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An acutely painful leg

A Wedderburn, P Carter, G Morris

A 29-year-old man was admitted from casualty with an acutely painful left leg. He was a known intravenous drug abuser being treated with methadone but had no other serious illnesses.

On examination he was cardiovascularly stable. The left leg below the knee appeared acutely threatened, displaying skin changes, anterior compartment and calf tenderness. Femoral, popliteal, dorsalis pedis and anterior tibial pulses, however, were palpable, the latter being marginally reduced.

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Figure

Questions

- 1 What is likely to have occurred to cause this problem?
- 2 What specific treatment is indicated?
- 3 What does the photograph show?
- 4 What are the early and late complications of this problem?

Answers

QUESTION 1

Instead of injecting crushed temazepam tablets mixed with water into the femoral vein, the patient had injected the drug into the femoral artery.

QUESTION 2

Treatment should be either anticoagulation or the use of a vasodilator and antiplatelet drug such as Iloprost (Schering Health Care, UK).

QUESTION 3

Marked ischaemic skin changes.

QUESTION 4

Early complications such as thrombosis, infection, arteriovenous fistulae and dissection are well recognised. Depending on the level at which ischaemia develops, a major amputation may not be required. Late complications include Volkmann's contracture and Raynaud's phenomenon.

Clinical outcome

The patient was treated with intravenous infusion of Iloprost (125 µg in 500 ml) over six hours. A mixture of nonsteroidal drugs and opiates were given for analgesia. The infusion was continued for six hours each day for five days. Despite initial concern for the viability of the entire lower leg, there was a marked improvement in skin colouration and temperature. Calf and anterior compartment tenderness resolved. At no point did the foot pulses disappear but a clear line of demarcation appeared along the dorsal and plantar surfaces of the foot.

The patient underwent debridement of all five toes including metatarsal heads and 90% skin coverage was obtained. Following this the patient's mobility steadily improved and complete healing was achieved in three weeks.

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Discussion

The intra-arterial injection of drugs was originally reported following inadvertent injection of thiopentone during general anaesthesia. The intravenous injection of substances by drug addicts is widespread. When these substances are injected intra-arterially, however, severe distal tissue damage commonly occurs.

Temazepam gel capsules have become a widely available, cheap form of temazepam for drug abuse but their recent withdrawal will inevitably lead to an increase in the injection of the obvious alternative: crushed temazepam tablets mixed with water.

After mixing with water crushed temazepam tablets are injected parenterally. If inadvertently injected intra-arterially, the crushed tablets, which may include talc, lactose and starch¹ form micro-emboli which may occlude small arteries of the limb. The immediate outcome is severe pain affecting the extremity of the limb with associated muscle and skin ischaemia; peripheral pulses commonly remain palpable. This differs from injection of temazepam gel which causes a chemical endarteritis.^{2,3}

Iloprost, which is a synthetic prostacyclin, reduces platelet degranulation by increasing cyclic adenosine monophosphate (cAMP) and therefore reduces thrombus formation. It also causes vasodilatation, again by increasing local levels of cAMP, and thus improving peripheral circulation. We found the use of Iloprost, as described by Nott *et al* after temazepam gel injection,⁴ markedly reduced damage to the patient's ischaemic leg. Given intravenously, it resulted in improved perfusion to the ischaemic tissue. Initial appearances of a globally threatened limb dramatically resolved to allow a delayed digital amputation.

Final diagnosis

Intra-arterial injection of crushed temazepam tablets.

Keywords: temazepam, intra-arterial injection, drug abuse, Iloprost

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