bag

Upper extremity ischaemia is uncommon and accounts for less than 10% of cases in vascular practice.¹ Causes of hand ischaemia include atherosclerosis, thoracic outlet

compression, Raynaud's syndrome, ergotism, vinyl chloride exposure, diabetes mellitus, connective tissue diseases and myeloproliferative disorders.¹

Figure 1 Right middle finger at presentation.

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Case report

A 47-year-old man presented with an acutely painful, cold and dusky-coloured, swollen right middle finger (Fig. 1). The patient had carried several heavy plastic shopping bags 48 h prior to presentation. He was a smoker and electrician occasionally exposed to vibrating electrical equipment. The finger regained colour in a dependent position. He was otherwise fit and on no medication.

Clinical examination revealed normal peripheral pulses but with prolonged capillary refill time in the affected finger. It was cool, tender to move and had decreased sensation to light touch. Clinically and on ECG he was in sinus rhythm. No embolic source could be identified on either echocardiogram or duplex scan of his aorta and upper limb arteries. Femoral artery catheterisation with selective right subclavian angiogram confirmed normal subclavian, axillary, brachial, radial and ulnar arteries. The two arteries supplying the middle finger revealed filling defects at the level of the proximal phalanx with no distal flow (Fig. 2). The asymptomatic discontinuities of digital vessels to the index finger are attributed to vasospasm due to the angiogram which is not uncommon.^{2,3} All these fingers were asymptomatic with normal physical examination.

He was treated with a heparin infusion for 48 h following which the finger regained colour and the pain improved. No thrombolysis or prostacyclins were required. Doppler study revealed a signal on the lateral aspect and a stronger signal on the medial aspect. He was the warfarinised for 3 months. On the last follow-up examination, 6 months after the diagnosis, his finger had fully recovered with normal sensation and capillary refill.

Discussion

Thromboembolic phenomena in the peripheries are not a new condition. However, to date, there is no report of this thromboembolism in the digits secondary to prolonged compression due to digital artery trauma from carrying a plastic shopping bag!

This case highlights the difficulty of establishing a cause for arterial thromboembolism in younger patients without obvious cardiovascular disease. The diagnosis was made after the angiogram when the patient recalled carrying some heavy bags. We postulate that the bags caused intimal damage and *in vivo* thrombosis. A dilemma that arose was what action to take in an acutely ischaemic, but viable looking, finger. Treatment options discussed included Iloprost, intra-arterial thrombolysis and anticoagulation. Prostacyclins are thought to have a major role in optimising microvasculature autoregulation as well as anti-platelet, anti-leukocyte, vasodilatory and

Figure 2 The two arteries supplying the middle finger revealing filling defects at the level of the proximal phalanx with no distal flow.

cytoprotective actions. Iloprost, a prostacyclin analogue, has been used in the treatment of end-stage chronic limb ischaemia and severe vasospastic disorders including Raynaud's syndrome, scleroderma and Buerger's disease. It has been shown to reduce the severity, frequency and duration of vasospastic events and promote healing of ischaemic ulcers.⁴⁻⁶ There have been several, long-term, randomised trials on prostacyclin analogues versus placebo patients with Fontaine's stages III and IV;^{6,7} these have shown a beneficial effect. The recommendation from the Trans-Atlantic Inter-Society Consensus (TASC) is that the use of prostanoids in end-stage critical limb ischaemia maybe of use in preventing further tissue loss or amputation.⁷ Intravenous infusions (0.5– 2 ng/kg/min) are given for 6 h/day for 3–5 days per treatment. The side effects include flushing, headaches or, rarely, hypotension.⁸ Intra-arterial thrombolysis in itself was considered a relatively high-risk procedure in this patient. Anticoagulation with heparin followed by warfarin was commenced and achieved complete resolution of the 'shopping bag finger syndrome'.

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